



Specification

Mission BC
Mission Minimum Institution

Fire Alarm System Replacement

Requisition No.

EZ899-182295

Project No. R.082592.001
November 2017

APPROVED BY:

[Signature] 2017-11-28
Regional Manager, AES Date

[Signature] 2017.11.28
Construction Safety Coordinator Date

TENDER:

[Signature] 2017-12-08
Project Manager Date

FIRE ALARM SYSTEM REPLACEMENT

Mission BC
Mission Minimum Institution
Project No. R.082592.001

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SEALS PAGE
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Discipline	Seal / Signature / Date
Electrical	 <p>The seal is circular with a scalloped border. The text inside the seal reads: 'PROFESSIONAL' at the top, 'PROVINCE OF' in the center, 'G. P. ROBERTSHAW' in the middle, 'BRITISH COLUMBIA' at the bottom, and 'ENGINEER' at the very bottom. A signature is written across the center of the seal. Below the seal, the date 'NOV 21 2017' is stamped.</p>

END OF SECTION

1 CODES

- .1 Perform work to all current Codes, Construction Standards and Bylaws, including Amendments up to the tender closing date.

2 SUMMARY OF WORK

- .1 Work under this Contract is at Mission Minimum Institution, 33737 Dewdney Trunk Road, Mission BC. This is a minimum-security institution.
- .2 Work generally includes
 - .1 Replacement of an existing fire alarm system for a 42-building site.
 - .2 Outside Plant fibre-optic backbone network for the fire alarm system.
 - .3 There is a limited amount of misc non-electrical items of work including:
 - .1 Drywall and painting.

3 WARRANTY

- .1 The 12 months warranty period is extended to 24 months.

4 CONTRACTOR'S USE OF PREMISES

- .1 Contractor has controlled use of site within the areas of work as directed by Departmental Representative.
- .2 Use of all areas are controlled by the Departmental Representative.
- .3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .4 Institution site will be operational during work of this Contract.

5 WORK RESTRICTIONS

- .1 Notify, Departmental Representative of intended interruption of any services and provide schedule for review.
- .2 Security Requirements: refer to Section 01 14 10 – Security Requirements.
- .3 Hours of work:
 - .1 Perform work during normal working hours of the site (0730 to 1600), Monday through Friday except holidays.
 - .2 Work may be performed after normal working hours of Institution, Monday through Friday, on weekends and holidays, with a minimum forty-eight (48) hours advance notice and approval of the Departmental Representative.
 - .3 Provide schedule for prior approval by Departmental Representative.

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- .4 Access into Institution:
 - .1 Vehicular access through the Principal Entrance Sally Port will be restricted during the Inmate "count" at breakfast, lunch and dinner hours.
 - .2 Confirm "count" times with Departmental Representative. Delays may occur when entering and exiting the Institution with vehicles during "count" times and due to security situations and heavy traffic.
 - .3 Construction escorts will be provided by the Departmental Representative, at no cost to the Contract. Notify Departmental Representative minimum 48 hours in advance of when Construction Escort is required.

 - .5 Refer to Section 28 31 00 Fire Alarm for additional detailed work restrictions.

6 CONSTRUCTION WORK SCHEDULE

- .1 Commence work immediately upon official notification of acceptance of offer and complete the work within 52 weeks from the date of such notification.

- .2 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Substantial Certificate and Final Certificate as defined times of completion are essence of this contract.

- .3 Carry on Work as follows:
 - .1 Within 10 working days after Contract Award, provide a schedule showing anticipated progress stages and final completion of the work within the time period required by the Contract documents. Indicate the following:
 - .1 Submission of shop drawings, product data, MSDS sheets and samples.
 - .2 Commencement and completion of work for each phase/task.
 - .3 Final completion date within the time period required by the Contract documents.

- .4 Project Scheduling Reporting:
 - .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
 - .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

- .5 Project Meetings:
 - .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
 - .2 Weather related delays with their remedial measures will be discussed and negotiated.

- .3 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract price. After approval by Departmental Representative cost breakdown will be used as basis for progress payments.
- .4 Conduct construction progress meetings every two weeks or as otherwise directed by Departmental Representative. Record meeting minutes and share with all attendees and non-attendees for review and comments within 3 calendar days of the meeting date. After finalizing the minutes, forward them to Departmental Representative for approval and filing within 7 calendar days of the meeting date. Follow format provided by the Departmental Representative for meeting minutes.

7 SUBMITTAL PROCEDURES

- .1 Administrative:
 - .1 Submit to Departmental Representative submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work.
 - .2 Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
 - .3 Do not proceed with work affected by submittal, until review is complete.
 - .4 Present shop drawings, product data, samples and mock-ups in SI Metric units.
 - .5 Where items or information is not produced in SI Metric units converted values are acceptable.
 - .6 Review submittals prior to submission to Departmental Representative . This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
 - .7 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
 - .8 Verify field measurements and affected adjacent Work are coordinated.
 - .9 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative review of submittals.
 - .10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
 - .11 Keep one reviewed copy of each submission on site.
- .2 Shop Drawings:
 - .1 Drawings to be originals prepared by Contractor, Subcontractor, Supplier or Distributor, which illustrate appropriate portion of work; showing fabrication, layout, setting or erection details as specified in appropriate sections.
- .3 Product Data:

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- .1 Certain specification Sections specify that manufacturer's standard schematic drawings, catalogue sheets, diagrams, schedules, performance charts, illustrations and other standard descriptive data will be accepted in lieu of shop drawings, provided that the product concerned is clearly identified. Submit in sets, not as individual submissions.
 - .4 Submission Requirements:
 - .1 Schedule submissions at least ten days before dates reviewed submissions will be needed.
 - .2 Submit number of copies of product data, shop drawings which Contractor requires for distribution plus four (4) copies which will be retained by Departmental Representative.
 - .3 Accompany submissions with transmittal letter in duplicate.
 - .4 Submit either bond copies or one (1) electronic pdf file of each shop drawing and product data as directed by Departmental Representative.
 - .5 Coordination of Submissions:
 - .1 Review shop drawings, product data and samples prior to submission.
 - .2 Coordinate with field construction criteria.
 - .3 Verify catalogue numbers and similar data.
 - .4 Coordinate each submittal with requirements of the work of all trades and contract documents.
 - .5 Responsibility for errors and omissions in submittals is not relieved by Departmental Representative's review of submittals.
 - .6 Responsibility for deviations in submittals from requirements of Contract documents is not relieved by Departmental Representative's review of submittals, unless Departmental Representative gives written acceptance of specified deviations.
 - .7 Notify Departmental Representative, in writing at time of submission, of deviations in submittals from requirements of Contract documents.
 - .8 Make any changes in submissions which Departmental Representative may require consistent with Contract Documents and re-submit as directed by Departmental Representative.
 - .9 After Departmental Representative's review, distribute copies.
 - .10 Shop Drawings Review:
 - .1 Review of shop drawings by Public Works and Government Services Canada (PWGSC) is for the sole purpose of ascertaining conformance with the general concept.
 - .2 The Departmental Representative's review does not mean that PWGSC approves the detail design inherent in the shop drawings, responsibility remains with the contractor submitting same, and such review will not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the construction and contract documents.
 - .3 Without restricting the generality of the foregoing, the Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to

techniques of construction and installation, and for co-ordination of the work of all subtrades.

8 HEALTH AND SAFETY

- .1 Specified in Section 01 35 33 - Health and Safety Requirements.

9 ENVIRONMENTAL PROCEDURES

- .1 Fires and burning of rubbish on site not permitted.
- .2 Do not bury rubbish and waste materials on site unless approved by Departmental Representative.
- .3 Do not dispose of waste or volatile materials such as oil, paint thinner or mineral spirits into waterways, storm or sanitary systems.
- .4 Control disposal of run-off of water containing suspended materials or other harmful substances in accordance with local authority requirements. Construct settlement ponds and silt fences as required by the Provincial Environmental authority.
- .5 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.
- .6 Under no circumstances dispose of rubbish or waste materials on property or CSC waste bins.

10 REGULATORY REQUIREMENTS

- .1 References and Codes:
 - .1 Perform Work in accordance with National Building Code of Canada (NBCC2010) including all amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
 - .2 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.

11 QUALITY CONTROL

- .1 Inspection:
 - .1 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
 - .2 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
 - .3 Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon

examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

- .2 Procedures:
 - .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
 - .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
 - .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.
- .3 Rejected Work:
 - .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
 - .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 Reports:
 - .1 Submit (4) four copies or one scanned pdf copy of inspection and test reports to Departmental Representative.

12 TEMPORARY UTILITIES

- .1 Water Supply:
 - .1 Existing water supply system may be used for construction purposes provided that damaged components are replaced when damaged. Provide own hoses from source.
- .2 Temporary Power and Light:
 - .1 Electrical power and lighting in existing buildings may be used for construction purposes at no extra cost, provided that electrical components used for temporary power are replaced when damaged.
- .3 Temporary Communication Facilities:
 - .1 Temporary telephone and fax hook up, line(s) are not permitted on site. Conform to Section 01 14 10 Security Requirements for use of cell phones inside institution.

13 CONSTRUCTION FACILITIES

- .1 Installation and Removal:
 - .1 Provide construction facilities in order to execute work expeditiously.
 - .2 Remove from site all such work after use.

- .2 Scaffolding:
 - .1 Design, construct and maintain scaffolding in rigid, secure and safe manner, in accordance with WCBBC regulations and Section 01 35 33.
 - .2 Erect scaffolding independent of walls. Remove promptly when no longer required.

- .3 Site Storage/Loading:
 - .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
 - .2 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.

- .4 Construction Parking:
 - .1 Parking space is available outside double fence.

- .5 Equipment, Tools and Material Storage:
 - .1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials outside the double fence.

- .6 Sanitary Facilities:
 - .1 Sanitary facilities for work force are available on site as directed by Departmental Representative.

14 COMMON PRODUCT REQUIREMENTS

- .1 Reference Standards:
 - .1 If there is a question as to whether any product or system is in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
 - .2 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.
 - .3 Conform to latest date of issue of referenced standards in effect on date of submission of Bids, except where specific date or issue is specifically noted.

- .2 Quality:
 - .1 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
 - .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

- .3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
 - .4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
 - .5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.
- .3 Storage, Handling and Protection:
- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
 - .2 Store products subject to damage from weather in weatherproof enclosures.
 - .3 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative .
 - .4 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.
- .4 Transportation:
- .1 Pay costs of transportation of products required in performance of Work.
 - .2 Transportation cost of products supplied by Departmental Representative will be paid for by Departmental Representative. Unload, handle and store such products.
- .5 Manufacturer's Instructions:
- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
 - .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative may establish course of action.
 - .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.
- .6 Quality of Work:
- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
 - .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
 - .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

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- .7 Co-ordination:
 - .1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
 - .2 Be responsible for coordination and placement of openings, sleeves and accessories.

 - .8 Remedial Work:
 - .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
 - .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

 - .9 Location of Equipment:
 - .1 Inform Departmental Representative of conflicting installation. Install as directed.
 - .2 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

 - .10 Fastenings:
 - .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
 - .2 Prevent electrolytic action between dissimilar metals and materials.
 - .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
 - .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
 - .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
 - .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

 - .11 Fastenings - Equipment:
 - .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
 - .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
 - .3 Bolts may not project more than one diameter beyond nuts.
 - .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

 - .12 Protection of Work in Progress:
 - .1 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

 - .13 Asbestos
 - .1 Asbestos containing materials (ACM) are not permitted.
-

15 EXAMINATION AND PREPARATION

- .1 Location of Equipment and Fixtures:
 - .1 Location of equipment indicated or specified are to be considered as approximate.
 - .2 Locate equipment to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
 - .3 Inform Departmental Representative of impending installation and obtain approval for actual location.
 - .4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

16 EXECUTION REQUIREMENTS

- .1 Preparation:
 - .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
 - .2 After uncovering, inspect conditions affecting performance of Work.
 - .3 Beginning of cutting or patching means acceptance of existing conditions.
 - .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
 - .5 Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.
- .2 Execution:
 - .1 Execute cutting, fitting, and patching, including excavation and fill, to complete Work.
 - .2 Fit several parts together, to integrate with other Work.
 - .3 Uncover Work to install ill-timed Work.
 - .4 Remove and replace defective and non-conforming Work.
 - .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
 - .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
 - .7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
 - .8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
 - .9 Restore work with new products in accordance with requirements of Contract Documents.
 - .10 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
 - .11 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material, full thickness of the construction element.

- .12 Refinish surfaces to match adjacent finishes: For continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.
- .13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

17 CLEANING

- .1 Project Cleanliness:
 - .1 Maintain Work in tidy condition, free from accumulation of waste products and debris.
 - .2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
 - .3 Provide on-site containers for collection of waste materials and debris.
 - .4 Provide and use clearly marked separate bins for recycling. Refer to-

Construction/Demolition Waste Management And Disposal.
 - .5 Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations.
- .2 Final Cleaning:
 - .1 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
 - .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
 - .3 Prior to final review, remove surplus products, tools, construction machinery and equipment.
 - .4 Remove waste products from site.

18 CONSTRUCTION/DEMOLITION WASTE MANAGEMENT AND DISPOSAL

- .1 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and/or recyclable materials and waste. Separate non-salvageable materials from salvaged items. Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes. Transport and deliver non-salvageable items to licensed disposal facility.
- .2 Provide containers to deposit reusable and/or recyclable materials. Locate containers in locations, to facilitate deposit of materials without hindering daily operations. Provide containers to deposit reusable and/or recyclable materials.
- .3 Collect, handle, store on-site and transport off-site, salvaged materials in separate condition. Transport to approved and authorized recycling facility and/or users of material for recycling.
- .4 Locate waste and salvage bins on site as directed by Departmental Representative.

19 CLOSEOUT PROCEDURES

- .1 Inspection and Declaration:
 - .1 Contractor's Inspection: Conduct an inspection of Work with all subcontractors, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .2 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .3 Request Departmental Representative's Inspection.

- .2 Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.

- .3 Completion: submit written certificate that following have been performed:
 - .1 Work has been completed and inspected for compliance with Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Equipment and systems have been tested, adjusted and balanced and are fully operational.
 - .4 Operation of systems have been demonstrated to Department's personnel.
 - .5 Work is complete and ready for Final Inspection.

- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request reinspection.

20 CLOSEOUT SUBMITTALS

- .1 Record Drawings:
 - .1 As work progresses, maintain accurate records to show all deviations from the Contract Drawings. Note on as-built drawings as changes occur. Provide AutoCAD drafting services to transfer all changes to electronic copy of drawings. At completion supply:
 - .1 Three paper sets of as-built drawings,
 - .2 Three copies of as-built drawings in dwg and pdf formats, on USB storage devices.
 - .3 Place "As Built" and the date on the drawings.

- .2 Operation and Maintenance manuals:
 - .1 On completion of project submit to Departmental Representative three (3) electronic (pdf) copies on USB storage devices and four paper copies (in loose leaf type binder) of Operations Manual and the Maintenance Manual, made up as follows:

- .1 Organize manuals into industry standard maintenance manual tabs with links in index to each descriptive section describing the component or maintenance procedure etc.
 - .2 Organize files into CSI Masterformat numbering system or other approved descriptive titles.
 - .3 Label binders "Operation Manual" and "Maintenance Manual", project name, date, names of Contractor, subcontractors, consultants and subconsultants.
 - .4 Include scanned guarantees, diagrams and drawings.
 - .5 Organize contents into applicable sections of work to parallel project specification break-down. Mark each section by labeled tabs (navigational buttons).
 - .6 Drawings, diagrams and manufacturer's literature must be legible.
- .3 Maintenance Materials, Special Tools and Spare Parts:
- .1 Specific requirements for maintenance materials, tools and spare parts are specified in individual sections.
 - .2 Deliver maintenance materials, special tools and spare parts to Departmental Representative and store in designated area as directed by Departmental Representative.
 - .3 Prepare lists of maintenance materials, special tools and spare parts for inclusion in Manual specified in Clause 19.2.
 - .4 Maintenance materials:
 - .1 Deliver wrapped, identify on carton or package, colour, room number, system or area as applicable where item is used.
 - .5 Special tools:
 - .1 Assemble as specified;
 - .2 Include identifications and instructions on intended use of tools.
 - .6 Spare parts:
 - .1 Assemble parts as specified;
 - .2 Include part number, identification of equipment or system for which parts are applicable;
 - .3 Installation instructions;
 - .4 Name and address of nearest supplier.
- .4 Warranties and Bonds:
- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing in maintenance manual.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.
 - .4 Except for items put into use with Departmental Representative's permission, leave date of beginning of time of warranty until the Date of Interim Completion is determined.
 - .5 Verify that documents are in proper form, contain full information, and are notarized.

FIRE ALARM SYSTEM REPLACEMENT

Mission BC

Mission Minimum Institution

Project No. R.082592.001

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GENERAL INSTRUCTIONS

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.6 Retain warranties and bonds until time specified for submittal.

21 DEMONSTRATION AND TRAINING

.1 Demonstration and Training:

- .1 Demonstrate operation and maintenance of equipment and systems to maintenance personnel following interim Completion and prior to date of final certificate of completion.
- .2 Departmental Representative will provide list of personnel to receive instructions, and will coordinate their attendance at agreed-upon times.

END OF SECTION

1 PURPOSE

- .1 To ensure that both the construction project and the institutional operations may proceed without undue disruption or hindrance and that the security of the Institution is maintained at all times.

2 DEFINITIONS

- .1 "Contraband" means:
 - (a) an intoxicant, including alcoholic beverages, drugs and narcotics
 - (b) a weapon or a component thereof, ammunition for a weapon, and anything that is designed to kill, injure or disable a person or that is altered so as to be capable of killing, injuring or disabling a person, when possessed without prior authorization,
 - (c) an explosive or a bomb or a component thereof,
 - (d) currency over any applicable prescribed limit, \$25.00, and
 - (e) any item not described in paragraphs (a) to (d) that could jeopardize the security of a Penitentiary or the safety of persons, when that item is possessed without prior authorization.
- .2 "Unauthorized smoking and related Items" means all smoking items including, but not limited to, cigarettes, cigars, tobacco, chewing tobacco, cigarette making machines, matches and lighters.
- .3 "Commercial Vehicle" means any motor vehicle used for the shipment of material, equipment and tools required for the construction project.
- .4 "CSC" means Correctional Service Canada.
- .5 "Director" means Director or Warden of the Institution as applicable or their representative.
- .6 "Construction employees" means persons working for the general contractor, the sub-contractors, equipment operators, material suppliers, testing and inspection companies and regulatory agencies. Workers 18 years or younger are not permitted within Institution.
- .7 "Departmental Representative" means the Public Works and Government Services Canada representative defined in General Conditions.
- .8 "Perimeter" means the fenced or walled area of the institution that restrains the movement of the inmates.
- .9 "Construction zone" means the area, as indicated in the contract documents, that the contractor will be allowed to work". This area may or may not be isolated from the security area of the institution. Limits to be confirmed at construction start-up meeting.

3 PRELIMINARY PROCEEDINGS

- .1 At construction start-up meeting:
 - .1 Discuss the nature and extent of all activities involved in the Project.
 - .2 Establish mutually acceptable security procedures in accordance with this instruction and the institution's particular requirements.

- .2 The contractors's responsibilities:
 - .1 Ensure that all construction employees are aware of the CSC security requirements.
 - .2 Ensure that a copy of the CSC security requirements is always prominently on display at the job site.
 - .3 Co-operate with institutional personnel in ensuring that security requirements are observed by all construction employees.

4 CONSTRUCTION EMPLOYEES

- .1 Submit to the Departmental Representative a list of the names with date of birth of all construction employees to be employed on the construction site and a security clearance form for each employee.

- .2 Allow 10 working days for processing of security clearances. Employees will not be admitted to the Institution without a valid security clearance in place and a recent picture identification such as a provincial driver's license. Security clearances obtained from other CSC institutions are not valid at this Institution except as approved otherwise.

- .3 The Director may require that facial photographs may be taken of construction employees and these photographs may be displayed at appropriate locations in the Institution or in an electronic database for identification purposes. The Director may require that Photo ID cards be provided for all construction workers. ID cards will then be left at the designated entrance to be picked upon arrival at the institution and shall be displayed prominently on the construction employees clothing at all time while employees are at the institution.

- .4 Entry to Institutional Property will be refused to any person there may be reason to believe may be a security risk.

- .5 Any person employed on the construction site will be subject to immediate removal from Institutional Property if they:
 - .1 appear to be under the influence of alcohol, drugs or narcotics.
 - .2 behave in an unusual or disorderly manner.
 - .3 are in possession of contraband.
 - .4 are 18 years old or younger.

5 VEHICLES

- .1 All unattended vehicles on CSC property must have windows closed; fuel caps locked, doors and trunks locked and keys removed. The keys must be securely in the possession of the owner or an employee of the company that owns the vehicle.
- .2 The director may limit at any time the number and type of vehicles allowed within the Institution.
- .3 Drivers of delivery vehicles for material required by the project will require security clearances and must remain with their vehicle the entire time that the vehicle is in the Institution. The director may require that these vehicles be escorted by Institutional staff or PWGSC Construction Escorts while in the Institution.
- .4 If the Director permits trailers to be left inside the secure perimeter of the Institution, the trailer doors must be locked at all times. All windows must be securely locked bars when left unoccupied. Cover all windows with expanded metal mesh. When not in use lock all storage trailers located inside and outside the perimeter. All storage trailers inside and outside the perimeter must be locked when not in use.

6 PARKING

- .1 The parking area(s) to be used by construction employees will be designated by the Director. Parking in other locations will be prohibited and vehicles may be subject to removal.

7 SHIPMENTS

- .1 To avoid confusion with the Institution's own shipments, address all shipments of project material, equipment and tools in the Contractor's name and have a representative on site to receive any deliveries or shipments. CSC or PWGSC staff will **NOT** accept receipt of deliveries or shipments of any material equipment or tools for the contractor.

8 TELEPHONES

- .1 The installation of telephones, facsimile machines and computers with Internet connections is not permitted within the Institution perimeter.
- .2 Wireless cellular and digital telephones, including but not limited to devices for telephone messaging, pagers, Blackberries, PDAs, telephone used as 2-way radios are not permitted within the Institution unless approved by the Director. If wireless cellular telephones are permitted, the user will not permit their use by any inmate.
- .3 The Director may approve but limit the use of 2-way radios.

9 WORK HOURS

- .1 Work hours within the Institution are: conform to Division 1.
- .2 Work is not permitted during weekends and statutory holidays without the permission of the Director. A minimum of seven days advance notice will be required to obtain the required permission. In case of emergencies or other special circumstances, this advance notice may be waived by the Director.

10 OVERTIME WORK

- .1 Conform to Division 1.
- .2 Provide 48 hours advance notice to Director for all work to be performed after normal working hours of the Institution. Notify Director immediately if emergency work is required, such as to complete a concrete pour or make the construction site safe and secure.

11 TOOLS AND EQUIPMENT

- .1 Maintain a complete list of all tools and equipment to be used during the construction project. Make this inventory available for inspection when required by the Institution.
- .2 Throughout the construction project maintain up-to-date the list of tools and equipment specified above.
- .3 Keep all tools and equipment under constant supervision, particularly power-driven and cartridgedriven tools, cartridges, files, saw blades, rod saws, wire, rope, ladders and any sort of jacking device.
- .4 Store all tools and equipment in approved secure locations.
- .5 Lock all tool boxes when not in use. Keys to remain in the possession of the employees of the contractor. Secure and lock scaffolding when not erected and when erected Secure in a manner agreed upon with the Institution designate.
- .6 Report all missing or lost tools or equipment immediately to the Departmental Representative/Director.
- .7 The Director will ensure that the security staff members carry out checks of the Contractor's tools and equipment against the list provided by the Contractor. These checks may be carried out at the following intervals:
 - .1 At the beginning and conclusion of every work day or shift upon entering and exiting the Institution.
 - .2 At any time when contractor is on Institution property.

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- .8 Certain tools/equipment such as cartridges and hacksaw blades are highly controlled items. The contractor will be given at the beginning of the day, a quantity that will permit one day's work. Used blades/cartridges will be returned to the Director's representative at the end of each day. Maintain up to date inventory of all used blades/cartridges.
 - .9 If propane or natural gas is used for heating the construction, the institution will require that the contractor supervise the construction site during non-working hours.

12 PRESCRIPTION DRUGS

- .1 Employees of the contractor who are required to take prescription drugs during the workday shall obtain approval of the Director to bring a one day supply only into the Institution.

13 SMOKING RESTRICTIONS

- .1 Smoking is not permitted inside correctional facilities or outdoors within the perimeter of a correctional facility and persons must not possess unauthorized smoking items within the perimeter of a correctional facility.
- .2 Persons in violation of this policy will be requested to immediately cease smoking or dispose of any unauthorized smoking items and, if they persist will be directed to leave the Institution.
- .3 Smoking is permitted outside the perimeter of a correctional facility in an area designated by the Director.

14 CONTRABAND

- .1 Weapons, ammunition, explosives, alcoholic beverages, drugs and narcotics are prohibited on institutional property.
- .2 The discovery of contraband on the construction site and the identification of the person(s) responsible for the contraband shall be reported immediately to the Director.
- .3 Contractors should be vigilant with both their staff and the staff of their sub-contractors and suppliers that the discovery of contraband may result in cancellation of the security clearance of the affected employee. Serious infractions may result in the removal of the company from the Institution for the duration of the construction.
- .4 Presence of arms and ammunition in vehicles of contractors, sub-contractors and suppliers or employees of these will result in the immediate cancellation of security clearances for the driver of the vehicle.

15 SEARCHES

- .1 All vehicles and persons entering institutional property may be subject to search.

- .2 When the Director suspects, on reasonable grounds, that an employee of the Contractor is in possession of contraband, he may order that person to be searched.
- .3 All employees entering the Institution may be subject to screening of personal effects for traces of contraband drug residue.

16 ACCESS TO AND REMOVAL FROM INSTITUTIONAL PROPERTY

- .1 Construction personnel and commercial vehicles will not be admitted to the institution after normal working hours, unless approved by the Director.

17 MOVEMENT OF VEHICLES

- .1 Escorted commercial vehicles may not be allowed to enter or leave the institution through the vehicle access gate during the regular "inmate count" occurring at breakfast, lunch and dinner hour as established by the institution. Confirm "count times" with Director or Departmental Representative to reduce down times for deliveries to institution and movement of contractors vehicles through institution vehicle access gate.
- .2 Construction vehicles will not be allowed to leave the institution until an inmate count is completed.
- .3 The contractor will advise the Director twenty four (24) hours in advance to the arrival on the site of heavy equipment such as concrete trucks, cranes, etc.
- .4 Vehicles being loaded with soil or other debris, or any vehicle considered impossible to search, must be under continuous supervision by CSC staff or PWGSC construction escorts working under the authority of the Director.
- .5 Commercial vehicles will only be allowed access to institutional property when their contents are certified by the Contractor or his representative as being strictly necessary to the execution of the construction project.
- .6 Vehicles will be refused access to institutional property if, in the opinion of the Director, they contain any article which may jeopardize the security of the Institution.
- .7 Private vehicles of construction employees will not be allowed within the security fence of the Institution without the authorization of the Director.
- .8 With the approval of the Director, certain equipment may be permitted to remain on the construction site overnight or over the weekend. This equipment must be securely locked, with the battery removed. The Director may require that the equipment be secured with a chain and padlock to another solid object.

18 MOVEMENT OF CONSTRUCTION EMPLOYEES ON INSTITUTIONAL PROPERTY

- .1 Subject to the requirements of good security, the Director will permit the Contractor and his employees as much freedom of action and movement as is possible.
- .2 However, notwithstanding paragraph above, the Director may:
 - .1 Prohibit or restrict access to any part of the Institution.
 - .2 Require that in certain areas of the Institution, either during the entire construction project or at certain intervals, construction employees only be allowed access when accompanied by a member of the CSC Security Staff or PWGSC Construction Escort Officer.

19 SURVEILLANCE AND INSPECTION

- .1 Construction activities and all related movement of personnel and vehicles will be subject to surveillance and inspection by CSC security staff members to ensure that established security requirements are met.
- .2 CSC staff members will ensure that an understanding of the need to carry out surveillance and inspections, as specified above, is established among construction employees and maintained throughout the construction project.

20 STOPPAGE OF WORK

- .1 The director may request at any time that the contractor, his employees, sub-contractors and their employees not enter or leave the work site immediately due to a security situation occurring within the Institution. The contractor's site supervisor will note the name of the staff member giving the instruction, the time of the request and obey the order as quickly as possible.
- .2 The contractor shall advise the Departmental Representative of this interruption of the work within 24 hours.

21 CONTACT WITH INMATES

- .1 Unless specifically authorized, it is forbidden to come into contact with inmates, to talk with them, to receive objects from them or to give them objects. Any employee doing any of the above will be removed from the site and his security clearance revoked.
- .2 Digital cameras (or any other type) are not allowed on CSC property.
- .3 Notwithstanding the above paragraph, if the director approves of the use of cameras, it is strictly forbidden to take pictures of inmates, of CSC staff members or of any part of the Institution other than those required as part of this contract.

22 COMPLETION OF CONSTRUCTION PROJECT

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SECURITY REQUIREMENTS

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- .1 Upon completion of the construction project or, when applicable, the takeover of a facility, the Contractor shall remove all remaining construction material, tools and equipment that are not specified to remain in the Institution as part of the construction contract.

END OF SECTION

1 GENERAL

PWGSC Update on Asbestos Use

Effective April 1, 2016, all Public Works and Government Services of Canada (PWGSC) contracts for new construction and major rehabilitation will prohibit use of asbestos-containing materials.

Further information can be found at:

<http://www.tpsgc-pwgsc.gc.ca/comm/vedette-features/2016-04-19-00-eng.html>

1.1 REFERENCES

- .1 Government of Canada.
 - .1 Canada Labour Code - Part II.
 - .2 Canada Occupational Health and Safety Regulations.
- .2 National Building Code of Canada (NBC):
 - .1 Part 8, Safety Measures at Construction and Demolition Sites.
- .3 The Canadian Electrical Code (as amended)
- .4 Canadian Standards Association (CSA) as amended:
 - .1 CSA Z797-2009 Code of Practice for Access Scaffold.
 - .2 CSA S269.1-1975 (R2003) Falsework for Construction Purposes.
 - .3 CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures.
 - .4 CSA Z1006-10 Management of Work in Confined Spaces.
 - .5 CSA Z462- Workplace Electrical Safety Standard
- .5 National Fire Code of Canada 2010 (as amended)
 - .1 Part 5 – Hazardous Processes and Operations and Division B as applicable and required.
- .6 American National Standards Institute (ANSI):
 - .1 ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.

.7 Province of British Columbia::

- .1 Workers Compensation Act Part 3-Occupational Health and Safety.
- .2 Occupational Health and Safety Regulation.

1.2 RELATED SECTIONS

- .1 Refer to the following current NMS sections as required:
 - .1 Section 01 01 50 - General Instructions

1.3 WORKERS' COMPENSATION BOARD COVERAGE

- .1 Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.
- .2 Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

1.4 COMPLIANCE WITH REGULATIONS

- .1 PWGSC may terminate the Contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- .2 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

1.5 SUBMITTALS

- .1 Submit to Departmental Representative submittals listed for review in accordance with Section 01 01 50.
- .2 Work affected by submittal shall not proceed until review is complete.
- .3 Submit the following:
 - .1 Health and Safety Plan.
 - .2 Copies of reports or directions issued by Federal and Provincial health and safety inspectors.
 - .3 Copies of incident and accident reports.

- .4 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
- .5 Emergency Procedures.
- .4 The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 5 days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative.
- .5 Medical surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of work, and submit additional certifications for any new site personnel to Departmental Representative.
- .6 Submission of the Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It shall not:
 - .1 Be construed to imply approval by the Departmental Representative.
 - .2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.
 - .3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

1.6 RESPONSIBILITY

- .1 Assume responsibility as the Prime Contractor for work under this contract.
- .2 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract documents, applicable Federal, Provincial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.7 HEALTH AND SAFETY COORDINATOR

- .1 The Health and Safety Coordinator must:
 - .1 Be responsible for completing all health and safety training, and ensuring that personnel that do not successfully complete the required training are

not permitted to enter the site to perform work.

- .2 Be responsible for implementing, daily enforcing, and monitoring the sitespecific Health and Safety Plan.
- .3 Be on site during execution of work.

1.8 GENERAL CONDITIONS

- .1 Provide safety barricades and lights around work site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
- .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.
 - .1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.
 - .2 Secure site at night time or provide security guard as deemed necessary to protect site against entry.

1.9 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with:
 - .1 Multi-employer work site.
 - .2 Federal employees and general public.
 - .3 Energized electrical services.
 - .4 Working from heights.
 - .5 Persons incarcerated in the federal institutional system.

1.10 UTILITY CLEARANCES

- .1 The Contractor is solely responsible for all utility detection and clearances prior to starting the work.
- .2 The Contractor will not rely solely upon the Reference Drawings or other information provided for Utility locations.

1.11 REGULATORY REQUIREMENTS

- .1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.

- .2 In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.

1.12 WORK PERMITS

- .1 Obtain specialty permit related to project before start of work.

1.13 FILING OF NOTICE

- .1 The General Contractor is to file Notice of Project with Provincial authorities prior to beginning of work.
- .2 Provide copies of all notices to the Departmental Representative.

1.14 SITE SPECIFIC HEALTH AND SAFETY PLAN

- .1 Conduct a site-specific hazard assessment based on review of Contract documents, required work, and project site. Identify any known and potential health risks and safety hazards.
- .2 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
 - .1 Primary requirements:
 - .1 Contractor's safety policy.
 - .2 Identification of applicable compliance obligations.
 - .3 Definition of responsibilities for project safety/organization chart for project.
 - .4 General safety rules for project.
 - .5 Job-specific safe work, procedures.
 - .6 Inspection policy and procedures.
 - .7 Incident reporting and investigation policy and procedures.
 - .8 Occupational Health and Safety Committee/Representative procedures.

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- .9 Occupational Health and Safety meetings.
 - .10 Occupational Health and Safety communications and record keeping procedures.
 - .2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
 - .3 List hazardous materials to be brought on site as required by work.
 - .4 Indicate Engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
 - .5 Identify personal protective equipment (PPE) to be used by workers.
 - .6 Identify personnel and alternates responsible for site safety and health.
 - .7 Identify personnel training requirements and training plan, including site orientation for new workers.
 - .3 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.
 - .4 Revise and update Health and Safety Plan as required, and re-submit to the Departmental Representative.
 - .5 Departmental Representative's review: the review of Health and Safety Plan by Public Works and Government Services Canada (PWGSC) shall not relieve the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract documents.

1.15 EMERGENCY PROCEDURES

- .1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. names/telephone numbers) of:
 - .1 Designated personnel from own company.
 - .2 Regulatory agencies applicable to work and as per legislated regulations.
 - .3 Local emergency resources.
 - .4 Departmental Representative.

- .2 Include the following provisions in the emergency procedures:
 - .1 Notify workers and the first-aid attendant, of the nature and location of the emergency.
 - .2 Evacuate all workers safely.
 - .3 Check and confirm the safe evacuation of all workers.
 - .4 Notify the fire department or other emergency responders.
 - .5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
 - .6 Notify Departmental Representative.
- .3 Provide written rescue/evacuation procedures as required for, but not limited to:
 - .1 Work at high angles.
 - .2 Work in confined spaces or where there is a risk of entrapment.
 - .3 Work with hazardous substances.
 - .4 Underground work.
 - .5 Work on, over, under and adjacent to water.
 - .6 Workplaces where there are persons who require physical assistance to be moved.
- .4 Design and mark emergency exit routes to provide quick and unimpeded exit.
- .5 Revise and update emergency procedures as required, and re-submit to the Departmental Representative.

1.16 HAZARDOUS PRODUCTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.
- .2 Where use of hazardous and toxic products cannot be avoided:

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- .1 Advise Departmental Representative beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS documents as per Section 01 01 50.
 - .2 In conjunction with Departmental Representative schedule to carry out work during "off hours" when tenants have left the building.
 - .3 Provide adequate means of ventilation in accordance with Section 01 51 00.
 - .4 The contractor shall ensure that the product is applied as per manufacturers recommendations.
 - .5 The contractor shall ensure that only pre-approved products are bought onto the work site in an adequate quantity to complete the work.

1.17 ASBESTOS HAZARD

- .1 Carry out any activities involving asbestos in accordance with applicable Provincial Regulations.
- .2 Removal and handling of asbestos will be in accordance with applicable Provincial / Federal Regulations.

1.18 PCB REMOVALS

- .1 Mercury-containing fluorescent tubes and ballasts which contain polychlorinated biphenyls (PCBs) are classified as hazardous waste.
- .2 Remove, handle, transport and dispose of as indicated in Division 2 specifications.

1.19 REMOVAL OF LEAD-CONTAINING PAINT

- .1 All paint containing TCLP lead concentrations above 5 ppm are classified as hazardous.
- .2 Carry out demolition and/or remediation activities involving lead-containing paints in accordance with applicable Provincial / Territorial Regulations.
- .3 Work with lead-containing paint shall be completed as per Provincial and Federal regulations.
- .4 Dry Scraping/Sanding of any materials containing lead is strictly prohibited.
- .5 The use of Methylene Chloride based paint removal products is strictly prohibited.

1.20 ELECTRICAL SAFETY REQUIREMENTS

- .1 Comply with authorities and ensure that, when installing new facilities or modifying existing facilities, all electrical personnel are completely familiar with existing and new electrical circuits and equipment and their operation.
 - .1 Before undertaking any work, coordinate required energizing and de-energizing of new and existing circuits with Departmental Representative.
 - .2 Maintain electrical safety procedures and take necessary precautions to ensure safety of all personnel working under this Contract, as well as safety of other personnel on site.

1.21 ELECTRICAL LOCKOUT

- .1 Develop, implement and enforce use of established procedures to provide electrical lockout and to ensure the health and safety of workers for every event where work must be done on any electrical circuit or facility.
- .2 Prepare the lockout procedures in writing, listing step-by-step processes to be followed by workers, including how to prepare and issue the request/authorization form. Have procedures available for review upon request by the Departmental Representative.
- .3 Keep the documents and lockout tags at the site and list in a log book for the full duration of the Contract. Upon request, make such data available for viewing by Departmental Representative or by any authorized safety representative.

1.22 OVERLOADING

- .1 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

1.23 FALSEWORK

- .1 Design and construct falsework in accordance with CSA S269.1-1975 (R2003).

1.24 SCAFFOLDING

- .1 Design, construct and maintain scaffolding in a rigid, secure and safe manner, in accordance with CSA Z797-2009 and B.C. Occupational Health and Safety Regulations.

1.25 CONFINED SPACES

- .1 Carry out work in compliance with Provincial / Territorial regulations.

1.26 POWDER-ACTUATED DEVICES

- .1 Use powder-actuated devices in accordance with ANSI A10.3 only after receipt of written permission from the Departmental Representative.

1.27 FIRE SAFETY AND HOT WORK

- .1 Obtain Departmental Representative's authorization before any welding, cutting or any other hot work operations can be carried out on site.
- .2 Hot work includes cutting/melting with use of torch, flame heating roofing kettles, or other open flame devices and grinding with equipment which produces sparks.

1.28 FIRE SAFETY REQUIREMENTS

- .1 Store oily/paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
- .2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.
- .3 Portable gas and diesel fuel tanks are not permitted on most federal work sites. Approval from the Departmental Representative is required prior to any gas or diesel tank being brought onto the work site.

1.29 FIRE PROTECTION AND ALARM SYSTEM

- .1 Fire protection and alarm systems shall not be:
 - .1 Obstructed.
 - .2 Shut off.
 - .3 Left inactive at the end of a working day or shift.
- .2 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.
- .3 Be responsible/liable for costs incurred from the fire department, the building owner and the tenants, resulting from false alarms.

1.30 UNFORESEEN HAZARDS

- .1 Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the work, immediately stop work and advise the Departmental Representative verbally and in writing.

1.31 POSTED DOCUMENTS

- .1 Post legible versions of the following documents on site:
 - .1 Site Specific Health and Safety Plan.
 - .2 Sequence of work.
 - .3 Emergency procedures.
 - .4 Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
 - .5 Notice of Project.
 - .6 Floor plans or site plans. Must be posted in a non-inmate access area and locked up when not being used.
 - .7 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.
 - .8 Workplace Hazardous Materials Information System (WHMIS) documents.
 - .9 Material Safety Data Sheets (MSDS).
 - .10 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
- .2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of this Contract includes construction activities adjacent to occupied areas.
- .3 Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as approved by the Departmental Representative.

1.32 MEETINGS

- .1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.

1.33 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.
- .3 The Departmental Representative may issue a "stop work order" if noncompliance of health and safety regulations is not corrected immediately or within posted time. The General Contractor/subcontractors will be responsible for any costs arising from such a "stop work order".

2 PRODUCTS

- .1 Not used.

3 EXECUTION

- .1 Not used.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 This section specifies the requirements for commissioning of the fire alarm system, systems interconnected with the fire alarm system, and all other work included within this contract.
- .2 Coordinate related commissioning with all divisions.
- .3 Commission all work.

1.2 REFERENCES

- .1 Perform commissioning in general conformance with the principles stated in NFPA 3 (2015) *Recommended Practice for Commissioning of Fire Protection and Life Safety Systems*, and as stated within this specification section.
- .2 Perform integrated systems commissioning in accordance with ULC S1001-11 *Integrated Systems Testing of Fire Protection and Life Safety System*.
- .3 Perform on site verification, tests and commissioning in accordance with:
 - .1 The Contract Documents.
 - .2 Manufacturer's published instructions.
 - .3 Applicable CSA, ULC, IEEE, NFPA, NETA and ASTM standards.

1.3 COMMISSIONING AGENCY

- .1 Provide third party commissioning agent (CA). Include commissioning costs in tender price.
- .2 Retain services of independent Electrical Commissioning Agency with demonstrated minimum 10 years of experience in commissioning of electrical and fire alarm systems.
- .3 After close of tenders, submit name and experience of proposed Commissioning Agency and evidence they are qualified to perform commissioning for this project.

1.4 COMMISSIONING AUTHORITY

- .1 PWGSC will be the Commissioning Authority.

1.5 GENERAL REQUIREMENTS

- .1 Test all systems prior to acceptance testing by the Departmental Representative and/or the Authority Having Jurisdiction and prior to the ULC verification test. Prior to requesting acceptance testing, provide a report stating that the individual system has been tested, all deficiencies corrected and the work is in compliance with the Contract Documents.
- .2 Tests shall also include periodic inspections for quality of work and ensuring

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- .2 the work is compliant with codes and standards. Test all components.
 - .2 Test systems at critical stages during construction, and at the least once per month.
 - .3 Each building and the site communications network shall be treated as separate systems for the purposes of testing and acceptance.
 - .4 Maintain logs of tests, deficiencies, corrective actions and verification of resolution. Provide the updated logs to the Departmental Representative each month.
 - .5 Test interconnected systems such as the sprinkler system, fan shutdown systems, cooking suppression systems, elevators and door hold-open devices.
 - .6 Tests and inspections are separate and distinct from the ULC verification of the fire alarm system.
 - .7 Create and submit for review test checklists and the stages when tests will be performed.
 - .8 Stress test the fire alarm system for the purpose of finding hidden flaws, by placing the system in various modes such as generator power, battery power, disconnection of various types of cables, multiple alarms, operator error, UPS disconnection, etc. Submit proposed stress testing procedures and interconnection test procedures.
 - .9 Perform audibility tests of notification appliances. Submit sound level assumptions and acceptable sound levels based on CAN/ULC-S524 Informative Appendix C. Perform tests in all areas. Use calibrated audio meter as recommended in CAN/ULC-S524 Informative Appendix C.
 - .10 Ensure record drawings are marked up as changes occur. Review marked up drawings with the Departmental Representative on a monthly basis.
 - .11 Review, test and ensure the fire alarm system complies with the sequence of operation statement. Update sequence of operation statement and include in operation and maintenance manuals.
 - .12 Attend regular construction meetings and report on status of commissioning activities.
 - .13 Coordinate and cooperate with the Authority Having Jurisdiction and the Departmental Representative.
 - .14 Coordinate assembly of paper copies and pdf copies of operation manual and maintenance manual.
 - .15 Coordinate operator training and maintenance training.
 - .16 Coordinate assembly of simplified single-page operator instruction sheet.
 - .17 Coordinate all keys including
 - .1 distribution of keys
 - .2 ensuring locks keyed alike where required
 - .3 record of keys
 - .18 Provide transmittal forms when distributing items.
 - .19 Coordinate and ensure all details are correct for the warranties included in the maintenance manuals.

END OF SECTION

Part 1 General

1.01 RELATED REQUIREMENTS

- .1 Section 01 01 50 – General Instructions
- .2 Section 01 35 33 – Health and Safety Requirements

1.02 REFERENCES

- .1 Reports:
 - .1 Stantec Report for Project No. 123220822.200 entitled “Hazardous Building Materials Assessment, 55 Buildings/Structures at CSC Mission Minimum Institution, Mission, BC”, dated November 9, 2017 (further referred to herein as the Assessment Report) – attached in the Appendix of the Project Specifications.
 - .2 Stantec Report for Project No. 123220989.200 entitled “Project-Specific Asbestos Assessment – Site Review Report”, dated October 26, 2017 (further referred to herein as the Supplemental Report) – attached in the Appendix of the Project Specifications
- .2 Definitions:
 - .1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
 - .2 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
 - .3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.
 - .4 Hazardous Building Material: component of a building or structure that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when altered, disturbed or removed during maintenance, renovation or demolition.
- .3 Reference Standards:
 - .1 Canadian Environmental Protection Act, 1999 (CEPA 1999)
 - .1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).
 - .2 Department of Justice Canada
 - .1 Transportation of Dangerous Goods Act, 1992 (TDG Act) [1992], (c. 34).

- .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
- .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .4 National Research Council Canada Institute for Research in Construction (NRC-IRC)
 - .1 National Fire Code of Canada (2010).
- .5 The Canada Labour Code
 - .1 Part II, Occupational Health and Safety Regulations
- .6 WorkSafe BC
 - .1 British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97, including amendments to date of work)
 - .2 "Safe Work Practices for Handling Asbestos" (2017)
 - .3 "Lead-Containing Paints and Coatings; Preventing Exposure in the Construction Industry" (2011)
 - .4 "Safe Work Practices for Handling Lead" (2017)
- .7 British Columbia Hazardous Waste Regulation (BC Reg. 63/88)

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 01 50 – General Instructions.
- .2 Product Data for hazardous materials to be used by the Contractor to complete the Work:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets, and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit two copies of WHMIS MSDS in accordance with Section 01 35 33 - Health and Safety Requirements to Departmental Representative for each hazardous material required prior to bringing hazardous material on site.
 - .3 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.
 - .4 Construction/Demolition Waste Management:
 - .1 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating percentage of construction/demolition wastes were recycled or salvaged
 - .5 Low-Emitting Materials: submit listing of adhesives and sealants used in building, comply with VOC and chemical component limits or restrictions requirements.

1.04 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle hazardous materials to be used by the Contractor to complete the Work in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver hazardous materials to be used by the Contractor to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .4 Storage and Handling Requirements:
 - .1 Co-ordinate storage of hazardous materials to be used by the Contractor to complete the Work with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
 - .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
 - .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada requirements.
 - .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
 - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
 - .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.
 - .5 Transfer of flammable and combustible liquids is prohibited within buildings.
 - .6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.
 - .7 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.
 - .8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
 - .9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
 - .10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - .1 Store hazardous materials and wastes in closed and sealed containers.
 - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.

- .3 Store hazardous materials and wastes in containers compatible with that material or waste.
- .4 Segregate incompatible materials and wastes.
- .5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.
- .6 Store hazardous materials and wastes in secure storage area with controlled access.
- .7 Maintain clear egress from storage area.
- .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
- .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
- .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .11 When hazardous waste is generated on site:
 - .1 Co-ordinate transportation and disposal with Departmental Representative.
 - .2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.
 - .3 Use licensed carrier authorized by provincial authorities to accept subject material.
 - .4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.
 - .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
 - .6 Only trained personnel handle, offer for transport, or transport dangerous goods.
 - .7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.
 - .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide photocopy of completed manifest to Departmental Representative.
 - .9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.
- .12 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .13 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

Part 2 Products

2.01 MATERIALS

.1 Description:

- .1 Bring on site only quantities hazardous material required to perform Work.
- .2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

Part 3 Execution

3.01 HAZARDOUS MATERIALS ABATEMENT

.1 Scope of Abatement Activities.

- .1 Abatement shall be conducted to handle, alter, remove and/or dispose of hazardous building materials as identified in the Assessment Report in accordance with applicable regulations, guidelines, standards and/or best practices for such work, where such identified hazardous building materials will be impacted (handled, altered, damaged, removed) by the Work.
- .2 Contractor is responsible for reviewing plans, specifications and reports such that they understand the locations and amounts of hazardous building materials that will be impacted by the Work of this contract, and such that appropriate plans and budgets can be included in their overall bids and work plans.
- .3 The listing below is a summary of the identified hazardous building material categories and associated removal and disposal regulations, guidelines and/or standards.
 - .1 Asbestos-Containing Materials (ACMs)
 - .1 The following ACMs may require disturbance during the Work.
 - .1 Pipe sealants applied to threaded pipe fittings of various systems (hot water supply, natural gas and sprinkler) within buildings 01, 03, and A01 through A09.
 - .2 Grey penetration putty applied around exterior light and outlet of building 10.
 - .2 Actions that will disturb identified ACMs are to be conducted in accordance with the requirements of the 2017 WorkSafe BC publication "Safe Work Practices for Handling Asbestos", by appropriately trained personnel.
 - .3 Waste transportation to be conducted in accordance with BC Reg. 63/88 and the Federal Transportation of Dangerous Goods Regulation.

- .4 Waste disposal to be conducted in accordance with BC Reg. 63/88.
- .5 Notify Departmental Representative of suspected ACM discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from DCC Representative.
- .2 Lead and Lead-Containing Paints (LCPs)
 - .1 Refer to the Assessment Report for LCPs that may require disturbance during the Work.
 - .2 Actions that will disturb lead-containing materials (including paints and materials coated with LCPs) are to be conducted in accordance with the requirements of the current version of the WorkSafe BC 2017 publication "Safe Work Practices for Handling Lead", keeping airborne exposure to lead dust to less than the 8-hour Occupational Exposure Limit (OEL) for lead of 0.05 milligram per cubic metre (mg/m^3). This can typically be achieved by:
 - .1 Providing workers with protective clothing and PPE or devices as necessary to protect the worker against the hazards to which the worker may be exposed
 - .2 Providing workers with adequate and training in the care and use of clothing, equipment or device before wearing or using it
 - .3 Wetting the surface of the materials to prevent dust emissions
 - .4 Providing workers with washing facilities with clean water, soap and individual towels to properly wash prior to exiting the work area
 - .3 The work tasks required and the ways in which lead-containing materials (including paints) will be impacted will determine the appropriate respirators, measures and procedures that should be followed to protect workers from lead exposure
 - .4 Waste transportation to be conducted in accordance with BC Reg. 63/88 and the Federal Transportation of Dangerous Goods Regulation.
 - .5 Waste disposal to be conducted in accordance with BC Reg. 63/88.
- .3 Silica
 - .1 Refer to the Assessment Report for silica-containing materials that may require disturbance during the Work.
 - .2 When silica-containing materials are to be disturbed and/or removed (e.g., sanding brick or masonry block, coring or

cutting concrete, etc.), ensure dust control measures are employed such that airborne silica dust concentrations do not exceed the exposure limit as stipulated by the Canada Labour Code and BC Reg. 296/97 (Cristobalite and Quartz – each 0.025 mg/m³). This would include, but not be limited to, the following:

- .1 Providing workers with respiratory protection
- .2 Wetting the surface of the materials, use of water or dust suppressing agents to prevent dust emissions
- .3 Providing workers with facilities to properly wash prior to exiting the work area.

3.02 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 01 50 – General Instructions. Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 01 50 – General Instructions.
- .3 Waste Management: separate waste materials for reuse and recycling.
 - .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
 - .2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.
 - .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
 - .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
 - .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
 - .6 Dispose of hazardous wastes in timely fashion in accordance with applicable federal and provincial regulations.
 - .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
 - .8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
 - .1 Hazardous wastes recycled in manner constituting disposal.
 - .2 Hazardous waste burned for energy recovery.
 - .3 Lead-acid battery recycling.
 - .4 Hazardous wastes with economically recoverable precious metals.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Underwriter's Laboratories of Canada (ULC)
 - .1 ULC-S115-11, Fire Tests of Firestop Systems.

1.2 SAMPLES

- .1 Submit samples in accordance with Section 01 01 50 – General Instructions.
- .2 Submit duplicate 300 x 300 mm samples showing actual firestop material proposed for project.

1.3 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 01 50 – General Instructions.
- .2 Submit shop drawings to show proposed material, reinforcement, anchorage, fastenings and method of installation. Construction details should accurately reflect actual job conditions.
- .3 Show location of all seals covered under this section including numbered index of seals and applicable underwriter's listing design.

1.4 PRODUCT DATA

- .1 Submit product data in accordance with Section 01 01 50 – General Instructions.
- .2 Submit manufacturer's product data for materials and prefabricated devices, providing descriptions are sufficient for identification at job site. Include manufacturer's printed instructions for installation.

1.5 QUALIFICATIONS

- .1 Manufacturer: Company specializing in manufacturing Products of this section with a minimum of three (3) years experience.
- .2 Applicator: Approved, certified, licensed or otherwise qualified by the manufacturer of firestopping materials with a minimum of three (3)

years proven experience.

- .3 Product: Manufactured under a underwriter's follow-up program and bearing listing ULC or cUL label.
- .4 Equivalencies: For those firestop applications that exist for which no ULC or cUL tested system is available through a manufacturer, a manufacturer's engineering judgement derived from similar ULC or cUL system designs or other tests shall be submitted to local authorities having jurisdiction for their review and approval prior to installation.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 01 50 – General Instructions.
- .2 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.

Part 2 Products

2.1 GENERAL

- .1 General: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience. Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire resistance rated systems.

2.2 MATERIALS

- .1 Firestopping Systems: Tested in accordance with ULC S-115 or CAN4-S115M, listed and certified by a third party testing agency, asbestos free, ULC or cUL labelled, and bearing the following rating:
 - .1 Firestop System Rating: In accordance with the National Building Code.
 - .2 Firestop system shall act as an effective smoke seal and have a flame spread rating less than 25.

- .2 Service penetration assemblies: certified by ULC in accordance with ULC-S115 and listed in ULC Guide No.40 U19.
- .3 Service penetration firestop components: certified by ULC in accordance with ULC-S115 and listed in ULC Guide No.40 U19.13 and ULC Guide No.40 U19.15 under the Label Service of ULC.
- .4 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.
- .5 The fire protection rating of installed firestopping assembly in a non rated floor or wall assembly shall not be less than twenty (20) minutes when tested in accordance with CAN4- S115M.
- .6 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.
- .7 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
- .8 Primers: to manufacturer's recommendation for specific material, substrate, and end use.
- .9 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
- .10 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
- .11 Sealants for vertical joints: non-sagging.

Part 3 Execution

3.1 PREPARATION

- .1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry and frost free.
- .2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.

-
- .3 Maintain insulation around pipes and ducts penetrating fire separation.
 - .4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.2 INSTALLATION

- .1 Install fire stopping and smoke seal material and components in accordance with ULC certification and manufacturer's instructions.
- .2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.
- .3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.
- .4 Tool or trowel exposed surfaces to a neat finish.
- .5 Remove excess compound promptly as work progresses and upon completion.

3.3 INSPECTION

- .1 Notify Departmental Representative when ready for inspection and prior to concealing or enclosing firestopping materials and service penetration assemblies.

3.4 SCHEDULE

- .1 Firestop and smoke seal at:
 - .1 Penetrations through a fire separation.
 - .2 Penetrations through fire-resistance rated floor slabs, ceilings and roofs where the assembly is required by the NBCC to have a fire resistance rating.

3.5 CLEAN UP

- .1 Remove excess materials and debris and clean adjacent surfaces immediately after application.
- .2 Remove temporary dams after initial set of fire stopping and smoke seal materials.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 This section covers items common to all Electrical sections and is intended to supplement the requirements of Division 01.
- .2 Reference to "Electrical Divisions" shall mean all related Electrical Sections and components including Divisions 26, 27, and 28.
- .3 The word "Provide" shall mean "Supply and Install" the products and services specified. "As Indicated" means that the item(s) specified are shown on the drawings. This applies to the entire Contract.
- .4 Provide materials, equipment and plant, of specified design, performance and quality; and, current models with published certified ratings for which replacement parts are readily available. Provide project management and on-site supervision to undertake administration, meet schedules, ensure timely performance, ensure coordination, establishing orderly completion and the delivery of a fully commissioned installation.
- .5 The most stringent requirements of this, other electrical Sections and Division 01 shall govern.
- .6 All work shall be in accordance with the Project Drawings and Specifications and their intents, complete with all necessary components, including those not normally shown or specified, but required for a complete installation.
- .7 Connect to equipment specified in other Sections and to equipment supplied and installed by other Contractors or by the Owner. Uncrate equipment, move in place and install complete; start-up, test and commission. Include all field assembly of loosely/separately packaged accessories.
- .8 Obtain and pay for an electrical permit. Provide electronic copy to Departmental Representative.

1.02 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA C22.1-2012 Canadian Electrical Code, Part 1

1.03 DEFINITIONS

- .1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: in accordance with Section 01 01 50 – General Instructions.
- .2 Shop drawings:
 - .1 Submit drawings as specified in other Sections.
- .3 Quality Control:
 - .1 Provide CSA certified equipment and material.
 - .2 Where CSA certified equipment and material is not available, submit such equipment and material to authority having jurisdiction for special approval before delivery to site.
 - .3 Submit test results of installed electrical systems and instrumentation.
 - .4 Permits and fees: in accordance with General Conditions of contract.
 - .5 Submit certificate of acceptance from authority having jurisdiction upon completion of Work to Departmental Representative.

1.05 QUALITY ASSURANCE

- .1 Quality Assurance: in accordance with Section 01 01 50 – General Instructions.
- .2 Qualifications: electrical Work to be carried out by qualified, licensed electricians or apprentices.
- .3 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 33 - Health and Safety Requirements.

1.06 DESIGN REQUIREMENTS

- .1 Operating voltages: to CAN3-C235.
- .2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.
 - .1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.
- .3 Language operating requirements: provide identification nameplates and labels for control items in English.

2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- .1 Provide material and equipment in accordance with Section 01 01 50 – General Instructions.
- .2 Material and equipment to be CSA certified. Where CSA certified material and equipment is not available, obtain special approval from authority having jurisdiction before delivery to site and submit such approval as described in PART 1 - SUBMITTALS.

2.02 WIRING TERMINATIONS

- .1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

2.03 EQUIPMENT IDENTIFICATION

- .1 Identify equipment with lamicoid nameplates.
- 2. Wording on nameplates to be approved by Departmental Representative prior to manufacture.

2.04 WIRING IDENTIFICATION

- .1 Identify cabling with permanent indelible identifying labels.

3 EXECUTION

3.01 INSTALLATION

- .1 Do complete installation in accordance with CSA C22.1 except where specified otherwise.
- .2 Do overhead and underground systems in accordance with CSA C22.3 No.1 except where specified otherwise.

3.02 NAMEPLATES AND LABELS

- .1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

3.03 CONDUIT AND CABLE INSTALLATION

- .1 Install conduit and sleeves prior to pouring of concrete.
 - .1 Sleeves through concrete: plastic, sized for free passage of conduit, and protruding 50 mm.

3.04 FIELD QUALITY CONTROL

- .1 Conduct following tests in accordance with Section 01 01 50 – General Instructions and commissioning specifications.
 - .1 Fire Alarm Systems
 - .2 UPS system
 - .3 Control systems
 - .4 Fibre optic cables
- .2 Carry out tests in presence of Departmental Representative.
- .3 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

3.05 CLEANING

- .1 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.
- .2 Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.

END OF SECTION

1 GENERAL

1.01 PRODUCT DATA

- .1 Provide product data in accordance with Section 01 01 50.

2 PRODUCTS

2.01 BUILDING WIRES

- .1 Conductors: stranded for 10 AWG and larger. Minimum size: 12 AWG.
- .2 Copper conductors: size as indicated, with 600 V insulation of cross-linked thermosetting polyethylene material rated RW90 XLPE. .

2.02 TECK 90 CABLE

- .1 Cable: in accordance with Section 26 05 00 - Common Work Results for Electrical.
- .2 Conductors:
 - .1 Grounding conductor: copper.
 - .2 Circuit conductors: copper.
- .3 Insulation:
 - .1 Cross-linked polyethylene XLPE.
 - .2 Rating: 600V.
- .4 Inner jacket: polyvinyl chloride material.
- .5 Armour: interlocking, aluminum.
- .6 Overall covering: thermoplastic polyvinyl chloride, compliant to applicable Building Code classification for this project.
- .7 Fastenings:
 - .1 One hole steel straps to secure surface cables 50 mm and smaller.
Two hole steel straps for cables larger than 50 mm.
 - .2 Channel type supports for two or more cables
 - .3 Threaded rods: 6 mm diameter to support suspended channels.
- .8 Connectors:
 - .1 Approved for TECK cable.

2.04 ARMoured CABLES

- .1 Conductors: insulated, copper.
- .2 Type: AC90.
- .3 Armour: interlocking type fabricated from aluminum.
- .4 Connectors: anti short connectors.

3 EXECUTION

3.01 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.
- .2 Perform tests before energizing electrical system.

3.02 GENERAL CABLE INSTALLATION

- .1 Cable Colour Coding: to Section 26 05 00 Common Work Results for Electrical.
- .2 Conductor length for parallel feeders to be identical.
- .3 Lace or clip groups of feeder cables at distribution centres, pull boxes, and termination points.
- .4 Wiring in walls: typically drop or loop vertically from above to better facilitate future renovations. Generally wiring from below and horizontal wiring in walls to be avoided unless indicated.
- .5 Provide numbered wire collars for control wiring. Numbers to correspond to control shop drawing legend. Obtain wiring diagram for control wiring.

3.03 INSTALLATION OF BUILDING WIRES

- .1 Install wiring as follows:
 - .1 In conduit systems in accordance with Section 26 05 34 - Conduits, Conduit Fastenings and Conduit Fittings.

3.04 INSTALLATION OF TECK90 CABLE (0 -1000 V)

- .1 Group cables wherever possible on channels.
- .2 Install cable exposed, securely supported by straps.

3.06 INSTALLATION OF ARMOURED CABLES

- .1 Group cables wherever possible on channels.
- .2 Install cable concealed, securely supported by straps.

END OF SECTION

1 GENERAL

1.01 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA C22.1-12, Canadian Electrical Code, Part 1, 22nd Edition.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 01 50.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
 - .3 Provide shop drawings: in accordance with Section Section 01 01 50.

2 PRODUCTS

2.02 JUNCTION AND PULL BOXES

- .1 Construction:welded steel enclosure.
- .2 Covers Flush Mounted: 25 mm minimum extension all around.
- .3 Covers Surface Mounted: screw-on turned edge covers.

2.03 CABINETS

- .1 Construction: welded sheet steel, hinged door, padlock hasp, latch.

3 EXECUTION

3.02 JUNCTION, PULL BOXES AND CABINETS INSTALLATION

- .1 Install pull boxes in inconspicuous but accessible locations.
- .2 Mount cabinets with top not higher than 2 m above finished floor except where indicated otherwise.
- .4 Junction and pull boxes are typically not indicated on the drawings. Install boxes as required by CSA C22.1.

3.03 IDENTIFICATION

- .1 Equipment Identification: to Section 26 05 00- Common Work Results for Electrical.
- .2 Identification Labels: Departmental Representative will provide wording for labels.
- .3 Where junction and pull boxes are used for fire alarm wiring, apply a lamicoïd label "FIRE ALARM" (black with white letters) on the outside cover of the box. This requirement applies to all new boxes and to any existing box where the cover is removed. This requirement does not apply to boxes for notification appliances, pull stations, detectors or any box housing fire alarm equipment. There is no requirement to paint anything other than the fire alarm breaker red.

END OF SECTION

1 GENERAL

1.01 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CAN/CSA C22.2 No. 18.1-13, Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware.
 - .2 CSA C22.2 No. 45-M1981(R2008), Rigid Metal Conduit.
 - .3 CSA C22.2 No. 56-13, Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit.
 - .4 CSA C22.2 No. 83-M1985(R2013), Electrical Metallic Tubing.
 - .5 CSA C22.2 No. 211.2-06 (R2011), Rigid PVC (Unplasticized) Conduit.

2 PRODUCTS

2.01 CABLES AND REELS

- .1 Provide cables on reels or coils.
 - .1 Mark or tag each cable and outside of each reel or coil, to indicate cable length, voltage rating, conductor size, and manufacturer's lot number and reel number.
- .2 Each coil or reel of cable to contain only one continuous cable without splices.
- .3 Identify cables for exclusively dc applications.
- .4 Reel and mark shielded cables rated 2,001 volts and above.

2.02 CONDUITS

- .1 Rigid metal conduit: to CSA C22.2 No. 45, hot dipped galvanized steel, threaded.
- .2 Electrical metallic tubing (EMT): to CSA C22.2 No. 83, with couplings.
- .3 Rigid pvc conduit: to CSA C22.2 No. 211.2.
- .4 Flexible metal conduit: to CSA C22.2 No. 56, liquid-tight flexible metal.

2.03 CONDUIT FASTENINGS

- .1 Two hole steel straps to secure surface conduits.

- .2 Beam clamps to secure conduits to exposed steel work.
- .3 Channel type supports for two or more conduits.
- .4 Threaded rods, 6 mm diameter, to support suspended channels.

2.04 CONDUIT FITTINGS

- .1 Fittings: to CAN/CSA C22.2 No. 18, manufactured for use with conduit specified. Coating: same as conduit.
- .2 Ensure factory "ells" where 90 degrees bends for 27 mm and larger conduits.
- .3 Steel EMT fittings.

2.06 FISH CORD

- .1 Polypropylene.

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.02 INSTALLATION

- .1 Install conduits to conserve headroom in exposed locations and cause minimum interference in spaces through which they pass.
- .2 Conceal conduits except in
 - .1 mechanical and electrical service rooms
 - .2 unfinished spaces such as bare concrete walls
- .3 Use rigid hot dipped galvanized steel threaded conduit where conduits exposed to mechanical damage from vehicles, hazardous installations and similar situations.
- .4 Use electrical metallic tubing (EMT) except in cast concrete.
- .5 Install conduit sealing fittings in hazardous areas.

- .1 Fill with compound.
- .6 Minimum conduit size 21 mm.
- .7 Bend conduit cold:
 - .1 Replace conduit if kinked or flattened more than 1/10th of its original diameter.
- .8 Mechanically bend steel conduit over 19 mm diameter.
- .9 Field threads on rigid conduit must be of sufficient length to draw conduits up tight.
- .10 Install fish cord in empty conduits.
- .11 Remove and replace blocked conduit sections.
 - .1 Do not use liquids to clean out conduits.
- .12 Dry conduits out before installing wire.

3.03 SURFACE CONDUITS

- .1 Run parallel or perpendicular to building lines.
- .2 Locate conduits behind infrared or gas fired heaters with 1.5 m clearance.
- .3 Run conduits in flanged portion of structural steel.
- .4 Group conduits wherever possible on surface channels.
- .5 Do not pass conduits through structural members except as indicated.
- .6 Do not locate conduits less than 75 mm parallel to steam or hot water lines with minimum of 25 mm at crossovers.

3.04 CONCEALED CONDUITS

- .1 Run parallel or perpendicular to building lines.
- .2 Do not install horizontal runs in masonry walls.
- .3 Do not install conduits in terrazzo or concrete toppings.

3.05 CONDUITS IN CAST-IN-PLACE CONCRETE

- .1 Locate to suit reinforcing steel.
- .1 Install in centre one third of slab.

- .2 Protect conduits from damage where they stub out of concrete.
- .3 Install sleeves where conduits pass through slab or wall.
- .4 Provide oversized sleeve for conduits passing through waterproof membrane, before membrane is installed.
 - .1 Use cold mastic between sleeve and conduit.
- .5 Conduits in slabs: minimum slab thickness 4 times conduit diameter.
- .6 Encase conduits completely in concrete with minimum 25 mm concrete cover.
- .7 Organize conduits in slab to minimize cross-overs.

3.06 CONDUITS IN CAST-IN-PLACE SLABS ON GRADE

- .1 Run conduits 27 mm and larger below slab and encase in 75 mm concrete envelope.
 - .1 Provide 50 mm of sand over concrete envelope below floor slab.

3.07 CONDUITS UNDERGROUND

- .1 Slope conduits to provide drainage.
- .2 Waterproof joints (pvc excepted) with heavy coat of bituminous paint.

3.08 CLEANING

- .1 Proceed in accordance with Section 01 01 50.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

1 GENERAL

1.01 REFERENCES

- .1 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN/ULC-S524-06, Standard for the Installation of Fire Alarm Systems.
 - .2 CAN/ULC-S526-07, Visible Signal Devices for Fire Alarm Systems, Including Accessories.
 - .3 CAN/ULC-S527-99, Standard for Control Units for Fire Alarm Systems.
 - .4 CAN/ULC-S528-05, Manual Stations for Fire Alarm Systems, Including Accessories.
 - .5 CAN/ULC-S529-09, Smoke Detectors for Fire Alarm Systems.
 - .6 CAN/ULC-S530-91(R1999), Heat Actuated Fire Detectors for Fire Alarm Systems.
 - .7 CAN/ULC-S531-02, Standard for Smoke Alarms.
 - .8 CAN/ULC-S537-13, Standard for the Verification of Fire Alarm Systems.
- .2 CSA-B44 – Safety Code for Elevators and Escalators.
- .3 CSA C22.1- 2015 Canadian Electrical Code.
- .4 National Building Code of Canada 2015.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 01 50.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for fire alarm system and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Indicate on shop drawings:
 - .1 Detail assembly and internal wiring diagrams for control units.
 - .2 Overall system network riser showing fibre optic configurations at each building and in each control panel.
 - .3 Details for devices.
 - .4 Details and performance specifications for control, annunciation and peripherals with item by item cross reference to specification for compliance.
 - .5 Step-by-step operating sequence, cross referenced to logic flow diagram.

1.03 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 01 50.
- .2 Operation and Maintenance Data: submit operation and maintenance data for fire alarm system for incorporation into manuals.
- .3 Include:
 - .1 Instructions for complete fire alarm system to permit effective operation and maintenance.
 - .2 Technical data - illustrated parts lists with parts catalogue numbers.
 - .3 Copy of approved shop drawings with corrections completed and marks removed except review stamps.
 - .4 List of recommended spare parts for system.

1.04 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section [01 01 50 and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

1.05 SOURCE OF SUPPLY

- .1 Fire alarm system shall be supplied from a single manufacturer, unless indicated otherwise.

2 PRODUCTS

2.01 DESCRIPTION

- .1 Fully supervised, microprocessor-based, addressable, fire alarm system, utilizing digital techniques for data control and digital, and multiplexing techniques for data transmission.
- .2 System to carry out fire alarm and protection functions; including receiving alarm signals; initiating general and two-stage alarms; supervising components and

- wiring; actuating annunciators and auxiliary functions; initiating trouble signals and capability of signalling to fire department.
- .3 Zoned, single stage and two stage.
 - .4 Modular in design to allow for future expansion.
 - .5 Operation of system shall not require personnel with special computer skills.
 - .6 System to include:
 - .1 Networked Central Control Units in separate enclosure with power supply, stand-by batteries, central processor with microprocessor and logic interface, main system memory, input-output interfaces for alarm receiving, annunciation/display, and program control/signalling.
 - .2 Power supplies.
 - .3 Initiating/input circuits.
 - .4 Output circuits.
 - .5 Auxiliary circuits.
 - .6 Wiring.
 - .7 Manual and automatic initiating devices.
 - .8 Audible and visual signalling devices.
 - .9 End-of-line resistors where required.
 - .10 Local and Remote annunciators.
 - .11 Historic event recorder.
 - .7 Equipment and devices: ULC listed and labelled and supplied by single manufacturer.
 - .8 Power supply: to CAN/ULC-S524.
 - .9 Audible signal devices: to CAN/ULC-S524.
 - .10 Visual signal devices: to CAN/ULC-S526.
 - .11 Control unit: to CAN/ULC-S527.
 - .12 Manual pull stations: to CAN/ULC-S528.
 - .13 Thermal detectors: to CAN/ULC-S530.
 - .14 Smoke detectors: to CAN/ULC-S529.
 - .15 Regulatory Requirements:
 - .1 Subject to Correctional Service Canada Fire Authority (CSCFA) approval.
 - .2 Subject to CSCFA inspection for final acceptance.
 - .3 System components; listed by ULC and comply with applicable provisions
-

of NBCC.

- .16 Each fire alarm system within a building shall be capable of operating as either a single or two-stage system.
- .17 Each fire alarm system within a building shall operate independently and also transmit information to the fire alarm network. Upon failure of the data communication link to the fire alarm network, the fire alarm system within the building shall remain operational and a trouble signal will be imitated on the fire alarm network and be annunciated at the Main System Annunciator and the Network Annunciator Workstation.

2.02 SYSTEM OPERATION: SINGLE STAGE - SIGNALS ONLY

- .1 Actuation of any alarm initiating device to:
 - .1 Cause electronic latch to lock-in alarm state at building central control unit.
 - .2 Indicate zone of alarm at building central control unit, building annunciator, main system annunciator in building 1 and at network annunciator workstation in building LU24.
 - .3 Cause audible/visual signalling devices to sound and flash in temporal pattern 3 continuously throughout building and at the building central control unit.
 - .4 Cause air conditioning and ventilation fans to shut down or to function to provide required control of smoke movement.
 - .5 Cause fire doors and smoke control doors, if normally held open, to close automatically.
- .2 Acknowledging alarm: indicated at building central control unit.
- .3 Ensure that it is possible to silence signals by "alarm silence" switch at building control unit, after 60 seconds period of operation.
- .4 Subsequent alarm, received after previous alarm has been silenced, to re-activate signals.
- .5 Actuation of supervisory devices to:
 - .1 Cause electronic latch to lock-in supervisory state at building central control unit and data gathering panel/transponder.
 - .2 Indicate respective supervisory zone at building central control unit, building annunciators, main system annunciator in building 1 and at network annunciator workstation in building LU24.
 - .3 Cause audible signal at building central control unit to sound.
 - .4 Activate common supervisory sequence.
- .6 Resetting alarm or supervisory device not to return system indications/functions

back to normal until control unit has been reset.

- .7 Trouble on system to:
 - .1 Indicate circuit in trouble at building central control unit, building annunciators, main system annunciator in building 1 and at network annunciator workstation in building LU24.
 - .2 Activate "system trouble" indication, buzzer and common trouble sequence. Acknowledging trouble condition to silence audible indication; whereas visual indication to remain until trouble is cleared and system is back to normal.
- .8 Trouble on system: suppressed during course of alarm.
- .9 Trouble condition on any circuit in system not to initiate alarm conditions.
- .10 Provide the capability to connect to the fire department upon activation of alarms via the central control unit in building 1.
- .11 Configure system so that no audible alerts for any alarm, trouble or supervisory condition occurs at the network annunciator workstation in building LU24. Provide the capability to enable the audible alerts.
- .12 Actuation of any smoke detector in Private Family Visit Units 29a and 29b, or any smoke detector other than in the mechanical room in the Living Units A1 to A23 to activate the applicable building sounder bases, and activate a supervisory signal at the main system annunciator in building 1 and at the network annunciator workstation in building LU24. The system shall be automatically reset after the smoke is no longer detected. If the alarm lasts longer than 2-1/2 minutes, an alarm is initiated at the main system annunciator in building 1 and at the network annunciator workstation in building LU24. All other devices within the buildings operate in accordance with the standard fire alarm sequence of operation. This special sequence is intended to be for smoke detectors installed in lieu of smoke alarms.

2.03 SYSTEM OPERATION: TWO STAGE

- .1 There are no two-stage components within this system.
- .2 System and panels shall be capable changing to two-stage operation via software changes and pull station changes in the future.

2.04 CONTROL PANEL

- .1 Central control unit (CCU).
 - .1 Suitable for DCLA, DCLB and DCLC communication style: to CAN/ULC-S524.
 - .2 Features specified are minimum requirements for microprocessor-based

- system with digital data control and digital multiplexing techniques for data transmission.
- .3 Minimum capacity of 2000 addressable monitoring and 500 addressable control/signal points.
 - .4 System to provide for priority reporting levels, with fire alarm points assigned highest priority, supervisory and monitoring lower priority, and third priority for troubles. Possible to assign control priorities to control points in system to guarantee operation or allow emergency override as required.
 - .5 Integral power supply, battery charger and standby batteries.
 - .6 Basic life safety software: retained in non volatile Erasable Programmable Read-Only-Memory (EPROM). Extra memory chips: easily field-installed. Random-Access-Memory (RAM) chips in panel to facilitate password-protected field editing of simple software functions (i.e. zone labels, priorities) and changing of system operation software.
 - .7 Circuitry to continuously monitor communications and data processing cycles of microprocessor. Upon failure, audible and visual trouble indication to activate.
 - .8 Communication between CCU and remote CCUs to be supervised, DCLB or DCLA as indicated. Should communications fail between CCU and remote units, audible and visual trouble to be indicated at CCU. Data communication to be binary DC, baseband, time-division multiplex, half-duplex. Each data channel: capable of communicating up to distance of 3,000 m.
 - .1 Communication between nodes in networked system to be supervised, DCLB or DCLA as indicated. Should communications fail between any 2 nodes, other nodes on loop to continue to communicate with each other and programmed functions on communicating nodes to continue operating.
 - .9 Equipped with software routines to provide Event-Initiated-Programs (EIP); change in status of one or more monitor points, may be programmed to operate any or all of system's control points.
 - .10 Software and hardware to maintain time of day, day of week, day of month, month and year.
 - .12 Software to operate variable sensitivity addressable smoke detectors and announce their status and sensitivity settings at control panel.
 - .13 All control panels to be lockable, keyed alike.
 - .14 All control panels to be the same model, including the hub node.
 - .15 Each control panel shall be sized to accommodate all present devices plus an additional 50% future devices.
 - .16 Overall system shall be capable of adding at least 15 additional control panels.
 - .17 Module for connection to remote central monitoring station, for the Main Network Panel located within Building 1.

- .18 Powder coated red paint.

2.05 POWER SUPPLIES

- .1 120 V, 60 Hz as primary source of power for system.
- .2 Voltage regulated, current limited distributed system power.
- .3 Primary power failure or power loss (less than 102 V) will activate common trouble sequence.
- .4 Interface with battery charger and battery to provide uninterruptible transfer of power to standby source during primary power failure or loss.
- .5 During normal operating conditions fault in battery charging circuit, short or open in battery leads to activate common trouble sequence and standby power trouble indicator.
- .6 Standby batteries: sealed, maintenance free.
- .7 Continuous supervision of wiring for external initiating and alarm circuits to be maintained during power failure.
- .8 Provide batteries for all fire alarm panels.

2.06 INITIATING/INPUT CIRCUITS

- .1 Receiving circuits for alarm initiating devices such as manual pull stations, smoke detectors, heat detectors and water flow switches, wired in DCLB configuration to central control unit.
- .2 Alarm receiving circuits (active and spare): compatible with smoke detectors and open contact devices.
- .3 Actuation of alarm initiating device: cause system to operate as specified in "System Operation".
- .4 Receiving circuits for supervisory, N/O devices. Devices: wired in DCLB configuration to central control unit.
- .5 Actuation of supervisory initiating device: cause system to operate as specified in "System Operation".

2.07 ALARM OUTPUT CIRCUITS

- .1 Alarm output circuit: connected to signals, wired in class B configuration to central

control unit.

- .1 Signal circuits' operation to follow system programming; capable of sounding audible/visual devices at 20 spm and in temporal code 3. Each signal circuit: rated at 2 A, 24 VDC; fuse-protected from overloading/overcurrent.
- .2 Manual alarm silence, automatic alarm silence and alarm silence inhibit to be provided by system's common control.

2.08 AUXILIARY CIRCUITS

- .1 Auxiliary contacts for control functions.
- .2 Alarm and or supervisory trouble on system to cause operation of programmed auxiliary output circuits.
- .3 Upon resetting system, auxiliary contacts to return to normal or to operate as pre-programmed.
- .4 Fans: stagger-started upon system reset; timing circuit to separate starting of each fan or set of fans connected to auxiliary contact on system.
 - .1 Timing circuit: controlled by CCU.
- .5 Auxiliary circuits: rated at 2 A, 24 Vdc or 120 Vac, fuse-protected.

2.9 WIRING

- .1 Twisted copper conductors, rated 300 V. Listed by CSA and ULC as suitable for fire alarm duty. Red pvc jacket, integral ground conductor.
- .2 Twisted copper conductors, rated 300 V. Listed by CSA and ULC as suitable for fire alarm duty. Red pvc jacket. Red-tinted aluminum interlocked armour. Green insulated ground conductor.
- .3 Minimum size copper conductors 16 gauge.
- .3 Fibre optic cable:
 - .1 Suitable for outdoor buried conduit use and suitable to be pulled into buried conduits.
 - .2 Indoor/outdoor rated
 - .3 50 micron, 6-strand, multi-mode, OM-3, all dielectric, plenum rated, gel free, uv resistant, water-blocking.
 - .4 Patch cable to connect to fire alarm panels from fibre termination enclosure, 50 micron, OM-3.

2.10 FIBRE OPTIC TERMINATION

- .1 Wall-mounted steel enclosure with modular bulkhead fibre termination modules, bend

radius spools, fibre routing kit.

- .2 Size enclosure to match number of terminated fibres. Terminate all fibres in each cable.
- .3 Connect fibres to bulkhead fittings.
- .4 Match fire alarm system fibre connectors, LC duplex preferred.
- .5 Provide locks on enclosures, all keyed alike.

2.11 MANUAL ALARM STATIONS

- .1 Addressable manual pull station.
 - .1 Pull lever, surface or semi-flush wall-mounted type, single stage, electronics to communicate station's status to addressable module/transponder over 2 wires and to supply power to station. Bilingual English & French signage. Station address to be set on station in field.

2.12 AUTOMATIC ALARM INITIATING DEVICES

- .1 Addressable thermal fire detectors, combination fixed temperature and rate of rise, non-restorable fixed temperature element, self-restoring rate of rise, fixed temperature 57 degrees C normal, 88 degrees C high temp, rate of rise 8.3 degrees C per minute.
 - .1 Electronics to communicate detector's status to addressable control unit.
 - .2 Detector address to be set on detector base in field.
 - .3 Built-in LED.
- .2 Addressable variable-sensitivity smoke detectors.
 - .1 Photo-electric type.
 - .2 Electronics to communicate detector's status to addressable control unit.
 - .3 Detector address to be set on detector base in field.
 - .4 Sensitivity settings: 7 settings, determined and operated by control panel. No shifting in detector sensitivity due to atmospheric conditions (dust, dirt) within certain parameters.
 - .5 Ability to annunciate minimum of 2 levels of detector contamination automatically with trouble condition at control panel.
 - .6 Built-in LED.
- .3 Smoke detector: addressable photo-electric type air duct type with sampling tubes with protective housing.
 - .1 Same specification as smoke detector
 - .2 Twistlock Plug-in type.

- .3 Wire-in base assembly with integral red alarm LED, and terminals for remote relay.
- .4 Addressable combination smoke detector and carbon monoxide detector,
 - .1 Same specification as smoke detector
 - .2 Base contains carbon monoxide sensing module.
 - .3 Set to multi-sensor mode to detect smoke and carbon monoxide, and reduce false alarms from shower vapour.
 - .4 Distinct audible temporal code 4 notification for carbon monoxide detection from sounder base. Carbon monoxide detection to be annunciated on fire alarm network creating alarms in building 1 on the main system annunciator (audible alert) and building LU24 on the network annunciator workstation (no audible alert).
 - .5 Distinct audible temporal code 3, low frequency 520 Hz notification for smoke detection from sounder base.
 - .6 Electronics to communicate detector's status to addressable control unit.
- .5 Locking device to lock detector to base, requiring a special tool to unlock.
- .6 Sounder bases for smoke detectors in the Private Family Visit Units and in the Living Units A1 to A23, and in a few locations in Building LU24. Refer to the sequence of operation specification, Section 2.02.12. Disable temporal code 3, low frequency 520 Hz notification for smoke detection in Building LU24.

2.13 AUDIBLE/VISUAL ALARM SIGNAL DEVICES

- .1 Multi-candela, xenon strobe, synchronized, 520 Hz.
- .2 Designed for surface mounting on walls.
- .3 Red cover with "FIRE" identification.
- .4 Selectable horn output level.
- .5 Temporal pattern 3 for most applications.
- .6 Capable of 20 spm (alert) + temporal 3 (alarm) for future 2-stage operation.
- .7 Visual-only device where indicated in a few specific locations.
- .8 Signal devices shall have independent operation of the visual and audible outputs of the device when using a two-wire circuit. All existing wiring is two-wire.

2.14 CONTACT MONITORING INPUT MODULES

- .1 Module to monitor sprinkler tamper switches, sprinkler flow switches and other

- contacts.
- .2 End of line resistor for supervision.
- .3 Addressable module.
- .4 Individual annunciation for each sprinkler flow, pressure or tamper switch.

2.15 REMOTE ANNUNCIATORS

- .1 LED type, indicating zones.
- .2 Display:
 - .1 Alarms and troubles for alarm initiating circuits.
 - .2 Supervisory alarms and troubles, common supervisory alarm for supervisory initiating circuits.
 - .3 Common system trouble.
- .3 Trouble buzzer:
 - .1 Acknowledging trouble at main panel to silence trouble buzzers in system.
- .4 Supervised, with LED test button and alarm & trouble acknowledge button.
- .5 Annunciator in building 1 set up for full annunciation of all alarms, troubles and supervisory events for the entire site, with large LCD text display, scrolling, and alarm & trouble acknowledge feature. Provide an LED annunciator adjacent to the main annunciator with one set of LEDs per building with at least 8 spare sets of LEDs for future buildings. Mount annunciators on wall.
- .6 Outdoor annunciators:
 - .1 Enclosure
 - .1 Custom fabricated to suit specific annunciator electronics.
 - .2 ULC certified, weatherproof enclosure.
 - .3 Drip guard to minimize rain on lexan window.
 - .4 Aluminum enclosure, powder coated finish.
 - .5 Weather gasket.
 - .6 Keyed alike to match fire alarm panels.
 - .2 LED type with no controls or buzzer. Clear indication of zone names.
- .7 Powder coated red paint.

2.16 NETWORK ANNUNCIATOR WORKSTATION

- .1 ULC approved computer workstation, specifically manufactured for control, annunciation and maintenance of the manufacturer's fire alarm system.
- .2 Colour LCD display, approximately 500mm size.

- .3 120v UPS battery backup – 1 hour backup time.
- .4 Desktop mounted.
- .5 Capable of graphic display of floor plans of buildings with individual fire alarm devices.
- .6 Connect as a node on the fire alarm network.
- .7 Multiple password hierarchy.
- .8 USB ports and capability of using a printer.
- .9 Do not connect the workstation to the corporation LAN.
- .10 Configure the workstation as a maintenance station to enable staff to monitor the condition of the fire alarm system and make maintenance adjustments as required.
- .11 Do not configure the workstation as a safety monitoring station. Although all alarms, troubles and events are to be displayed, there should not be any audible annunciation. The workstation will not be monitored by staff at all times.

2.17 ANCILLARY DEVICES

- .1 Remote relay unit to initiate fan shutdown.
- ### 2.18 FREEZER/COOLER DEVICES
- .1 Suitable for low temperature, below 0 deg C operation in a freezer.
 - .2 Non sub-zero degree-rated electronics not permitted within freezers or coolers.
 - .3 Low-profile devices.

2.19 ISOLATORS

- .1 Provide isolators where Class A wiring used and wiring extends beyond a fire alarm zone.

2.20 ANNUNCIATION OF TROUBLE CONDITIONS

- .1 The exact device in a trouble condition shall be clearly annunciated on control panels, annunciators and on the network annunciator workstation. The device ID, building name and room number shall be displayed in plain English and not coded. This clause does not apply to LED annunciators where text is not displayed. After the close of bids and prior to the award of contract, provide written assurance that this annunciation requirement will be provided. Do not provide this assurance with the bid.

3 EXECUTION

3.01 INSTALLATION

- .1 Install systems in accordance with CAN/ULC-S524.
- .2 Install central control unit and connect to ac power supply.

- .3 Install manual alarm stations and connect to alarm circuit wiring.
- .4 Locate and install detectors and connect to alarm circuit wiring. Mount detectors more than 450mm from air outlets. Maintain at least 600 mm radius clear space on ceiling, below and around detectors. Locate duct type detectors in straight portions of ducts.
- .5 Connect alarm circuits to main control panel.
- .6 Install audible/visual signal devices and connect to signalling circuits. Synchronize audible/visual devices.
- .7 Connect signalling circuits to main control panel.
- .8 Install end-of-line devices as required.
- .9 Install remote annunciator panels and connect to annunciator circuit wiring.
- .10 Install door releasing devices.
- .11 Install remote relay units to control fan shut down.
- .12 Sprinkler system: wire alarm and supervisory switches and connect to control panel.
- .13 Splices are not permitted for lengths of new wiring.
- .14 Provide necessary raceways, cable and wiring to make interconnections to terminal boxes, annunciator equipment and CCU, as required by equipment manufacturer.
- .15 Ensure that wiring is free of opens, shorts or grounds, before system testing and handing over.
- .16 Identify circuits and other related wiring at central control unit, annunciators, and terminal boxes.
- .17 Engage locking device to prevent inmates from removing detector from the base in the living units.
- .18 Provide loss calculations to ensure entire fibre optic network is within limits as recommended by the fire alarm system manufacturer.
- .19 Test all fibre optic cables with OTDR. Provide electronic record of test results compared to industry-standard expected test results for OM-3 cables. Test the fibre optic cable plant in accordance with FOA (Fiber Optic Association) Standard

FOA-4: OTDR Testing of Fiber Optic Cable Plant

- .20 Install all cables in conduit unless indicated otherwise.
- .21 Install red un-armoured fire alarm cables in conduit.
- .22 Install red armoured fire alarm cables in combustible buildings, where indicated.
- .23 Lock detectors to bases. Provide 3 special locking tools.
- .24 Ground/bond all new signaling and initiating circuits.
- .25 Provide lamicoid labels on all cabinets, fire alarm panels and pullboxes. Provide red coverplates for outlet boxes.
- .26 Mount fibre optic termination enclosure immediately adjacent to the fire alarm panel.

3.02 SEQUENCE OF CONSTRUCTION

- .1 The facility is a minimum-security institution housing inmates. Continuity of fire alarm protection of the inmates and staff is essential.
- .2 The most critical buildings are the living units.
- .3 Minimize down time of the fire alarm systems.
- .4 For Sequence of Construction purposes, buildings will be classified as
 - .1 Type 1 - Living units (A1 to A23 - 23 buildings)
 - .2 Type 2 – Large Buildings (bldgs 1, 2, 3, LU24)
 - .3 Type 3 – all other buildings
- .5 There are restrictions on the number and types of buildings that may be worked on simultaneously.
 - .1 At any point in time, work may be done on one Type 1 building.
 - .2 At any point in time, work may be done on one Type 2 building, or on a maximum of three Type 3 buildings, where all the Type 3 buildings are physically clustered together.
 - .3 Where work is being done on any type of building, all work must be tested and verified before work on subsequent buildings may commence.

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- .4 The two Family Visit Units (PFVU) will be used as sleeping accommodation and must have a working fire alarm system when occupied. Coordinate schedule with the Departmental Representative.

 - .6 Notes for Type 1 Buildings:
 - .1 One of the living units will be available as swing space, leaving one living unit empty of occupants.
 - .2 Complete all work at each living unit within a total of 7 calendar days (one week).
 - .3 Fire watch for the buildings will be performed by others during non-working hours.
 - .4 The first living unit shall be used as a test to establish the layout, schedule and sequence of work. Extra construction time is permitted beyond one week. Provide sketches of the proposed layout in the mechanical room. Meet with the Departmental Representative on-site to go over the proposed changes prior to the commencement of any work.

 - .7 Notes for Type 2 and 3 Buildings:
 - .1 Complete all work at each Type 2 building or Type 3 cluster (up to three buildings) within a total of 7 calendar days (one week).
 - .2 Fire watch for the buildings will be performed by others during non-working hours.
 - .3 Buildings will be occupied during construction.

 - .8 The maximum time without a network connection linking a building to the existing or new main system annunciator within building 1 is 24 hours, not including the time permitted for the building to be without full protection.

 - .9 Connect main site network annunciators in building 1 to network node fire alarm panel in building 1.

 - .10 After completion of a building, connect to new network and ensure new building is annunciated on the site annunciator within building 1.

 - .11 Immediately after installation, verify fire alarm installation for the building and verify communication on the network, in accordance with CAN/ULC-S537.

 - .12 At the end of the complete installation, re-verify the entire communications network.

 - .13 Provide a detailed overall schedule including planned shutdown times. Update schedule at least every two weeks.
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- .14 Provide a detailed Sequence of Construction document for each building clearly indicating the sequential steps to be followed and shutdown times.
- .15 Connect both the existing and new main site annunciators in Building 1 to provide simultaneous annunciation of both existing and new systems. Install fibre network as one of the first steps to permit the simultaneous annunciation function.
- .16 Provide a dedicated fire alarm panel for the Network Annunciator Workstation (computer) if the computer is not a stand-alone network node. Any activity such as an alarm, trouble, supervisory, alert, etc within Building LU-24 shall have no effect on any other building, except for annunciation on the Main System Annunciators in Building 1.

3.03 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical and CAN/ULC-S537. Coordinate with tests and inspections by Commissioning Agent specified in Section 01 91 13 Commissioning. Provide verification reports.
- .2 Fire alarm system:
 - .1 Test such device and alarm circuit to ensure manual stations, heat detectors, smoke detectors and sprinkler system transmit alarm to control panel and actuate first stage alarm or general alarm and ancillary devices.
 - .2 Check annunciator panels to ensure zones and devices are shown correctly.
 - .3 Simulate grounds and breaks on alarm and signalling circuits to ensure proper operation of systems.
 - .4 Addressable circuits system style DCLA:
 - .1 Test each conductor on all DCLA addressable links for capability of providing 3 or more subsequent alarm signals on each side of single open-circuit fault condition imposed near midmost point of each link. Operate Acknowledge/Silence switch after reception of each of the 3 signals. Correct imposed fault after completion of each series of tests.
 - .2 Test each conductor on all DCLA addressable links for capability of providing 3 or more subsequent alarm signals during ground-fault condition imposed near midmost point of each link. Operate Acknowledge/Silence switch after reception of each of the 3 signals. Correct imposed fault after completion of each series of tests.
 - .5 Addressable circuits system style DCLB:
 - .1 Test each conductor on all DCLB addressable links for capability of providing 3 or more subsequent alarm signals on line side of single

- open-circuit fault condition imposed near electrically most remote device on each link. Operate Acknowledge/Silence switch after reception of each of the 3 signals. Correct imposed fault after completion of each series of tests.
 - .2 Test each conductor on all DCLB addressable links for capability of providing 3 or more subsequent alarm signals during ground-fault condition imposed near electrically most remote device on each link. Operate Acknowledge/Silence switch after reception of each of the 3 signals. Correct imposed fault after completion of each series of tests.
- .3 Provide interim partial verifications to suit the progress of the work and any staged occupancy. All new work to be tested and verified directly following the installation.
- .4 Submit all verification reports to the Departmental Representative. Provide unconditional written test reports from the equipment manufacturer showing that the entire system has been tested, verified and commissioned in accordance with the latest edition of ULC S-537 "Standard for Verification of Fire Alarm System Installations" and that the Fire Alarm system complies with all points of the specifications. Include the verification worksheets identifying every device and its status (i.e. smoke detector - room xx, verified for operation and supervision).
- .5 The qualified Fire Alarm verification agency shall be independent of the installing company.
- .6 Prior to requesting the final performance verification ensure that fire alarm system is fully operable and that subsequent work to be performed on system will not invalidate examinations and tests performed during verification procedure.
- .7 The Electrical Division Contractor and fire alarm system manufacturer's representative shall be present at all times during the verification procedure and shall undertake the following:
 - .1 Provide all required testing equipment and tools.
 - .2 Disassemble and reassemble system components .
 - .3 Disconnect and reconnect wiring.
 - .4 Perform required field adjustments .
 - .5 Repair defective work and replace defective components .
 - .6 Perform all other work on the system required by verification procedure .
 - .7 Provide portable communication devices during entire verification.
- .8 Include all costs for fire alarm system verifications, including the Fire Alarm System Manufacturer's representative's costs. Take into account

that the system may have to be commissioned and verified after normal working hours.

- .9 Provide a minimum of ten working days written notice ahead of the verification process to the Departmental Representative.

3.04 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 01 50.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 01 50.
- .3 Waste Management: separate waste materials for reuse and recycling.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
 - .2 Place materials defined as hazardous or toxic waste in designated containers.

3.05 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by fire alarm system installation.

3.06 CLOSEOUT ACTIVITIES

- .1 Provide on-site lectures and demonstration by fire alarm equipment manufacturer to train personnel in operation and maintenance of fire alarm system at locations and times designated by the Departmental Representative.
 - .1 Keep a log of personnel attending the training sessions, with name, date, training session and signature. Submit scanned copy of log to Departmental Representative.
 - .2 Provide a formal training agenda for review.
- .2 Provide operator training.
 - .1 Provide a total of two one-hour basic training sessions.
 - .2 Provide a train-the-trainer comprehensive two-hour training session.
 - .3 Provide informal brief familiarization training sessions for personnel at each building as each building is verified. Sessions not required at the living units.

- .4 Provide a four-hour training session for maintenance staff for the use and basic programming of the Network Annunciator Workstation. Provide full manuals.
 - .5 Provide a "cheat sheet" on a single 8-1/2" x 11" page with simplified operating instructions, in a clear vinyl sheet protector. Provide 5 paper copies and an electronic copy. Include a copy within the maintenance manual.
3. Provide Maintenance Training
- .1 Provide an eight-hour maintenance training session for staff.
 - .1 Provide familiarization with the overall configuration of the system, including the network.
 - .2 Provide detailed information on all fire alarm devices such as smoke detectors, heat detectors, CO detectors, notification appliances, control panels, etc. Include instructions on adjustments and testing.
 - .3 Provide an overview of the control panel, accessories, operation, theory, basic troubleshooting.
 - .4 Provide basic troubleshooting procedures.
 - .5 Provide basic installation procedures.
 - .6 Provide three copies of a training manual for the course.

3.07 FINAL PROGRAMMING

- .1 Allow for device name changes as the project progresses, typically as each building is completed and at the end of the project.
- .2 Grouping of buildings is permitted during construction to assist with setting up common programming for similar buildings. Prior to substantial completion, program all buildings to be in individual groups with one building in each "group". Activation of any alarm, trouble, supervisory or any signal shall not be annunciated in any manner in any other building except at the main network annunciators and at the main network computer.

3.08 SPARE MATERIAL

- .1 In addition to any other materials specified elsewhere, provide the following spare components.
 - .1 15 smoke detectors
 - .2 5 heat detectors
 - .3 3 pull stations

FIRE ALARM SYSTEM REPLACEMENT

Mission BC
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FIRE ALARM

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- .4 3 audible/visual alarm signaling devices of each type of signaling device used
- .5 8 sounder bases
- .6 15 combined smoke/CO detectors
- .7 8 mounting bases
- .8 3 addressable modules of each type used outside of control panels
- .9 2 duct smoke detector assemblies
- .10 1 LCD annunciator module as used for the main network annunciator
- .11 1 LED annunciator module as used for the main network annunciator
- .12 3 modules of each type used inside of control panels

END OF SECTION

FIRE ALARM SYSTEM REPLACEMENT

Mission BC

Mission Minimum Institution

Project No. R.082592.001

APPENDIX A

Hazardous Building Materials Assessment

690 pages including cover page

Hazardous Building Materials Assessments

55 Buildings/Structures at CSC
Mission Minimum Institution,
Mission, British Columbia



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November 9, 2017

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Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by Public Services and Procurement Canada (PSPC) on behalf of Correctional Services Canada (CSC) to conduct hazardous building materials assessments within 55 buildings at the CSC Mission Minimum Institute located in Mission, British Columbia. A list of the buildings assessed is included in Appendix 1.

The purpose of the assessment was to check for potential hazardous building materials that may require special management practices in accordance with the requirements of the Canada Labour Code, Part II (Canada Labour Code) and the current version of British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97) during continued operations and maintenance, as well as for renovation planning.

The hazardous building materials considered included asbestos-containing materials (ACMs), lead-containing materials including lead-containing paints (LCPs), polychlorinated biphenyls (PCBs), mercury-containing items, ozone-depleting substances (ODSs), mould or moisture affected building materials, and silica.

Based on Stantec's visual assessment and on the laboratory analyses performed on samples collected, hazardous building materials were identified within the buildings assessed.

A summary of our findings and recommendations is presented below, on a building-by-building basis. It should be noted that this summary is subject to the same restrictions and limitations as presented in Section 3.0 (Assessment Limitations) and Section 6.0 (Closure) of this report. The information provided is to be read in conjunction with the remainder of this report.

NOTE: Where particular hazardous building materials are not listed in the following table, they were not identified in that particular building.

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 01—Duty Office Building (848-17-RP)	<p>Asbestos The following ACMs were identified:</p> <ul style="list-style-type: none"> • White pipe sealant applied to hot water supply, natural gas, supply, and sprinkler system pipe fittings throughout <p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, solder used in bell fittings of cast iron pipes, and in electrical equipment, and ceramic tile glaze.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 100 fluorescent light fixtures observed <p>Mould The following mould and/or moisture issues were observed:</p> <ul style="list-style-type: none"> • Moisture-stained drywall on the west window sill in room 51 Deputy Office • Moisture stained suspended ceiling tiles in various locations throughout the building <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Cement products such as: <ul style="list-style-type: none"> – Concrete foundation – Ceramic tiles and associated grouts and mortars • Gypsum and associated wall/ceiling finish materials • Suspended ceiling tiles • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 02—Activity Building (848-16-RP)	<p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, solder used in bell fittings of cast iron pipes, and in electrical equipment, ceramic tile glaze, vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the 100 fluorescent light fixtures observed • Six thermostats with mercury-containing switches were observed in the activity building <p>Mould The following mould and/or moisture issues were observed:</p> <ul style="list-style-type: none"> • Moisture stained suspended ceiling tiles in various locations throughout the building • Moisture stained drywall ceiling in Room 21 <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Cement products such as: <ul style="list-style-type: none"> – Concrete foundation – Ceramic tiles and associated grouts and mortars • Gypsum and associated wall/ceiling finish materials • Suspended ceiling tiles • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 03— Institutional Services (848-22-RP)	<p>Asbestos The following ACMs were identified:</p> <ul style="list-style-type: none"> • Black (painted yellow) pipe sealant applied to natural gas fittings • Blue pipe sealant applied to sprinkler system pipes <p>Lead The following LCPs were identified:</p> <ul style="list-style-type: none"> • Yellow coloured paint on lines on exterior concrete loading bay <p>Lead is also expected to be present in lead-acid batteries used in emergency lighting, solder used in bell fittings of cast iron pipes, and in electrical equipment, ceramic tile glaze, and vent pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the 158 fluorescent light fixtures observed • One mercury-containing thermostat was identified on the northwest wall of room 30, security storage adjacent to room 28, A&D office and photo room <p>Mould The following mould and/or moisture issues were observed:</p> <ul style="list-style-type: none"> • One moisture stained ceiling tile was observed in room 28, A&D office & photo room <p>Ozone Depleting Substances The following equipment was identified by labels to be ODS-containing:</p> <ul style="list-style-type: none"> • Two Carrier Units (R-22) located on the central south rooftop <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Cement products such as: <ul style="list-style-type: none"> – Concrete foundation – Ceramic tiles and associated grouts and mortars • Gypsum and associated wall/ceiling finish materials • Suspended ceiling tiles • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 04— Recreational Building (848-23-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, solder used in bell fittings of cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> Mercury vapour is present in the light tubes within the approximately 30 fluorescent light fixtures observed <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> Concrete foundation Gypsum and associated wall/ceiling finish materials Stucco Asphalt roof shingles
Building 10 – Carpenter Shop (848-37-RP)	<p>Asbestos</p> <p>The following ACMs were identified:</p> <ul style="list-style-type: none"> Grey penetration putty applied around exterior light and outlet on the north wall <p>Lead</p> <p>The following LCPs were identified:</p> <ul style="list-style-type: none"> Grey coloured paint on the exterior walls Grey coloured paint on the exterior door and frames <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used on domestic water lines and in electrical equipment, and vent and pipe flashings.</p> <p>Polychlorinated Biphenyls</p> <p>PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> Mercury vapour is present in the light tubes within the approximately 10 fluorescent light fixtures observed. Mercury may also be present in paints and adhesives. Mercury may also be present in paints and adhesives <p>Silica</p> <p>Silica is expected to be present in the concrete foundation.</p>

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 10a— Carpenter Shop Storage (848-00-RP)	<p>Lead</p> <p>The following LCPs were identified:</p> <ul style="list-style-type: none"> • Grey coloured paint on the exterior walls
Building 14— Storage/Fabrication (848-39-RP)	<p>Lead</p> <p>The following LCPs were identified:</p> <ul style="list-style-type: none"> • White coloured paint on the exterior trim <p>Lead is expected to be present in solder used in electrical equipment and vent and pipe flashings.</p> <p>Polychlorinated Biphenyls</p> <p>PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury may be present in paints and adhesives <p>Silica</p> <p>Silica is expected to be present in concrete foundation.</p>

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 18— Recycle Storage (848-48-RP)	<p>Asbestos</p> <p>An attic space was observed to be present in the subject building but no access point was identified. Destructive work may be required to determine the presence/absence of vermiculite insulation within this space.</p> <p>Lead</p> <p>The following LCPs were identified:</p> <ul style="list-style-type: none"> • White coloured paint on the exterior walls • Yellow coloured paint on the interior walls • Light grey coloured paint on the floor • Dark grey coloured paint on the floor <p>Lead is also expected to be present in solder used in electrical equipment and vent and pipe flashings.</p> <p>Polychlorinated Biphenyls</p> <p>PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is likely to be present in the light tubes/bulbs in the 11 fluorescent light fixtures observed throughout • Mercury may also be present in paints and adhesives <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 20—Weight Room (848-20-RP)	<p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 10 fluorescent light fixtures observed • One thermostat with a mercury-containing switch was observed • Mercury may also be present in paints and adhesives <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles
Building 20a—Health Services (848-21-RP)	<p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 20 fluorescent light fixtures observed <p>Ozone Depleting Substances The following equipment was identified by labels to be ODS-containing:</p> <ul style="list-style-type: none"> • One Carrier A/C Unit (R-22, 1.93 kg) on north side of the building <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Cement products such as: <ul style="list-style-type: none"> – Concrete foundation • Gypsum and associated wall/ceiling finish materials • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 21— Textiles/ Generator Building (848-38-RP)	<p>Lead</p> <p>The following LCPs were identified:</p> <ul style="list-style-type: none"> • Grey coloured paint on the exterior walls <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, solder used on domestic water lines, in bell fittings of cast iron pipes, and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 20 fluorescent light fixtures observed • Mercury may also be present in paints and adhesives <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Cement products such as: <ul style="list-style-type: none"> – Concrete foundation • Gypsum and associated wall/ceiling finish materials.
Building 23— Chapel (848-18-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 30 fluorescent light fixtures observed <p>Ozone Depleting Substances</p> <p>The following equipment was identified by labels to be ODS-containing:</p> <ul style="list-style-type: none"> • One Bryant air conditioning unit (R-22, 2.49 kg) on north west side of the building <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and exterior blocks • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 24—Multi-Purpose Building (848-19-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 17 fluorescent light fixtures observed • One thermostat with a mercury-containing switch was observed in room 7, conference room <p>Ozone Depleting Substances</p> <p>The following was noted pertaining to ODS-containing equipment:</p> <ul style="list-style-type: none"> • One Bryant air conditioning unit (R-22, 1.42 kg) was reported to have ODS-containing refrigerants in the inventory provided by facility staff. This unit was not observed to be present during this assessment. The building-related refrigeration and/or air conditioning equipment observed was confirmed (by label information) to be charged with refrigerants that are not considered ODSs. <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles
Building 25—Greenhouse (848-41-RP)	<p>Lead</p> <p>The following LCPs were identified:</p> <ul style="list-style-type: none"> • Orange coloured paint on the interior walls of the workshop <p>Lead is also expected to be present in older electrical wiring materials and sheathing, solder used on domestic water lines, in bell fittings of cast iron pipes, and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 14 fluorescent light fixtures observed • Mercury may also be present in paints and adhesives <p>Silica</p> <p>Silica is expected to be present in the concrete foundation.</p>

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 27— Psychology Building (848-49-RP)	<p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used on domestic water lines, in bell fittings for cast iron pipes, in electrical equipment, and vent and pipe flashings.</p> <p>Polychlorinated Biphenyls PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 30 fluorescent light fixtures observed • Mercury may also be present in paints and adhesives <p>Mould The following mould and/or moisture issues were observed:</p> <ul style="list-style-type: none"> • Four moisture stained ceiling tiles were observed in room 15, furnace room <p>Ozone Depleting Substances The following equipment was identified by labels to be ODS-containing:</p> <ul style="list-style-type: none"> • One Payne air conditioning unit (R-22, 1.81 kg) located on the northeast side, outside room 15 of furnace room <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and exterior blocks • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 28— Equipment Shed (848-35-RP)	<p>Lead</p> <p>The following LCPs were identified:</p> <ul style="list-style-type: none"> • Red coloured paint on steel beams <p>Lead is also expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used on domestic water lines and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 30 fluorescent light fixtures observed • Mercury may also be present in paints and adhesives <p>Silica</p> <p>Silica is expected to be present in the concrete foundation.</p>
Building 29a— Private Family Visiting (848-43-RP)	<p>Lead</p> <p>The following LCPs were identified:</p> <ul style="list-style-type: none"> • Cream coloured paint on exterior trim and doors <p>Lead is also expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent, pipe, and penetration flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the two fluorescent light fixtures observed • One mercury-containing thermostat was identified on the south wall of room 9, hallway adjacent to room 16, bedroom • Mercury may also be present in paints and adhesives <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 29b— Private Family Visiting (848-44-RP)	<p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, solder used on domestic water lines and in electrical equipment, ceramic tile glaze, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> Mercury vapour is present in the light tubes within the two fluorescent light fixtures observed <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> Cement products such as: <ul style="list-style-type: none"> Concrete foundation Ceramic tiles and associated grouts and mortars Gypsum and associated wall/ceiling finish materials Asphalt roof shingles
Building 30a, b, c— Greenhouses (848-45-RP)	<p>Lead The following LCPs were identified:</p> <ul style="list-style-type: none"> Yellow coloured paint on the exterior bollards <p>Lead is also expected to be present in older electrical wiring materials and sheathing, solder used in bell fittings of cast iron pipes, and in electrical equipment.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> One thermostat with a mercury-containing switch was observed on the south wall of greenhouse A <p>Silica Silica is expected to be present in the concrete foundations.</p>
Building 31— Greenhouse (848-46-RP)	<p>Lead Lead is expected to be present in bell fittings of cast iron pipes and in electrical equipment.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> Mercury vapour is present in the light tubes within the approximately 10 fluorescent light fixtures observed <p>Silica Silica is expected to be present in the concrete foundation.</p>

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 34— Garage (848-40-RP)	<p>Lead The following LCPs were identified:</p> <ul style="list-style-type: none"> • Grey coloured paint on exterior doors and frames • White coloured paint on exterior of garage doors <p>Lead is also expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 20 fluorescent light fixtures observed • Two side-by-side thermostats with mercury-containing switches were observed in the stairwell on the first floor • Mercury may also be present in paints and adhesives <p>Ozone Depleting Substances The following equipment was identified by labels to be ODS-containing:</p> <ul style="list-style-type: none"> • One Mitsubishi air conditioning unit (R-22, 0.99 kg, identified by labels and reported) • One Danby air conditioning unit (R-22) <p>Silica Silica is expected to be present in the concrete foundation.</p>
Building 35— Workshop (848-36-RP)	<p>Lead The following LCPs were identified:</p> <ul style="list-style-type: none"> • Grey coloured paint on exterior bay doors • Grey coloured paint on exterior walls <p>Lead is also expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings of cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 24 fluorescent light fixtures observed • One thermostat with a mercury-containing switch was observed on the south wall in room 1, electrical/paint shop • Mercury may be present in paints and adhesives <p>Silica Silica is expected to be present in the concrete foundation.</p>

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 36—In-Vessel Composting Building (848-00-RP)	<p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, solder used in electrical equipment, and vent and pipe flashings.</p> <p>Mould The following mould and/or moisture issues were observed:</p> <ul style="list-style-type: none"> Rodent droppings, which may be contaminated with mould and other microbial organisms with adverse health effects, were present within room 2, electrical room <p>Silica Silica is expected to be present in the concrete foundation.</p>
Building 37—Fuel Tanks (848-00-RP)	<p>Lead The following LCPs were identified:</p> <ul style="list-style-type: none"> Yellow coloured paint on bollards <p>Lead is also expected to be present in older electrical wiring materials and sheathing and solder used in bell fittings of cast iron pipes and in electrical equipment.</p> <p>Polychlorinated Biphenyls PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> Mercury may be present in paints and adhesives <p>Silica Silica is expected to be present in the concrete pad and bollards observed.</p>
Building 38—Aboriginal Change Building (848-50-RP)	<p>Lead Lead is expected to be present in solder used in electrical equipment.</p> <p>Silica Silica is expected to be present in the concrete foundation.</p>
Building 39—Compost & Equip. Storage Shelter (848-00-RP)	<p>Silica Silica is expected to be present in the asphalt siding.</p>
Building 40—Farm Field Storage Building 1 (848-00-RP)	<p>Silica Silica is expected to be present in asphalt roof shingles observed in Shed 1.</p>

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building 41—Farm Field Storage Building 2 (848-00-RP)	<p>Lead</p> <p>The following LCPs were identified:</p> <ul style="list-style-type: none"> • Blue coloured paint on exterior frame beneath plywood <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury may be present in paints and adhesives
Building 42—Telephone Kiosk (848-51-RP)	<p>Silica</p> <p>Silica is expected to be present in the cast concrete floors and asphalt roof shingles.</p>
Building 43—Gazebo (848-53-RP)	<p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Cement products such as: <ul style="list-style-type: none"> – Concrete—foundations and floors • Asphalt and asphalt products containing rock or stone (e.g., roof shingles)
Building 44—Emergency Generator (848-54-RP)	<p>Silica</p> <p>Silica is expected to be present in the concrete foundation.</p>

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A01—North Residence (848-25-RP)	<p>Asbestos The following ACMs were identified:</p> <ul style="list-style-type: none"> • Grey pipe sealant applied to threaded joints in red sprinkler system <p>Lead The following LCPs were identified:</p> <ul style="list-style-type: none"> • Blue coloured paint on exterior stucco walls <p>Lead is also expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Mould The following mould and/or moisture issues were observed:</p> <ul style="list-style-type: none"> • 5' x 1' of moisture stained drywall ceiling was observed in room 11, Corridor, south portion of ceiling adjacent to bathroom <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A02—North Residence (848-24-RP)	<p>Asbestos The following ACMs were identified:</p> <ul style="list-style-type: none"> • Grey pipe sealant applied to threaded joints in red sprinkler system <p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles
Building A03—North Residence (848-28-RP)	<p>Asbestos The following ACMs were identified:</p> <ul style="list-style-type: none"> • Grey pipe sealant applied to threaded joints in red sprinkler system <p>Lead The following LCPs were identified:</p> <ul style="list-style-type: none"> • Blue coloured paint on exterior stucco walls <p>Lead is also expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles



HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A04—North Residence (848-26-RP)	<p>Asbestos The following ACMs were identified:</p> <ul style="list-style-type: none"> • Grey pipe sealant applied to threaded joints in red sprinkler system <p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed • One thermostat with a mercury-containing switch was observed on the south wall in room 10, living room adjacent to the kitchen <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles
Building A05—North Residence (848-27-RP)	<p>Asbestos The following ACMs were identified:</p> <ul style="list-style-type: none"> • Grey pipe sealant applied to threaded joints in red sprinkler system <p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A06—North Residence (848-32-RP)	<p>Asbestos The following ACMs were identified:</p> <ul style="list-style-type: none"> • Grey pipe sealant applied to threaded joints in red sprinkler system <p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed • One thermostat with a mercury-containing switch was observed on the south wall in room 9, living room adjacent to the kitchen <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles
Building A07—North Residence (848-31-RP)	<p>Asbestos The following ACMs were identified:</p> <ul style="list-style-type: none"> • Grey pipe sealant applied to threaded joints in red sprinkler system <p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles



HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A08—North Residence (848-34-RP)	<p>Asbestos The following ACMs were identified:</p> <ul style="list-style-type: none"> • Grey pipe sealant applied to threaded joints in red sprinkler system <p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles
Building A09—North Residence (848-33-RP)	<p>Asbestos The following ACMs were identified:</p> <ul style="list-style-type: none"> • Grey pipe sealant applied to threaded joints in red sprinkler system <p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A10—North Residence (848-04-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> Concrete foundation and walkways Gypsum and associated wall/ceiling finish materials Stucco Asphalt roof shingles
Building A11—North Residence (848-05-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Mould</p> <p>The following mould and/or moisture issues were observed:</p> <ul style="list-style-type: none"> Particulate accumulation was observed on the return air grille located in the ceiling of room 10, living room adjacent to the kitchen Reports of water intrusion running behind soffit and siding material that may be leading to moisture issues and/or mould contamination within wall cavities east of central rear exit, outside of room 17, bathroom <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> Concrete foundation and walkways Gypsum and associated wall/ceiling finish materials Stucco Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A12—East Residence (848-06-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately six fluorescent light fixtures observed <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles
Building A13—East Residence (848-07-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed. <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways. • Gypsum and associated wall/ceiling finish materials. • Stucco. • Asphalt roof shingles.

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A14—East Residence (848-10-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles
Building A15—East Residence (848-11-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A16—East Residence (848-14-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles
Building A17—East Residence (848-08-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkway • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles

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Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A18—East Residence (848-09-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles
Building A19—East Residence (848-15-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingle

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Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A20—East Residence (848-12-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Mould</p> <p>The following mould and/or moisture issues were observed:</p> <ul style="list-style-type: none"> Approximately 10' x 10' patch of moisture staining on concrete and adjacent cardboard column sonotube in the crawl space area below room 15, mechanical room <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> Concrete foundation and walkways Gypsum and associated wall/ceiling finish materials Stucco Asphalt roof shingles
Building A21—East Residence (848-13-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> Concrete foundation and walkways Gypsum and associated wall/ceiling finish materials Stucco Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building A22—East Residence (848-29-RP)	<p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Mould The following mould and/or moisture issues were observed:</p> <ul style="list-style-type: none"> • Moisture staining and suspect mould on edging strip at the top of the shower stall in room 18, shower room <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles
Building A23—East Residence (848-30-RP)	<p>Lead Lead is expected to be present in lead-acid batteries used in emergency lighting, older electrical wiring materials and sheathing, solder used in bell fittings for cast iron pipes and in electrical equipment, and vent and pipe flashings.</p> <p>Mercury The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed <p>Silica Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Concrete foundation and walkways • Gypsum and associated wall/ceiling finish materials • Stucco • Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Summary of Identified Hazardous Building Materials	
Building Name	Identified Hazardous Building Materials
Building LU24— 50 Bed Living Unit (848-52-RP)	<p>Lead</p> <p>Lead is expected to be present in lead-acid batteries used in emergency lighting, solder used in bell fittings for cast iron pipes, and vent and pipe flashings.</p> <p>Mercury</p> <p>The following was observed pertaining to mercury-containing items:</p> <ul style="list-style-type: none"> • Mercury vapour is present in the light tubes within the approximately 110 fluorescent light fixtures observed <p>Silica</p> <p>Silica is expected to be present in the following, which were observed in various locations throughout:</p> <ul style="list-style-type: none"> • Cement products such as: <ul style="list-style-type: none"> – Concrete—foundations, floors, walls, blocks – Brick/masonry units and associated grout and mortar – Exterior cement panels • Gypsum and associated wall/ceiling finish materials • Suspended ceiling tiles • Asphalt and asphalt products containing rock or stone (e.g., roof felt)

Building-by-building summaries of the identified hazardous building materials are provided in Appendix 5-1 through Appendix 5-55. General findings pertaining to hazardous building materials are provided in Section 5.0 and the building-by-building appendices of this report. General recommendations are provided in Section 6.0 of this report and building-specific recommendations regarding identified hazardous building materials in “non-compliant” condition (materials requiring action) are provided in the building-by-building appendices.

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1.0 INTRODUCTION

Stantec Consulting Ltd. (Stantec) was retained by Public Services and Procurement Canada (PSPC) on behalf of Correctional Services Canada (CSC) to conduct hazardous building materials assessments for the following buildings (subject buildings) at the Mission Minimum Institution, which is located in Mission, British Columbia:

- Building 01—Duty Office Building 848-17-RP
- Building 02—Activity Building 848-16-RP
- Building 03—Institutional Services 848-22-RP
- Building 04—Recreation Building 848-23-RP
- Building 10—Carpenter Shop 848-37-RP
- Building 10a—Carpenter Shop Storage 848-00-RP
- Building 14—Storage/Fabrication 848-39-RP
- Building 18—Recycle Storage 848-48-RP
- Building 20—Weight Room 848-20-RP
- Building 20a—Health Services 848-21-RP
- Building 21—Textiles / Generator Building 848-38-RP
- Building 23—Chapel 848-18-RP (1976)
- Building 24—Multi-Purpose Building 848-19-RP
- Building 25—Greenhouse 848-41-RP
- Building 27—Psychology Building 848-49-RP
- Building 28—Equipment Shed 848-35-RP
- Building 29a—Private Family Visiting 848-43-RP
- Building 29b—Private Family Visiting 848-44-RP
- Building 30a, b, c—Greenhouses 848-45-RP
- Building 31—Greenhouse 848-46-RP
- Building 34—Garage 848-40-RP
- Building 35—Workshop 848-36-RP
- Building 36—In-Vessel Composting Building 848-00-RP
- Building 37—Fuel Tanks 848-00-RP
- Building 38—Aboriginal Change Building 848-50-RP
- Building 39—Compost & Equip. Storage Shelter 848-00-RP
- Building 40—Farm Field Storage Building 1 848-00-RP
- Building 41—Farm Field Storage Building 2 848-00-RP
- Building 42—Telephone Kiosk 848-51-RP
- Building 43—Gazebo 848-53-RP
- Building 44—Emergency Generator 848-54-RP
- Building A01—North Residence 848-25-RP
- Building A02—North Residence 848-24-RP
- Building A03—North Residence 848-28-RP
- Building A04—North Residence 848-26-RP
- Building A05—North Residence 848-27-RP
- Building A06—North Residence (Barrier-Free) 848-32-RP
- Building A07—North Residence 848-31-RP
- Building A08—North Residence 848-34-RP

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- Building A09—North Residence 848-33-RP
- Building A10—North Residence (Barrier Free) 848-04-RP
- Building A11—North Residence (Barrier Free) 848-05-RP
- Building A12—East Residence 848-06-RP
- Building A13—East Residence 848-07-RP
- Building A14—East Residence 848-10-RP
- Building A15—East Residence 848-11-RP
- Building A16—East Residence 848-14-RP
- Building A17—East Residence 848-08-RP
- Building A18—East Residence 848-09-RP
- Building A19—East Residence 848-15-RP
- Building A20—East Residence 848-12-RP
- Building A21—East Residence 848-13-RP
- Building A22—East Residence 848-29-RP
- Building A23—East Residence 848-30-RP
- Building LU24—50 Bed Living Unit 848-52-RP

An overall site plan of the Mission Institution, which shows the locations of the buildings assessed, is presented in the drawings in Appendix 1. In addition, a list of the buildings included in this assessment, with additional information pertaining to building construction dates, is also provided in Appendix 1.

The purpose of the assessment was to check for potential hazardous building materials that may require special management practices in accordance with the requirements of the Canada Labour Code, Part II (Canada Labour Code) and the current version of British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97) during continued operations and maintenance.

The hazardous building materials considered included asbestos-containing materials (ACMs), lead-containing materials including lead-containing paints (LCPs), polychlorinated biphenyls (PCBs), mercury-containing items, ozone-depleting substances (ODSs), mould or moisture affected building materials, and silica.

The site work was conducted by Keith Irwin, Steve Chou, Kim Wiese and Amanda Bell of Stantec from March 6, 2017 through March 16, 2017.

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2.0 BACKGROUND

Stantec understands that many of the subject buildings were constructed during time periods when hazardous building materials were commonly used in construction (i.e., pre-1990 construction), while others were constructed during times when although hazardous building materials were not commonly used, they are still potentially present in limited quantities/materials (i.e., post-1990 construction). Stantec further understands that information pertaining to the identity, location and approximate extent of hazardous building materials (if any) within the subject buildings was either not on-file or outdated. As such, and in accordance with the Canada Labour Code and BC Reg. 296/97 pertaining to identifying hazards associated with hazardous building materials in the workplace, and to assist with future renovation planning, PSPC commissioned this assessment on behalf of the CSC.

2.1 DOCUMENT REVIEW

The following documentation was reviewed prior to undertaking the assessment:

- Pottinger Gaherty Environmental Consultants Ltd. Report No. 125-54.01 entitled *Asbestos Containing Material Survey Report, Ferndale Minimum Security Institution, Ferndale, British Columbia*, dated March 2004, prepared for Public Works Government Services Canada (PG 2004 Report)

No ACMs were identified by the report referenced above.

3.0 SCOPE AND METHODOLOGY

Keith Irwin, Steve Chou, Kim Wiese and Amanda Bell of Stantec conducted visual assessments within the subject buildings from March 6, 2017 through March 16, 2017. Site work was conducted in general compliance with the requirements of the Canada Labour Code, BC Reg. 296/97 and Stantec's Safe Work Practices (SWPs).

Mechanical systems, structures and finishes of the subject buildings were visually examined to determine the suspected presence of ACMs, lead including LCPs, PCBs, mercury, ODSs, mould, and silica. Where building materials were suspected but not confirmed to contain asbestos or lead (in paint) samples were collected for analysis to confirm or deny the presence of these hazardous materials. Based on analytical results, visually similar materials were referenced to specific analyzed samples to reduce the number of samples collected.

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Additional background information and the methodology used for the determination of presence or absence of each specific hazardous material considered in this assessment are outlined in the following sections.

3.1 ASBESTOS

The common use of friable (materials which, when dry, can be easily crumbled or powdered by hand pressure) ACMs in construction generally ceased voluntarily in the mid-1970s but was only banned through legislation by the late 1980s. Friable asbestos was used in many building products, primarily high temperature insulations, spray-applied structural fireproofing, and a material known as vermiculite that was commonly used as block wall insulation and may be contaminated with asbestos fibres. Asbestos was also used in many non-friable manufactured products such as floor tiles, ceiling tiles, Transite cement products, and various other construction materials. Some cement products currently used in the construction of buildings may still contain asbestos.

The presence of asbestos in federal workplaces, and pertaining to federally regulated workers is governed by the Canada Labour Code. The presence of asbestos in the workplace in British Columbia pertaining to provincially regulated workers is governed by BC Reg. 296/97. As both federally regulated workers and provincially regulated workers (e.g., contractors) are expected to carry out work activities within the subject buildings, and as the provincial regulations are generally more prescriptive pertaining to asbestos (and generally include the requirements noted in the Canada Labour Code), this assessment was conducted to meet the requirements of BC Reg. 296/97.

According to the current version of BC Reg. 296/97, ACM means any material containing at least 0.5% asbestos, or vermiculite insulation with any asbestos.

Based on these criteria, a visual assessment of accessible areas was undertaken in order to check for the presence of materials suspected of containing asbestos. Locations to collect discrete bulk asbestos samples of suspect building materials were identified. Samples of representative materials were then collected at these locations.

Multiple samples were collected from each “homogenous application” of observed suspected ACMs (materials suspected to contain asbestos that are uniform in material type, colour, texture application and estimated installation date) and submitted to EMSL Canada Inc. (EMSL) in Burnaby, British Columbia for analysis of asbestos content using polarized light microscopy (PLM) with dispersion staining, in accordance with the United States Environmental Protection Agency (EPA) 600/R-93/116 method.

The WorkSafeBC publication *Safe Work Practices for Handling Asbestos* (2017—further referred to as the Asbestos Guide), is used by Occupational Health and Safety officers as a guide when reviewing abatement work practices and employer codes of practice. The number of samples to be collected for each homogenous application of

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a suspected ACM was based on the recommendations provided in the Asbestos Guide along with accepted occupational hygiene standards and protocols and the assessor's experience and understanding of the consistency of that building material's application.

EMSL's analytical laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

3.1.1 Sample Results Interpretation

When asbestos is detected in concentrations greater than 0.5% in one of the samples within a set that was collected to represent a "homogenous application" of a particular material (or detected in any concentration, in a set of samples collected for applications of vermiculite), the entire sample set and the entire application of that material was then considered to be an ACM.

In addition to the above, a "positive stop" option was used during the laboratory analysis of the building material samples submitted for asbestos analysis. The "positive stop" option is utilized by the laboratory when asbestos is detected at a concentration of greater than one percent in one of the samples within a set that was collected to represent a "homogenous application" of that material. At this point, further analysis of subsequent samples within the set is deemed to be unnecessary (as the entire set will be considered an ACM, per above), and the remainder of the samples within the set are not analyzed.

3.1.2 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject buildings for locations where vermiculite insulation, a potential ACM, would likely be present. This included making note of and assessing attic spaces, floor cavities and masonry or brick walls, which are typical areas where vermiculite is found. Regarding this portion of the assessment, the following should be noted:

- Where masonry or brick walls were observed, destructive assessment (drilling) was conducted to assess the cavity for the presence of vermiculite
- Where non-vermiculite attic insulation (e.g., fiberglass) was observed, inspection for the presence of vermiculite under the other insulation was conducted only at the attic access point (not throughout the attic)

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3.1.3 Asbestos Sampling Quality Assurance/Quality Control

Sampling activities pertaining to asbestos were conducted in accordance with Stantec's SWPs, which take into account current provincial regulations pertaining to such work (i.e., sampling procedures, required number of samples, and laboratory analytical procedures).

Representative bulk samples were collected of accessible suspect ACMs in sufficient quantities for laboratory analyses. Suspect ACM samples were sealed in polyethylene zip-lock bags labeled with the sample number, suspect material description, and sample location. As part of sampling procedures, sampling tools were cleaned between sample collection events to avoid the potential for cross-contamination of samples.

Sample bags were compiled in order and placed into a single container accompanied with a Chain of Custody form outlining the project information, date, building location, number of samples, and sample description. Samples were submitted to the analytical laboratory in a sealed container via courier.

3.2 LEAD

Lead may be used in its pure metallic form or combined chemically with other elements to form lead compounds. Metallic lead is used to make products such as electric storage batteries, ammunition, lead solder, radiation shields, pipes, and sheaths for electric cables. Metallic lead is sometimes combined with other metals such as copper, tin, and antimony as lead alloys for use in the manufacture of a variety of metal products. Lead is commonly found in buildings in the solder used on copper domestic pipes, in the caulking on bell fittings of cast iron drainage pipes and in electrical equipment.

A visual assessment of accessible areas was undertaken in order to check for the presence of materials that may contain lead. These materials included paint applications, wiring and plumbing, batteries, etc.

With respect to potential lead exposures associated with disturbance to surfaces coated with lead-containing products, the 2011 WorkSafeBC manual titled *Lead-Containing Paint and Coatings: Preventing Exposure in the Construction Industry*, indicates the following:

- The improper removal of lead paint containing 600 mg/kg lead results in airborne lead concentrations that exceed half of the exposure limit.
 - This potential for exposure exceeding half of the occupational exposure limit would be the trigger for implementation of an exposure control plan.

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- Lead concentrations as low as 90 mg/kg may present a risk to pregnant women and children.
 - Any risk assessment should include consideration for the presence of high risk individuals within the workplace.

In addition to the above, the 2017 WorkSafeBC publication *Safe Work Practices for Handling Lead* (Lead Guideline) indicates the following:

Unlike for asbestos-containing material, WorkSafeBC does not numerically define what would be considered a lead-containing paint or coating. All suspected paints or coatings should be tested for lead because, depending on the nature of the work, even a small amount could pose a risk to workers. In order to determine which controls and personal protective equipment would be required for a particular job, a qualified person must consider this information as part of the risk assessment.

When reviewing the above, "high risk" individuals are not expected to be present in the workplace associated with this site during operations and maintenance or building material alteration activities (i.e., renovation) that would create significant disturbance to paint with such individuals present. As such, Stantec will reference a value of greater than 600 ppm in defining paints as "lead-containing" for the purpose of this report, such that appropriate risk assessments can be completed for ongoing operations and maintenance.

Based on the above, samples of suspected LCPs were collected from major paint applications. Samples were collected to substrate, where possible, in sufficient quantity to conduct analysis for total lead content. Samples collected were placed into separate, sealed, and labeled polyethylene bags, and submitted to EMSL in Mississauga, Ontario for analyses of total lead content using Flame Atomic Absorption Spectrometry AAS (SW 846 3050B*/7000B).

EMSL's analytical laboratory is also accredited by the American Industrial Hygiene Association (AIHA) Environmental Lead Laboratory Approval Program.

3.3 POLYCHLORINATED BIPHENYLS

PCBs were used widely as coolants and lubricants in transformers, capacitors, and other electrical equipment. In fluorescent fixtures, PCBs were usually found within the small capacitors inside the ballast that controls the lamp. The Federal Chlorobiphenyls Regulation, SOR/91-152, prohibited the use of PCBs in electrical equipment manufactured after July 1, 1980.

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A visual review for the presence of PCBs in electrical equipment was completed visually. Equipment that is generally suspected of containing PCBs includes lamp ballasts, transformers, hydraulic systems, compressors, switchgear and capacitors. No sampling of dielectric fluids was undertaken as part of this assessment.

With respect to fluorescent lamp ballasts, due to the risk of electrical shock associated with dismantling operating fixtures, fluorescent lamp ballasts were not removed to view identification numbers/information.

Suspected PCB-containing electrical equipment can be visually inspected and compared to the Environment Canada reference guide entitled *Identification of Lamp Ballasts Containing PCBs, Report EPS 2/CC/2*, dated August 1991 (PCB Guide).

3.4 MERCURY

Mercury is commonly found in buildings as mercury vapour lighting, thermostats/thermometers with mercury-containing glass ampoules, electrical switches and can also be found in minor amounts in fluorescent lamp tubes and vapour bulbs and may be present in stable forms in adhesives. Exposure to mercury in federal workplaces is governed by the Canada Labour Code, while provincially it is governed by BC Reg. 296/97.

An assessment for equipment that is likely to contain mercury was completed visually. Information on the type of equipment (i.e., gauges, switches, batteries, thermometers, etc.), model and serial numbers and quantities was recorded, where such information was available.

3.5 MOULD

Moist building materials may provide suitable conditions for mould growth, and the removal of building materials impacted by mould growth may require workers with specific training and experience using work procedures that have been developed to protect workers and work areas from exposure to elevated concentrations of airborne mould.

The presence of suspect visible mould was assessed through visual observations. Material observed with dark-colored staining and/or a textured and discolored appearance is described as "suspect mould". Mould identified visually is defined as "suspect mould" unless it is confirmed as mould by laboratory analysis.

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3.5.1 Mould Reference Guidelines

With respect to mould and/or moisture, the visual assessment procedures utilized during this project were based on the recommendations provided in the documents listed below:

- Standard Construction Document CCA 82 *Mould Guidelines for the Canadian Construction Industry*, Canadian Construction Association, 2004 (referred to as CCA 82)
- *Guidelines on Assessment and Remediation of Fungi in Indoor Environment*, New York City Department of Health, Bureau of Environmental and Occupational Disease Epidemiology, April 2000 (referred to as the NYC Guidelines)
- *Fungal Contamination in Public Buildings: Health Effects and Investigation Methods*, Federal-Provincial Committee on Environmental and Occupational Health, 2004 (referred to as the Health Canada Guide)
- *Indoor Air Quality in Office Buildings: A Technical Guide*, report of the Federal-Provincial Advisory Committee on Environmental and Occupational Health, 1995 (referred to as the IAQ Guide)
- *Bioaerosols: Assessment and Control*, American Conference of Governmental Industrial Hygienists (ACGIH), 1999 (referred to as the ACGIH Report)

3.6 OZONE-DEPLETING SUBSTANCES

Chlorofluorocarbons (CFCs) and other ODSs are often found in refrigeration units associated with air-conditioning or other refrigeration equipment. In September 1987, 47 countries agreed to the Montreal Protocol on Substances that Deplete the Ozone Layer. ODSs are regulated in BC by the British Columbia *Waste Management Act—Ozone Depleting Substances and Other Halocarbons Regulation* (BC Reg. 387/99 as amended by BC Reg. 109/2002) and the Federal Halocarbon Regulations, 2003 (FHR 2003).

An assessment for equipment likely to contain ODSs was completed visually. Information on the type of equipment, manufacturer and type and quantity of refrigerants was recorded, where available.

3.7 SILICA

Silica, also referred to as free crystalline silica, is found in concrete, cement, mortar, ceramic wall and floor tiles, stucco finishes and acoustic ceiling tiles. Prolonged exposure to, and inhalation of free crystalline silica, may result in respiratory disease known as silicosis, which is characterized by progressive fibrosis of the inner lung tissue and marked shortness of breath or impaired lung function.

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Exposure to silica dust is governed by BC Reg. 296/97 According to both legislative instruments; the time-weighted average exposure limit for airborne silica dust is 0.025 mg/m³.

An assessment for the presence of silica was conducted visually. The presence of potential silica-containing building materials such as concrete, masonry, stone, terrazzo, refractory brick, ceramic tile, ceiling tile etc. was noted.

4.0 ASSESSMENT LIMITATIONS

In preparation of this report, Stantec used professional judgment based on experience. The work was conducted in accordance with generally accepted professional standards. Stantec relied on information gathered during the site investigation and laboratory analytical reports.

This report reflects the observations made within accessed portions of the subject buildings and the results of analyses performed on specific materials sampled during the assessment. Analytical results reflect the sampled materials at the specific sample locations.

Sampling was conducted pertaining to suspected ACMs and suspected LCPs only. The assessment for the presence of other hazardous building materials was visual in nature, and was conducted pertaining to readily visible surfaces within accessible spaces only. Concealed spaces were inspected via existing access panels, where present.

4.1 ASBESTOS

Suspected ACMs that were not sampled included, but were not limited to, the following (where present, based on building construction or as otherwise noted):

- Interior components of mechanical equipment (e.g., inner linings or gaskets in boilers)
- Interior components of heating, ventilation and air conditioning (HVAC) units
- Heat protection materials inside mechanical installations (e.g., gaskets) and light fixtures (e.g., paper backing in sealed incandescent fixtures)
- Drywall and/or wall plaster and associated finish materials concealed behind new and/or additional walls or ceilings
- Woven tape inside duct connection joints or inner ducting insulation
- Materials within sealed/hard wall cavities or hard ceiling cavities without appropriate access points
- Insulation materials inside fire doors
- Roofing materials concealed beneath exposed layers or beneath concealed sheathing layers

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If encountered during renovation, demolition or other activities, any suspected ACMs not identified within this report should be presumed to contain asbestos and handled as such until otherwise proven, through analytical testing.

4.2 LEAD

Assessment for the presence of lead or lead-containing materials was visual in nature, and was conducted pertaining to readily visible surfaces within accessible spaces of the subject buildings. The presence of lead or lead-containing materials in inaccessible areas not assessed included, but was not limited to, ceiling spaces and wall cavities.

With respect to paint, samples of suspected LCPs were collected within the subject buildings only from surfaces of major paint applications where visually different paint colours and/or types were identified. Although the surfaces where samples were collected may be covered with more than one coat of paint, the paint samples are described by the surface (visible) colour only.

Attempts were made to represent all layers of paint in the samples collected. As analytical results are referenced to the surface paint colour only, the lead content of all painted surfaces similar to that represented by the surface paint colour will be presumed to be the same, regardless of differing sub surface paints, if any.

4.3 POLYCHLORINATED BIPHENYLS

Due to height restrictions and the risk of electrical shock in handling operational light fixtures, the ballasts present in the fixtures observed within the subject buildings were not removed for comparison to the PCB Guide. The visible labels of ballasts in several fixtures were inspected for comparison to the PCB Guide.

Conclusions and recommendations regarding the presence of PCBs within the subject buildings are based on Stantec's limited observations in combination with information provided by staff regarding lighting renovations (where requested by Stantec based on observations) and is presented to provide guidance regarding the likelihood that PCB-containing equipment is or is not present within the subject buildings. The exact extent and/or number of fluorescent lamp ballasts containing PCBs, if any, within the subject buildings will not be commented on.

4.4 MERCURY

Visual assessment for the presence of mercury-containing equipment within the subject buildings was conducted in accessible areas only. Additional mercury or mercury-containing equipment may be present in inaccessible areas including, but not limited to, ceiling spaces and wall cavities, or as internal parts of HVAC mechanisms.

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4.5 MOULD

Visual assessment for the presence of suspected visible mould and/or suitable conditions for mould growth (e.g., moist and/or water-stained building materials) were conducted in accessed portions of the subject buildings only. The assessment was not intrusive in nature and included visual assessment of exposed surfaces and closer inspection of known problem areas.

The conclusions made in this report provide description(s) of the potential source(s) of moisture within the subject buildings that may have led to suitable conditions for mould growth, only in those cases where potential source(s) of moisture were identified. These conclusions will not necessarily identify all sources of moisture leading to suitable conditions for mould growth within the subject buildings or within the impacted area(s).

This assessment does not constitute a building envelope/building systems assessment for any of the subject buildings, which would include an intrusive investigation to assess the internal condition, potential moisture sources, and expected remaining service life of the various components and systems comprising the envelope of a building.

4.6 OZONE DEPLETING SUBSTANCES

Visual assessment for the presence of ODSs within the subject buildings was conducted in accessible areas only. Additional ODS-containing equipment may be present in inaccessible areas including, but not limited to, ceiling spaces and wall cavities. In addition, portable equipment that may contain ODSs (refrigerators, drink coolers, etc.) was not considered as part of this assessment.

4.7 SILICA

Visual assessment for the presence of silica-containing materials within the subject buildings was conducted in accessible areas only. Additional silica-containing materials may be present in inaccessible areas including, but not limited to, ceiling spaces and wall cavities.

5.0 FINDINGS

The results of our assessment are provided on a building-by-building basis in Appendices 5-1 through 5-55. Each Appendix contains the following (where applicable):

- Separate sections with written summaries of findings pertaining to each hazardous building material, including the following:
 - A listing of suspect materials observed

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- Tables that provide summaries of the sample types, locations, and analytical results
- Interpretations of observations and/or sample analytical results
- Information pertaining to condition evaluation of identified hazardous building materials
- Recommendations for identified hazardous building materials found to be in “non-compliant” condition (e.g., damaged ACMs, mould-impacted materials, etc.), where applicable
- Floor plan drawings for the buildings/structures, which include locations of the samples collected during this assessment, and locations of identified hazardous building materials (where practical)
- Copies of the analytical certificates for suspected ACM samples collected/analyzed
- Copies of the analytical certificates for all suspected LCP samples collected/analyzed

It should be noted that evaluation of condition of identified ACMs was conducted using terminology and classifications as outlined in the former PSPC document entitled *Deputy Ministers Directive 057—Asbestos Management* (last revised June 16, 1999), and considered the friability of the material (terminology relating to how easily fibres can be released), condition (good, fair and poor) and accessibility of the material.

5.1 MATERIAL CONDITION EVALUATION

In evaluating the condition of identified hazardous building materials, Stantec followed the protocols outlined in the Hazardous Building Materials Management Plan currently being developed for the CSC Mission Minimum Institution. The condition evaluation criteria for the various hazardous building materials considered are summarized below.

5.1.1 Asbestos-Containing Materials

The criteria are generally based on the former (repealed) Public Works and Government Services Canada (PWGSC) document entitled *Deputy Ministers Directive 057 – Asbestos Management* (last revised 1999/07/16) and industry standards of practice for asbestos.

5.1.1.1 Spray Applied Fireproofing, Insulation, and Textured Finishes

In evaluating the condition of ACM spray applied as fireproofing, thermal insulation, or texture, decorative or acoustic finishes, the following criteria apply:

Good

Surface of material shows no significant signs of damage, deterioration, or delamination. Up to one percent visible damage to surface is allowed within

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range of **GOOD**. Evaluation of sprayed fireproofing requires the assessor to be familiar with the irregular surface texture typical of sprayed asbestos products. **GOOD** condition includes un-encapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.

Fair

FAIR condition is not utilized or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

Poor

Sprayed materials show signs of damage, delamination, or deterioration. More than 1% damage to surface of hazardous building material spray.

In observation areas, where damage exists in isolated locations, both **GOOD** and **POOR** condition may be reported. The extent or percentage of each condition will be recorded on the assessor's reassessment form.

The evaluation of ACM spray applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes that are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. BC Reg. 296/97 requires Moderate Risk operations for the removal of all or part of a false ceiling to obtain access to a work area, if asbestos-containing material is likely to be lying on the surface of the false ceiling.

5.1.1.2 Mechanical Insulation

In evaluating the condition of ACM mechanical insulation (on boilers, breeching, ductwork, piping, tanks, equipment etc.) the following criteria are used:

Good

Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.

Fair

Minor penetration damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed.

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Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none.

Poor

Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired.

The evaluation of ACM mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. In these circumstances, it is not possible to observe each foot of mechanical insulation from all angles.

5.1.1.3 Non-Friable Materials

Non-friable ACMs generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials, i.e., exterior asbestos cement products, may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product.

5.1.2 Lead

For general lead-containing materials [e.g., solder used on copper domestic pipes; caulking on bell fittings of cast iron drainage pipes; electrical equipment/wiring; batteries (e.g., emergency exit signage batteries); lead sheeting (e.g., x-ray rooms); vent and pipe flashings], condition evaluation is based on function. If the function is compromised, the material would be considered in "poor" condition, and would likely require replacement. Given that the exposure hazards associated with such replacements are typically low and/or simplistic to control, condition evaluation pertaining to such materials is not conducted or discussed herein.

5.1.2.1 Lead-Containing Paint

The criteria for condition evaluation pertaining to LCPs described herein are generally based on the United States Housing and Urban Development (HUD) 2012 *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

When evaluating the condition of LCPs, an attempt should be made to determine whether the deterioration is due to a moisture problem or some other existing building deficiency.

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“**Poor**” surfaces are considered to be a hazard and should be corrected. “**Fair**” surfaces should be repaired, but are not yet considered to be a hazard; if not repaired, they should be monitored frequently. “**Good/intact**” surfaces should be monitored to ensure that they remain in a nonhazardous condition.

In addition, the presence of paint debris must be considered in evaluating condition. Given the variety of paint uses, there are many applications that can have a tendency for the paint to “wear” from the surface slowly, over an extended period of time. Conditions where paint has worn from a surface are worth noting for maintenance discussions (i.e., related to re-coating the surface should, for example, the coating provide weather protection), however, in the absence of loose paint chip debris/dust, such conditions would not represent a potential exposure situation related to lead.

The condition evaluation criteria for LCPs are summarized in Table 5-1, below.

Table 5-1 Lead-Containing Paint Condition Categories

Type of Building Component ¹	Total Area of Deteriorated Paint on Each Component		
	Good/Intact	Fair ²	Poor ³
Exterior components with large surface areas	Entire surface is intact	Less than or equal to 10 ft ²	More than 10 ft ²
Interior components with large surface areas (walls, ceilings, floors, doors)	Entire surface is intact	Less than or equal to 2 ft ²	More than 2 ft ²
Interior and exterior components with small surface areas (window sills, baseboards, soffits, trim)	Entire surface is intact	Less than or equal to 10% of the total surface area of the component	More than 10% of the total surface area of the component
<p>NOTES:</p> <p>¹ Building component in this table refers to each individual component or side of building, not the combined surface area of all similar components in a room (e.g., a wall with 1 square foot of deteriorated paint is in “fair” condition, even if the other three walls in a room are intact).</p> <p>² Surfaces in “fair” condition should be repaired and/or monitored, but are not considered to be “lead-containing paint hazards”.</p> <p>³ Surfaces in “poor” condition are considered to be “lead-containing paint hazards” and should be addressed through abatement or interim controls.</p>			

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5.1.3 Mould and Moisture-Impacted Building Materials

The condition of building materials impacted by moisture or mould is typically considered “**poor**” or “**requiring action**”. Additional details are provided below:

- Non-porous building materials (e.g., glass, metal) that can be cleaned and dried without losing function would be considered to be in “**fair condition**” if wet, and “**poor condition**” only if visible mould growth is present on surfaces (typically indicating the surfaces are covered with a layer of dirt, as mould will not grow on non-porous, inorganic materials)
- Semi-porous and porous materials (e.g., wood framing, gypsum board, carpets, furniture) that are impacted by moisture (without mould contamination) are considered to be in “**fair**” condition—representative of a situation that requires moisture intrusion correction and drying of affected surfaces only.
 - Depending on the building material, the water impacts may have degraded the material itself to a point where replacement is required (e.g., gypsum, insulation)
- Semi-porous and porous materials that are impacted by moisture (current or previous) and have evidence of mould contamination are considered to be in “**poor**” condition.

5.1.4 Other Hazardous Building Materials

For other hazardous building materials (e.g., equipment with PCBs, equipment with mercury, equipment with ODSs, materials containing silica), condition evaluation is based on function. If the function is compromised, the material would be considered in “**poor**” condition, and would likely require replacement. Given that the exposure hazards associated with such replacements are typically low, simplistic to control and/or paramount to the removal process (e.g., review of ballasts for PCBs as they are decommissioned; in-tact removal of mercury-containing items; recovery of ODSs; implementation of dust control when disturbing/removing silica-containing materials), condition evaluation pertaining to such materials is not conducted or discussed herein.

6.0 GENERAL RECOMMENDATIONS

Building-specific recommendations pertaining to the identified hazardous building materials that require action are provided in Appendices 5-1 through 5-55. General recommendations pertaining to management of identified hazardous building materials in good condition are provided below.

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6.1 ASBESTOS

For buildings with identified ACMs, Stantec recommends the following with regards to meeting the requirements of the Canada Labour Code and BC Reg. 296/97 as they pertain to managing asbestos in the workplace:

- Identified ACMs in good condition can be managed in place in accordance with the Hazardous Building Materials Management Plan that is being developed for the CSC Mission Minimum Institute.
- Suspected ACMs deemed visually similar to the ACMs identified in this report (on a building-by-building basis) should be considered asbestos-containing and handled as such, unless proven otherwise, through analytical testing.
- Asbestos-containing materials that may be impacted during renovation or demolition work activities should be removed by appropriately trained personnel (e.g., asbestos abatement contractor personnel), in accordance with the requirements of BC Reg. 296/97 and the Asbestos Guide, and prior to the initiation of project work that will disturb them.
- Should a material suspected to contain asbestos fibres become uncovered during renovation and/or demolition activities, all work in the areas that may disturb the material should be stopped. Samples of the suspect material should be submitted for laboratory analysis to determine if asbestos fibres are present. Confirmed asbestos materials should be handled in accordance with applicable guidelines and regulations.
- If masonry block walls are to be impacted by renovation or demolition work, and these walls have not been checked for the presence of vermiculite insulation, intrusive assessments for vermiculite should be undertaken prior to renovation/or demolition work. If vermiculite insulation is suspected to be present, this material should be treated as an ACM until testing can show otherwise.
- Asbestos-containing cement pipe may be present below ground—caution should be used at any time when excavation is required.
- Ensure asbestos containing waste is handled, stored, and disposed of in accordance with the requirements of the Federal Transportation of Dangerous Goods Regulation and the British Columbia Hazardous Waste Regulation (BC Reg. 63/88).

6.2 LEAD

Lead-containing materials, including paints, in good condition can be managed in place in accordance with the Hazardous Building Materials Management Plan that is being developed for the CSC Mission Minimum Institution.

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If LCPs or other lead-containing equipment/materials within the subject buildings are to be disturbed and/or removed, including for work associated with debris removal or preparing surfaces with LCPs for re-painting, ensure compliance with the following:

- Exposure protection requirements of BC Reg. 296/97
- Transportation and disposal requirements of BC Reg. 63/88
- Transportation requirements of the Federal Transportation of Dangerous Goods Regulation

Corrective action or remedial work on paint applications containing any concentration of lead should be undertaken in a manner so as to avoid generating fine particulate matter or dust (i.e., avoid sanding). Airborne lead dust or fumes should not exceed the Canada Labour Code and BC Reg. 296/97 8-hour Occupational Exposure Limit (OEL) of 0.05 milligram per cubic metre (mg/m³) during the removal of paints and products containing any concentration of lead. The use of personal protective equipment is recommended to reduce the potential for over-exposure to lead dust. This can be achieved by:

- Providing workers with protective clothing and PPE or devices as necessary to protect the worker against the hazards to which the worker may be exposed
- Providing workers with adequate and training in the care and use of clothing, equipment or device before wearing or using it
- Wetting the surface of the materials to prevent dust emissions
- Providing workers with washing facilities with clean water, soap and individual towels to properly wash prior to exiting the work area

To avoid the inhalation of lead, it is essential to have the following control methods in place:

- Engineering controls
- Work practices and hygiene practices
- Respirators and personal protective equipment
- Training

The work tasks required and the ways in which lead-containing materials (including paints) will be impacted will determine the appropriate respirators, measures and procedures that should be followed to protect workers from lead exposure.

For lead-containing materials, including paints that are not to be impacted, these can be managed in place, where in good condition.

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6.3 POLYCHLORINATED BIPHENYLS

Although none were identified during this project, fluorescent lamp ballasts that may contain PCBs can be managed in place in accordance with the Hazardous Building Materials Management Plan that is being developed for the CSC Mission Minimum Institution, where these items are operating and in good condition. No further action is currently required until such time that renovation or demolition activities are to be conducted that will take fixtures with suspected PCB-containing ballasts out of service, or until 2025, when PCB-containing ballasts will require removal and disposal.

When fluorescent fixtures without high-efficiency light tubes (if found) are decommissioned, verify the PCB content of fluorescent lamp ballasts as per the Environment Canada publication *Identification of Lamp Ballasts Containing PCBs*, 1991 (or equivalent reference).

Should a material suspected to contain PCBs become uncovered during renovation activities (i.e., dielectric fluids, hydraulic fluids), all work in the areas that may disturb the material should be stopped. Samples of the suspect material should be submitted for laboratory analysis to determine if PCBs are present.

In the unlikely event that PCB-containing items are identified for removal and disposal, these should be handled, transported, stored and disposed of in accordance with the following:

- Transportation and disposal requirements of BC Reg. 63/88
- Transportation requirements of the Federal Transportation of Dangerous Goods Regulation
- Requirements of the Federal PCB Regulations (SOR/2008-273)

6.4 MERCURY

Identified mercury-containing items can be managed in place in accordance with the Hazardous Building Materials Management Plan that is being developed for the CSC Mission Minimum Institution. Mercury vapour within light tubes and liquid mercury in thermostat switches pose no risk to workers or occupants provided the mercury containers remain intact and undisturbed.

Complete removal of mercury-containing equipment is required prior to renovation or demolition activities that may disturb the equipment. When mercury-containing items (e.g., fluorescent light bulbs/tubes, thermostats) are removed, ensure all mercury waste is handled, stored and disposed of in accordance with the requirements the following:

- Transportation and disposal requirements of BC Reg. 63/88

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- Transportation requirements of the Federal Transportation of Dangerous Goods Regulation

Precautions should be taken if workers may potentially be exposed to mercury or mercury vapours to ensure that workers exposure levels do not exceed the occupational exposure limit of 0.025 mg/m³ as per the BC Reg. 296/97 This can be achieved by providing respiratory and skin protection applicable to the hazard and task to be completed.

6.5 MOULD

Documents published by Health Canada, Ontario Ministry of Health, AIHA, ACGIH and others, provide guidance for interpreting the results of mold investigations. The Health Canada Guide states that:

“...current knowledge supports the need to prevent damp conditions and mold growth and to remediate any fungal contamination in buildings.”

In general, mould-impacted building materials will require action (e.g., abatement/removal or cleaning). Recommendations pertaining to mould are provided in the building-by-building information included in Appendices 5-1 through 5-55.

6.6 OZONE DEPLETING SUBSTANCES

ODS-containing equipment can be managed in place in accordance with the Hazardous Building Materials Management Plan that is being developed for the CSC Mission Minimum Institution, and must be serviced by licensed refrigeration technicians (as defined in the Federal Halocarbon Regulations).

If ODS-containing equipment is to be removed for renovation or demolition activities, ODSs must be recovered, handled, recycled, stored, and/or disposed of in accordance with the requirements of the following:

- British Columbia *Waste Management Act*—Ozone Depleting Substances and Other Halocarbons Regulation (BC Reg. 387/99 as amended by BC Reg. 109/2002)
- Transportation requirements of the Federal Transportation of Dangerous Goods Regulation
- Federal Halocarbons Regulations

6.7 SILICA

Silica-containing materials can be managed in place, therefore no further action is recommended at this time.

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If silica-containing materials are to be removed or destructively altered (drilled, chipped, abraded, etc.), ensure dust control measures are employed such that airborne silica dust concentrations do not exceed the exposure limit as stipulated by BC Reg. 296/97 (0.025 mg/m³-more stringent than that stated in the Canada Labour Code). This would include, but not be limited to, the following:

- Providing workers with respiratory protection
- Wetting the surface of the materials to prevent dust emissions
- Providing workers with facilities to properly wash prior to exiting the work area
- Providing dust control to mitigate the potential for demolition dust to escape from the work area into public and/or adjacent areas

7.0 CLOSURE

This report has been prepared by Stantec Consulting Ltd. for the sole benefit of Public Services and Procurement Canada and Correctional Services Canada. Any use that a third party makes of this report, or any reliance on decisions to be made based on it, is the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The information and conclusions contained in this report are based upon work undertaken by trained professionals and technical staff in accordance with generally accepted engineering, scientific and occupational health and safety practices current at the time the work was performed. Conclusions presented in this report should not be construed as legal advice.

The conclusions presented represent the best judgment of the assessors based on current environmental, health and safety standards and the site conditions observed on the dates cited within this report. This report is based on, and limited by, circumstances and conditions stated herein, and on information available at the time of preparation of the report. Due to the limited nature of the investigation and the limited data available, Stantec Consulting Ltd. cannot warrant against undiscovered environmental, health and/or safety liabilities. It is possible that additional, concealed hazardous materials may become evident during renovation and/or demolition activities within the subject buildings.

If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that we be notified immediately to reassess the conclusions provided herein.

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We trust that the report meets your current requirements. Should you have any questions or concerns regarding the above, please do not hesitate to contact the undersigned.

Respectfully submitted,

STANTEC CONSULTING LTD.



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Project Manager



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Senior Associate

APPENDIX 1

BUILDING LIST

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 1 Building List
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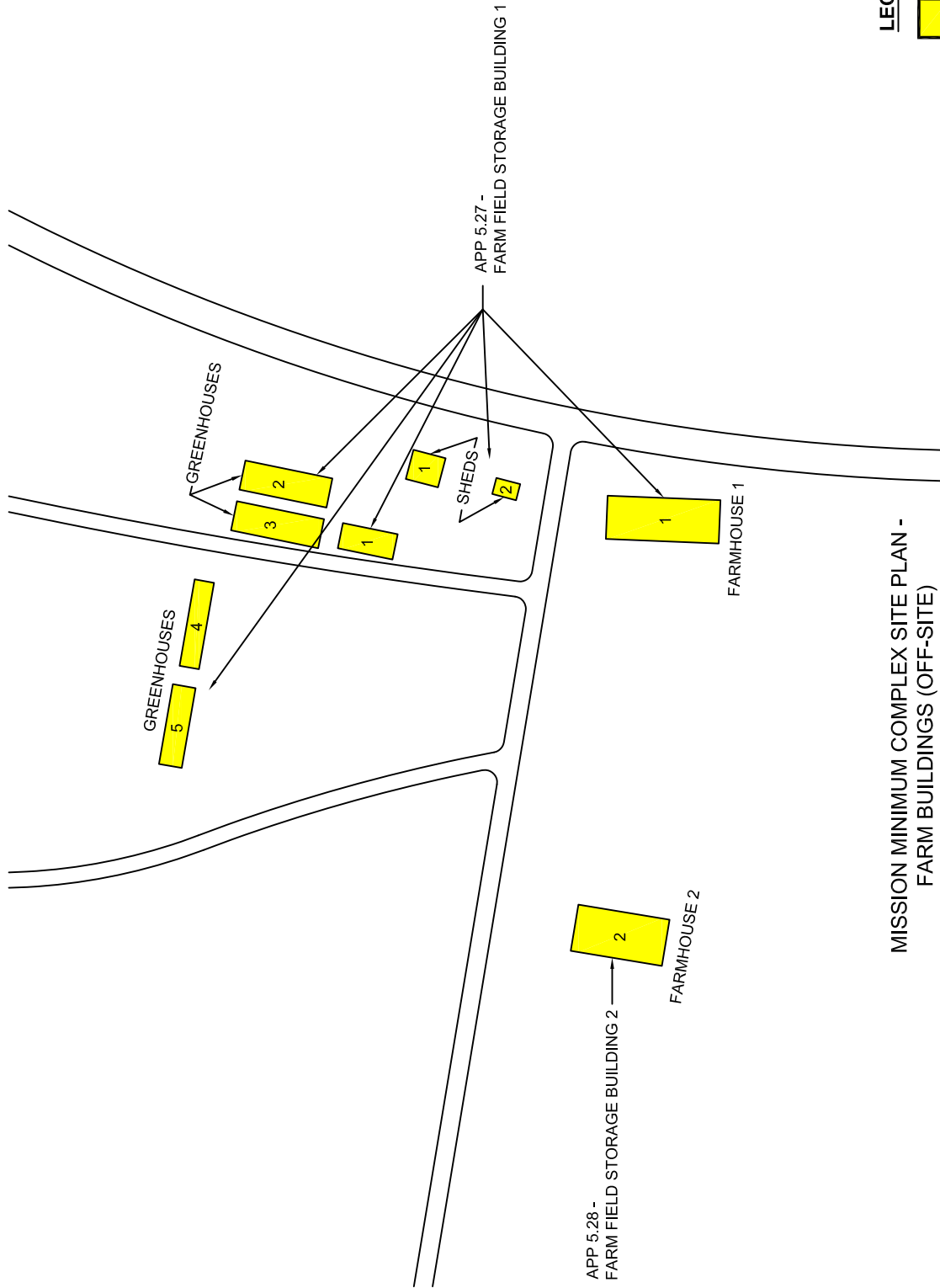
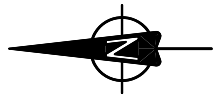
Appendix 1 BUILDING LIST

Appendix	Tag #	Building #	Building Name	Real Property ID	Year of Construction
5.1	848-17-RP	01	Duty Office Building	844	1996
5.2	848-16-RP	02	Activity Building	845	1996
5.3	848-22-RP	03	Institutional Services	846	1997
5.4	848-23-RP	04	Recreation Building	847	1997
5.5	848-37-RP	10	Carpenter Shop	848	1985
5.6	848-00-RP	10a	Carpenter Shop Storage	849	2005
5.7	848-39-RP	14	Storage / Fabrication	850	1985
5.8	848-48-RP	18	Recycle Storage	851	1981
5.9	848-20-RP	20	Weight Room	852	1987
5.10	848-21-RP	20a	Health Services	853	1997
5.11	848-38-RP	21	Textiles / Generator Building	854	1990
5.12	848-18-RP	23	Chapel	855	1997
5.13	848-19-RP	24	Multi-Purpose Building	856	1997
5.14	848-41-RP	25	Greenhouse	857	1986
5.15	848-49-RP	27	Psychology Building	859	1982
5.16	848-35-RP	28	Equipment Shed	860	1987
5.17	848-43-RP	29a	Private Family Visiting	861	1990
5.18	848-44-RP	29b	Private Family Visiting	862	2001
5.19	848-45-RP	30a, b, c	Greenhouses	863	1990
5.20	848-46-RP	31	Greenhouse	864	1998
5.21	848-40-RP	34	Garage	865	1992
5.22	848-36-RP	35	Workshop	866	1991
5.23	848-00-RP	36	In-Vessel Composting Building	867	2001
5.24	848-00-RP	37	Fuel Tanks	37	Unknown
5.25	848-50-RP	38	Aboriginal Change Building	868	2006
5.26	848-00-RP	39	Compost & Equip. Storage Shelter	869	2006
5.27	848-00-RP	40	Farm Field Storage Building 1	870	1990
5.28	848-00-RP	41	Farm Field Storage Building 2	871	1990
5.29	848-51-RP	42	Telephone Kiosk	42	2008
5.30	848-53-RP	43	Gazebo	2336	Unknown
5.31	848-54-RP	44	Emergency Generator	2337	2014

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Appendix 1 Building List
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Appendix	Tag #	Building #	Building Name	Real Property ID	Year of Construction
5.32	848-25-RP	A01	North Residence	872	1994
5.33	848-24-RP	A02	North Residence	873	1997
5.34	848-28-RP	A03	North Residence	874	1994
5.35	848-26-RP	A04	North Residence	875	1994
5.36	848-27-RP	A05	North Residence	876	1994
5.37	848-32-RP	A06	North Residence (Barrier-Free)	877	1994
5.38	848-31-RP	A07	North Residence	878	1994
5.39	848-34-RP	A08	North Residence	879	1994
5.40	848-33-RP	A09	North Residence	880	1994
5.41	848-04-RP	A10	North Residence	31	1996
5.42	848-05-RP	A11	North Residence (Barrier-Free)	881	1996
5.43	848-06-RP	A12	East Residence	882	1996
5.44	848-07-RP	A13	East Residence	883	1996
5.45	848-10-RP	A14	East Residence	884	1996
5.46	848-11-RP	A15	East Residence	885	1996
5.47	848-14-RP	A16	East Residence	886	1996
5.48	848-08-RP	A17	East Residence	887	1999
5.49	848-09-RP	A18	East Residence	888	1999
5.50	848-15-RP	A19	East Residence	889	2001
5.51	848-12-RP	A20	East Residence	890	2001
5.52	848-13-RP	A21	East Residence	891	2001
5.53	848-29-RP	A22	East Residence	892	2001
5.54	848-30-RP	A23	East Residence	893	2001
5.55	848-52-RP	LU24	50 Bed Living Unit	2289	2014



LEGEND



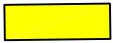
**MISSION MINIMUM COMPLEX SITE PLAN -
FARM BUILDINGS (OFF-SITE)**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

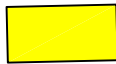
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Scale: N.T.S.	2	
Date: 17/09/15		
Dwn. By: CD PK/VM		
App'd By: TW		
SITE PLAN		
CSC MISSION MINIMUM INSTITUTION		
33737 DEWDNEY TRUNK ROAD, MISSION, BC		
PUBLIC SERVICES AND PROCUREMENT CANADA		
Client:		



APP 5.26 -
COMPOST & EQUIP. STORAGE SHELTER



APP 5.23 -
IN-VESSEL COMPOSTING BUILDING



APP 5.25 -
ABORIGINAL CHANGE ROOM



LEGEND



BUILDINGS ASSESSED

MISSION MINIMUM COMPLEX SITE PLAN - (OFF-SITE)

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Dwg. No.:



3

Project No.: 123220822

Scale: N.T.S.

Date: 17/09/15

Dwn. By: CD SL2017090081
PK/VM

App'd By: TW

SITE PLAN

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

APPENDIX 5.1 FINDINGS AND RECOMMENDATIONS— BUILDING 01—DUTY OFFICE BUILDING (848-17-RP)



Appendix 5.1 FINDINGS AND RECOMMENDATIONS— BUILDING 01—DUTY OFFICE BUILDING (848-17-RP)

Building 01—Duty Office Building (subject building) was reportedly constructed in 1996 and has been assigned Real Property ID #844. The typical structural components and finishes associated with this building consist of exterior panel siding; suspended ceiling tiles and drywall ceilings; drywall, concrete, ceramic tile and wooden walls; and, concrete, vinyl floor tiles and vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.1-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.1-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.1-1 Suspected ACM Sample Collection and Analysis Summary
Building 01—Duty Office Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
1-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 51, deputy office, northwest corner, wall	None Detected
1-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 51, deputy office, south wall	None Detected
1-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 54, visits, southwest corner, wall	None Detected
1-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 35, mechanical, partition wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.1 Findings and Recommendations—Building 01—Duty Office Building (848-17-RP)
September 2017

**Table 5.1-1 Suspected ACM Sample Collection and Analysis Summary
Building 01—Duty Office Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
1-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 22, file room, northwest corner, wall	None Detected
1-DJC-01F	Drywall joint compound applied to walls and ceilings throughout	Room 34, vestibule, south wall	None Detected
1-DJC-01G	Drywall joint compound applied to walls and ceilings throughout	Room 23, board room, southwest corner, ceiling	None Detected
1-DM-01A	Grey duct mastic	North rooftop HVAC unit	None Detected
1-DM-01B	Grey duct mastic	North rooftop HVAC unit	None Detected
1-DM-01C	Grey duct mastic	North rooftop HVAC unit	None Detected
1-DM-02A	Grey duct mastic painted white	Room 29, general office, round ducting, west end	None Detected
1-DM-02B	Grey duct mastic painted white	Room 54, visits, round ducting, central south end	None Detected
1-DM-02C	Grey duct mastic painted white	Room 54, visits, round ducting, southeast corner	None Detected
1-WPC-01A	Black window pane caulking	Room, 54, visits, southwest window	None Detected
1-WPC-01B	Black window pane caulking	Room, 54, visits, south central window	None Detected
1-WPC-01C	Black window pane caulking	Room 29, general office, west window	None Detected
1-WFC-01A	Clear window frame caulking	Exterior, west window outside of room 29, general office	None Detected
1-WFC-01B	Clear window frame caulking	Exterior, north window outside of room 01, warden	None Detected
1-WFC-01C	Clear window frame caulking	Exterior, east window outside room 12, corridor	None Detected
1-FM-01A	White flashing mastic	Roof, east side	None Detected
1-FM-01B	White flashing mastic	Roof, east side	None Detected
1-FM-01C	White flashing mastic	Roof, north side	None Detected
1-PS-01A	White pipe sealant	Room 35, hot water supply fitting	1.3% Chrysotile
1-PS-01B	White pipe sealant	Room 35, natural gas supply	Positive Stop (Not Analyzed)
1-PS-01C	White pipe sealant	Room 35, sprinkler system	Positive Stop (Not Analyzed)
1-RM-01A	Roof membrane	Roof, southwest side	None Detected
1-RM-01B	Roof membrane	Roof, northeast side	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

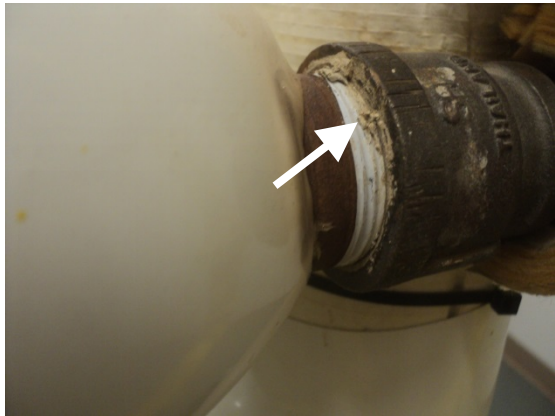
Appendix 5.1 Findings and Recommendations—Building 01—Duty Office Building (848-17-RP)
September 2017

**Table 5.1-1 Suspected ACM Sample Collection and Analysis Summary
Building 01—Duty Office Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
1-RM-01C	Roof membrane	Roof, central	None Detected
1-CTC-01A	Ceiling texture coat	Room 29, general office, west end ceiling	None Detected
1-CTC-01B	Ceiling texture coat	Room 29, general office, west end ceiling	None Detected
1-CTC-01C	Ceiling texture coat	Room 29, general office, southeast corner, ceiling	None Detected
1-SF-01	Tan sheet flooring with smudges	Room 51, deputy office	None Detected
1-SF-02	Tan speckled sheet flooring	Room 34, vestibule	None Detected
1-SF-03	Orange sheet flooring with smudges, first layer	Room 12, corridor	None Detected
1-SF-04	Grey pebble pattern sheet flooring, second layer under orange smudged sheet flooring	Room 12, corridor (under 1-SF-03)	None Detected
1-SF-05	Beige sheet flooring with tan streaks	Room 49, vestibule	None Detected
NOTE: Bold, highlighted text indicates confirmed ACM			

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the material presented in Table 5.1-2, below was identified as an ACM.

**Table 5.1-2 Summary of Identified ACMs
Building 01—Duty Office Building**

Identified ACM Description and Condition Information		Photo
White pipe sealant applied to domestic water, natural gas and sprinkler system pipe fittings throughout.		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threads of fittings throughout	
Content	1.3% Chrysotile	

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.1 Findings and Recommendations—Building 01—Duty Office Building (848-17-RP)
September 2017

5.1-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.1-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Solder used in bell fittings of cast iron pipes and in electrical equipment
- Ceramic tile glaze

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.1-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.1-3 Suspected LCP Sample Collection and Analysis Summary
Building 01—Duty Office Building**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
1-P-01	White on drywall	Interior west wall of room 51, Deputy Office	<90
1-P-02	Blue on concrete	Concrete floor in room 35-A, Mechanical Room	<90
1-P-03	White on steel	Steel on I-Beam of room 35-A, Mechanical Room	<260
1-P-04	White on steel	Railing on southwest side of roof	<90
1-P-05	Grey on metal	Exterior patio, south wall	<260
1-P-06	Blue on metal	Exterior patio trim on south side	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.1 Findings and Recommendations—Building 01—Duty Office Building (848-17-RP)
September 2017

5.1-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.



5.1-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 100 fluorescent light fixtures observed.

5.1-5 MOULD

Observations pertaining to mould and/or moisture impacted building materials are summarized in the following table.

**Table 5.1-4 Mould/Moisture Observations Summary— March 6, 2017
Building 01—Duty Office Building**

Building Area	Observation	Suspected Source of Moisture	Photo
West window sill of room 51 Deputy Office	Moisture stained drywall	Condensation	
Various locations throughout	Moisture stained suspended ceiling tiles	Pipe leaks	

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.1 Findings and Recommendations—Building 01—Duty Office Building (848-17-RP)
September 2017

5.1-6 OZONE-DEPLETING SUBSTANCES

Building-related refrigeration and/or air conditioning equipment observed was confirmed (by label information) to be charged with refrigerants that are not considered ODSs.

5.1-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Cement products such as:
 - Concrete foundation
 - Ceramic tiles and associated grouts and mortars
- Gypsum and associated wall/ceiling finish materials
- Suspended ceiling tiles
- Asphalt roof shingles

5.1-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

Additional building-specific recommendations to be considered are provided below.

5.1-8.5 Mould

Documents published by Health Canada, Ontario Ministry of Health, American Industrial Hygiene Association (AIHA), American Conference of Governmental Industrial Hygienists (ACGIH) and others, provide guidance for interpreting the results of mold investigations. The Health Canada Guide states that:

“...current knowledge supports the need to prevent damp conditions and mold growth and to remediate any fungal contamination in buildings.”

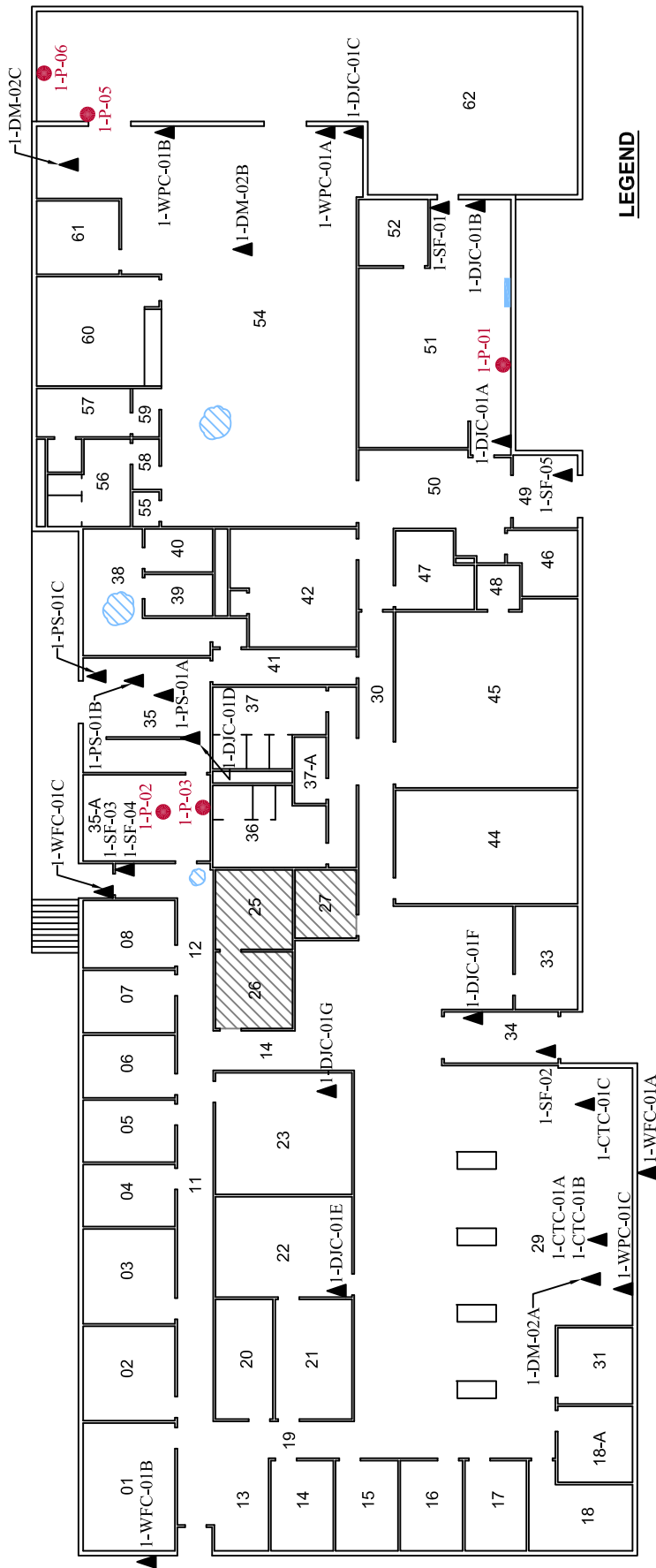
To this end, Stantec recommends the following course of action within the subject building:

- Remove and replace moisture-stained ceiling tiles with new tiles. If staining re-appears on the new tiles, the source of moisture should be identified and corrected.
 - This work can be conducted by regular facility maintenance staff, if conducted prior to the onset of mould growth.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.1 Findings and Recommendations—Building 01—Duty Office Building (848-17-RP)
September 2017

- Monitor the area of moisture-stained drywall materials in the west window sill of room 51 Deputy Office. If staining worsens, identify and correct the source of moisture. If drywall materials around the window ledge remain damp for more than 24 hours, and/or if textured staining (suspect mould) is observed, the impacted materials should be removed, using accepted industry standards of practice (e.g., those outlined in CCA 82).



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- MOISTURE STAINED CEILING TILE
- MOISTURE STAINED DRYWALL
- NO ACCESS

**FIRST FLOOR
DUTY OFFICE BUILDING**

NOTES: 1. WHITE PIPE SEALANT ON THREADS OF FITTINGS THROUGHOUT IS ASBESTOS-CONTAINING.
 2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822	Dwg. No.: 1.1
Scale: N.T.S.	
Date: 17/04/03	
Dwn. By: CD PK	
App'd By: TW	



Unit 1		
North Residence - First Floor		
Rm. #	Name	Area m ²
01	Warden	25.4
02	Assistant Warden Management Services	18.4
03	Institutional Parole Officer	18.4
04	Institutional Parole Officer	12.2
05	Institutional Parole Officer	12.2
06	Institutional Parole Officer	12.2
07	Institutional Parole Officer	12.2
08	Institutional Parole Officer	13.4
11	Corridor	34.5
12	Corridor	20.2
13	Work Station	10.7
14	Institutional Parole Officer	12.2
15	Institutional Transfer Coordinator	12.2
16	Institutional Parole Officer	12.2
17	Chief Admin. Services	12.2
18	Chief of Finance	16.8
18a	Institutional Parole Officer	12.3
19	Corridor	10.5
20	Storage Room	14.0
21	Mail Room	18.8
22	File Room	27.6
23	Board Room	33.6
24	Corridor	6.4
25	VAX Room	12.6
26	Information Tech.	12.1
27	Secure Room	8.6
29	General Office	253.8
30	Corridor	32.3
31	Coordinator Case Management	12.3

33	Corcan Operations Manager	14.3
34	Vestibule	12.9
35	Mechanical	30.2
35a	Electrical Room	22.9
36	B.F. Mens Room	18.8
37	B.F. Womens Room	17.9
38	Change Room	23.8
39	Womens Room	6.5
40	Mens Room	6.5
41	Corridor	11.1
42	Correctional Supervisor	29.4
44	Staff Lounge	42.2
45	Conference Room	67.0
46	Correctional Officers/Union	9.1
47	Urinals	11.4
48	Washroom	4.1
49	Vestibule	11.0
50	Waiting Room	33.3
51	Deputy Room	69.0
52	Coffee Room	10.2
54	Visits	182.7
55	Storage Room	2.3
56	Womens Room	14.2
57	B.F. Mens Room	13.2
58	Washroom Vestibules	3.0
59	Washroom Vestibules	3.0
60	Inmate Computer Room	27.8
61	Interview Room	27.8
62	Patio	

FIRST FLOOR

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

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Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

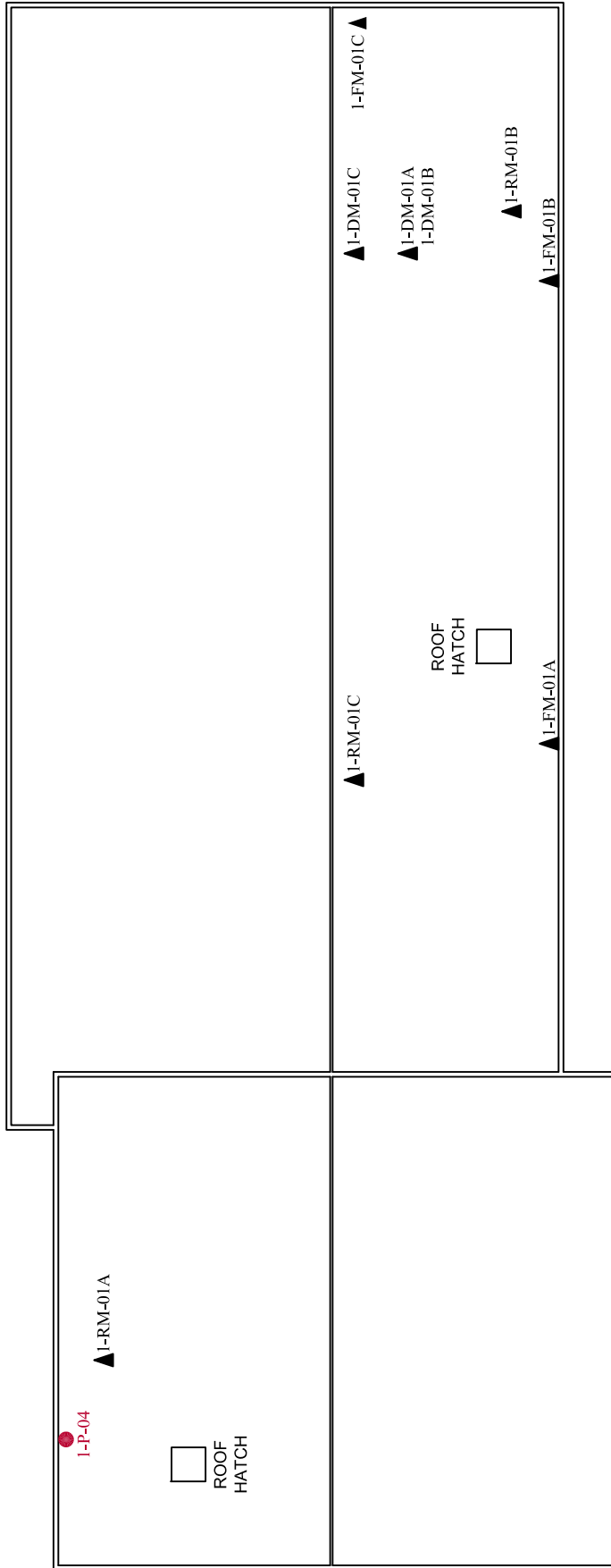
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App'd By: TW

Dwg. No.:

1.2





**ROOF
DUTY OFFICE BUILDING**

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
AND BULK SAMPLE LOCATIONS**
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822	Dwg. No.: 1.3	
Scale: N.T.S.		
Date: 17/04/03		
Dwn. By: CD PK		
App'd By: TW		



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EMSL Canada Order 691700389
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/10/2017
Analyzed: 3/17/2017

Proj: CSC MISSION- MINIMUM/ 123220822/ DUTY OFFICE

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
Client Sample ID: 1-DJC-01A Lab Sample ID: 691700389-0001						
Sample Description: Room 51, Deputy Office, West Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout						
PLM	3/17/2017	White	0%	100%	None Detected	
Client Sample ID: 1-DJC-01B Lab Sample ID: 691700389-0002						
Sample Description: Room 51 Deputy Office, North Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout						
PLM	3/17/2017	White	0%	100%	None Detected	
Client Sample ID: 1-DJC-01C Lab Sample ID: 691700389-0003						
Sample Description: Room 54, Visits, North Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout						
PLM	3/17/2017	White	0%	100%	None Detected	
Client Sample ID: 1-DJC-01D Lab Sample ID: 691700389-0004						
Sample Description: Room 35, Mechanical, Partition Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout						
PLM	3/17/2017	White	0%	100%	None Detected	
Client Sample ID: 1-DJC-01E Lab Sample ID: 691700389-0005						
Sample Description: Room 22, File Room, North Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout						
PLM	3/17/2017	White	0%	100%	None Detected	
Client Sample ID: 1-DJC-01F Lab Sample ID: 691700389-0006						
Sample Description: Room 34, Vestibule, South Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout						
PLM	3/17/2017	White	0%	100%	None Detected	
Client Sample ID: 1-DJC-01G Lab Sample ID: 691700389-0007						
Sample Description: Room 23, Board Room Ceiling/Drywall Joint Compound Applied to Walls and Ceilings Throughout						
PLM	3/17/2017	White	0%	100%	None Detected	



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 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 1-DM-01A **Lab Sample ID:** 691700389-0008
Sample Description: North Rooftop HVAC Unit/Grey Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 1-DM-01B **Lab Sample ID:** 691700389-0009
Sample Description: North Rooftop HVAC Unit/Grey Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 1-DM-01C **Lab Sample ID:** 691700389-0010
Sample Description: North Rooftop HVAC Unit/Grey Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 1-DM-02A **Lab Sample ID:** 691700389-0011
Sample Description: Room 29, General Office, Round Ducting/Grey Duct Mastic Painted White

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 1-DM-02B **Lab Sample ID:** 691700389-0012
Sample Description: Room 54, Visits, Round Ducting/Grey Duct Mastic Painted White

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Gray	0%	100%	None Detected	

Client Sample ID: 1-DM-02C **Lab Sample ID:** 691700389-0013
Sample Description: Room 54, Visits, Round Ducting/Grey Duct Mastic Painted White

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Gray	0%	100%	None Detected	

Client Sample ID: 1-WPC-01A **Lab Sample ID:** 691700389-0014
Sample Description: Room 54, Visits, South Window/Black Window Pane Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 1-WPC-01B **Lab Sample ID:** 691700389-0015
Sample Description: Room 54, Visits, South Window/Black Window Pane Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	



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 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 1-WPC-01C **Lab Sample ID:** 691700389-0016
Sample Description: Room 29, General Office, West Window/Black Window Pane Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 1-WFC-01A **Lab Sample ID:** 691700389-0017
Sample Description: Exterior, West Window/Clear Window Frame Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 1-WFC-01B **Lab Sample ID:** 691700389-0018
Sample Description: Exterior, North Window/Clear Window Frame Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Clear	0%	100%	None Detected	

Client Sample ID: 1-WFC-01C **Lab Sample ID:** 691700389-0019
Sample Description: Exterior, East Window/Clear Window Frame Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Clear	0%	100%	None Detected	

Client Sample ID: 1-FM-01A **Lab Sample ID:** 691700389-0020
Sample Description: Roof, East Side/White Flashing Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	White	0.0%	100%	None Detected	

Client Sample ID: 1-FM-01B **Lab Sample ID:** 691700389-0021
Sample Description: Roof, East Side/White Flashing Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	White	0.0%	100%	None Detected	

Client Sample ID: 1-FM-01C **Lab Sample ID:** 691700389-0022
Sample Description: Roof, North Side/White Flashing Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	White	0.0%	100%	None Detected	

Client Sample ID: 1-PS-01A **Lab Sample ID:** 691700389-0023
Sample Description: Room 35, Hot Water Supply Fitting/White Pipe Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Tan	0.67%	98.0%	1.3% Chrysotile	



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EMSL Canada Order 691700389
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 1-PS-01B **Lab Sample ID:** 691700389-0024
Sample Description: Room 35, Natural Gas Supply/White Pipe Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017					Positive Stop (Not Analyzed)

Client Sample ID: 1-PS-01C **Lab Sample ID:** 691700389-0025
Sample Description: Room 35, Sprinkler System/White Pipe Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017					Positive Stop (Not Analyzed)

Client Sample ID: 1-RM-01A **Lab Sample ID:** 691700389-0026
Sample Description: Roof, South Side/Roof Membrane

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 1-RM-01B **Lab Sample ID:** 691700389-0027
Sample Description: Roof, North Side/Roof Membrane

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 1-RM-01C **Lab Sample ID:** 691700389-0028
Sample Description: Roof Central/Roof Membrane

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 1-CTC-01A **Lab Sample ID:** 691700389-0029
Sample Description: Room 29, General Office, Ceiling/Ceiling Texture Coat

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: 1-CTC-01B **Lab Sample ID:** 691700389-0030
Sample Description: Room 29, General Office, Ceiling/Ceiling Texture Coat

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: 1-CTC-01C **Lab Sample ID:** 691700389-0031
Sample Description: Room 29, General Office, Ceiling/Ceiling Texture Coat

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	



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Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 1-SF-01 **Lab Sample ID:** 691700389-0032

Sample Description: Room 51, Deputy Office/Tan Sheet Flooring w/Smudges

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Tan	0.0%	100%	None Detected	

Client Sample ID: 1-SF-02 **Lab Sample ID:** 691700389-0033

Sample Description: Room 34, Vestibule/Tan Speckled Sheet Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Tan	3.2%	96.8%	None Detected	

Client Sample ID: 1-SF-03 **Lab Sample ID:** 691700389-0034

Sample Description: Room 12, Corridor/Orange Sheet Flooring w/Smudges

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Orange	0.0%	100%	None Detected	

Client Sample ID: 1-SF-04 **Lab Sample ID:** 691700389-0035

Sample Description: Room 12, Corridor (Under 1-SF-01)/Grey Pebble Pattern Sheet Flooring Under Orange Smudged Sheet Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 1-SF-05 **Lab Sample ID:** 691700389-0036

Sample Description: Room 49, Vestibule/Beige Sheet Flooring w/Tan Streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Beige	0.0%	100%	None Detected	

Analyst(s):

Kathleen Cruz	PLM (10) PLM Grav. Reduction (16)
Nicole Yeo	PLM (4) PLM Grav. Reduction (4)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/29/2017 14:01:42



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Phone: (604) 412-3004
Fax:
Received: 03/13/17 9:59 AM
Collected:

Project: **CSC MISSION-MINIMUM/123220822 - DUTY OFFICE**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
1-P-01 Site: INTERIOR WEST WALL OF 51 DEPUTY OFFICE Desc: WHITE	551702649-0001	3/16/2017		<90 ppm
1-P-02 Site: CONCRETE FLOOR IN ROOM 35-A MECHANICAL ROOM Desc: BLUE	551702649-0002	3/16/2017		<90 ppm
1-P-03 Site: STEEL ON IBEAM OF 35-A MECHANICAL ROOM Desc: WHITE Insufficient sample to reach reporting limit.	551702649-0003	3/16/2017		<260 ppm
1-P-04 Site: RAILING ON SOUTH SIDE OF ROOF Desc: WHITE	551702649-0004	3/16/2017		<90 ppm
1-P-05 Site: EXTERIOR SOUTH WALL Desc: GREY Insufficient sample to reach reporting limit.	551702649-0005	3/16/2017		<260 ppm
1-P-06 Site: EXTERIOR TRIM ON SOUTH SIDE Desc: BLUE	551702649-0006	3/16/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/20/2017 08:33:39

**APPENDIX 5.2
FINDINGS AND RECOMMENDATIONS—
BUILDING 02—ACTIVITY BUILDING
(848-16-RP)**



Appendix 5.2 FINDINGS AND RECOMMENDATIONS— BUILDING 02—ACTIVITY BUILDING (848-16-RP)

Building 02—Activity Building (subject building) was reportedly constructed in 1996 and has been assigned Real Property ID #845. The typical structural components and finishes associated with this building consist of exterior panel siding; suspended ceiling tiles and drywall ceilings; drywall, concrete, ceramic tile and wooden walls; and, concrete and vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.2-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.2-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.2-1 Suspected ACM Sample Collection and Analysis Summary
Building 02—Activity Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
2-PS-01A	Grey penetration sealant	Room 20A, electrical room, west wall	None Detected
2-PS-01B	Grey penetration sealant	Room 20A, electrical room, west wall	None Detected
2-PS-01C	Grey penetration sealant	Room 20A, electrical room, west wall	None Detected
2-PS-02A	White pipe sealant	Room 20A, electrical room, sprinkler, west wall	None Detected
2-PS-02B	White pipe sealant	Room 15, mechanical room, hot water, east wall	None Detected
2-PS-02C	White pipe sealant	Room 12, vestibule, closet sprinkler room, north wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.2 Findings and Recommendations—Building 02—Activity Building (848-16-RP)
September 2017

**Table 5.2-1 Suspected ACM Sample Collection and Analysis Summary
Building 02—Activity Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
2-WFC-01A	Clear window frame caulking	Exterior south wall outside room 23, library	None Detected
2-WFC-01B	Clear window frame caulking	Exterior south wall outside room 5, classroom	None Detected
2-WFC-01C	Clear window frame caulking	Exterior south wall outside room 5, classroom	None Detected
2-PP-01A	White penetration putty	Exterior north wall sealant on tap outside room 9, inmate committee office	None Detected
2-PP-01B	White penetration putty	Exterior north wall sealant on tap outside room 9, inmate committee office	None Detected
2-PP-01C	White penetration putty	Exterior north wall sealant on tap outside room 9, inmate committee office	None Detected
2-WPC-01A	Black window pane caulking	Room 29, computer training classroom, south window	None Detected
2-WPC-01B	Black window pane caulking	Room 5, classroom, south window	None Detected
2-WPC-01C	Black window pane caulking	Room 5, classroom, south window	None Detected
2-DJC-01A	Drywall joint compound	Room 29, computer training classroom, west corner, wall	None Detected
2-DJC-01B	Drywall joint compound	Room 20, "pop shop", south wall	None Detected
2-DJC-01C	Drywall joint compound	Room 2, arts and crafts, north wall	None Detected
2-DJC-01D	Drywall joint compound	Room 1, arts and crafts, north wall	None Detected
2-DJC-01E	Drywall joint compound	Room 6, corridor, west wall	None Detected
2-DJC-01F	Drywall joint compound	Room 17, inmate committee storage, ceiling	None Detected
2-DJC-01G	Drywall joint compound	Room 19, programs, south wall	None Detected
2-SF-01	Light pink/ salmon sheet flooring	Room 20, "pop shop"	None Detected
2-SF-02	Tan speckled sheet flooring	Room 12, vestibule	None Detected
2-CT-01A	2'x4' ceiling tile with standard fissure and pinhole	Room 29, computer training classroom, northwest ceiling	None Detected
2-CT-01B	2'x4' ceiling tile with standard fissure and pinhole	Room 29, computer training classroom, northwest ceiling	None Detected
2-CT-01C	2'x4' ceiling tile with standard fissure and pinhole	Room 29, computer training classroom, northwest ceiling	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.2 Findings and Recommendations—Building 02—Activity Building (848-16-RP)
September 2017

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.2-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.2-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Solder used in bell fittings of cast iron pipes and in electrical equipment
- Ceramic tile glaze
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.2-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.2-2 Suspected LCP Sample Collection and Analysis Summary
Building 2—Activity Building**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
2-P-01	Pink on drywall	Room 1, arts and crafts, north wall	<90
2-P-02	Blue on steel	Room 1, arts and crafts, north door	<90
2-P-03	Grey on concrete	Room 8, arts and crafts, floor	<90
2-P-04	Yellow on drywall	Room 8, arts and crafts, east wall	<90
2-P-05	Beige on steel	Exterior north wall outside room 1, arts and crafts	<210

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.2 Findings and Recommendations—Building 02—Activity Building (848-16-RP)
September 2017

5.2-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.2-4 MERCURY



Mercury vapour is present in the light tubes within the 100 fluorescent light fixtures observed.

Six thermostats with mercury-containing switches were observed in the activity building. The locations of the thermostats are indicated on the floor plan drawing within this appendix.

5.2-5 MOULD

Observations pertaining to mould and/or moisture impacted building materials are summarized in the following table.

**Table 5.2-3 Mould/Moisture Observations Summary—March 13, 2017
Building 02—Activity Building**

Building Area	Observation	Suspected Source of Moisture	Photo
Various locations throughout	Moisture stained suspended ceiling tiles	Pipe leaks	
Room 21	Moisture stained drywall ceiling	Pipe or roof leaks	

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.2 Findings and Recommendations—Building 02—Activity Building (848-16-RP)
September 2017

5.2-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.2-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Cement products such as:
 - Concrete foundation
 - Ceramic tiles and associated grouts and mortars
- Gypsum and associated wall/ceiling finish materials
- Suspended ceiling tiles
- Asphalt roof shingles

5.2-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

Additional building-specific recommendations to be considered are provided below.

5.2-8.1 Mould

Documents published by Health Canada, Ontario Ministry of Health, American Industrial Hygiene Association (AIHA), American Conference of Governmental Industrial Hygienists (ACGIH) and others, provide guidance for interpreting the results of mold investigations. The Health Canada Guide states that:

“...current knowledge supports the need to prevent damp conditions and mold growth and to remediate any fungal contamination in buildings.”

To this end, Stantec recommends the following course of action within the subject building:

- Remove and replace moisture-stained ceiling tiles with new tiles. If staining re-appears on the new tiles, the source of moisture should be identified and corrected.
 - This work can be conducted by regular facility maintenance staff, if conducted prior to the onset of mould growth.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.2 Findings and Recommendations—Building 02—Activity Building (848-16-RP)
September 2017

- Monitor the area of moisture-stained drywall ceiling materials in room 21. If staining worsens, identify and correct the source of moisture. If drywall materials remain damp for more than 24 hours, and/or if textured staining (suspect mould) is observed, the impacted materials should be removed, using accepted industry standards of practice (e.g. those outlined in CCA 82).

Unit 2		
Activity Building - First Floor		
Rm. #	Name	Area m ²
1	Arts & Crafts	44.1
2	Arts & Crafts	63.9
3	Classroom	42.7
4	Classroom	42.7
5	Classroom	44.1
6	Corridor	30.8
7	Corridor	38.2
8	Arts & Crafts	16.4
9	Inmate Committee Office	12.1
10	Barber Shop	15.3
11	Corridor	16.3
12	Vestibule	7.3
13	Finished Product Storage	8.4
14	Tool Room	9.0
15	Mechanical Room	28.3
16	B.F. Male Washroom	13.9
17	Inmate Committee Storage	3.7
18	Female Washroom	5.6
19	Programs	27.9
20	Pop Shop	9.5
20a	Electrical Room	5.6
21	Janitors Room	5.1
22	Corridor	12.8
23	Library	42.7
24	Social Developments	15.7
25	CC Programs	18.5
26	Tool Storage	13.0
27	Social Development	17.7
28	Vestibule	5.1
29	Computer Training Classroom	43.0
30	Corridor	41.7
31	Vestibule	6.7
32	Vestibule	6.4

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD _{VM} SL2017040119

App'd By: TW

Dwg. No.:

2.2





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 Customer ID: 55JACQ30L
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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/27/2017

Proj: CSC MISSION-MINIMUM / 123220822 / ACTIVITIES-2

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 2-PS-01A **Lab Sample ID:** 691700498-0001

Sample Description: Room 20A, Electrical Room, West Wall/Grey Penetration Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	White	0.0%	100%	None Detected	

Client Sample ID: 2-PS-01B **Lab Sample ID:** 691700498-0002

Sample Description: Room 20A, Electrical Room, West Wall/Grey Penetration Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	White	0.0%	100%	None Detected	

Client Sample ID: 2-PS-01C **Lab Sample ID:** 691700498-0003

Sample Description: Room 20A, Electrical Room, West Wall/Grey Penetration Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	White	0.0%	100%	None Detected	

Client Sample ID: 2-PS-02A **Lab Sample ID:** 691700498-0004

Sample Description: Room 20A, Electrical Room, Sprinkler/White Pipe Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 2-PS-02B **Lab Sample ID:** 691700498-0005

Sample Description: Room 15, Mechanical Room, Hot Water/White Pipe Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 2-PS-02C **Lab Sample ID:** 691700498-0006

Sample Description: Room 12, Vestibule, Closet Sprinkler Room/White Pipe Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 2-WFC-01A **Lab Sample ID:** 691700498-0007

Sample Description: Exterior South Window/Clear Window Frame Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700498
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 2-WFC-01B **Lab Sample ID:** 691700498-0008

Sample Description: Exterior South Window/Clear Window Frame Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 2-WFC-01C **Lab Sample ID:** 691700498-0009

Sample Description: Exterior South Window/Clear Window Frame Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 2-PP-01A **Lab Sample ID:** 691700498-0010

Sample Description: Exterior North Wall Sealant on Tap/White Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 2-PP-01B **Lab Sample ID:** 691700498-0011

Sample Description: Exterior North Wall Sealant on Tap/White Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	White	0.0%	100%	None Detected	

Client Sample ID: 2-PP-01C **Lab Sample ID:** 691700498-0012

Sample Description: Exterior North Wall Sealant on Tap/White Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	White	0.0%	100%	None Detected	

Client Sample ID: 2-WPC-01A **Lab Sample ID:** 691700498-0013

Sample Description: Room 29, Computer Training Classroom, South Window/Black Window Pane Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 2-WPC-01B **Lab Sample ID:** 691700498-0014

Sample Description: Room 5, Classroom, South Window/Black Window Pane Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 2-WPC-01C **Lab Sample ID:** 691700498-0015

Sample Description: Room 5, Classroom, South Window/Black Window Pane Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700498
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 2-DJC-01A **Lab Sample ID:** 691700498-0016
Sample Description: Room 29, Computer Training Classroom, West Wall/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	

Client Sample ID: 2-DJC-01B **Lab Sample ID:** 691700498-0017
Sample Description: Room 20, "Pop Shop" South Wall/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID: 2-DJC-01C **Lab Sample ID:** 691700498-0018
Sample Description: Room 2, Arts & Crafts, North Wall/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID: 2-DJC-01D **Lab Sample ID:** 691700498-0019
Sample Description: Room 1, Arts & Crafts, North Wall/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID: 2-DJC-01E **Lab Sample ID:** 691700498-0020
Sample Description: Room 6, Corridor, East Wall/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID: 2-DJC-01F **Lab Sample ID:** 691700498-0021
Sample Description: Room 17, Inmate Committee Storage, Ceiling/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID: 2-DJC-01G **Lab Sample ID:** 691700498-0022
Sample Description: Room 19, Programs, South Wall/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis



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EMSL Canada Order 691700498
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 2-SF-01 **Lab Sample ID:** 691700498-0023
Sample Description: Room 20 "Pop Shop"/Light Pink/ Salmon Sheet Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 2-SF-02 **Lab Sample ID:** 691700498-0024
Sample Description: Room 12, Vestibule/Tan Speckled Sheet Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 2-CT-01A **Lab Sample ID:** 691700498-0025
Sample Description: Room 29, Computer Training Classroom, Northwest Ceiling/2'x4' Ceiling Tile w/ Standard Fissure & Pinhole

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Gray	65%	35%	None Detected	

Client Sample ID: 2-CT-01B **Lab Sample ID:** 691700498-0026
Sample Description: Room 29, Computer Training Classroom, Northwest Ceiling/2'x4' Ceiling Tile w/ Standard Fissure & Pinhole

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Gray	75%	25%	None Detected	

Client Sample ID: 2-CT-01C **Lab Sample ID:** 691700498-0027
Sample Description: Room 29, Computer Training Classroom, Northwest Ceiling/2'x4' Ceiling Tile w/ Standard Fissure & Pinhole

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Brown/Gray	55%	45%	None Detected	

Analyst(s):

- Chad Layne PLM Grav. Reduction (17)
- Ghaly Hemaya PLM (7)
- Kamel Alawawda PLM (3)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. New York, NY AIHA-LAP, LLC--IHLAP Accredited #102581, NVLAP Lab Code 101048-9, NYS ELAP 11506, NJ NY022, CT PH-0170, MA AA000170

Initial report from: 03/28/2017 09:38:50



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torontolab@emsl.com

EMSL Canada Or	551702914
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 11:03 AM
 Collected:

Project: CSCMISSION-MINIMUM/123220822 - Activities - 2

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
2-P-01 Site: Room 1, arts and crafts, north wall Desc: Pink on drywall	551702914-0001	3/24/2017		<90 ppm
2-P-02 Site: Room 1, arts and crafts, north door Desc: Blue on steel	551702914-0002	3/24/2017		<90 ppm
2-P-03 Site: Room 8, arts and crafts, floor Desc: Grey on concrete	551702914-0003	3/24/2017		<90 ppm
2-P-04 Site: Room 8, arts and crafts, east wall Desc: Yellow on drywall	551702914-0004	3/24/2017		<90 ppm
2-P-05 Site: Exterior north wall Desc: Beige on steel Insufficient sample to reach reporting limit.	551702914-0005	3/24/2017		<210 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:11:20

**APPENDIX 5.3
FINDINGS AND RECOMMENDATIONS—
BUILDING 03—INSTITUTIONAL SERVICES
(848-22-RP)**



Appendix 5.3 FINDINGS AND RECOMMENDATIONS— BUILDING 03—INSTITUTIONAL SERVICES (848-22-RP)

Building 03—Institutional Services (subject building) was reportedly constructed in 1997 and has been assigned Real Property ID #846. The typical structural components and finishes associated with this building consist of steel exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring and floor tile.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.3-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.3-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.3-1 Suspected ACM Sample Collection and Analysis Summary
Building 03—Institutional Services**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
3-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 34, office area, west perimeter wall	None Detected
3-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 19, male washroom, partition wall	None Detected
3-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 29, corridor, partition wall adjacent to room 30, security storage	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.3 Findings and Recommendations—Building 03—Institutional Services (848-22-RP)
September 2017

**Table 5.3-1 Suspected ACM Sample Collection and Analysis Summary
Building 03—Institutional Services**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
3-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 11, institutional storage, partition wall adjacent to room 42, laundry room	None Detected
3-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 11, institutional storage, partition wall adjacent to room 15, vestibule	None Detected
3-DJC-01F	Drywall joint compound applied to walls and ceilings throughout	Room 1, dining room, partition wall adjacent to room 5, vestibule	None Detected
3-DJC-01G	Drywall joint compound applied to walls and ceilings throughout	Room 1, dining room, dividing wall adjacent to room 4, office	None Detected
3-SF-01	Vinyl sheet flooring, light grey smudges	Room 34, office area	None Detected
3-SF-02 – sheet flooring	Vinyl sheet flooring, light and dark blue	Room 24, laundry room	None Detected
3-SF-02 - caulk	Caulk associated with the above flooring	Room 24, laundry room	None Detected
3-SF-03	Vinyl sheet flooring, blue textured	Room 5, vestibule	None Detected
3-FT-01	12"x12" vinyl floor tile, grey and white smears	Room 21, corcan clothing room	None Detected
3-CT-01A	2'x4' ceiling tile, fissure and small pinhole pattern	Room 34, office area, east corner	None Detected
3-CT-01B	2'x4' ceiling tile, fissure and small pinhole pattern	Room 34, office area, east corner	None Detected
3-CT-01C	2'x4' ceiling tile, fissure and small pinhole pattern	Room 34, office area, east corner	None Detected
3-WPC-01A	Black window pane caulking between glass and frame	Room 34, office area, south perimeter wall, west window	None Detected
3-WPC-01B	Black window pane caulking between glass and frame	Room 34, office area, south perimeter wall, central window	None Detected
3-WPC-01C	Black window pane caulking between glass and frame	Room 34, office area, south perimeter wall, east window	None Detected
3-RM-01A	Black asphalt shingle	Roof, south end	None Detected
3-RM-01B	Black asphalt shingle	Roof, south end	None Detected
3-RM-01C	Black asphalt shingle	Roof, south end	None Detected
3-PS-01A	Black painted yellow pipe sealant applied to natural gas fittings	Room 11, institutional storage, north side adjacent to loading bay	1.4% Chrysotile

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.3 Findings and Recommendations—Building 03—Institutional Services (848-22-RP)
September 2017

**Table 5.3-1 Suspected ACM Sample Collection and Analysis Summary
Building 03—Institutional Services**

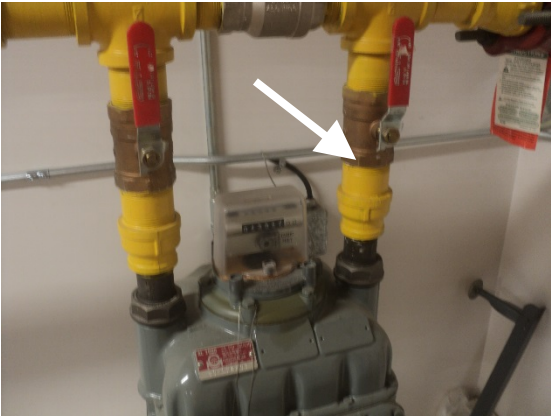

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
3-PS-01B	Black painted yellow pipe sealant applied to natural gas fittings	Room 11, institutional storage, west side adjacent to exterior by loading bay	Positive Stop (Not Analyzed)
3-PS-01C	Black painted yellow pipe sealant applied to natural gas fittings	Room 11, institutional storage, south side adjacent to room 21, corcan clothing room	Positive Stop (Not Analyzed)
3-PS-02A	Blue pipe sealant applied to sprinkler system	Room 25, vestibule	0.26% Chrysotile
3-PS-02B	Blue pipe sealant applied to sprinkler system	Room 25, vestibule	0.66% Chrysotile
3-PS-02C	Blue pipe sealant applied to sprinkler system	Room 25, vestibule	Positive Stop (Not Analyzed)
3-FM-01A	Clear mastic applied to seams of roof flashing	Roof, central southeast	None Detected
3-FM-01B	Clear mastic applied to seams of roof flashing	Roof, south end	None Detected
3-FM-01C	Clear mastic applied to seams of roof flashing	Roof, south end	None Detected
3-DM-01A	Grey painted white mastic applied to HVAC ducting	Room 35, meeting/coffee room, ceiling space	None Detected
3-DM-01B	Grey painted white mastic applied to HVAC ducting	Room 35, meeting/coffee room, ceiling space, east end	None Detected
3-DM-01C	Grey painted white mastic applied to HVAC ducting	Room 35, meeting/coffee room, ceiling space, east end	None Detected
3-EPP-01A	Grey electrical penetration putty	Exterior, freezer west of loading bay	None Detected
3-EPP-01B	Grey electrical penetration putty	Exterior, freezer west of loading bay	None Detected
3-EPP-01C	Grey electrical penetration putty	Exterior, freezer west of loading bay	None Detected
NOTE: Bold, highlighted text indicates confirmed ACM			

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the materials presented in Table 5.3-2, below were identified as ACMs.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.3 Findings and Recommendations—Building 03—Institutional Services (848-22-RP)
September 2017

**Table 5.3-2 Summary of Identified ACMs
Building 03—Institutional Services**

Identified ACM Description and Condition Information		Photo
Black painted yellow pipe sealant applied to natural gas fittings.		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threads of joints on natural gas pipes throughout	
Content	1.4% Chrysotile	
Blue pipe sealant applied to sprinkler system.		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threads of joints on sprinkler pipes throughout	
Content	0.26–0.66% Chrysotile	

5.3-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of and assessing attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.3-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Solder used in bell fittings of cast iron pipes and in electrical equipment

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.3 Findings and Recommendations—Building 03—Institutional Services (848-22-RP)
September 2017

- Ceramic tile glaze
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.3-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.3-3 Suspected LCP Sample Collection and Analysis Summary
Building 03—Institutional Services**


Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
3-P-01	Beige on metal	Room 34, office area, interior trim, south door, and door frame	<90
3-P-02	Off-white on drywall	Room 34, interior east wall	<90
3-P-03	Grey on concrete	Room 11, institutional storage, floor	<90
3-P-04	White primer on steel (red underneath)	Room 11, institutional storage, structural steel, south end	330
3-P-05	Beige on metal	Exterior east roof flashing	<120
3-P-06	Blue on metal	Exterior, Room 10, loading bay, north door, door frame, and ladder	<90
3-P-07	Yellow on concrete	Exterior, Room 10, loading bay, lines on floor	92,000
NOTE: Bold, highlighted text indicates confirmed LCP			

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.3-4, below was identified as an LCP:

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.3 Findings and Recommendations—Building 03—Institutional Services (848-22-RP)
September 2017

**Table 5.3-4 Summary of Identified LCPs
Building 03—Institutional Services**

Identified LCP Description		Photo
Paint colour	Yellow	
Substrate	Concrete	
Location/approx. extent	Lines on floor	
Lead content	92,000 ppm	
Condition	Good	

5.3-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.3-4 MERCURY

Mercury vapour is present in the light tubes within the 158 fluorescent light fixtures observed.

One mercury-containing thermostat was identified on the northwest wall of room 30, security storage adjacent to room 28, A&D office and photo room, as indicated on the attached drawing.


5.3-5 MOULD

Observations pertaining to mould and/or moisture impacted building materials are summarized in the following table.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.3 Findings and Recommendations—Building 03—Institutional Services (848-22-RP)
September 2017

**Table 5.3-5 Mould/Moisture Observations Summary—March 9, 2017
Building 03—Institutional Services**

Building Area	Observation	Suspected Source of Moisture	Photo
Room 28, A&D Office & Photo Room	One 2'x4' moisture stained ceiling tile	Pipe leaks or roof leaks	

5.3-6 OZONE-DEPLETING SUBSTANCES

The following equipment was identified by labels to be ODS-containing:

- Two Carrier Units (R-22) located on the central south rooftop

The locations of the above-noted units are indicated on the attached drawings.

5.3-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Cement products such as:
 - Concrete foundation
 - Ceramic tiles and associated grouts and mortars
- Gypsum and associated wall/ceiling finish materials
- Suspended ceiling tiles
- Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.3 Findings and Recommendations—Building 03—Institutional Services (848-22-RP)
September 2017

5.3-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

5.3-8.1 Mould

Documents published by Health Canada, Ontario Ministry of Health, American Industrial Hygiene Association (AIHA), American Conference of Governmental Industrial Hygienists (ACGIH) and others, provide guidance for interpreting the results of mold investigations. The Health Canada Guide states that:

“...current knowledge supports the need to prevent damp conditions and mold growth and to remediate any fungal contamination in buildings.”

To this end, Stantec recommends the following course of action within the subject building:

- Remove and replace moisture-stained ceiling tile with new tile. If staining re-appears on the new tile, the source of moisture should be identified and corrected.
 - This work can be conducted by regular facility maintenance staff, if conducted prior to the onset of mould growth.

Unit 3		
Institutional Services (Works, Commissary, Dining)		
Rm. #	Name	Area m ²
1	Dining Area	127.5
2	Dishwasher	14.0
3	Bathroom	4.5
4	Office	8.1
5	Vestibule	6.4
6	Vestibule	9.8
7	Commissary	121.7
8	Freezer	9.3
9	Cooler	9.8
10	Loading Bay	
11	Institutional Storage	244.9
12	Storage	12.8
13	Material Services Management	27.3
14	Work Station	28.3
15	Vestibule	22.5
16	Vestibule	4.7
17	Canteen Storage	10.1
18	Canteen	19.4
19	Male Washroom	17.7
20	Cleaning Supplies & Bedding	19.7
21	Corcan Clothing Room	25.0
22	Washroom	2.9
23	Mechanical Room	11.8
24	Laundry Room	16.7
25	Vestibule	11.0
26	Tools Room	16.1
27	Janitors Room	4.5
28	A&D Office & Photo Room	15.9
29	Corridor	36.9
30	Security Storage	75.5
31	Corcan Supervisor	11.8
32	Chief Of Maintenance	12.1
33	Female Washroom	17.7
34	Office Area	69.7
35	Meeting / Coffee Room	71.2

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

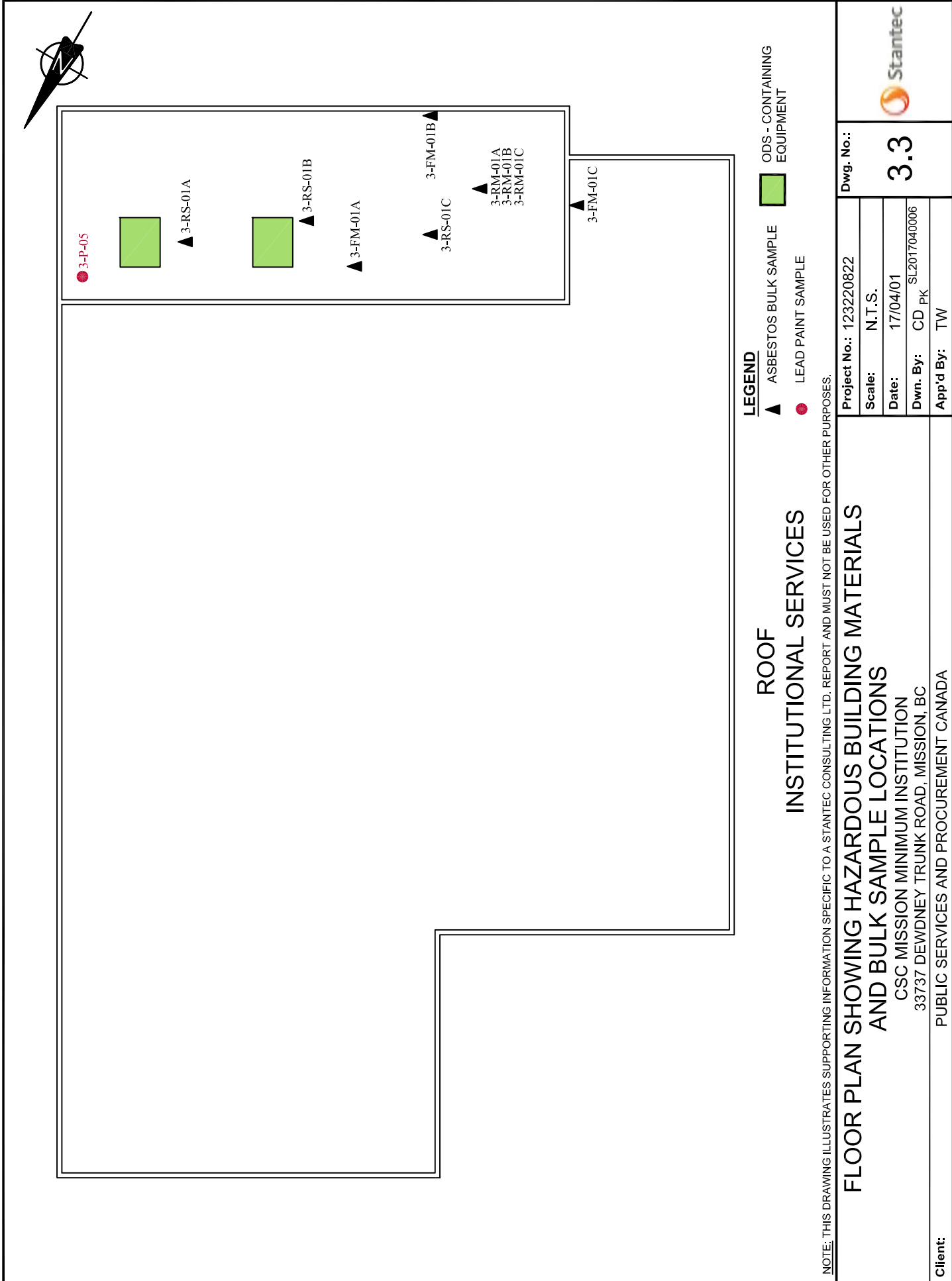
Dwn. By: CD PK SL2017040005

App'd By: TW

Dwg. No.:

3.2





LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- ODS - CONTAINING EQUIPMENT

**ROOF
INSTITUTIONAL SERVICES**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Dwg. No.:
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC		3.3
PUBLIC SERVICES AND PROCUREMENT CANADA		
Client:		Project No.: 1232220822
		Scale: N.T.S.
		Date: 17/04/01
		Dwn. By: CD PK SL2017040006
		App'd By: TW



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EMSL Canada Order 691700399
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Attn: Steve Chou
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6
Phone: (604) 412-3004
Fax:
Collected:
Received: 3/14/2017
Analyzed: 3/21/2017
Proj: CSC MISSION - MINIMUM/123220822 / BUILDING 3 - INSTITUTIONAL SERVICES

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 3-DJC-01A **Lab Sample ID:** 691700399-0001

Sample Description: ROOM 34, OFFICE AREA, WEST PERIMETER WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: 3-DJC-01B **Lab Sample ID:** 691700399-0002

Sample Description: ROOM 19, MALE WASHROOM, PARTITION WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: 3-DJC-01C **Lab Sample ID:** 691700399-0003

Sample Description: ROOM 29, CORRIDOR, PARTITION WALL ADJACENT TO SECURITY STORAGE/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: 3-DJC-01D **Lab Sample ID:** 691700399-0004

Sample Description: ROOM 11, INSTITUTIONAL STORAGE, PARTITION WALL ADJACENT TO LAUNDRY ROOM/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: 3-DJC-01E **Lab Sample ID:** 691700399-0005

Sample Description: ROOM 11, INSTITUTIONAL STORAGE, PARTITION WALL ADJACENT TO VESTIBULE/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: 3-DJC-01F **Lab Sample ID:** 691700399-0006

Sample Description: ROOM 1, DINING ROOM, DIVING WALL ADJACENT TO OFFICE/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: 3-DJC-01G **Lab Sample ID:** 691700399-0007

Sample Description: ROOM 1, DINING ROOM, DIVING WALL ADJACENT TO OFFICE/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	



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EMSL Canada Order 691700399
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 3-SF-01 **Lab Sample ID:** 691700399-0008
Sample Description: ROOM 34, OFFICE AREA/VINYL SHEET FLOORING, LIGHT GREY SMUDGES

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 3-SF-02-Sheet Flooring **Lab Sample ID:** 691700399-0009
Sample Description: ROOM 24, LAUNDRY ROOM/VINYL SHEET FLOORING, LIGHT AND DARK BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: 3-SF-02-Caulk **Lab Sample ID:** 691700399-0009A
Sample Description: ROOM 24, LAUNDRY ROOM/VINYL SHEET FLOORING, LIGHT AND DARK BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 3-SF-03 **Lab Sample ID:** 691700399-0010
Sample Description: ROOM 5, VESTIBULE/VINYL SHEET FLOORING, BLUE TEXTURED

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: 3-FT-01 **Lab Sample ID:** 691700399-0011
Sample Description: ROOM 21, CORCAN CLOTHING ROOM/12"X12" VINYL FLOOR TILE, GREY AND WHITE SMEARS

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	White	0.0%	100%	None Detected	

Client Sample ID: 3-CT-01A **Lab Sample ID:** 691700399-0012
Sample Description: ROOM 34, OFFICE AREA/2'X4' CEILING TILE, FISSURE AND SMALL PINHOLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	Gray	80%	20%	None Detected	

Client Sample ID: 3-CT-01B **Lab Sample ID:** 691700399-0013
Sample Description: ROOM 34, OFFICE AREA/2'X4' CEILING TILE, FISSURE AND SMALL PINHOLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	Gray	80%	20%	None Detected	

Client Sample ID: 3-CT-01C **Lab Sample ID:** 691700399-0014
Sample Description: ROOM 34, OFFICE AREA/2'X4' CEILING TILE, FISSURE AND SMALL PINHOLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	Gray	80%	20%	None Detected	



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EMSL Canada Order 691700399
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 3-WPC-01A **Lab Sample ID:** 691700399-0015

Sample Description: ROOM 34, OFFICE AREA, PERIMETER WINDOW/BLACK WINDOW PANE CAULKING BETWEEN GLASS AND FRAME

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 3-WPC-01B **Lab Sample ID:** 691700399-0016

Sample Description: ROOM 34, OFFICE AREA, PERIMETER WINDOW/BLACK WINDOW PANE CAULKING BETWEEN GLASS AND FRAME

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 3-WPC-01C **Lab Sample ID:** 691700399-0017

Sample Description: ROOM 34, OFFICE AREA, PERIMETER WINDOW/BLACK WINDOW PANE CAULKING BETWEEN GLASS AND FRAME

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 3-RM-01A **Lab Sample ID:** 691700399-0018

Sample Description: ROOF, SOUTH/BLACK ASPHALT SHINGLE

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 3-RM-01B **Lab Sample ID:** 691700399-0019

Sample Description: ROOF, SOUTH/BLACK ASPHALT SHINGLE

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 3-RM-01C **Lab Sample ID:** 691700399-0020

Sample Description: ROOF, SOUTH/BLACK ASPHALT SHINGLE

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 3-PS-01A **Lab Sample ID:** 691700399-0021

Sample Description: ROOM 11, INSTITUTIONAL STORAGE, NORTH SIDE ADJACENT TO LOADING BAY/BLACK PAINTED YELLOW PIPE SEALANT APPLIED TO NATURAL GASS FITTINGS

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Yellow	0.0%	98.6%	1.4% Chrysotile	

Client Sample ID: 3-PS-01B **Lab Sample ID:** 691700399-0022

Sample Description: ROOM 11, INSTITUTIONAL STORAGE, WEST SIDE ADJACENT TO EXTERIOR BY LOADING BAY/BLACK PAINTED YELLOW PIPE SEALANT APPLIED TO NATURAL GASS FITTINGS

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017					Positive Stop (Not Analyzed)



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EMSL Canada Order 691700399
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 3-PS-01C **Lab Sample ID:** 691700399-0023

Sample Description: ROOM 11, INSTITUTIONAL STORAGE, SOUTH SIDE ADJACENT TO CORCAN CLOTHING ROOM/BLACK PAINTED YELLOW PIPE SEALANT APPLIED TO NATURAL GASS FITTINGS

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017				Positive Stop (Not Analyzed)	

Client Sample ID: 3-PS-02A **Lab Sample ID:** 691700399-0024

Sample Description: ROOM 25, VESTIBULE/BLUE PIPE SEALANT APPLIED TO SPRINKLER SYSTEM

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Tan	0.0%	99.7%	0.26% Chrysotile	

Client Sample ID: 3-PS-02B **Lab Sample ID:** 691700399-0025

Sample Description: ROOM 25, VESTIBULE/BLUE PIPE SEALANT APPLIED TO SPRINKLER SYSTEM

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Gray	0.0%	99.3%	0.66% Chrysotile	

Client Sample ID: 3-PS-02C **Lab Sample ID:** 691700399-0026

Sample Description: ROOM 25, VESTIBULE/BLUE PIPE SEALANT APPLIED TO SPRINKLER SYSTEM

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017				Positive Stop (Not Analyzed)	

Client Sample ID: 3-FM-01A **Lab Sample ID:** 691700399-0027

Sample Description: ROOF, SOUTH/CLEAR MASTIC APPLIED TO SEAMS OF ROOF FLASHING

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 3-FM-01B **Lab Sample ID:** 691700399-0028

Sample Description: ROOF, SOUTH/CLEAR MASTIC APPLIED TO SEAMS OF ROOF FLASHING

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 3-FM-01C **Lab Sample ID:** 691700399-0029

Sample Description: ROOF, SOUTH/CLEAR MASTIC APPLIED TO SEAMS OF ROOF FLASHING

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 3-DM-01A **Lab Sample ID:** 691700399-0030

Sample Description: ROOM 35, MEETING/COFFEE ROOM, CEILING SPACE/GREY PAINTED WHITE MASTIC APPLIED TO HVAC DUCTING

TEST	Analyzed		Non-Asbestos		Asbestos	Comment
	Date	Color	Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700399
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 3-DM-01B **Lab Sample ID:** 691700399-0031

Sample Description: ROOM 35, MEETING/COFFEE ROOM, CEILING SPACE/GREY PAINTED WHITE MASTIC APPLIED TO HVAC DUCTING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 3-DM-01C **Lab Sample ID:** 691700399-0032

Sample Description: ROOM 35, MEETING/COFFEE ROOM, CEILING SPACE/GREY PAINTED WHITE MASTIC APPLIED TO HVAC DUCTING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 3-EPP-01A **Lab Sample ID:** 691700399-0033

Sample Description: EXTERIOR, FREEZER WEST OF LOADING BAY/GREY ELECTRICAL PENETRATION PUTTY

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	White	0.0%	100%	None Detected	

Client Sample ID: 3-EPP-01B **Lab Sample ID:** 691700399-0034

Sample Description: EXTERIOR, FREEZER WEST OF LOADING BAY/GREY ELECTRICAL PENETRATION PUTTY

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	White	0.0%	100%	None Detected	

Client Sample ID: 3-EPP-01C **Lab Sample ID:** 691700399-0035

Sample Description: EXTERIOR, FREEZER WEST OF LOADING BAY/GREY ELECTRICAL PENETRATION PUTTY

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	White	0.0%	100%	None Detected	

Analyst(s):

Kathleen Cruz PLM (3)
PLM Grav. Reduction (23)
Nicole Yeo PLM (7)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 08/15/2017 09:37:37 Replaces initial report from: 03/21/2017 19:58:34 Reason Code: Client-Change to Location

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EMSL Canada Or	551702660
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/14/17 10:47 AM
 Collected:

Project: **CSC MISSION-MINIMUM/123220822 - BUILDING 3-INSTITUTIONAL SERVICES****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
3-P-01 Site: ROOM 34, OFFICE AREA, INTERIOR TRIM, DOOR AND DOOR FRAME Desc: BEIGE ON METAL	551702660-0001	3/16/2017		<90 ppm
3-P-02 Site: ROOM 34, INTERIOR WALL Desc: OFF-WHITE ON DRYWALL	551702660-0002	3/16/2017		<90 ppm
3-P-03 Site: ROOM 11, INSTITUTIONAL STORAGE, FLOOR Desc: GREY ON CONCRETE	551702660-0003	3/16/2017		<90 ppm
3-P-04 Site: ROOM 11, STRUCTURAL STEEL Desc: RED PRIMER PAINTED WHITE ON STEEL	551702660-0004	3/16/2017		330 ppm
3-P-05 Site: EXTERIOR, SOUTH ROOF, FLASHING Desc: BEIGE ON METAL Insufficient sample to reach reporting limit.	551702660-0005	3/16/2017		<120 ppm
3-P-06 Site: ROOM 10, LOADING BAY, DOOR, DOOR FRAME AND LADDER Desc: BLUE ON METAL	551702660-0006	3/16/2017		<90 ppm
3-P-07 Site: ROOM 10, LOADING BAY, LINES ON FLOOR AND BOLLARD Desc: YELLOW ON CONCRETE	551702660-0007	3/16/2017		92000 ppm

Rowena Fanto, Lead Supervisor
 or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/21/2017 08:14:11

**APPENDIX 5.4
FINDINGS AND RECOMMENDATIONS—
BUILDING 04—RECREATION BUILDING
(848-23-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.4 Findings and Recommendations—Building 04—Recreation Building (848-23-RP)
September 2017

Appendix 5.4 FINDINGS AND RECOMMENDATIONS— BUILDING 04—RECREATION BUILDING (848-23-RP)

Building 04—Recreation Building (subject building) was reportedly constructed in 1997 and has been assigned Real Property ID #847. The typical structural components and finishes associated with this building consist of vinyl/stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.4-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.4-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.4-1 Suspected ACM Sample Collection and Analysis Summary
Building 04—Recreation Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
4-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 100, recreation room, southeast corner, wall	None Detected
4-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 100, recreation room, north wall	None Detected
4-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 102, entrance, north wall	None Detected
4-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 101, weight training, north wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.4 Findings and Recommendations—Building 04—Recreation Building (848-23-RP)
September 2017

**Table 5.4-1 Suspected ACM Sample Collection and Analysis Summary
Building 04—Recreation Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
4-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 101, weight training, south wall	None Detected
4-SF-01	Vinyl sheet flooring, grey and white pebble pattern	Room 106, janitors room	None Detected
4-SF-02	Vinyl sheet flooring, grey pebble pattern with blue	Room 103, B/F/ washroom, small patch by toilet	None Detected
4-WPC-01A	Black window pane caulking applied between glass and frame on door	Exterior, outside room 102, entrance, main door	None Detected
4-WPC-01B	Black window pane caulking applied between glass and frame on door	Exterior, outside room 102, entrance, main door	None Detected
4-WPC-01C	Black window pane caulking applied between glass and frame on door	Exterior, outside room 102, entrance, main door	None Detected
4-PS-01A	Blue pipe sealant applied on seams of yellow natural gas lines	Room 105, mechanical room	None Detected
4-PS-01B	Blue pipe sealant applied on seams of yellow natural gas lines	Room 105, mechanical room	None Detected
4-PS-01C	Blue pipe sealant applied on seams of yellow natural gas lines	Room 105, mechanical room	None Detected
4-ES-01A	Blue stucco	Exterior, north wall outside room 100, recreation room	None Detected
4-ES-01B	Blue stucco	Exterior, north wall outside room 101, weight training	None Detected
4-ES-01C	Blue stucco	Exterior, west wall outside room 101, weight training	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.4-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of and assessing for attic spaces and masonry block or brick walls, which are typical areas where vermiculite is found. Based on our observations and on the construction date of the building, asbestos-containing vermiculite is not anticipated to be present.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.4 Findings and Recommendations—Building 04—Recreation Building (848-23-RP)
September 2017

5.4-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Solder used in bell fittings of cast iron pipes and in electrical equipment
- Vent and pipe flashing

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.4-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.4-2 Suspected LCP Sample Collection and Analysis Summary
Building 04—Recreation Building**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
4-P-01	Pink on metal	Room 102, entrance, trim	<90
4-P-02	Off-white on drywall	Room 100, recreation room, north west corner wall	<90
4-P-03	Grey on concrete	Room 105, mechanical room, floor	<140
4-P-04	Grey on metal	Room 105, trim, door, door frame	<140
4-P-05	White on steel	Exterior, northeast, handrails	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, LCPs were not identified.

5.4-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.4-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 30 fluorescent light fixtures observed.

5.4-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.4 Findings and Recommendations—Building 04—Recreation Building (848-23-RP)
September 2017

5.4-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

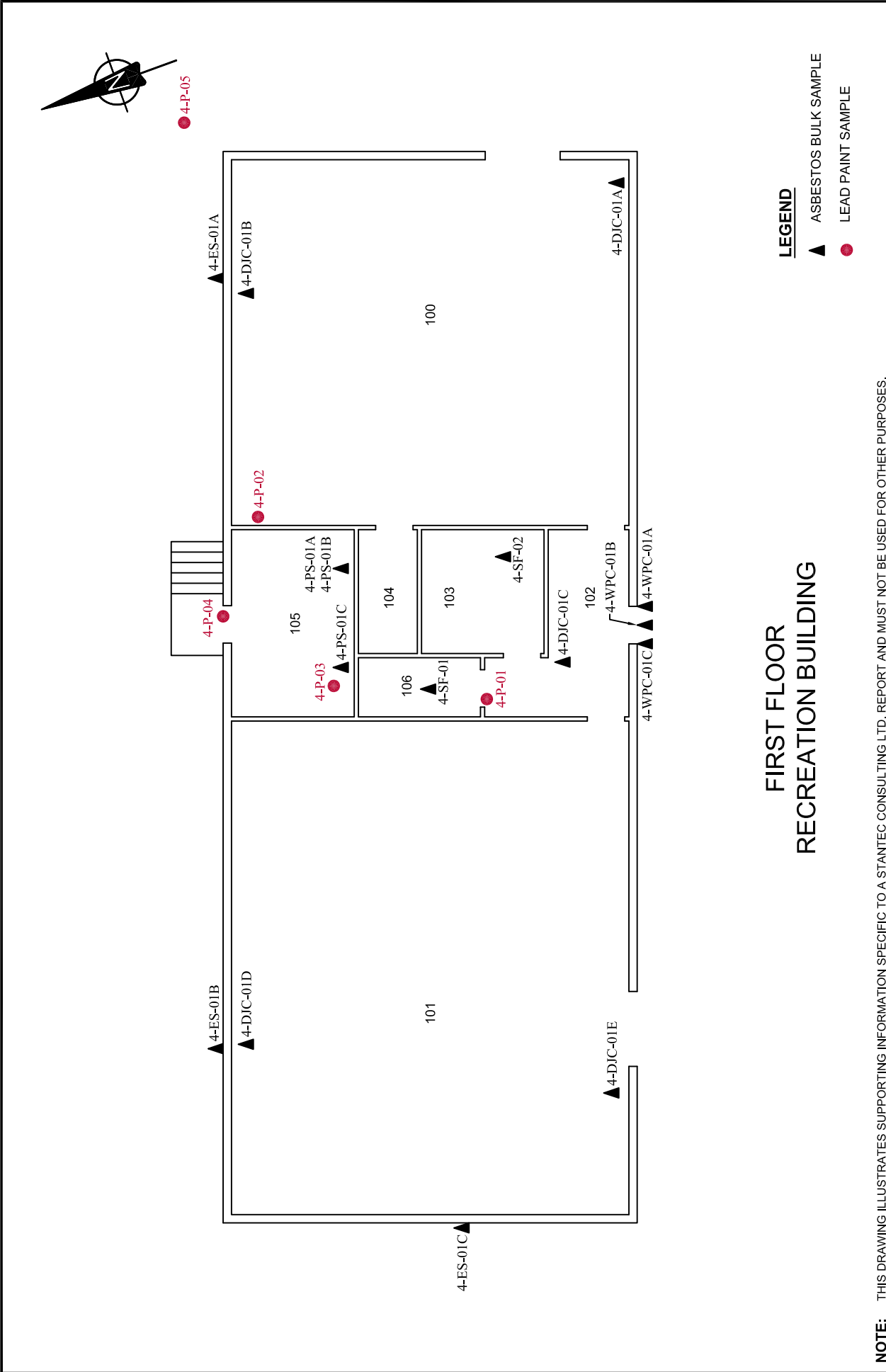
5.4-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.4-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR RECREATION BUILDING

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Dwg. No.: 4.1	
Project No.: 123220822	Scale: N.T.S.		
Date: 17/04/01	Dwn. By: CD PK		
App'd By: TW	SL2017040002		
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA			

Unit 4		
Recreation Building - First Floor		
Rm. #	Name	Area m ²
100	Recreation Room	92.5
101	Weight Training	122.7
102	Entrance	12.6
103	B.F. Washroom	9.6
104	Storage	4.8
105	Mechanical Room	14.9
106	Janitors Room	4.8

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD PK SL2017040003

App'd By: TW

Dwg. No.:

4.2





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EMSL Canada Order 691700362
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou Phone: (604) 412-3004
 Stantec Consulting, Ltd. Fax:
 500 - 4730 Kingsway Collected: 3/ 7/2017
 Burnaby, BC V5H 0C6 Received: 3/08/2017
 Analyzed: 3/15/2017

Proj: CSC MISSION- MINIMUM/123220822/ BUILDING 4- RECREATION BUILDING

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 4-DJC-01A **Lab Sample ID:** 691700362-0001

Sample Description: ROOM 100, RECREATION ROOM, SOUTH WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: 4-DJC-01B **Lab Sample ID:** 691700362-0002

Sample Description: ROOM 100, RECREATION ROOM, NORTH WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: 4-DJC-01C **Lab Sample ID:** 691700362-0003

Sample Description: ROOM 102, ENTRANCE, NORTH WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: 4-DJC-01D **Lab Sample ID:** 691700362-0004

Sample Description: ROOM 101, WEIGHT TRAINING, NORTH WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: 4-DJC-01E **Lab Sample ID:** 691700362-0005

Sample Description: ROOM 101, WEIGHT TRAINING, SOUTH WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: 4-SF-01 **Lab Sample ID:** 691700362-0006

Sample Description: ROOM 106, JANITOR'S ROOM/VINYL SHEET FLOORING, GREY AND WHITE PEBBLE PATTERN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 4-SF-02 **Lab Sample ID:** 691700362-0007

Sample Description: ROOM 103, B.F WASHROOM, SMALL PATCH BY TOILET/VINYL SHEET FLOORING, GREY PEBBLE PATTERN WITH BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700362
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 4-WPC-01A **Lab Sample ID:** 691700362-0008

Sample Description: ROOM 102, ENTRANCE, MAIN DOOR/BLACK WINDOW PANE CAULKING APPLIED BETWEEN GLASS AND FRAME ON DOOR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 4-WPC-01B **Lab Sample ID:** 691700362-0009

Sample Description: ROOM 102, ENTRANCE, MAIN DOOR/BLACK WINDOW PANE CAULKING APPLIED BETWEEN GLASS AND FRAME ON DOOR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 4-WPC-01C **Lab Sample ID:** 691700362-0010

Sample Description: ROOM 102, ENTRANCE, MAIN DOOR/BLACK WINDOW PANE CAULKING APPLIED BETWEEN GLASS AND FRAME ON DOOR

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 4-PS-01A **Lab Sample ID:** 691700362-0011

Sample Description: ROOM 105, MECHANICAL ROOM/BLUE PIPE SEALANT APPLIED ON SEAMS OF YELLOW NATURAL GAS LINES

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Yellow	0.0%	100%	None Detected	

Client Sample ID: 4-PS-01B **Lab Sample ID:** 691700362-0012

Sample Description: ROOM 105, MECHANICAL ROOM/BLUE PIPE SEALANT APPLIED ON SEAMS OF YELLOW NATURAL GAS LINES

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Yellow	0.0%	100%	None Detected	

Client Sample ID: 4-PS-01C **Lab Sample ID:** 691700362-0013

Sample Description: ROOM 105, MECHANICAL ROOM/BLUE PIPE SEALANT APPLIED ON SEAMS OF YELLOW NATURAL GAS LINES

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Yellow	0.0%	100%	None Detected	

Client Sample ID: 4-ES-01A **Lab Sample ID:** 691700362-0014

Sample Description: EXTERIOR, NORTH EAST/BLUE STUCCO

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Client Sample ID: 4-ES-01B **Lab Sample ID:** 691700362-0015

Sample Description: EXTERIOR, NORTH WEST/BLUE STUCCO

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	



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EMSL Canada Order 691700362
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 4-ES-01C

Lab Sample ID: 691700362-0016

Sample Description: EXTERIOR. WEST/BLUE STUCCO

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Analyst(s):

Kathleen Cruz PLM (5)
PLM Grav. Reduction (6)

Nicole Yeo PLM (3)
PLM Grav. Reduction (2)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 05/10/2017 09:25:23 Replaces initial report from: 03/15/2017 16:56:30 Reason Code: Client-Other (see report comment)



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ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/09/17 12:21 PM
 Collected:

Project: **CSCMission - Minimum/123220822 - Building 4 - Recreation Room**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
4-P-01 Site: Room 106, Janitor's room, Door Trim Desc: Pink on metal	551702433-0001	3/14/2017		<90 ppm
4-P-02 Site: Room 100, Recreation room, Walls Desc: Off-white on drywall	551702433-0002	3/14/2017		<90 ppm
4-P-03 Site: Room 105, Mechanical room, Floor Desc: Grey on concrete Insufficient sample to reach reporting limit.	551702433-0003	3/14/2017		<140 ppm
4-P-04 Site: Room 105, Trim, Door, Door frame Desc: Grey on metal Insufficient sample to reach reporting limit.	551702433-0004	3/14/2017		<140 ppm
4-P-05 Site: Exterior, East, Handrails Desc: White on steel	551702433-0005	3/14/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Report Amended: 05/09/2017 17:20:06 Replaces the Initial Report 03/16/2017 08:29:02. Reason Code: Client-Change to Sample ID

**APPENDIX 5.5
FINDINGS AND RECOMMENDATIONS—
BUILDING 10—CARPENTER SHOP
(848-37-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.5 Findings and Recommendations—Building 10—Carpenter Shop (848-37-RP)
September 2017

Appendix 5.5 FINDINGS AND RECOMMENDATIONS— BUILDING 10—CARPENTER SHOP (848-37-RP)

Building 10—Carpenter Shop (subject building) is reportedly constructed in 1985 and has been assigned Real Property ID #848. The typical structural components and finishes associated with this building consist of exterior metal panel siding; wood ceilings; wood walls; and, concrete floors.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.5-1 ASBESTOS

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.5-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.5-1 Suspected ACM Sample Collection and Analysis Summary
Building 10—Carpenter Shop**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
10-PP-01A	Clear electrical penetration putty	Exterior west penetrations	None Detected
10-PP-01B	Clear electrical penetration putty	Exterior west penetrations	None Detected
10-PP-01C	Clear electrical penetration putty	Exterior west penetrations	None Detected
10-PP-02A	Grey penetration putty	Exterior west penetrations	None Detected
10-PP-02B	Grey penetration putty	Exterior west penetrations	None Detected
10-PP-02C	Grey penetration putty	Exterior west penetrations	None Detected
10-PP-03A	Grey penetration putty	Exterior north penetrations around light and outlet	1.5% Chrysotile
10-PP-03B	Grey penetration putty	Exterior north penetrations around light and outlet	Positive Stop (Not Analyzed)
10-PP-03C	Grey penetration putty	Exterior north penetrations around light and outlet	Positive Stop (Not Analyzed)

HAZARDOUS BUILDING MATERIALS ASSESSMENT


Appendix 5.5 Findings and Recommendations—Building 10—Carpenter Shop (848-37-RP)
September 2017

**Table 5.5-1 Suspected ACM Sample Collection and Analysis Summary
Building 10—Carpenter Shop**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
10-DM-01A	Grey duct mastic	Room 3, carpenter shop, sawdust extraction ducting	None Detected
10-DM-01B	Grey duct mastic	Room 3, carpenter shop, sawdust extraction ducting	None Detected
10-DM-01C	Grey duct mastic	Room 3, carpenter shop, sawdust extraction ducting	None Detected
10-DM-02A	Red duct mastic	Exterior south side ducting	None Detected
10-DM-02B	Red duct mastic	Exterior south side ducting	None Detected
10-DM-02C	Red duct mastic	Exterior south side ducting	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the materials presented in Table 5.5-2, below were identified as ACMs.

**Table 5.5-2 Summary of Identified ACMs
Building 10—Carpenter Shop**

Identified ACM Description and Condition Information	Photo	
Grey penetration putty applied around exterior light and outlet on the north wall.		
Friability		Non-friable
Condition		Good
Total Quantity		Approximately 3 exterior penetrations
Content		1.5% Chrysotile

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.5 Findings and Recommendations—Building 10—Carpenter Shop (848-37-RP)
September 2017

5.5-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of and assessing attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.5-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used on domestic water lines
- Solder used in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.5-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.5-3 Suspected LCP Sample Collection and Analysis Summary
Building 10—Carpenter Shop**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
10-P-01	White on wood	Room 3, carpentry shop, west wall	<150
10-P-02	Grey on steel	Exterior south wall	3,900
10-P-03	Grey on steel	Exterior west door and frame	3,000



Table Note: Bold, highlighted text indicates confirmed LCP

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paints presented in Table 5.5-4, below were identified as LCPs:

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.5 Findings and Recommendations—Building 10—Carpenter Shop (848-37-RP)
September 2017

**Table 5.5-4 Summary of Identified LCPs
Building 10 – Carpenter Shop**

Identified LCP Description		Photo
Paint colour	Grey	
Substrate	Metal	
Location/approx. extent	Exterior walls	
Lead content	3,900 ppm	
Condition	Good	
Paint colour	Grey	
Substrate	Steel	
Location/approx. extent	Exterior door and frame	
Lead content	3,000 ppm	
Condition	Good	

5.5-3 POLYCHLORINATED BIPHENYLS

PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets.

5.5-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 10 fluorescent light fixtures observed.

Mercury may also be present in paints and adhesives.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.5 Findings and Recommendations—Building 10—Carpenter Shop (848-37-RP)
September 2017

5.5-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.5-6 OZONE-DEPLETING SUBSTANCES

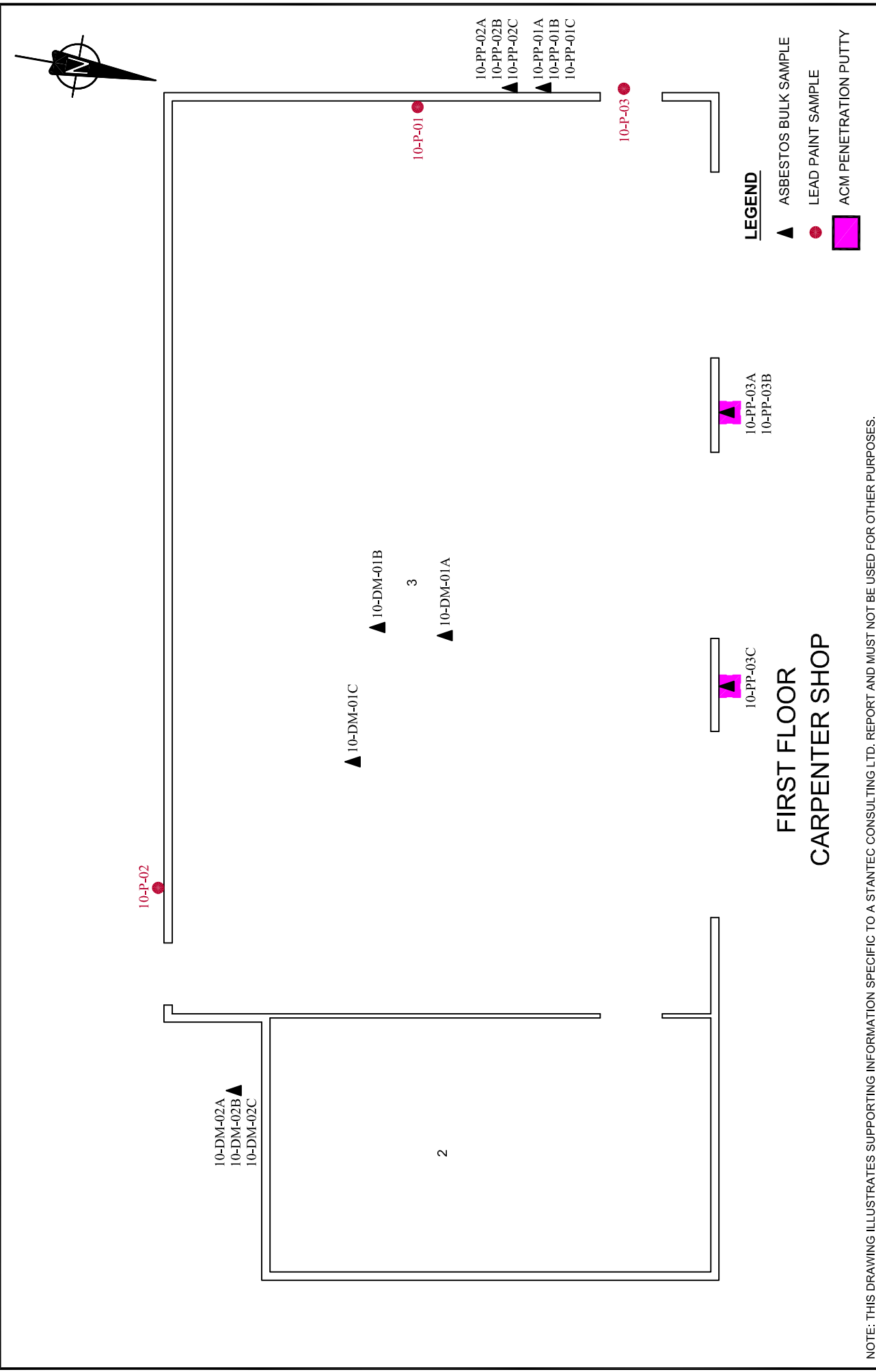
No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.5-7 SILICA

Silica is expected to be present in the concrete foundation.

5.5-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA		Project No.: 123220822 Scale: N.T.S. Date: 17/04/03 Dwn. By: CD PK SL2017040091 App'd By: TW	Dwg. No.: 5.1	
		Client: PUBLIC SERVICES AND PROCUREMENT CANADA		

Unit 10		
Carpenter Shop - First Floor		
Rm. #	Name	Area m ²
2	Storage	20.6
3	Carpentry Shop	88.6

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040092

App'd By: TW

Dwg. No.:

5.2





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EMSL Canada Order 691700499
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/27/2017

Proj: CSC MISSION-MINIMUM / 123220822 / CARPENTER SHOP-10

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 10-PP-01A **Lab Sample ID:** 691700499-0001

Sample Description: Exterior West Penetrations/Clear Electrical Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 10-PP-01B **Lab Sample ID:** 691700499-0002

Sample Description: Exterior West Penetrations/Clear Electrical Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 10-PP-01C **Lab Sample ID:** 691700499-0003

Sample Description: Exterior West Penetrations/Clear Electrical Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 10-PP-02A **Lab Sample ID:** 691700499-0004

Sample Description: Exterior West Penetrations/Grey Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 10-PP-02B **Lab Sample ID:** 691700499-0005

Sample Description: Exterior West Penetrations/Grey Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 10-PP-02C **Lab Sample ID:** 691700499-0006

Sample Description: Exterior West Penetrations/Grey Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 10-PP-03A **Lab Sample ID:** 691700499-0007

Sample Description: Exterior North Penetrations Around Lights & Outlet/Grey Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	98.5%	1.5% Chrysotile	



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EMSL Canada Order 691700499
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 10-PP-03B **Lab Sample ID:** 691700499-0008

Sample Description: Exterior North Penetrations Around Lights & Outlet/Grey Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017					Positive Stop (Not Analyzed)

Client Sample ID: 10-PP-03C **Lab Sample ID:** 691700499-0009

Sample Description: Exterior North Penetrations Around Lights & Outlet/Grey Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017					Positive Stop (Not Analyzed)

Client Sample ID: 10-DM-01A **Lab Sample ID:** 691700499-0010

Sample Description: Room 3, Carpenter Shop, Sawdust Extraction Ducting/Grey Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%		None Detected

Client Sample ID: 10-DM-01B **Lab Sample ID:** 691700499-0011

Sample Description: Room 3, Carpenter Shop, Sawdust Extraction Ducting/Grey Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%		None Detected

Client Sample ID: 10-DM-01C **Lab Sample ID:** 691700499-0012

Sample Description: Room 3, Carpenter Shop, Sawdust Extraction Ducting/Grey Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%		None Detected

Client Sample ID: 10-DM-02A **Lab Sample ID:** 691700499-0013

Sample Description: Exterior South Side Ducting/Red Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	0.0%	100%		None Detected

Client Sample ID: 10-DM-02B **Lab Sample ID:** 691700499-0014

Sample Description: Exterior South Side Ducting/Red Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	0.0%	100%		None Detected

Client Sample ID: 10-DM-02C **Lab Sample ID:** 691700499-0015

Sample Description: Exterior South Side Ducting/Red Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	0.0%	100%		None Detected



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EMSL Canada Order 691700499
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Daena Charles PLM Grav. Reduction (13)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. New York, NY AIHA-LAP, LLC--IHLAP Accredited #102581, NVLAP Lab Code 101048-9, NYS ELAP 11506, NJ NY022, CT PH-0170, MA AA000170

Initial report from: 03/28/2017 09:40:58



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Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 11:03 AM
 Collected:

Project: CSCMISSION-MINIMUM/123220822 - Carpenter Shop-10

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
10-P-01	551702924-0001	3/24/2017		<150 ppm
Site: Room 3, carpentry shop, west wall Desc: White on wood Insufficient sample to reach reporting limit.				
10-P-02	551702924-0002	3/24/2017		3900 ppm
Site: Exterior south wall Desc: Grey on steel				
10-P-03	551702924-0003	3/24/2017		3000 ppm
Site: Exterior west door and frame Desc: Grey on steel				

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:29:18

**APPENDIX 5.6
FINDINGS AND RECOMMENDATIONS—
BUILDING 10A—CARPENTER SHOP
STORAGE (848-00-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.6 Findings and Recommendations—Building 10A—Carpenter shop storage (848-00-RP)
September 2017

Appendix 5.6 FINDINGS AND RECOMMENDATIONS— BUILDING 10A—CARPENTER SHOP STORAGE (848-00-RP)

Building 10a—Carpenter Shop Storage (subject building) was reportedly constructed in 2005 and has been assigned Real Property ID #849. The typical structural components and finishes associated with this building consist of corrugated exterior metal walls; wood ceilings; wood walls; and, wood flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.6-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.6-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.6-1 Suspected ACM Sample Collection and Analysis Summary
Building 10a—Carpenter Shop Storage**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
10A-RP-01A	Black roofing paper	Southeast corner of roof	None Detected
10A-RP-01B	Black roofing paper	Southeast corner of roof	None Detected
10A-RP-01C	Black roofing paper	Southeast corner of roof	None Detected
10A-RS-01A	Roof shingle	Southeast corner of roof	None Detected
10A-RS-01B	Roof shingle	Southeast corner of roof	None Detected
10A-RS-01C	Roof shingle	Southeast corner of roof	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.6 Findings and Recommendations—Building 10A—Carpenter shop storage (848-00-RP)
September 2017

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.6-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.6-2 LEAD

With respect to paint, a chip sample was obtained from the predominant suspected LCP application within the subject building. A summary of the sample type, location and analytical result is presented in Table 5.6-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP sample submitted is attached to this Appendix.

**Table 5.6-2 Suspected LCP Sample Collection and Analysis Summary
Building 10a—Carpenter Shop Storage**


Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
10A-P-01	Grey on metal	Exterior west wall	3,700
NOTE: Bold, highlighted text indicates confirmed LCP			

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.6-3, below is identified as an LCP:

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.6 Findings and Recommendations—Building 10A—Carpenter shop storage (848-00-RP)
September 2017

**Table 5.6-3 Summary of Identified LCPs
Building 10a—Carpenter Shop Storage**

Identified LCP Description		Photo
Paint colour	Grey	
Substrate	Metal	
Location/approx. extent	Exterior walls	
Lead content	3,700 ppm	
Condition	Generally good condition with localized areas where paint has worn from surface.	

5.6-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.6-4 MERCURY

Items suspected to contain liquid mercury or mercury vapour were not observed.

5.6-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.6-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.6-7 SILICA

Suspect silica-containing building materials were not observed at the time of the assessment.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

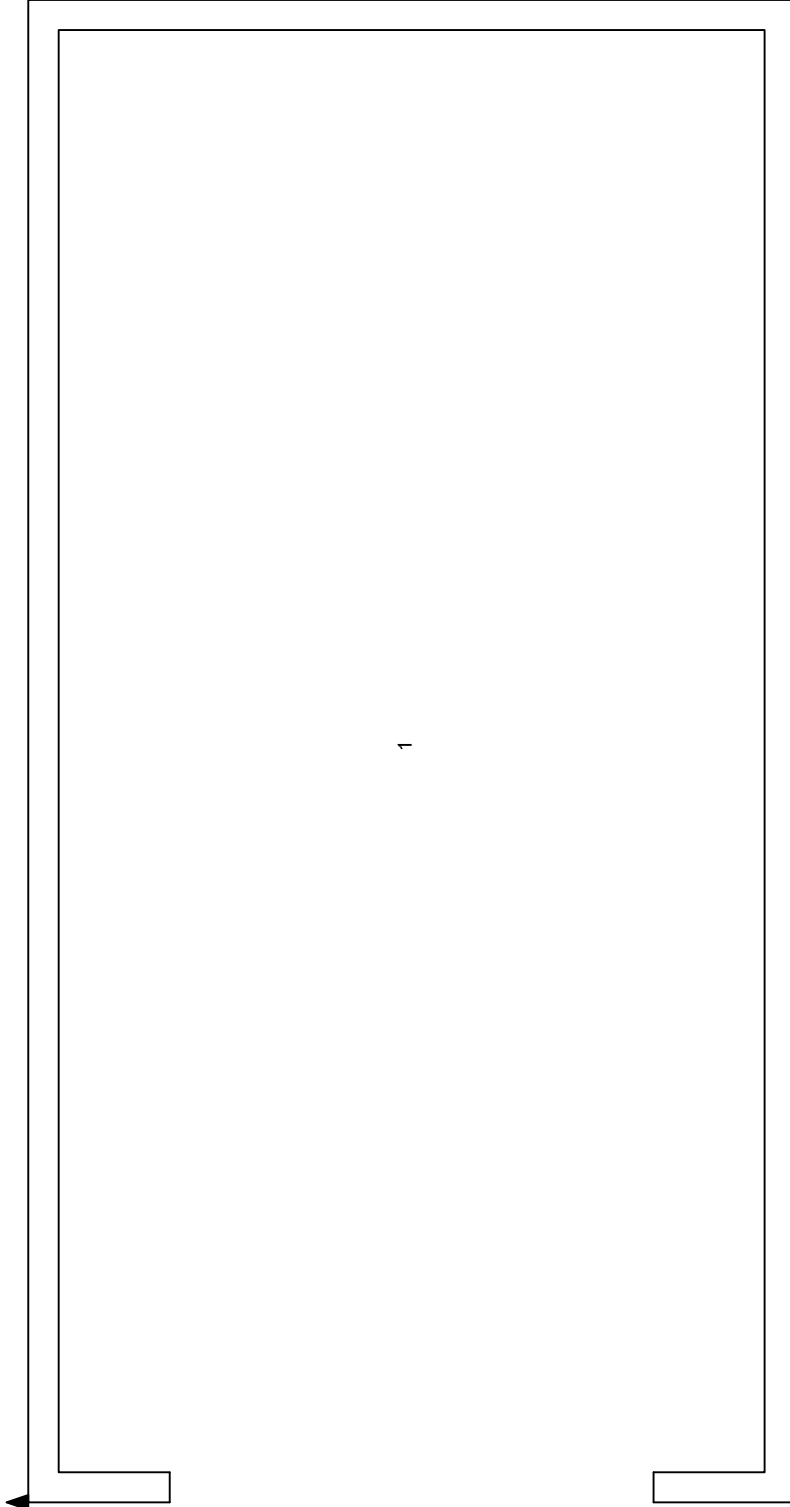
Appendix 5.6 Findings and Recommendations—Building 10A—Carpenter shop storage (848-00-RP)
September 2017

5.6-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



10A-RS-01A (ROOF)
 10A-RS-01B (ROOF)
 10A-RS-01C (ROOF)
 10A-RP-01A (ROOF)
 10A-RP-01B (ROOF)
 10A-RP-01C (ROOF)



1

10A-P-01

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

**FIRST FLOOR
 CARPENTER SHOP STORAGE**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION		Scale: N.T.S.	6.1
33737 DEWDNEY TRUNK ROAD, MISSION, BC		Date: 17/05/18	
PUBLIC SERVICES AND PROCUREMENT CANADA		Dwn. By: CD PK/VM	
		App'd By: TW	



Unit 10a	
Rm. #	Name
1	Storage
	Area m ²
	12.6

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/05/18

Dwn. By: CD PK/YM
 SL2017050243

App'd By: TW

Dwg. No.:

6.2





EMSL Canada Inc.

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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700547
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou Phone: (604) 412-3004
 Stantec Consulting, Ltd. Fax:
 500 - 4730 Kingsway Collected:
 Burnaby, BC V5H 0C6 Received: 3/21/2017
 Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / CARPENTER SHOP STORAGE-10A

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 10A-RP-01A **Lab Sample ID:** 691700547-0001

Sample Description: SOUTHEAST CORNER OF ROOF/BLACK ROOFING PAPER

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Black	90%	10%	None Detected	

Client Sample ID: 10A-RP-01B **Lab Sample ID:** 691700547-0002

Sample Description: SOUTHEAST CORNER OF ROOF/BLACK ROOFING PAPER

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Black	90%	10%	None Detected	

Client Sample ID: 10A-RP-01C **Lab Sample ID:** 691700547-0003

Sample Description: SOUTHEAST CORNER OF ROOF/BLACK ROOFING PAPER

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Black	90%	10%	None Detected	

Client Sample ID: 10A-RS-01A **Lab Sample ID:** 691700547-0004

Sample Description: SOUTHEAST CORNER OF ROOF/ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.49%	99.5%	None Detected	

Client Sample ID: 10A-RS-01B **Lab Sample ID:** 691700547-0005

Sample Description: SOUTHEAST CORNER OF ROOF/ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 10A-RS-01C **Lab Sample ID:** 691700547-0006

Sample Description: SOUTHEAST CORNER OF ROOF/ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Black	15%	85%	None Detected	



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EMSL Canada Order 691700547
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Kathleen Cruz PLM (2)
PLM Grav. Reduction (2)
Nicole Yeo PLM (2)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 15:48:51



EMSL Canada Inc.

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torontolab@emsl.com

EMSL Canada Or	551702923
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 11:03 AM
 Collected:

Project: CSCMISSION-MINIMUM/123220822 - Carpenter Shop Storage-10A

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
10A-P-01	551702923-0001		3/24/2017	3700 ppm
	Site: Exterior west wall			
	Desc: Grey on steel			

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:27:54

**APPENDIX 5.7
FINDINGS AND RECOMMENDATIONS—
BUILDING 14—STORAGE/FABRICATION
(848-39-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.7 Findings and Recommendations—Building 14—Storage/Fabrication (848-39-RP)
September 2017

Appendix 5.7 FINDINGS AND RECOMMENDATIONS— BUILDING 14—STORAGE/FABRICATION (848-39-RP)

Building 14—Storage/Fabrication (subject building) was reportedly constructed in 1985 and has been assigned Real Property ID #850. The typical structural components and finishes associated with this building consist of a wood frame structure, aluminum panel exterior walls and roofing and a concrete foundation.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.7-1 ASBESTOS

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.7-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.7-1 Suspected ACM Sample Collection and Analysis Summary
Building 14—Storage / Fabrication**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
14-PP-01A	Clear penetration putty	East exterior penetration	None Detected
14-PP-01B	Clear penetration putty	East exterior penetration	None Detected
14-PP-01C	Clear penetration putty	East exterior penetration	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.7-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.7 Findings and Recommendations—Building 14—Storage/Fabrication (848-39-RP)
September 2017

found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.7-2 LEAD

Lead is expected to be present in the following:

- Solder in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.7-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.7-2 Suspected LCP Sample Collection and Analysis Summary
Building 14—Storage/Fabrication**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
14-P-01	White on wood	North exterior trim	2,100
14-P-02	Grey on steel	North exterior wall	<290


NOTE:
Bold, highlighted text indicates confirmed LCP

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.7-3, below was identified as an LCP:

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.7 Findings and Recommendations—Building 14—Storage/Fabrication (848-39-RP)
September 2017

**Table 5.7-3 Summary of Identified LCPs
Building 14 – Storage / Fabrication**

Identified LCP Description		Photo
Paint colour	White	
Substrate	Wood	
Location/approx. extent	Exterior trim	
Lead content	2,100 ppm	
Condition	Poor	

5.7-3 POLYCHLORINATED BIPHENYLS

PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets.

5.7-4 MERCURY

Mercury may be present in paints and adhesives.

5.7-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.7-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.7-7 SILICA

Silica is expected to be present in concrete foundation.

5.7-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.7 Findings and Recommendations—Building 14—Storage/Fabrication (848-39-RP)
September 2017

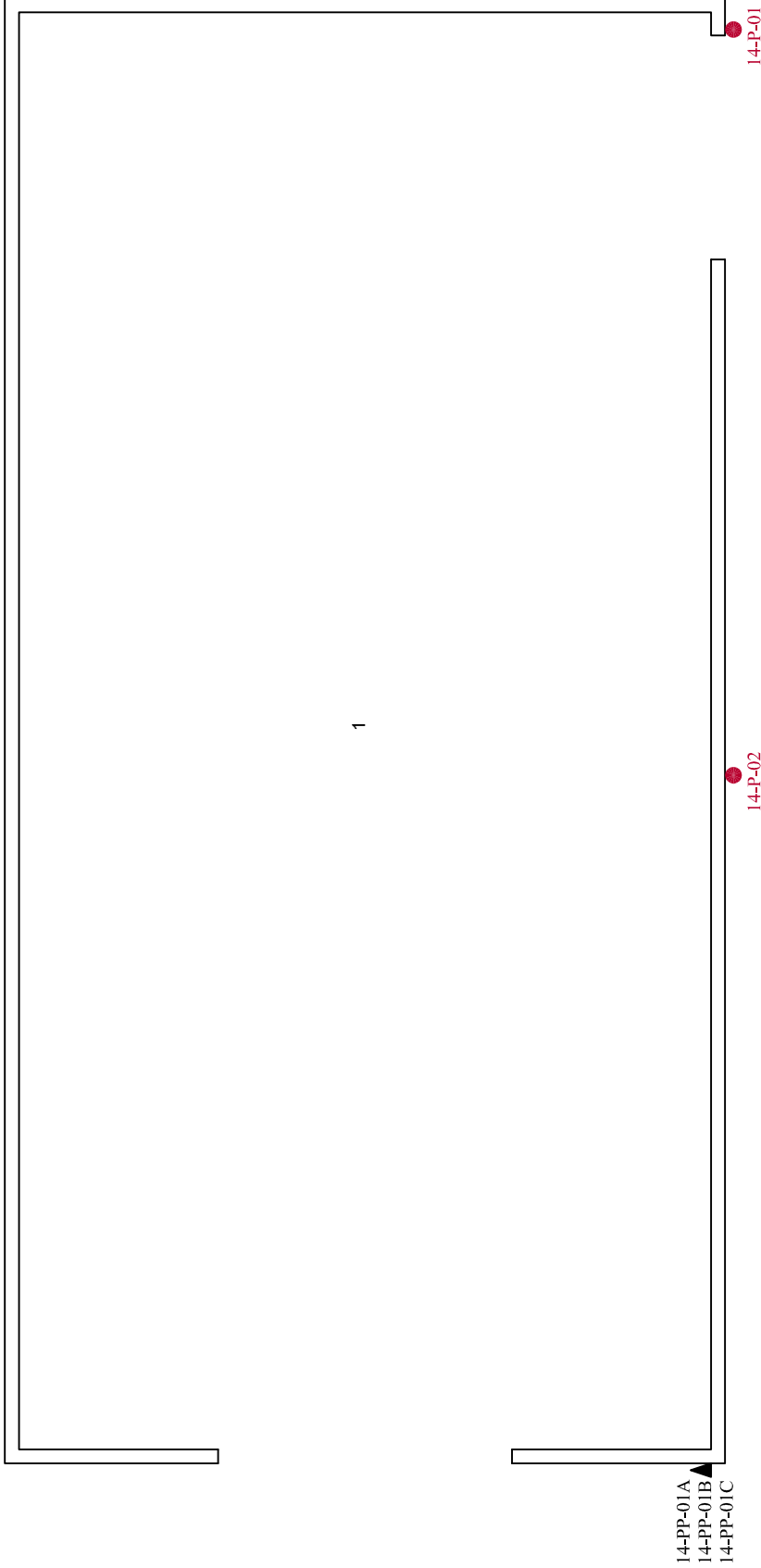
continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

Additional building-specific recommendations to be considered are provided below.

5.7-8.1 Lead

Lead-containing paint observed in poor condition within the building should be cleaned-up and/or addressed to mitigate potential for additional deterioration and dispersal of lead-containing paint chips/dust. Consideration should be given to re-painting surfaces to mitigate the potential for additional deterioration and hazards associated with the lead-containing paint chips/dust that may be created.

Provisions for worker protection and waste disposal related to the above are included in Section 5.2 of the main body of this report.



**FIRST FLOOR
STORAGE BUILDING**

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC		Scale: N.T.S.	7.1
		Date: 17/04/03	
		Dwn. By: CD SL2017040087	
		App'd By: TW	



Unit 14		
Storage Building - First Floor		
Rm. #	Name	Area m ²
1	Storage	70.6

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040088

App'd By: TW

Dwg. No.:

7.2





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Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

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Burnaby, BC V5H 0C6
Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017
Proj: CSC MISSION-MINIMUM / 123220822 / STORAGE-14

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 14-PP-01A **Lab Sample ID:** 691700545-0001

Sample Description: EAST EXTERIOR PENETRATION/CLEAR PENETRATION PUTTY

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 14-PP-01B **Lab Sample ID:** 691700545-0002

Sample Description: EAST EXTERIOR PENETRATION/CLEAR PENETRATION PUTTY

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 14-PP-01C **Lab Sample ID:** 691700545-0003

Sample Description: EAST EXTERIOR PENETRATION/CLEAR PENETRATION PUTTY

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Clear	0.0%	100%	None Detected	

Analyst(s): _____

Kathleen Cruz PLM Grav. Reduction (3)

Reviewed and approved by: _____

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 19:17:12



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EMSL Canada Or	551702917
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Received: 03/21/17 11:03 AM
Collected:

Project: CSCMISSION-MINIMUM/123220822 - Storage - 14

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
14-P-01	551702917-0001 Site: North exterior trim Desc: White on wood	3/24/2017		2100 ppm
14-P-02	551702917-0002 Site: North exterior wall Desc: Grey on steel Insufficient sample to reach reporting limit.	3/24/2017		<290 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:16:29

**APPENDIX 5.8
FINDINGS AND RECOMMENDATIONS—
BUILDING 18—RECYCLE STORAGE
(848-48-RP)**



Appendix 5.8 FINDINGS AND RECOMMENDATIONS— BUILDING 18—RECYCLE STORAGE (848-48-RP)

Building 18—Recycle Storage (subject building) was reportedly constructed in 1981 and has been assigned Real Property ID #851. The typical structural components and finishes associated with this building consist of a wood frame structure with wood interior/exterior siding and asphalt roof shingles.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.8-1 ASBESTOS

Stantec identified and sampled various suspected ACMs. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.8-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.8-1 Suspected ACM Sample Collection and Analysis Summary
Building 18—Recycle Storage**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
18-RF-01A	Black roofing felt	South side of roof	None Detected
18-RF-01B	Black roofing felt	South side of roof	None Detected
18-RF-01C	Black roofing felt	South side of roof	None Detected
18-RS-01A	Roof shingle	South side of roof	None Detected
18-RS-01B	Roof shingle	South side of roof	None Detected
18-RS-01C	Roof shingle	South side of roof	None Detected
18-RP-01A	Black roofing paper	South side of roof	None Detected
18-RP-01B	Black roofing paper	South side of roof	None Detected
18-RP-01C	Black roofing paper	South side of roof	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.8 Findings and Recommendations—Building 18—Recycle Storage (848-48-RP)
September 2017

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.8-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. The following observations were made regarding the potential presence of vermiculite in the subject building:

- An attic space was observed to be present in the subject building but no access point was identified. Destructive work may be required to determine the presence/absence of vermiculite insulation within this space.

5.8-2 LEAD

Lead is expected to be present in the following:

- Solder used in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.8-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.8-2 Suspected LCP Sample Collection and Analysis Summary
Building 18—Recycle Storage**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
18-P-01	White on wood	South exterior wall	9,900
18-P-02	Blue on wood	East exterior door	<90
18-P-03	Yellow on wood	Room 2, storage, south wall	840
18-P-04	Pink on wood	Room 1, recycle storage, south wall	360
18-P-05	Light grey on concrete	Room 1, recycle storage, floor	4,100
18-P-06	Dark grey on concrete	Room 1, recycle storage, floor	2,200




NOTE:
Bold, highlighted text indicates confirmed LCP

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.8 Findings and Recommendations—Building 18—Recycle Storage (848-48-RP)
September 2017

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paints presented in Table 5.8-3, below were identified as LCPs:


**Table 5.8-3 Summary of Identified LCPs
Building 18—Recycle Storage**

Identified LCP Description		Photo
Paint colour	White	
Substrate	Wood	
Location/approx. extent	Exterior siding	
Lead content	9,900 ppm	
Condition	Poor	
Paint colour	Yellow	
Substrate	Wood	
Location/approx. extent	Interior wall	
Lead content	840 ppm	
Condition	Good	
Paint colour	Light grey	
Substrate	Concrete	
Location/approx. extent	Floor	
Lead content	4,100 ppm	
Condition	Good, with areas where paint has worn from the floor surface.	

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.8 Findings and Recommendations—Building 18—Recycle Storage (848-48-RP)
September 2017

**Table 5.8-3 Summary of Identified LCPs
Building 18—Recycle Storage**

Identified LCP Description		Photo
Paint colour	Dark grey	
Substrate	Concrete	
Location/approx. extent	Floor	
Lead content	2,200 ppm	
Condition	Good, with areas where paint has worn from the floor surface.	

5.8-3 POLYCHLORINATED BIPHENYLS

The fluorescent light fixtures throughout were observed to have high-efficiency light tubes. The ballasts within such fixtures are not suspected to contain PCBs.

PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets.

5.8-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 11 fluorescent light fixtures observed.

Mercury may also be present in paints and adhesives.

5.8-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.8-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.8 Findings and Recommendations—Building 18—Recycle Storage (848-48-RP)
September 2017

5.8-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation
- Asphalt roof shingles

5.8-8 RECOMMENDATIONS

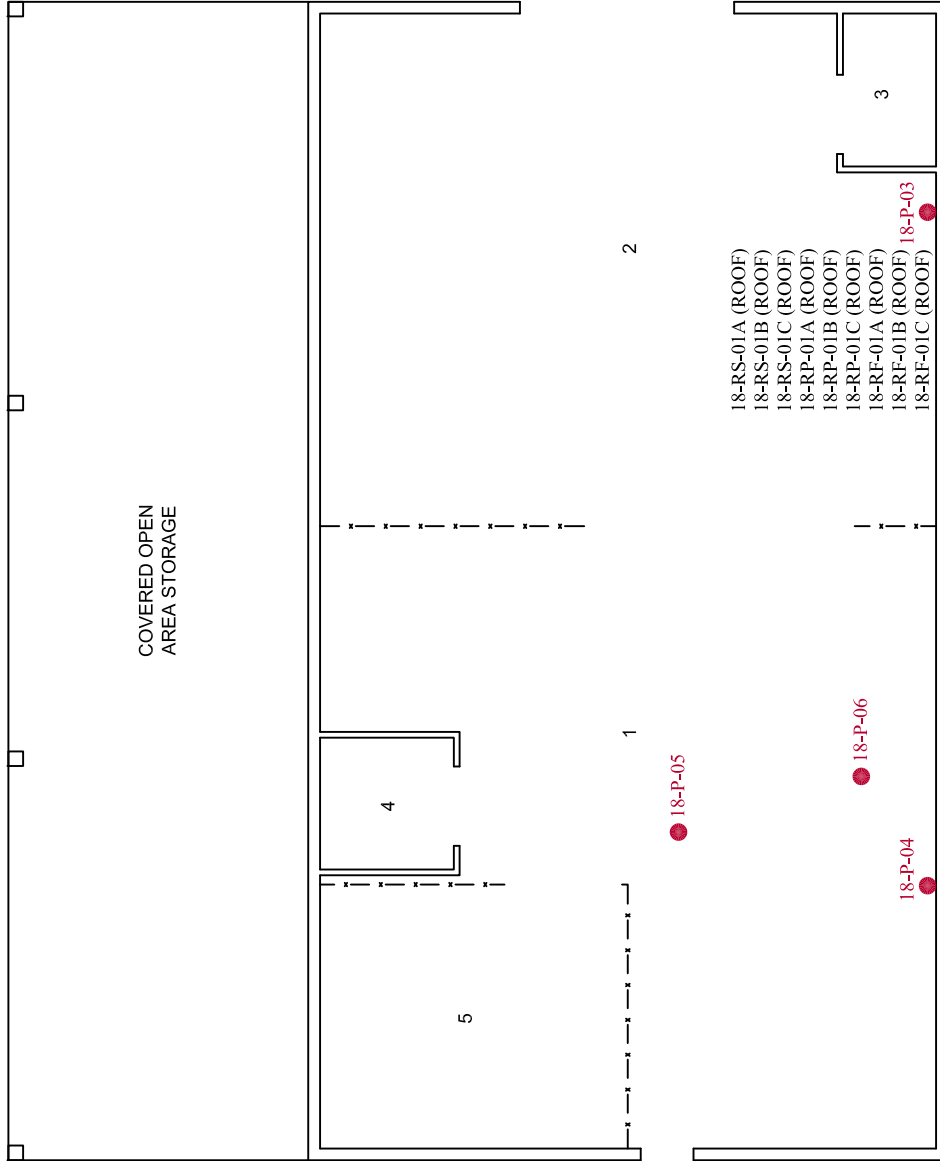
In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

Additional building-specific recommendations to be considered are provided below.

5.8-8.1 Lead

Lead-containing paint observed in poor condition within the building should be cleaned-up and/or addressed to mitigate potential for additional deterioration and dispersal of lead-containing paint chips/dust. Consideration should be given to re-painting surfaces to mitigate the potential for additional deterioration and hazards associated with the lead-containing paint chips/dust that may be created.

Provisions for worker protection and waste disposal related to the above are included in Section 5.2 of the main body of this report.



**FIRST FLOOR
RECYCLE STORAGE**

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA		Project No.: 123220822	Dwg. No.:
		Scale: N.T.S.	8.1
		Date: 17/04/03	
		Dwn. By: CD PK	
		App'd By: TW	



Unit 18		
Recycle Storage - First Floor		
Rm. #	Name	Area m ²
1	Recycle Storage	38.6
2	Storage	41.5
3	Mechanical Room	2.3
4	Storage	2.8
5	Storage	11.5

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040101

App'd By: TW

Dwg. No.:

8.2





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EMSL Canada Order 691700549
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / RECYCLE STORAGE-18

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 18-RF-01A **Lab Sample ID:** 691700549-0001

Sample Description: SOUTH SIDE OF ROOF/BLACK ROOFING FELT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 18-RF-01B **Lab Sample ID:** 691700549-0002

Sample Description: SOUTH SIDE OF ROOF/BLACK ROOFING FELT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 18-RF-01C **Lab Sample ID:** 691700549-0003

Sample Description: SOUTH SIDE OF ROOF/BLACK ROOFING FELT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 18-RS-01A **Lab Sample ID:** 691700549-0004

Sample Description: SOUTH SIDE OF ROOF/ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 18-RS-01B **Lab Sample ID:** 691700549-0005

Sample Description: SOUTH SIDE OF ROOF/ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 18-RS-01C **Lab Sample ID:** 691700549-0006

Sample Description: SOUTH SIDE OF ROOF/ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 18-RP-01A **Lab Sample ID:** 691700549-0007

Sample Description: SOUTH SIDE OF ROOF/BLACK ROOFING PAPER

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700549
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 18-RP-01B **Lab Sample ID:** 691700549-0008
Sample Description: SOUTH SIDE OF ROOF/BLACK ROOFING PAPER

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 18-RP-01C **Lab Sample ID:** 691700549-0009
Sample Description: SOUTH SIDE OF ROOF/BLACK ROOFING PAPER

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Analyst(s):

Kathleen Cruz PLM Grav. Reduction (7)
Nicole Yeo PLM Grav. Reduction (2)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 18:46:57

**EMSL Canada Inc.**

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ProjectID:	

Attn: **Steve Chou**
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Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 11:03 AM
 Collected:

Project: CSCMISSION-MINIMUM/123220822 - Recycle Storage-18

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
18-P-01 Site: South exterior wall Desc: White on wood	551702912-0001	3/24/2017		9900 ppm
18-P-02 Site: East exterior door Desc: Blue on wood	551702912-0002	3/24/2017		<90 ppm
18-P-03 Site: Room 3, mechanical room, south wall Desc: Yellow on wood	551702912-0003	3/24/2017		840 ppm
18-P-04 Site: Room 1, recycle storage, south wall Desc: Pink on wood	551702912-0004	3/24/2017		360 ppm
18-P-05 Site: Room 1, recycle storage, floor Desc: Light grey on concrete	551702912-0005	3/24/2017		4100 ppm
18-P-06 Site: Room 1, recycle storage, floor Desc: Dark grey on concrete	551702912-0006	3/24/2017		2200 ppm

 Rowena Fanto, Lead Supervisor
 or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:09:44

**APPENDIX 5.9
FINDINGS AND RECOMMENDATIONS—
BUILDING 20—WEIGHT ROOM
(848-20-RP)**



Appendix 5.9 FINDINGS AND RECOMMENDATIONS— BUILDING 20—WEIGHT ROOM (848-20-RP)

Building 20—Weight Room (subject building) was reportedly constructed in 1987 and has been assigned Real Property ID #852. This building and Building 20a – Health Services are connected, although without an interior pathway/doorway. The typical structural components and finishes associated with this building consist of vinyl/stucco exterior walls; drywall and texture coat ceilings; drywall walls; and, cement flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.9-1 ASBESTOS

Stantec identified and sampled various suspected ACMs. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.9-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.9-1 Suspected ACM Sample Collection and Analysis Summary
Building 20—Weight Room**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
20-DJC-01A	Joint compound applied to drywall walls and ceiling	Room 20-1, weight room, Northwest corner	None Detected
20-DJC-01B	Joint compound applied to drywall walls and ceiling	Room 20-1, weight room, South corner	None Detected
20-DJC-01C	Joint compound applied to drywall walls and ceiling	Room 20-1, weight room, North corner	None Detected
20-MM-01A	Tan mastic applied to mirrors	Room 20-1, weight room, West wall	None Detected
20-MM-01B	Tan mastic applied to mirrors	Room 20-1, weight room, West wall	None Detected
20-MM-01C	Tan mastic applied to mirrors	Room 20-1, weight room, West wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.9 Findings and Recommendations—Building 20—Weight room (848-20-RP)
September 2017

**Table 5.9-1 Suspected ACM Sample Collection and Analysis Summary
Building 20—Weight Room**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
20-ES-01A	Exterior stucco applied under windows	Exterior north wall, below window	None Detected
20-ES-01B	Exterior stucco applied under windows	Exterior west wall, below south window	None Detected
20-ES-01C	Exterior stucco applied under windows	Exterior west wall, below north window	None Detected
20-TC-01A	Ceiling texture coat applied to drywall ceiling	Room 20-1, weight room, ceiling near attic hatch	None Detected
20-TC-01B	Ceiling texture coat applied to drywall ceiling	Room 20-1, weight room, ceiling near attic hatch	None Detected
20-TC-01C	Ceiling texture coat applied to drywall ceiling	Room 20-1, weight room, ceiling near attic hatch	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.9-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.9-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.9-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.9 Findings and Recommendations—Building 20—Weight room (848-20-RP)
September 2017

**Table 5.9-2 Suspected LCP Sample Collection and Analysis Summary
Building 20—Weight Room**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
20-P-01	Light green on drywall	Room 20-1, weight room, northwest corner	<90
20-P-02	Grey on concrete floor	Room 20-1, weight room, west end floor	590
20-P-03	Grey on metal and wood exterior trim	Exterior northwest post	<90
20-P-04	Blue on stucco exterior siding	Exterior west wall below window	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.9-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.9-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 10 fluorescent light fixtures observed.

One thermostat with a mercury-containing switch was observed. The location of the thermostat is identified in the drawing attached to this appendix.

Mercury may also be present in paints and adhesives.

5.9-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.9-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.9 Findings and Recommendations—Building 20—Weight room (848-20-RP)
September 2017

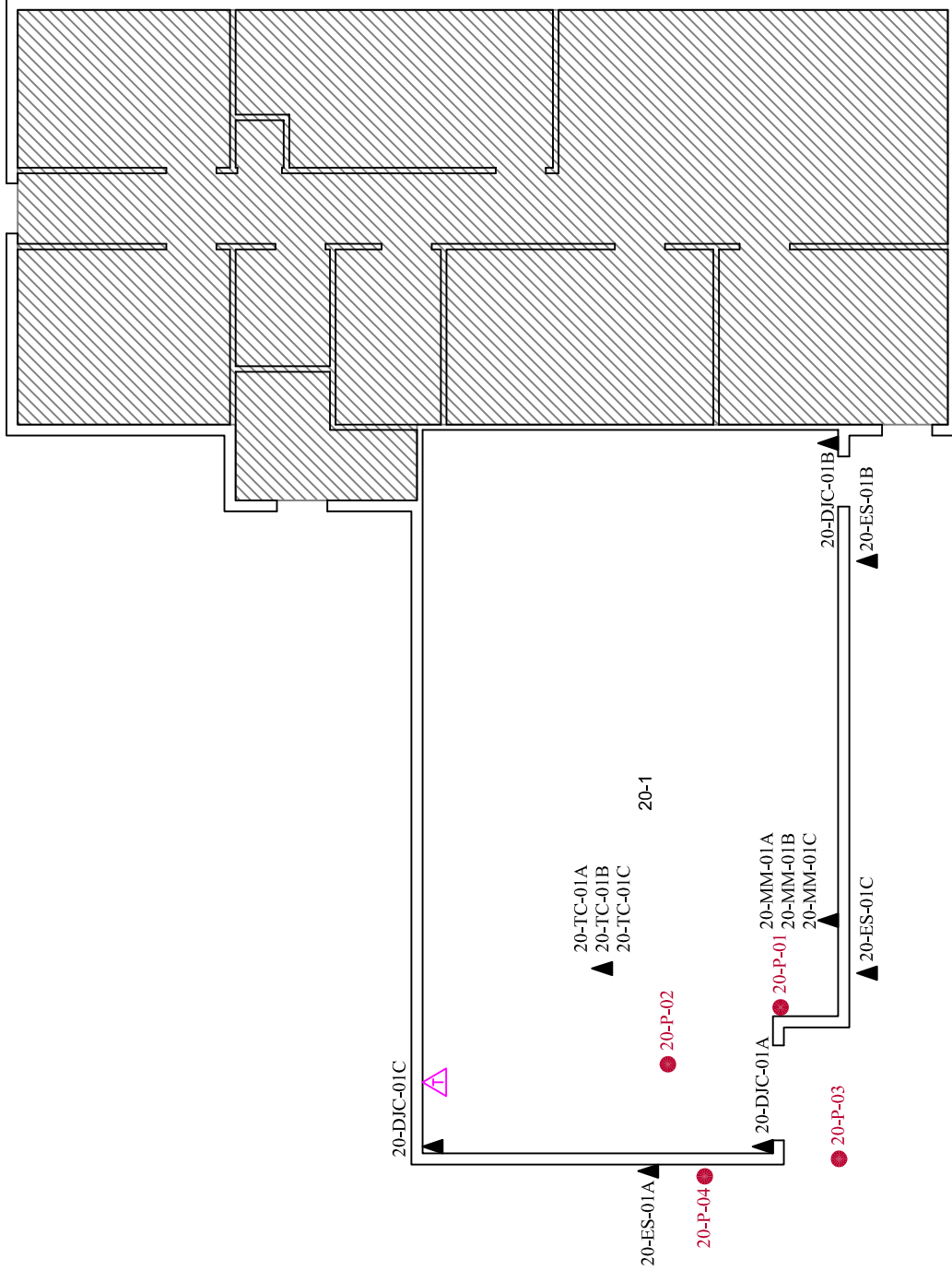
5.9-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.9-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- △ MERCURY-CONTAINING THERMOSTAT
- ▨ AREA NOT PART OF ASSESSMENT

**FIRST FLOOR
WEIGHT ROOM**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION		Scale: N.T.S.	9.1
33737 DEWDNEY TRUNK ROAD, MISSION, BC		Date: 17/09/12	
PUBLIC SERVICES AND PROCUREMENT CANADA		Dwn. By: CD PK/DM	
		App'd By: TW	



Unit 20		
Rm. #	Name	Area m ²
20-1	Weight Room	84.1

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/11

Dwn. By: CD PK/DM SL2017040138

App'd By: TW

Dwg. No.:

9.2





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EMSL Canada Order 691700514
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / BUILDING 20/20A

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 20-DJC-01A **Lab Sample ID:** 691700514-0001

Sample Description: Joint compound applied to drywall walls and ceiling/Room 20-1, weight room, northeast corner

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20-DJC-01B **Lab Sample ID:** 691700514-0002

Sample Description: Joint compound applied to drywall walls and ceiling/Room 20-1, weight room, southeast corner

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20-DJC-01C **Lab Sample ID:** 691700514-0003

Sample Description: Joint compound applied to drywall walls and ceiling/Room 20-1, weight room, northwest corner

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20-MM-01A **Lab Sample ID:** 691700514-0004

Sample Description: Tan mastic applied to mirrors/Room 20-1, weight room, west wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Yellow	0.0%	100%	None Detected	

Client Sample ID: 20-MM-01B **Lab Sample ID:** 691700514-0005

Sample Description: Tan mastic applied to mirrors/Room 20-1, weight room, west wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Yellow	0.0%	100%	None Detected	

Client Sample ID: 20-MM-01C **Lab Sample ID:** 691700514-0006

Sample Description: Tan mastic applied to mirrors/Room 20-1, weight room, west wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Yellow	0.0%	100%	None Detected	

Client Sample ID: 20-ES-01A **Lab Sample ID:** 691700514-0007

Sample Description: Exterior stucco applied under windows/Exterior north wall, below window

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	



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EMSL Canada Order 691700514
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 20-ES-01B **Lab Sample ID:** 691700514-0008

Sample Description: Exterior stucco applied under windows/Exterior west wall, below south window

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: 20-ES-01C **Lab Sample ID:** 691700514-0009

Sample Description: Exterior stucco applied under windows/Exterior west wall, below north window

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: 20A-DJC-01A **Lab Sample ID:** 691700514-0010

Sample Description: Joint compound applied to drywall walls and ceiling/Room 20A-6, office, north wall near door

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20A-DJC-01B **Lab Sample ID:** 691700514-0011

Sample Description: Joint compound applied to drywall walls and ceiling/Room 20A-4, staff bathroom, northwest corner

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20A-DJC-01C **Lab Sample ID:** 691700514-0012

Sample Description: Joint compound applied to drywall walls and ceiling/Room 20A-7, janitor's closet

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20A-DJC-01D **Lab Sample ID:** 691700514-0013

Sample Description: Joint compound applied to drywall walls and ceiling/Room 20A-1, waiting room, southwest corner

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20A-DJC-01E **Lab Sample ID:** 691700514-0014

Sample Description: Joint compound applied to drywall walls and ceiling/Room 20A-6, office, south wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20A-SF-01 **Lab Sample ID:** 691700514-0015

Sample Description: Vinyl sheet flooring, pink with beige smudges/Room 20A-9, corridor, north end

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Beige	0.0%	100%	None Detected	



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EMSL Canada Order 691700514
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 20A-DM-01A **Lab Sample ID:** 691700514-0016

Sample Description: Grey mastic applied to the seams of HVAC ducting/Room 20A-10, mechanical room

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: 20A-DM-01B **Lab Sample ID:** 691700514-0017

Sample Description: Grey mastic applied to the seams of HVAC ducting/Room 20A-10, mechanical room

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 20A-DM-01C **Lab Sample ID:** 691700514-0018

Sample Description: Grey mastic applied to the seams of HVAC ducting/Room 20A-10, mechanical room

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: 20A-RS-01A **Lab Sample ID:** 691700514-0019

Sample Description: Asphalt roof shingle/Exterior south roof

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.65%	99.3%	None Detected	

Client Sample ID: 20A-RS-01B **Lab Sample ID:** 691700514-0020

Sample Description: Asphalt roof shingle/Exterior south roof

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 20A-RS-01C **Lab Sample ID:** 691700514-0021

Sample Description: Asphalt roof shingle/Exterior south roof

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700514
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Kathleen Cruz PLM (8)
PLM Grav. Reduction (6)
Nicole Yeo PLM (5)
PLM Grav. Reduction (2)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 08/15/2017 09:31:23 Replaces amended report from: 05/10/2017 09:16:53 Reason Code: Client-Change to Location



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Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Attn: Amanda Bell
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Burnaby, BC V5H 0C6
Proj: 123220822
Phone: (604) 412-3004
Fax:
Collected:
Received: 8/04/2017
Analyzed: 8/11/2017

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 20-1A-TC-01A **Lab Sample ID:** 691701732-0001

Sample Description: CEILING TEXTURE COAT APPLIED TO DRYWALL CEILING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	8/11/2017	White/Beige	5%	95%	None Detected	

Client Sample ID: 20-1A-TC-01B **Lab Sample ID:** 691701732-0002

Sample Description: CEILING TEXTURE COAT APPLIED TO DRYWALL CEILING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	8/11/2017	White/Beige	5%	95%	None Detected	

Client Sample ID: 20-1A-TC-01C **Lab Sample ID:** 691701732-0003

Sample Description: CEILING TEXTURE COAT APPLIED TO DRYWALL CEILING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	8/11/2017	White/Beige	5%	95%	None Detected	

Analyst(s):
Kathleen Cruz PLM (3)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC
Initial report from: 08/11/2017 10:00:54



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EMSL Canada Or	551702898
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
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Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: **CSCMISSION- MINIMUM/123220822 - Building 20-Weight Room/Building 20a-Health Services Building**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
20-P-01 Site: Room 20-1, weight room, northwest corner Desc: Light green on drywall	551702898-0001	3/24/2017		<90 ppm
20-P-02 Site: Room 20-1, weight room, north end floor Desc: Grey on concrete	551702898-0002	3/24/2017		590 ppm
20-P-03 Site: Exterior northwest post Desc: Grey on metal and wood	551702898-0003	3/24/2017		<90 ppm
20-P-04 Site: Exterior north wall below window Desc: Blue on stucco	551702898-0004	3/24/2017		<90 ppm

Rowena Fanto, Lead Supervisor
 or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:06:07

**APPENDIX 5.10
FINDINGS AND RECOMMENDATIONS—
BUILDING 20A—HEALTH SERVICES
(848-21-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.10 Findings and Recommendations—Building 20a—Health Services (848-21-RP)
September 2017

Appendix 5.10 FINDINGS AND RECOMMENDATIONS— BUILDING 20A—HEALTH SERVICES (848-21-RP)

Building 20a—Health Services (subject building) was reportedly constructed in 1997 and has been assigned Real Property ID #853. This building and Building 20 – Weight Room are connected, although without an interior pathway/doorway. The typical structural components and finishes associated with this building consist of vinyl exterior siding; drywall ceiling; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.10-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.10-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.10-1 Suspected ACM Sample Collection and Analysis Summary
Building 20a—Health Services**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
20a-DJC-01A	Joint compound applied to drywall walls and ceiling	Room 20A-6, office, north wall near door	None Detected
20a-DJC-01B	Joint compound applied to drywall walls and ceiling	Room 20A-4, staff bathroom, northwest corner	None Detected
20a-DJC-01C	Joint compound applied to drywall walls and ceiling	Room 20A-7, janitor's closet	None Detected
20a-DJC-01D	Joint compound applied to drywall walls and ceiling	Room 20A-1, waiting room, west corner	None Detected



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.10 Findings and Recommendations—Building 20a—Health Services (848-21-RP)
September 2017

**Table 5.10-1 Suspected ACM Sample Collection and Analysis Summary
Building 20a—Health Services**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
20a-DJC-01E	Joint compound applied to drywall walls and ceiling	Room 20A-6, office, south wall	None Detected
20a-SF-01	Vinyl sheet flooring, pink with beige smudges	Room 20A-9, corridor, north end	None Detected
20a-DM-01A	Grey mastic applied to the seams of HVAC ducting	Room 20A-10, mechanical room	None Detected
20a-DM-01B	Grey mastic applied to the seams of HVAC ducting	Room 20A-10, mechanical room	None Detected
20a-DM-01C	Grey mastic applied to the seams of HVAC ducting	Room 20A-10, mechanical room	None Detected
20a-RS-01A	Asphalt roof shingle	Exterior, south corner of roof	None Detected
20a-RS-01B	Asphalt roof shingle	Exterior, south corner of roof	None Detected
20a-RS-01C	Asphalt roof shingle	Exterior, south corner of roof	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

K.1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.10-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Solder in bell fittings of cast iron pipes and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.10-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.10 Findings and Recommendations—Building 20a—Health Services (848-21-RP)
September 2017

**Table 5.10-2 Suspected LCP Sample Collection and Analysis Summary
Building 20a—Health Services**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
20a-P-01	Cream on drywall	Room 20A-7, janitor's closet	<90
20a-P-02	Brown on metal	Room 20A-6, office, door	<200

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.10-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.10-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 20 fluorescent light fixtures observed.

5.10-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.10-6 OZONE-DEPLETING SUBSTANCES

The following equipment was identified by labels to be ODS-containing:

- One Carrier A/C Unit (R-22, 1.93 kg) on north side of the building

The location of the above-noted unit is indicated on the attached drawing.

5.10-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

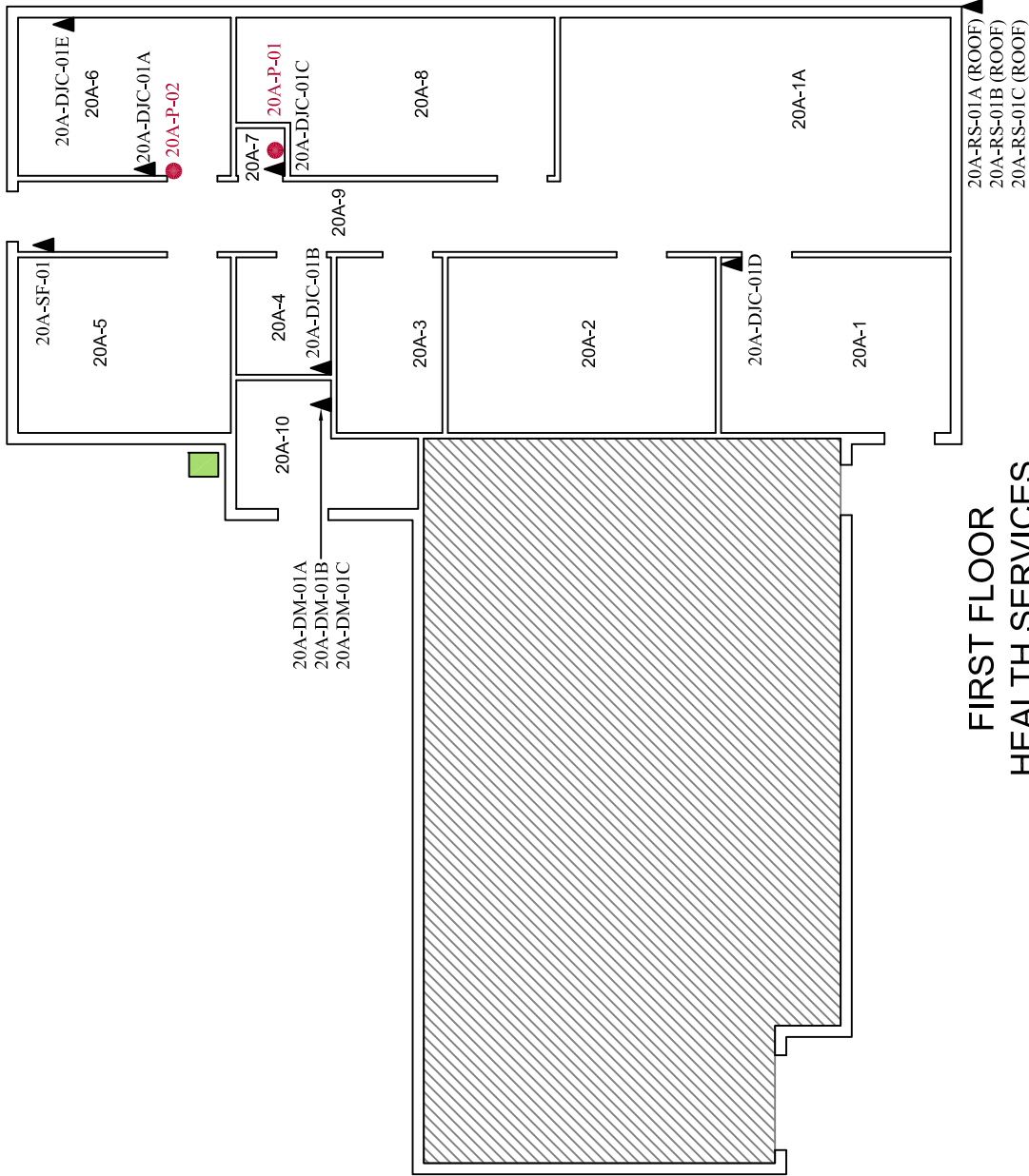
- Cement products such as:
 - Concrete foundation
- Gypsum and associated wall/ceiling finish materials
- Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.10 Findings and Recommendations—Building 20a—Health Services (848-21-RP)
September 2017

5.10-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- ODS-CONTAINING EQUIPMENT
- ▨ AREA NOT PART OF ASSESSMENT

**FIRST FLOOR
HEALTH SERVICES**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
AND BULK SAMPLE LOCATIONS**

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC
PUBLIC SERVICES AND PROCUREMENT CANADA

Dwg. No.:

10.1

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/11

Dwn. By: CD SL2017040136
PK/DM

App'd By: TW



Unit 20a		
Health Services & Weight Room - First Floor		
Rm. #	Name	Area m ²
20a-1	Waiting Room	12.5
20a-1a	Office / File Room	27.1
20a-2	Pharmacy	14.0
20a-3	B.F. Urinalysis/Inmate Wash Room	5.6
20a-4	Staff Bath	3.5
20a-5	Office	11.4
20a-6	Office	10.3
20a-7	Janitors Closet	0.9
20a-8	Treatment Room	14.7
20a-9	Corridor	11.4
20a-10	Mechanical Room	6.0

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/11

Dwn. By: CD PK/DM
 SL2017040137

App'd By: TW

Dwg. No.:

10.2





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EMSL Canada Order 691700514
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / BUILDING 20/20A

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 20-DJC-01A **Lab Sample ID:** 691700514-0001

Sample Description: Joint compound applied to drywall walls and ceiling/Room 20-1, weight room, northeast corner

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20-DJC-01B **Lab Sample ID:** 691700514-0002

Sample Description: Joint compound applied to drywall walls and ceiling/Room 20-1, weight room, southeast corner

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20-DJC-01C **Lab Sample ID:** 691700514-0003

Sample Description: Joint compound applied to drywall walls and ceiling/Room 20-1, weight room, northwest corner

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20-MM-01A **Lab Sample ID:** 691700514-0004

Sample Description: Tan mastic applied to mirrors/Room 20-1, weight room, west wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Yellow	0.0%	100%	None Detected	

Client Sample ID: 20-MM-01B **Lab Sample ID:** 691700514-0005

Sample Description: Tan mastic applied to mirrors/Room 20-1, weight room, west wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Yellow	0.0%	100%	None Detected	

Client Sample ID: 20-MM-01C **Lab Sample ID:** 691700514-0006

Sample Description: Tan mastic applied to mirrors/Room 20-1, weight room, west wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Yellow	0.0%	100%	None Detected	

Client Sample ID: 20-ES-01A **Lab Sample ID:** 691700514-0007

Sample Description: Exterior stucco applied under windows/Exterior north wall, below window

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	



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EMSL Canada Order 691700514
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 20-ES-01B **Lab Sample ID:** 691700514-0008
Sample Description: Exterior stucco applied under windows/Exterior west wall, below south window

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: 20-ES-01C **Lab Sample ID:** 691700514-0009
Sample Description: Exterior stucco applied under windows/Exterior west wall, below north window

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: 20A-DJC-01A **Lab Sample ID:** 691700514-0010
Sample Description: Joint compound applied to drywall walls and ceiling/Room 20A-6, office, north wall near door

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20A-DJC-01B **Lab Sample ID:** 691700514-0011
Sample Description: Joint compound applied to drywall walls and ceiling/Room 20A-4, staff bathroom, northwest corner

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20A-DJC-01C **Lab Sample ID:** 691700514-0012
Sample Description: Joint compound applied to drywall walls and ceiling/Room 20A-7, janitor's closet

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20A-DJC-01D **Lab Sample ID:** 691700514-0013
Sample Description: Joint compound applied to drywall walls and ceiling/Room 20A-1, waiting room, west corner

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20A-DJC-01E **Lab Sample ID:** 691700514-0014
Sample Description: Joint compound applied to drywall walls and ceiling/Room 20A-6, office, south wall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 20A-SF-01 **Lab Sample ID:** 691700514-0015
Sample Description: Vinyl sheet flooring, pink with beige smudges/Room 20A-9, corridor, north end

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Beige	0.0%	100%	None Detected	



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Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 20A-DM-01A **Lab Sample ID:** 691700514-0016

Sample Description: Grey mastic applied to the seams of HVAC ducting/Room 20A-10, mechanical room

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: 20A-DM-01B **Lab Sample ID:** 691700514-0017

Sample Description: Grey mastic applied to the seams of HVAC ducting/Room 20A-10, mechanical room

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 20A-DM-01C **Lab Sample ID:** 691700514-0018

Sample Description: Grey mastic applied to the seams of HVAC ducting/Room 20A-10, mechanical room

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: 20A-RS-01A **Lab Sample ID:** 691700514-0019

Sample Description: Asphalt roof shingle/Exterior south roof

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.65%	99.3%	None Detected	

Client Sample ID: 20A-RS-01B **Lab Sample ID:** 691700514-0020

Sample Description: Asphalt roof shingle/Exterior south roof

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 20A-RS-01C **Lab Sample ID:** 691700514-0021

Sample Description: Asphalt roof shingle/Exterior south roof

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700514
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Kathleen Cruz PLM (8)
PLM Grav. Reduction (6)
Nicole Yeo PLM (5)
PLM Grav. Reduction (2)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 09/21/2017 09:32:59 Replaces amended report from: 09/14/2017 10:57:14 Reason Code: Client-Change to Location



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Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: **CSCMISSION- MINIMUM/123220822 - Building 20-Weight Room/Building 20a-Health Services Building**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
20a-P-01	551702898-0005	3/24/2017		<90 ppm
Site: Room 20A-7, janitor's closet Desc: Cream on drywall				
20a-P-02	551702898-0006	3/24/2017		<200 ppm
Site: Room 20A-6, office, door Desc: Brown on metal Insufficient sample to reach reporting limit.				

Rowena Fanto, Lead Supervisor
 or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:06:07

**APPENDIX 5.11
FINDINGS AND RECOMMENDATIONS—
BUILDING 21—TEXTILES/GENERATOR
BUILDING (848-38-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.11 Findings and Recommendations—Building 21—Textiles/Generator Building (848-38-RP)
September 2017

Appendix 5.11 FINDINGS AND RECOMMENDATIONS— BUILDING 21—TEXTILES/GENERATOR BUILDING (848-38-RP)

Building 21—Textiles / Generator Building (subject building) was reportedly constructed in 1990 and has been assigned Real Property ID #854. The typical structural components and finishes associated with this building consist of exterior metal panel siding; drywall ceilings; drywall and wooden walls; and, vinyl floor tiles and concrete flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.11-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.11-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.11-1 Suspected ACM Sample Collection and Analysis Summary
Building 21—Textiles/Generator Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
21-PS-01A	White pipe sealant	Room 1, textile area, first floor, sprinkler piping	None Detected
21-PS-01B	White pipe sealant	Room 1, textile area, first floor, sprinkler piping	None Detected
21-PS-01C	White pipe sealant	Room 3, sprinkler room, first floor, sprinkler piping	None Detected
21-DJC-01A	Drywall joint compound	Room 1, textile area, first floor, north wall of hallway	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.11 Findings and Recommendations—Building 21—Textiles/Generator Building (848-38-RP)
September 2017

**Table 5.11-1 Suspected ACM Sample Collection and Analysis Summary
Building 21—Textiles/Generator Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
21-DJC-01B	Drywall joint compound	Room 1, textile area, first floor, partition wall on south side	None Detected
21-DJC-01C	Drywall joint compound	Room 2, cutting room, first floor, west wall	None Detected
21-DJC-01D	Drywall joint compound	Room 3, mechanical room, second floor, west wall	None Detected
21-DJC-01E	Drywall joint compound	Room 1, storage area, second floor, east wall	None Detected
21-WPC-01A	Black window pane caulking	Room 1, textile area, first floor, west window	None Detected
21-WPC-01B	Black window pane caulking	Room 1, textile area, first floor, west window	None Detected
21-WPC-01C	Black window pane caulking	Room 1, textile area, first floor, west window	None Detected
21-DM-01A	Grey duct mastic	Room 3, mechanical room, second floor, ducting	None Detected
21-DM-01B	Grey duct mastic	Room 1, textile area, first floor, ducting	None Detected
21-DM-01C	Grey duct mastic	Room 3, sprinkler room, first floor, ducting	None Detected
21-FT-01	12"x12" grey floor tile with white smears	Room 4, electrical room, second floor	None Detected
21-PP-01A	Clear penetration putty	Exterior south wall penetration	None Detected
21-PP-01B	Clear penetration putty	Exterior south wall penetration	None Detected
21-PP-01C	Clear penetration putty	Exterior west wall penetration	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.11-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.11 Findings and Recommendations—Building 21—Textiles/Generator Building (848-38-RP)
September 2017

5.11-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Solder used on domestic water lines
- Solder used in bell fittings of cast iron pipes and in electrical equipment
- Vent and pipe flashings

With respect to paint, paint chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.11-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.11-2 Suspected LCP Sample Collection and Analysis Summary
Building 21—Textiles/Generator Building**


Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
21-P-01	Yellow on drywall	Room 7, office—corcan supervisor, first floor, south closet wall	<90
21-P-02	Light pink on drywall	Room 2, cutting room, first floor, south wall	<90
21-P-03	Blue on concrete	Room 8, electrical room, first floor, floor	<110
21-P-04	Pink on steel	Exterior west door	<160
21-P-05	Grey on steel	Exterior northwest corner	720

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.11-3, below is identified as an LCP:

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.11 Findings and Recommendations—Building 21—Textiles/Generator Building (848-38-RP)
September 2017

**Table 5.11-3 Summary of Identified LCPs
Building 21—Textiles/Generator Building**

Identified LCP Description		Photo
Paint colour	Grey	
Substrate	Metal	
Location/approx. extent	Exterior siding	
Lead content	720 ppm	
Condition	Good	

5.11-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.11-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 20 fluorescent light fixtures observed.

Mercury may also be present in paints and adhesives.

5.11-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.11-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.11-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

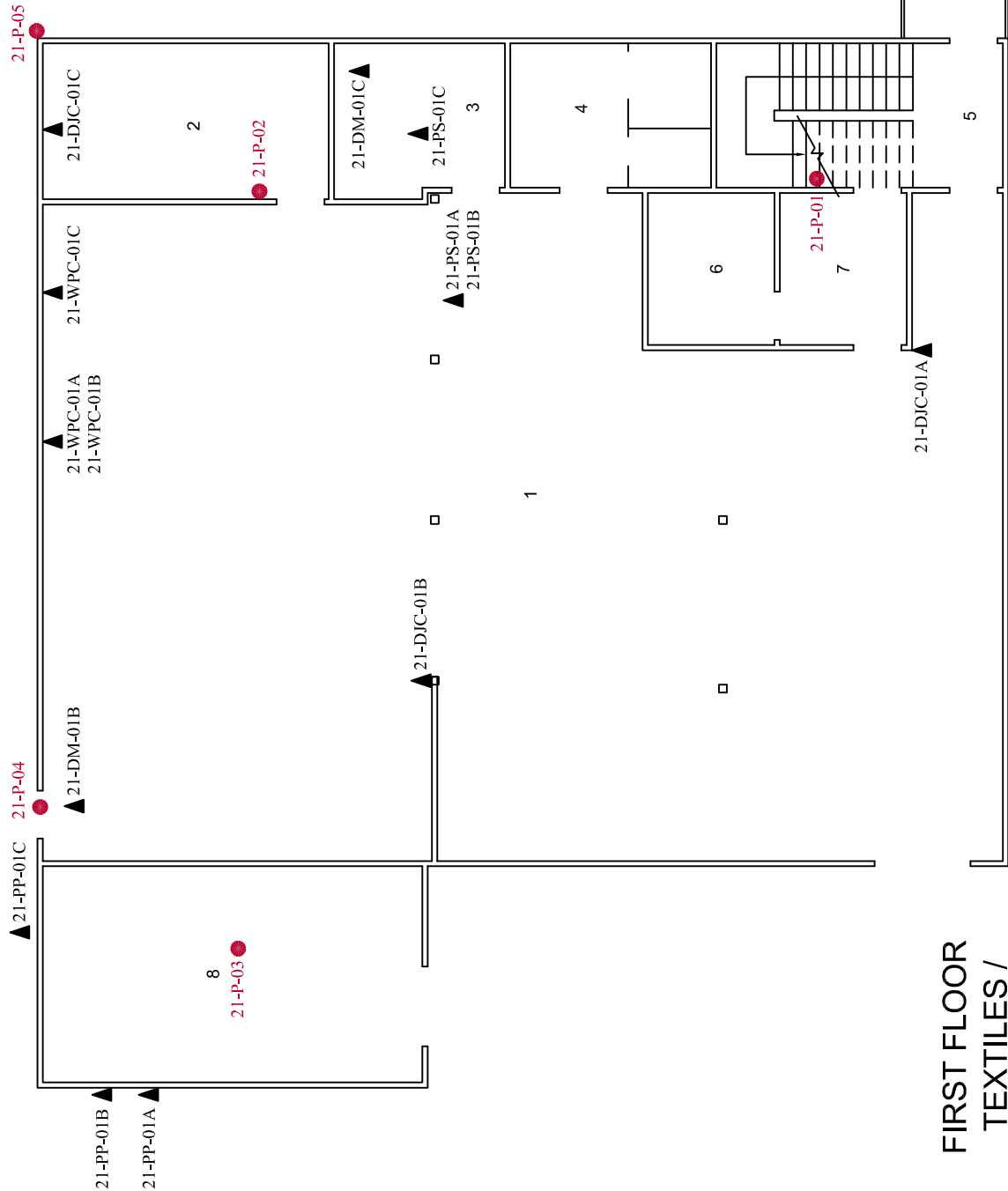
- Concrete foundation
- Gypsum and associated wall/ceiling finish materials

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.11 Findings and Recommendations—Building 21—Textiles/Generator Building (848-38-RP)
September 2017

5.11-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



**FIRST FLOOR
TEXTILES /
GENERATOR BUILDING**

LEGEND
 ▲ ASBESTOS BULK SAMPLE
 ● LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA		Project No.: 123220822	Dwg. No.: 11.1	
		Scale: N.T.S.		
Date: 17/08/11				
Dwn. By: CD PK/VM				
App'd By: TW				

Unit 21		
Textiles / Generator Building - First Floor		
Rm. #	Name	Area m ²
1	Textile Area	219.2
2	Cutting Room	17.3
3	Sprinkler Room	10.1
4	B.F. Washroom	11.1
5	Vestibule	16.1
6	Office	7.5
7	Office	7.5
8	Electrical Room	32.2

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

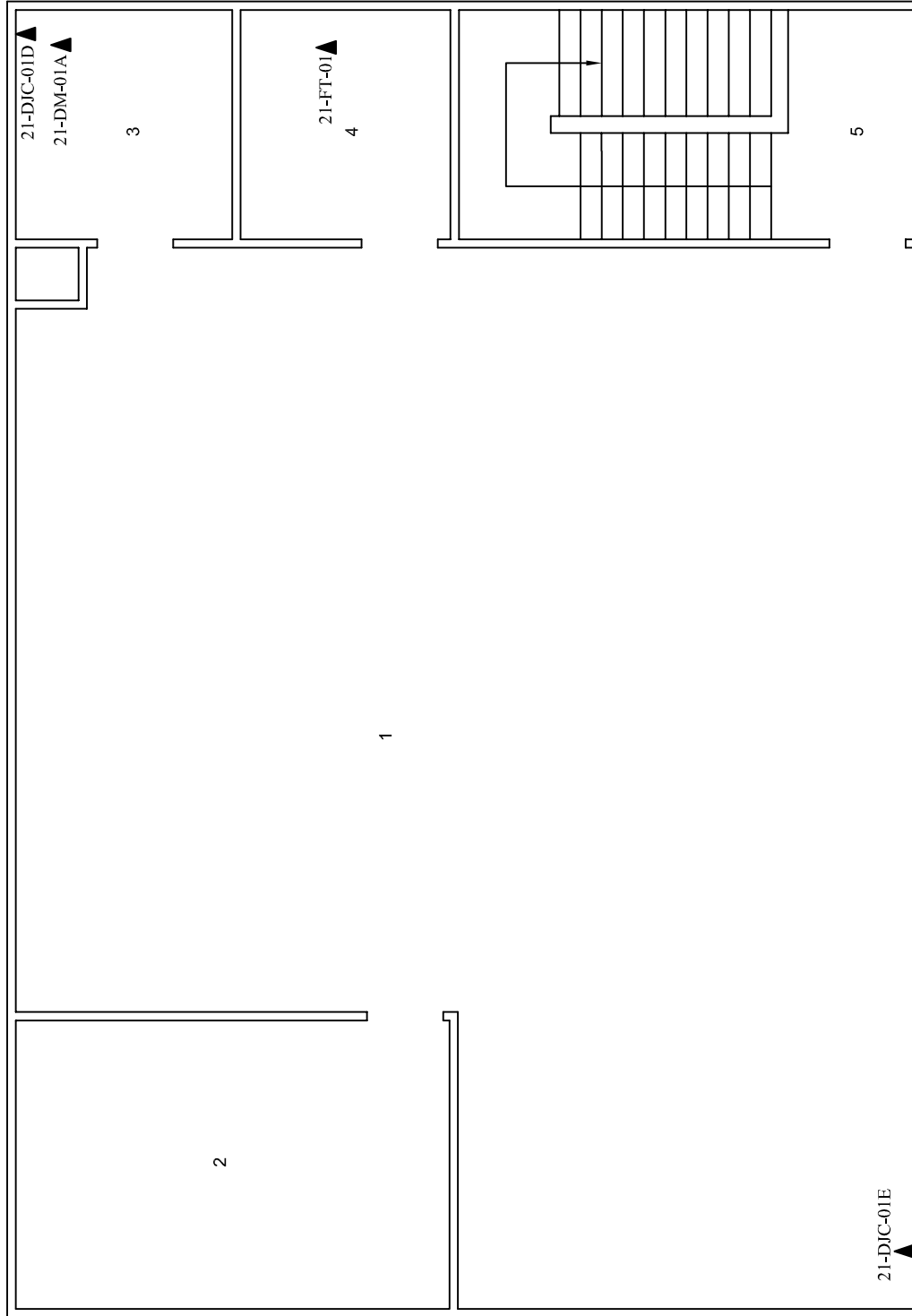
Dwn. By: CD PK SL2017040115

App'd By: TW

Dwg. No.:

11.2





**SECOND FLOOR
TEXTILES / GENERATOR BUILDING**

LEGEND

▲ ASBESTOS BULK SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA	Project No.: 123220822	Dwg. No.: 11.3	
	Scale: N.T.S.		
	Date: 17/04/03		
	Dwn. By: CD PK App'd By: TW		

Unit 21		
Textiles - Second Floor		
Rm. #	Name	Area m ²
1	Storage Area	120.8
2	Finishing & Cutting Room	18.8
3	Mechanical Room	7.6
4	Electrical Room	7.7
5	Vestibule	5.0

SECOND FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Client:

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040117

App'd By: TW

Dwg. No.:

11.4





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EMSL Canada Order 691700501
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Attn: Steve Chou
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6
Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/27/2017
Proj: CSC MISSION-MINIMUM / 123220822 / TEXTILE-21

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 21-PS-01A **Lab Sample ID:** 691700501-0001

Sample Description: Room 1, Textile Area, Sprinkler Piping/White Pipe Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	70%	30%	None Detected	

Client Sample ID: 21-PS-01B **Lab Sample ID:** 691700501-0002

Sample Description: Room 1, Textile Area, Sprinkler Piping/White Pipe Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 21-PS-01C **Lab Sample ID:** 691700501-0003

Sample Description: Room 3, Sprinkler Room, Sprinkler Piping/White Pipe Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 21-DJC-01A **Lab Sample ID:** 691700501-0004

Sample Description: Room 1, Textile Area, North Wall of Hallway/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID: 21-DJC-01B **Lab Sample ID:** 691700501-0005

Sample Description: Room 1, Textile Area, Partition Wall on South Side/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID: 21-DJC-01C **Lab Sample ID:** 691700501-0006

Sample Description: Room 2, Cutting Room, West Wall/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	

Client Sample ID: 21-DJC-01D **Lab Sample ID:** 691700501-0007

Sample Description: Room 3, Mechanical Room, Second Floor, West Wall/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis



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EMSL Canada Order 691700501
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 21-DJC-01E **Lab Sample ID:** 691700501-0008

Sample Description: Room 1, Storage Area, Second Floor, East Wall/Drywall Joint Compound

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID: 21-WPC-01A **Lab Sample ID:** 691700501-0009

Sample Description: Room 1, Textile Area, West Window/Black Window Pane Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Black	0%	100%	None Detected	

Client Sample ID: 21-WPC-01B **Lab Sample ID:** 691700501-0010

Sample Description: Room 1, Textile Area, West Window/Black Window Pane Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Black	0%	100%	None Detected	

Client Sample ID: 21-WPC-01C **Lab Sample ID:** 691700501-0011

Sample Description: Room 1, Textile Area, West Window/Black Window Pane Caulking

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Black	2%	98%	None Detected	

Client Sample ID: 21-DM-01A **Lab Sample ID:** 691700501-0012

Sample Description: Room 3, mechanical room, second floor, ducting/Grey Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 21-DM-01B **Lab Sample ID:** 691700501-0013

Sample Description: Room 1, Textile Area, Ducting/Grey Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 21-DM-01C **Lab Sample ID:** 691700501-0014

Sample Description: Room 3, Sprinkler Room, Ducting/Grey Duct Mastic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Gray	0%	100%	None Detected	

Client Sample ID: 21-FT-01 **Lab Sample ID:** 691700501-0015

Sample Description: Room 4, Electrical Room, Second Floor/12"x12" Grey Floor Tile w/White Smears

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700501
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 21-PP-01A **Lab Sample ID:** 691700501-0016

Sample Description: Exterior South Wall Penetration/Clear Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Clear	0%	100%	None Detected	

Client Sample ID: 21-PP-01B **Lab Sample ID:** 691700501-0017

Sample Description: Exterior South Wall Penetration/Clear Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Clear	0%	100%	None Detected	

Client Sample ID: 21-PP-01C **Lab Sample ID:** 691700501-0018

Sample Description: Exterior West Wall Penetration/Clear Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Clear	0%	100%	None Detected	

Analyst(s):

- Daena Charles PLM Grav. Reduction (5)
- Ghaly Hemaya PLM (10)
- Kamel Alawawda PLM (3)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. New York, NY AIHA-LAP, LLC--IHLAP Accredited #102581, NVLAP Lab Code 101048-9, NYS ELAP 11506, NJ NY022, CT PH-0170, MA AA000170

Report amended: 08/15/2017 09:41:25 Replaces initial report from: 03/28/2017 09:49:10 Reason Code: Client-Change to Location



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EMSL Canada Or	551702927
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 11:03 AM
 Collected:

Project: CSCMISSION-MINIMUM/123220822 - Textiles-21

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
21-P-01 Site: Room 7, office – corcan supervisor, south closet wall Desc: Yellow on drywall	551702927-0001	3/24/2017		<90 ppm
21-P-02 Site: Room 2, cutting room, south wall Desc: Light pink on drywall	551702927-0002	3/24/2017		<90 ppm
21-P-03 Site: Room 8, electrical room, floor Desc: Blue on concrete Insufficient sample to reach reporting limit.	551702927-0003	3/24/2017		<110 ppm
21-P-04 Site: Exterior west door Desc: Pink on steel Insufficient sample to reach reporting limit.	551702927-0004	3/24/2017		<160 ppm
21-P-05 Site: Exterior north wall Desc: Grey on steel	551702927-0005	3/24/2017		720 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:32:56

APPENDIX 5.12 FINDINGS AND RECOMMENDATIONS— BUILDING 23—CHAPEL (848-18-RP)



Appendix 5.12 FINDINGS AND RECOMMENDATIONS— BUILDING 23—CHAPEL (848-18-RP)

Building 23—Chapel (subject building) was reportedly constructed in 1997 and has been assigned Real Property ID #855. The typical structural components and finishes associated with this building consist of vinyl/stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.12-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.12-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.12-1 Suspected ACM Sample Collection and Analysis Summary
Building 23—Chapel**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
23-DJC-01A	Joint compound applied to drywall walls and ceiling	Room 10, activities room, northwest wall near sink	None Detected
23-DJC-01B	Joint compound applied to drywall walls and ceiling	Room 10, activities room, east corner	None Detected
23-DJC-01C	Joint compound applied to drywall walls and ceiling	Room 3, mechanical room, near door	None Detected
23-DJC-01D	Joint compound applied to drywall walls and ceiling	Room 4, janitor’s room, near door	None Detected
23-DJC-01E	Joint compound applied to drywall walls and ceiling	Room 1, chaplain’s office, under window	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.12 Findings and Recommendations—Building 23—Chapel (848-18-RP)
September 2017

**Table 5.12-1 Suspected ACM Sample Collection and Analysis Summary
Building 23—Chapel**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
23-CTC-01A	Texture coat applied to drywall ceilings	Room 10, activities room, east corner	None Detected
23-CTC-01B	Texture coat applied to drywall ceilings	Room 10, activities room, north corner	None Detected
23-CTC-01C	Texture coat applied to drywall ceilings	Room 6, corridor, outside of room 1, chaplain's office	None Detected
23-CTC-01D	Texture coat applied to drywall ceilings	Room 3, mechanical room, northeast end	None Detected
23-CTC-01E	Texture coat applied to drywall ceilings	Room 4, janitor's room, near door	None Detected
23-SF-01	Vinyl sheet flooring, cream and beige pebble pattern	Room 3, mechanical room	None Detected
23-SF-02	Vinyl sheet flooring, orange with white smears	Room 10, activities room, near sink	None Detected
23-FT-01	12"x12" vinyl floor tile, brown cork	Room 10, activities room, near south door	None Detected
23-FT-02-Floor Tile	Vinyl floor tile, 1 st layer beneath sub floor, cream	Room 10, activities room, near south door	None Detected
23-FT-02-Mastic	Vinyl floor tile, 1 st layer beneath sub floor, cream	Room 10, activities room, near south door	None Detected
23-FT-03	Vinyl floor tile, 2 nd layer beneath sub floor, cream	Room 3, mechanical room	None Detected
23-ES-01A	Exterior stucco applied beneath windows	Exterior east wall, below north window	None Detected
23-ES-01B	Exterior stucco applied beneath windows	Exterior west wall, below west window	None Detected
23-ES-01C	Exterior stucco applied beneath windows	Exterior west wall, below west window	None Detected
23-WPC-01A	Window pane caulking, black	Exterior main door	None Detected
23-WPC-01B	Window pane caulking, black	Exterior main door	None Detected
23-WPC-01C	Window pane caulking, black	Exterior main door	None Detected
23-FM-01A	Foundation mastic, black	Exterior, west wall	None Detected
23-FM-01B	Foundation mastic, black	Exterior, east wall	None Detected
23-FM-01C	Foundation mastic, black	Exterior, south wall	None Detected
23-RS-01A	Asphalt roof shingle	Roof, west, by front door	None Detected
23-RS-01B	Asphalt roof shingle	Roof, west, by front door	None Detected
23-RS-01C	Asphalt roof shingle	Roof, west, by front door	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.12 Findings and Recommendations—Building 23—Chapel (848-18-RP)
September 2017

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.12-1.1 Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of and assessing for attic spaces and masonry block or brick walls, which are typical areas where vermiculite is found. Based on our observations and on the construction date of the building, asbestos-containing vermiculite is not anticipated to be present.

5.12-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Solder used in bell fittings of cast iron pipes and in electrical equipment
- Vent and pipe flashing

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.12-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.12-2 Suspected LCP Sample Collection and Analysis Summary
Building 23—Chapel**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
23-P-01	Off-white on drywall	Room 7, B.F. male washroom, near door	<90
23-P-02	Grey on metal trim	Room 10, activities room, near northeast door	<90
23-P-03	Red on metal trim	Room 5, corridor, near room 4, janitor's room	<90
23-P-04	Purple on metal & drywall	Room 3, Mechanical room, near door	<90
23-P-05	Brown on drywall	Room 1, chaplain's office, near door	<90
23-P-06	Blue on stucco	Exterior west wall, below window	<90
23-P-07	Grey on metal	Exterior southwest door	<90

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.12 Findings and Recommendations—Building 23—Chapel (848-18-RP)
September 2017

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.12-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.12-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 30 fluorescent light fixtures observed.

5.12-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.12-6 OZONE-DEPLETING SUBSTANCES

The following equipment was identified by labels to have ODS-containing refrigerants:

- One Bryant air conditioning unit (R-22, 2.49 kg) on north west side of the building

The location of the above-noted unit is indicated on the attached floor plan drawing.

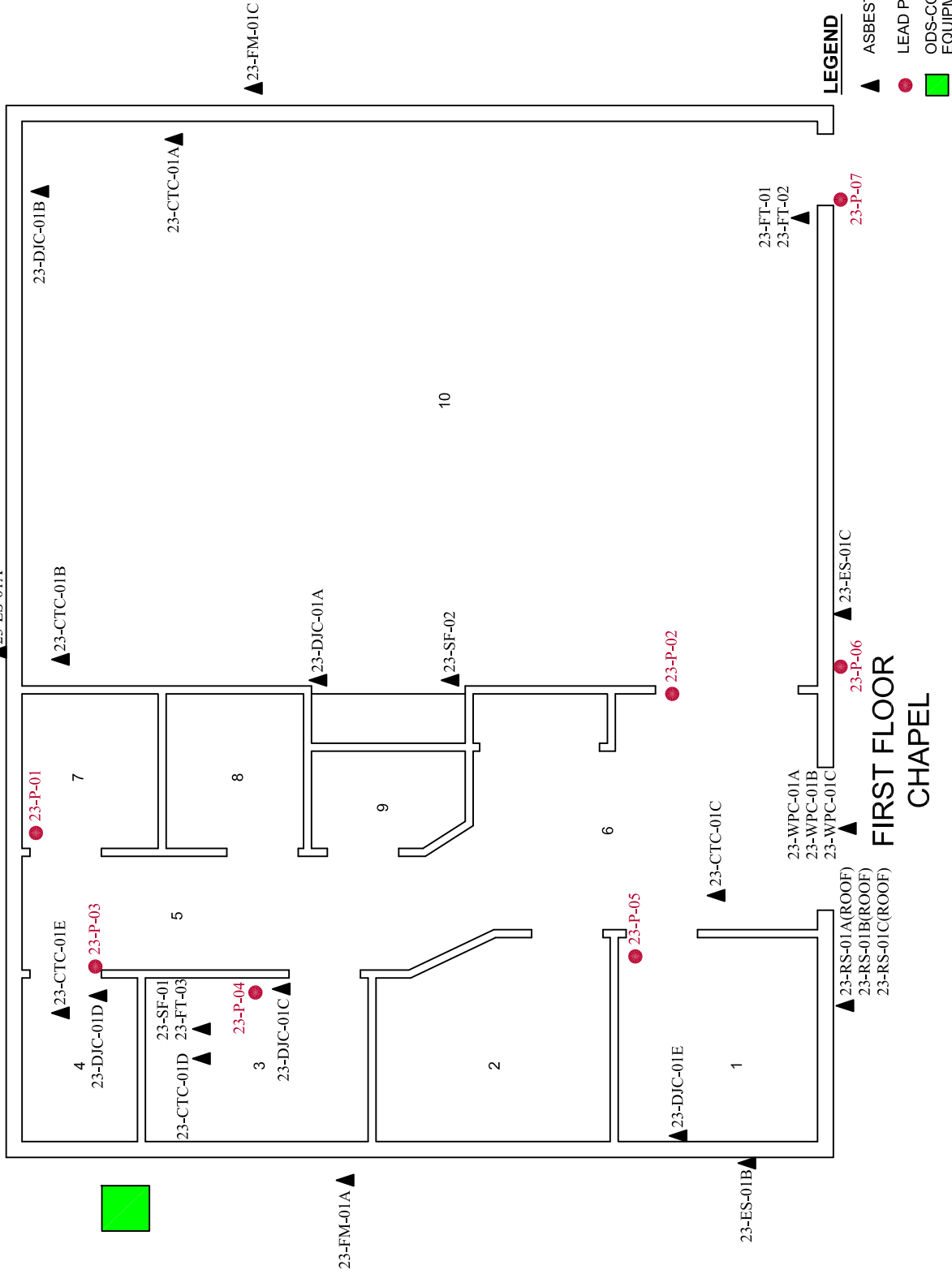
5.12-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and exterior blocks
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.12-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822
CSC MISSION MINIMUM INSTITUTION		Scale: N.T.S.
33737 DEWDNEY TRUNK ROAD, MISSION, BC		Date: 17/04/01
PUBLIC SERVICES AND PROCUREMENT CANADA		Dwn. By: CD PK
		App'd By: TW

Dwg. No.: 12.1

Unit 23		
Chapel - First Floor		
Rm. #	Name	Area m ²
1	Chaplain's Office	8.6
2	Chaplain's Office	8.4
3	Mechanical Room	7.0
4	Janitors Room	4.1
5	Corridor	8.2
6	Corridor	15.7
7	B.F. Male Washroom	4.2
8	B.F. Female Washroom	3.9
9	Storage Room	2.7
10	Activities Room	82.0

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD PK SL2017040010

App'd By: TW

Dwg. No.:

12.2





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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700516
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / BUILDING 23-CHAPEL

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 23-DJC-01A **Lab Sample ID:** 691700516-0001
Sample Description: Room 10, Activities Room, Northeast Wall Near Sink/Joint Compound Applied to Drywall Walls & Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 23-DJC-01B **Lab Sample ID:** 691700516-0002
Sample Description: Room 10, Activities Room, East Corner/Joint Compound Applied to Drywall Walls & Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 23-DJC-01C **Lab Sample ID:** 691700516-0003
Sample Description: Room 3, Mechanical Room, Near Door/Joint Compound Applied to Drywall Walls & Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 23-DJC-01D **Lab Sample ID:** 691700516-0004
Sample Description: Room 4, Janitor's Room, Near Door/Joint Compound Applied to Drywall Walls & Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 23-DJC-01E **Lab Sample ID:** 691700516-0005
Sample Description: Room 1, Chaplain's Office, Under Window/Joint Compound Applied to Drywall Walls & Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 23-CTC-01A **Lab Sample ID:** 691700516-0006
Sample Description: Room 10, Activities Room, East Corner/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 23-CTC-01B **Lab Sample ID:** 691700516-0007
Sample Description: Room 10, Activities Room, North Corner/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	



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EMSL Canada Order 691700516
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 23-CTC-01C **Lab Sample ID:** 691700516-0008

Sample Description: Room 6, Corridor, Outside of Chaplain's Office 1/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 23-CTC-01D **Lab Sample ID:** 691700516-0009

Sample Description: Room 3, Mechanical Room, Northeast End/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 23-CTC-01E **Lab Sample ID:** 691700516-0010

Sample Description: Room 4, Janitor's Room, Near Door/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 23-SF-01 **Lab Sample ID:** 691700516-0011

Sample Description: Room 3, Mechanical Room/Vinyl Sheet Flooring, Cream & Beige Pebble Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Beige	0.0%	100%	None Detected	

Client Sample ID: 23-SF-02 **Lab Sample ID:** 691700516-0012

Sample Description: Room 10, Activities Room, Near Sink/Vinyl Sheet Flooring, Orange w/White Smears

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Tan	0.0%	100%	None Detected	

Client Sample ID: 23-FT-01 **Lab Sample ID:** 691700516-0013

Sample Description: Room 10, activities room, near south door/12"x12" Vinyl Floor Tile, Brown Cork

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Brown	0.0%	100%	None Detected	

Client Sample ID: 23-FT-02-Floor Tile **Lab Sample ID:** 691700516-0014

Sample Description: Room 10, Activities Room, Near South Door/Vinyl Floor Tile, 1st Layer Beneath Sub Floor, Cream

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 23-FT-02-Mastic **Lab Sample ID:** 691700516-0014A

Sample Description: Room 10, Activities Room, Near South Door/Vinyl Floor Tile, 1st Layer Beneath Sub Floor, Cream

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Black	0%	100%	None Detected	



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EMSL Canada Order 691700516
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 23-FT-03 **Lab Sample ID:** 691700516-0015

Sample Description: Room 3, mechanical room/Vinyl Floor Tile, 2nd Layer Beneath Sub Floor, Cream

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: 23-ES-01A **Lab Sample ID:** 691700516-0016

Sample Description: Exterior Northeast Wall, Below North Window/Exterior Stucco Applied Beneath Windows

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: 23-ES-01B **Lab Sample ID:** 691700516-0017

Sample Description: Exterior Northwest Wall, Below West Window/Exterior Stucco Applied Beneath Windows

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: 23-ES-01C **Lab Sample ID:** 691700516-0018

Sample Description: Exterior West Wall, Below West Window/Exterior Stucco Applied Beneath Windows

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: 23-WPC-01A **Lab Sample ID:** 691700516-0019

Sample Description: Exterior Main Door/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 23-WPC-01B **Lab Sample ID:** 691700516-0020

Sample Description: Exterior Main Door/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 23-WPC-01C **Lab Sample ID:** 691700516-0021

Sample Description: Exterior Main Door/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 23-FM-01A **Lab Sample ID:** 691700516-0022

Sample Description: Exterior, West/Foundation Mastic, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700516
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 23-FM-01B **Lab Sample ID:** 691700516-0023
Sample Description: Exterior, East/Foundation Mastic, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 23-FM-01C **Lab Sample ID:** 691700516-0024
Sample Description: Exterior, South/Foundation Mastic, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 23-RS-01A **Lab Sample ID:** 691700516-0025
Sample Description: Roof, West, by Front Door/Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	7.1%	92.9%	None Detected	

Client Sample ID: 23-RS-01B **Lab Sample ID:** 691700516-0026
Sample Description: Roof, West, by Front Door/Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	6.5%	93.5%	None Detected	

Client Sample ID: 23-RS-01C **Lab Sample ID:** 691700516-0027
Sample Description: Roof, West, by Front Door/Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	3.7%	96.3%	None Detected	

Analyst(s):
Kathleen Cruz PLM (5)
PLM Grav. Reduction (3)
Nicole Yeo PLM (9)
PLM Grav. Reduction (11)

Reviewed and approved by: 
Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 05/18/2017 13:33:29 Replaces amended report from: 05/02/2017 14:55:29 Reason Code: Client-Test Removed

**EMSL Canada Inc.**

2756 Slough Street, Mississauga, ON L9T 5N4

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EMSL Canada Or	551702839
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: **CSCMISSION- MINIMUM/123220822/Building 23 - Chapel****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
23-P-01 Site: Room 7, B.F. male washroom, near door Desc: Off-white on drywall	551702839-0001	3/23/2017		<90 ppm
23-P-02 Site: Room 10, activities room, near north door Desc: Grey on metal trim	551702839-0002	3/23/2017		<90 ppm
23-P-03 Site: Room 5, corridor, near janitor's room Desc: Red on metal trim	551702839-0003	3/23/2017		<90 ppm
23-P-04 Site: Room 3, Mechanical room, near door Desc: Purple on metal & drywall	551702839-0004	3/23/2017		<90 ppm
23-P-05 Site: Room 1, chaplain's office, near door Desc: Brown on drywall	551702839-0005	3/23/2017		<90 ppm
23-P-06 Site: Exterior west wall, below window Desc: Blue on stucco	551702839-0006	3/23/2017		<90 ppm
23-P-07 Site: Exterior south door Desc: Grey on metal	551702839-0007	3/23/2017		<90 ppm

 Rowena Fanto, Lead Supervisor
 or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/27/2017 17:00:37

**APPENDIX 5.13
FINDINGS AND RECOMMENDATIONS—
BUILDING 24—MULTI-PURPOSE BUILDING
(848-19-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.13 Findings and Recommendations—Building 24—Multi-Purpose Building (848-19-RP)
November 2017

Appendix 5.13 FINDINGS AND RECOMMENDATIONS— BUILDING 24—MULTI-PURPOSE BUILDING (848-19-RP)

Building 24—Multi-Purpose Building (subject building) was reportedly constructed in 1997 and has been assigned Real Property ID #856. The typical structural components and finishes associated with this building consist of vinyl/stucco exterior walls; drywall and texture coat ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.13-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.13-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.13-1 Suspected ACM Sample Collection and Analysis Summary
Building 24—Multi-Purpose Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
24-DJC-01A	Joint compound applied to drywall walls and ceilings	Room 5, corridor near room 6, inmate waiting room door	None Detected
24-DJC-01B	Joint compound applied to drywall walls and ceilings	Room 1, storage room, south corner	None Detected
24-DJC-01C	Joint compound applied to drywall walls and ceilings	Room 5, corridor near room 7, conference room door	None Detected
24-DJC-01D	Joint compound applied to drywall walls and ceilings	Room 6, inmate waiting room, south corner	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.13 Findings and Recommendations—Building 24—Multi-Purpose Building (848-19-RP)
November 2017

**Table 5.13-1 Suspected ACM Sample Collection and Analysis Summary
Building 24—Multi-Purpose Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
24-DJC-01E	Joint compound applied to drywall walls and ceilings	Room 7, conference room, east corner	None Detected
24-CTC-01A	Texture coat applied to drywall ceilings	Room 7, conference room, east corner	None Detected
24-CTC-01B	Texture coat applied to drywall ceilings	Room 7, conference room, south corner	None Detected
24-CTC-01C	Texture coat applied to drywall ceilings	Room 6, inmate waiting room	None Detected
24-CTC-01D	Texture coat applied to drywall ceilings	Room 4, deliberation room	None Detected
24-CTC-01E	Texture coat applied to drywall ceilings	Room 1, storage room	None Detected
24-SF-01	Vinyl sheet flooring, beige with brown & white streaks	Room 7, conference room, north corner	None Detected
24-SF-02	Vinyl sheet flooring, beige with cream & grey smudges	Room 1, storage room	None Detected
24-ES-01A	Exterior stucco applied to siding below windows	Exterior west wall, below north window	None Detected
24-ES-01B	Exterior stucco applied to siding below windows	Exterior south wall, below window	None Detected
24-ES-01C	Exterior stucco applied to siding below windows	Exterior east wall, below south window	None Detected
24-FM-01A	Foundation mastic, patch, black	Exterior, north corner	None Detected
24-FM-01B	Foundation mastic, patch, black	Exterior, north corner	None Detected
24-FM-01C	Foundation mastic, patch, black	Exterior, north corner	None Detected
24-RS-01A	Roof shingle, asphalt	Exterior, west, canopy	None Detected
24-RS-01B	Roof shingle, asphalt	Exterior, west, canopy	None Detected
24-RS-01C	Roof shingle, asphalt	Exterior, west, canopy	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.13 Findings and Recommendations—Building 24—Multi-Purpose Building (848-19-RP)
November 2017

5.13-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.13-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Solder used in bell fittings of cast iron pipes and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.13-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.13-2 Suspected LCP Sample Collection and Analysis Summary
Building 24—Multi-Purpose Building**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
24-P-01	Light purple on drywall	Room 1, storage wall	<90
24-P-02	Brown on metal trim	Room 2, B.F. washroom, near door	<90
24-P-03	Dark purple on metal trim	Room 6, inmate waiting room, near south door	<120
24-P-04	Yellow on drywall walls	Room 4, deliberation room, near south door	<90
24-P-05	Blue on stucco	Exterior east wall, below north window	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.13-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.13 Findings and Recommendations—Building 24—Multi-Purpose Building (848-19-RP)
November 2017

5.13-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 17 fluorescent light fixtures observed.

One thermostat with a mercury-containing switch was observed in room 7, conference room, as indicated on the attached floor plan drawing.

5.13-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.13-6 OZONE-DEPLETING SUBSTANCES

One Bryant air conditioning unit (R-22, 1.42 kg) was reported to have ODS-containing refrigerants in the inventory provided by facility staff. This unit was not observed to be present during this assessment. The building-related refrigeration and/or air conditioning equipment observed was confirmed (by label information) to be charged with refrigerants that are not considered ODSs.

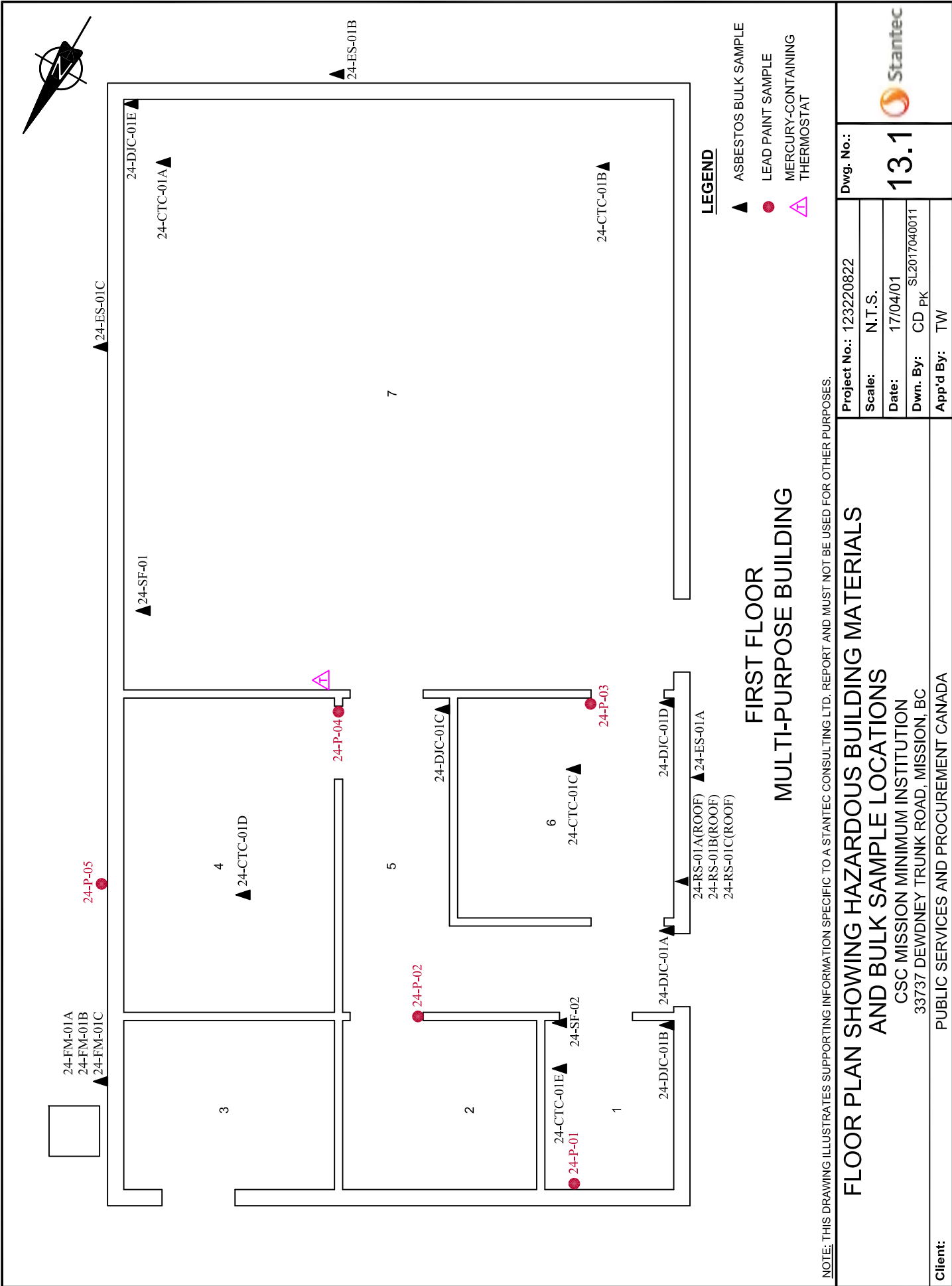
5.13-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.13-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



Unit 24		
Multi-Purpose Building - First Floor		
Rm. #	Name	Area m ²
1	Storage Room	4.4
2	B.F. Washroom	5.9
3	Mechanical Room	6.8
4	Deiberation Room	11.7
5	Corridor	9.4
6	Inmate Waiting Room	8.4
7	Conference Room	56.5

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Client:

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD PK SL2017040012

App'd By: TW

Dwg. No.:

13.2





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EMSL Canada Order 691700513
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / BUILDING 24-MULTI-PURPOSE BUILDING

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 24-DJC-01A **Lab Sample ID:** 691700513-0001

Sample Description: Room 5, Corridor/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 24-DJC-01B **Lab Sample ID:** 691700513-0002

Sample Description: Room 1, Storage Room/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 24-DJC-01C **Lab Sample ID:** 691700513-0003

Sample Description: Room 5, Corridor/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 24-DJC-01D **Lab Sample ID:** 691700513-0004

Sample Description: Room 6, Inmate Waiting Room/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 24-DJC-01E **Lab Sample ID:** 691700513-0005

Sample Description: Room 7, Conference Room/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 24-CTC-01A **Lab Sample ID:** 691700513-0006

Sample Description: Room 7, Conference Room, East Corner/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	5%	95%	None Detected	

Client Sample ID: 24-CTC-01B **Lab Sample ID:** 691700513-0007

Sample Description: Room 7, Conference Room, South Corner/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	3%	97%	None Detected	



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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700513
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 24-CTC-01C **Lab Sample ID:** 691700513-0008

Sample Description: Room 6, Inmate Waiting Room/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	3%	97%	None Detected	

Client Sample ID: 24-CTC-01D **Lab Sample ID:** 691700513-0009

Sample Description: Room 4, Deliberation Room/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	5%	95%	None Detected	

Client Sample ID: 24-CTC-01E **Lab Sample ID:** 691700513-0010

Sample Description: Room 1, Storage Room/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 24-SF-01 **Lab Sample ID:** 691700513-0011

Sample Description: Room 7, Conference Room/Vinyl Sheet Flooring, Beige w/Brown & White Streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Beige	0.0%	100%	None Detected	

Client Sample ID: 24-SF-02 **Lab Sample ID:** 691700513-0012

Sample Description: Room 1, Storage Room/Vinyl Sheet Flooring, Beige w/Cream & Grey Smudges

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Beige	0.0%	100%	None Detected	

Client Sample ID: 24-ES-01A **Lab Sample ID:** 691700513-0013

Sample Description: Exterior West Wall, Below North Window/Exterior Stucco Applied to Siding Below Windows

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: 24-ES-01B **Lab Sample ID:** 691700513-0014

Sample Description: Exterior South Wall, Below Window/Exterior Stucco Applied to Siding Below Windows

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: 24-ES-01C **Lab Sample ID:** 691700513-0015

Sample Description: Exterior East Wall, Below South Window/Exterior Stucco Applied to Siding Below Windows

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	



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EMSL Canada Order 691700513
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 24-FM-01A **Lab Sample ID:** 691700513-0016

Sample Description: Exterior North Corner/Foundation Mastic, Patch, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 24-FM-01B **Lab Sample ID:** 691700513-0017

Sample Description: Exterior North Corner/Foundation Mastic, Patch, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 24-FM-01C **Lab Sample ID:** 691700513-0018

Sample Description: Exterior North Corner/Foundation Mastic, Patch, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 24-RS-01A **Lab Sample ID:** 691700513-0019

Sample Description: Exterior West, Canopy/Roof Shingle, Asphalt

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 24-RS-01B **Lab Sample ID:** 691700513-0020

Sample Description: Exterior West, Canopy/Roof Shingle, Asphalt

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 24-RS-01C **Lab Sample ID:** 691700513-0021

Sample Description: Exterior West, Canopy/Roof Shingle, Asphalt

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	3.3%	96.7%	None Detected	



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EMSL Canada Order 691700513
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Kathleen Cruz	PLM (8) PLM Grav. Reduction (6)
Nicole Yeo	PLM (5) PLM Grav. Reduction (2)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 03:45



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CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: **CSCMISSION- MINIMUM/123220822/Building 24-Multi Purpose Building**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
24-P-01 Site: Room 1, storage wall Desc: Light purple on drywall	551702849-0001	3/23/2017		<90 ppm
24-P-02 Site: Room 2, B.F. washroom Desc: Brown on metal trim	551702849-0002	3/23/2017		<90 ppm
24-P-03 Site: Room 6, inmate waiting room Desc: Dark purple on metal trim Insufficient sample to reach reporting limit.	551702849-0003	3/23/2017		<120 ppm
24-P-04 Site: Room 4, deliberation room Desc: Yellow on drywall walls	551702849-0004	3/23/2017		<90 ppm
24-P-05 Site: Exterior east wall, below north window Desc: Blue on stucco	551702849-0005	3/23/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/27/2017 17:03:52

**APPENDIX 5.14
FINDINGS AND RECOMMENDATIONS—
BUILDING 25—GREENHOUSE (848-41-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.14 Findings and Recommendations—Building 25—Greenhouse (848-41-RP)
September 2017

Appendix 5.14 FINDINGS AND RECOMMENDATIONS— BUILDING 25—GREENHOUSE (848-41-RP)

Building 25—Greenhouse (subject building) was reportedly constructed in 1986 and has been assigned Real Property ID #857. The typical structural components and finishes associated with this building consist of exterior plastic/metal panel walls; plastic panel ceiling; wood interior walls; and, dirt and concrete foundation.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.14-1 ASBESTOS

Stantec identified and sampled various suspected ACMs. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.14-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.14-1 Suspected ACM Sample Collection and Analysis Summary
Building 25—Greenhouse**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
25-WPC-01A	Black window pane caulking	Room 3, plants, west window	<0.39% Chrysotile (see 5.14-1.1)
25-WPC-01B	Black window pane caulking	Room 3, plants, north window	<0.38% Chrysotile (see 5.14-1.1)
25-WPC-01C	Black window pane caulking	Room 3, plants, north window	<0.38% Chrysotile (see 5.14-1.1)

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.14 Findings and Recommendations—Building 25—Greenhouse (848-41-RP)
September 2017

5.14-1.1 Materials with less than 0.5% Asbestos

It should be noted that less than 0.5% chrysotile asbestos was detected in samples of window pane caulking (less than 0.39%, less than 0.38%, and less than 0.38% chrysotile detected in each sample, respectively). Given the limited extent of this non-friable material and the analytical results, this material would not be considered an ACM, as the asbestos content is less than 0.5%, and there would not be a reasonable chance that asbestos fibres would be released when the material is disturbed.

5.14-1.2 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.14-2 LEAD

Lead is expected to be present in the following:

- Older electrical wiring materials and sheathing
- Solder used on domestic water lines
- Solder in bell fittings of cast iron pipes and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.14-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.14-2 Suspected LCP Sample Collection and Analysis Summary
Building 25—Greenhouse**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
25-P-01	White on wood	Room 2, workshop, east wall	<90
25-P-02	Orange on wood	Room 2, workshop, west wall	700
25-P-03	Pink on wood	Room 3, plants, east wall	<90

NOTE:
Bold, highlighted text indicates confirmed LCP

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.14 Findings and Recommendations—Building 25—Greenhouse (848-41-RP)
September 2017

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.14-3, below was identified as an LCP:

**Table 5.14-3 Summary of Identified LCPs
Building 25—Greenhouse**

Identified LCP Description		Photo
Paint colour	Orange	No photo available.
Substrate	Wood	
Location/approx. extent	Interior walls	
Lead content	700 ppm	
Condition	Good	

5.14-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.14-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 14 fluorescent light fixtures observed.

Mercury may also be present in paints and adhesives.

5.14-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.14-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.14-7 SILICA

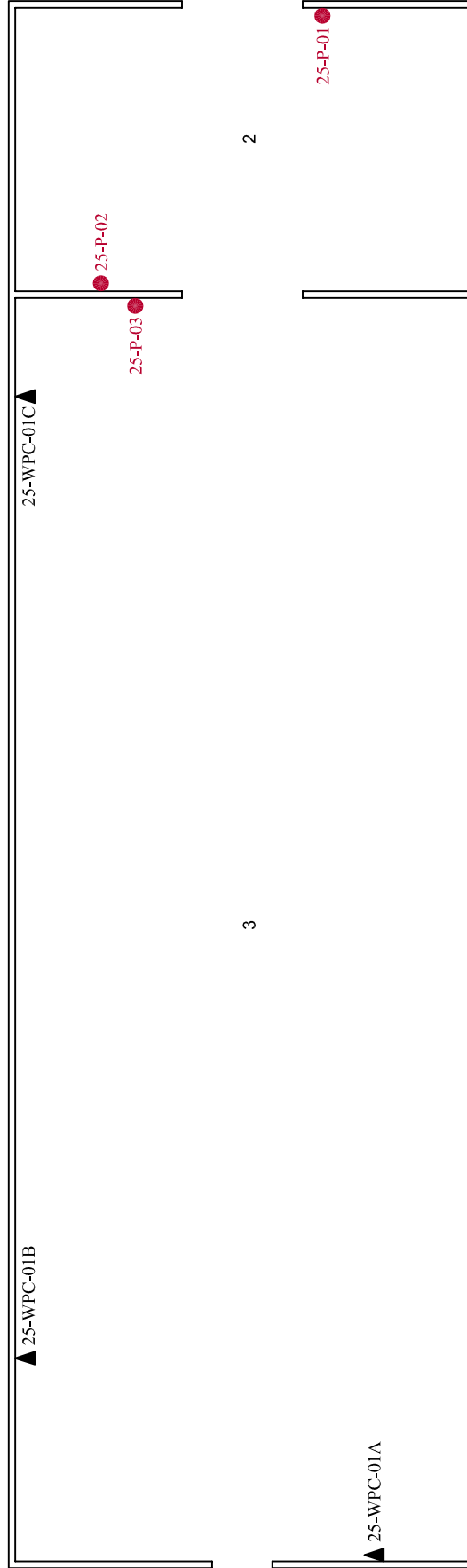
Silica is expected to be present in the concrete foundation.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.14 Findings and Recommendations—Building 25—Greenhouse (848-41-RP)
September 2017

5.14-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR GREENHOUSE

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC		Scale: N.T.S.	14.1
PUBLIC SERVICES AND PROCUREMENT CANADA		Date: 17/04/03	
		Dwn. By: CD PK	
		App'd By: TW	



Unit 25		
Greenhouse - First Floor	Rm. #	Area m ²
Work Shop	2	33.7
Plants	3	146.5

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040090

App'd By: TW

Dwg. No.:

14.2





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Customer ID: 55JACQ30L
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Project ID:

Attn: Steve Chou
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500 - 4730 Kingsway
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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/29/2017
Proj: CSC MISSION-MINIMUM / 123220822 / GREENHOUSE-25

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 25-WPC-01A **Lab Sample ID:** 691700548-0001

Sample Description: ROOM 3, PLANTS, WEST WINDOW/BLACK WINDOW PANE CAULKING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	<0.39% Chrysotile	

Client Sample ID: 25-WPC-01B **Lab Sample ID:** 691700548-0002

Sample Description: ROOM 3, PLANTS, NORTH WINDOW/BLACK WINDOW PANE CAULKING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	<0.38% Chrysotile	

Client Sample ID: 25-WPC-01C **Lab Sample ID:** 691700548-0003

Sample Description: ROOM 3, PLANTS, NORTH WINDOW/BLACK WINDOW PANE CAULKING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/29/2017	Black	0.0%	100%	<0.38% Chrysotile	

Analyst(s): _____

Kathleen Cruz PLM Grav. Reduction (3)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 05/19/2017 17:22:50 Replaces initial report from: 03/29/2017 12:19:58 Reason Code: Client-Other (see report comment)



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Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 11:03 AM
 Collected:

Project: CSCMISSION-MINIMUM/123220822 - Greenhouse - 25

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
25-P-01 Site: Room 2, workshop, east wall Desc: White on wood	551702916-0001	3/24/2017		<90 ppm
25-P-02 Site: Room 2, workshop, west wall Desc: Orange on wood	551702916-0002	3/24/2017		700 ppm
25-P-03 Site: Room 3, plants, east wall Desc: Pink on wood	551702916-0003	3/24/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:15:02

**APPENDIX 5.15
FINDINGS AND RECOMMENDATIONS—
BUILDING 27—PSYCHOLOGY BUILDING
(848-49-RP)**



Appendix 5.15 FINDINGS AND RECOMMENDATIONS— BUILDING 27—PSYCHOLOGY BUILDING (848-49-RP)

Building 27—Psychology Building (subject building) was reportedly constructed in 1982 and has been assigned Real Property ID #859. The typical structural components and finishes associated with this building consist of vinyl/stucco exterior walls; vinyl and drywall ceilings; vinyl and drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.15-1 ASBESTOS

Stantec identified and sampled various suspected ACMs. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.15-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.15-1 Suspected ACM Sample Collection and Analysis Summary
Building 27—Psychology Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
27-DJC-01A	Joint compound applied to drywall walls and ceilings	Room 5, washroom, near door	None Detected
27-DJC-01B	Joint compound applied to drywall walls and ceilings	Room 12, kitchen, south wall	None Detected
27-DJC-01C	Joint compound applied to drywall walls and ceilings	Room 8, shower, near door	None Detected
27-SF-01	Vinyl sheet flooring, 1 st layer, cream with brown and white streaks	Room 11, program delivery, near southwest window	None Detected
27-SF-02	Vinyl sheet flooring, 2 nd layer, grey	Room 11, program delivery, near southwest window	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.15 Findings and Recommendations—Building 27—Psychology Building (848-49-RP)
September 2017

**Table 5.15-1 Suspected ACM Sample Collection and Analysis Summary
Building 27—Psychology Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
27-ES-01A	Exterior stucco applied under windows	Exterior west wall, below second window	None Detected
27-ES-01B	Exterior stucco applied under windows	Exterior west wall, below second window	None Detected
27-ES-01C	Exterior stucco applied under windows	Exterior west wall, below second window	None Detected
27-RS-01A	Asphalt roof shingle	Exterior, west corner	None Detected
27-RS-01B	Asphalt roof shingle	Exterior, west corner	None Detected
27-RS-01C	Asphalt roof shingle	Exterior, west corner	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.15-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.15-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used on domestic water lines
- Solder used in bell fittings for cast iron pipes and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.15-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.15 Findings and Recommendations—Building 27—Psychology Building (848-49-RP)
September 2017

**Table 5.15-2 Suspected LCP Sample Collection and Analysis Summary
Building 27—Psychology Building**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
27-P-01	Beige on metal	Room 6, washroom, trim	<90
27-P-02	Off-White on drywall	Room 7, shower, north wall	<90
27-P-03	Blue on stucco	Exterior, northwest wall below south window	<90
27-P-04	Grey on metal	Exterior main door	590

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.15-3 POLYCHLORINATED BIPHENYLS

The fluorescent light fixtures throughout were observed to have high-efficiency light tubes. The ballasts within such fixtures are not suspected to contain PCBs.

PCBs may also be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets.

5.15-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 30 fluorescent light fixtures observed.

Mercury may also be present in paints and adhesives.


5.15-5 MOULD

Observations pertaining to mould and/or moisture impacted building materials are summarized in the following table.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.15 Findings and Recommendations—Building 27—Psychology Building (848-49-RP)
September 2017

**Table 5.15-3 Mould/Moisture Observations Summary—March 9, 2017
Building 27—Psychology Building**

Building Area	Observation	Suspected Source of Moisture	Photo
Room 15, Furnace Room	Four (4) moisture stained ceiling tiles	Pipe leaks or roof leaks	

5.15-6 OZONE-DEPLETING SUBSTANCES

The following equipment was identified by labels to have ODS-containing refrigerants:

- One Payne air conditioning unit (R-22, 1.81 kg) located on the northeast side, outside room 15 of furnace room.

The location of the above-noted unit is indicated on the attached floor plan drawing

5.15-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and exterior blocks
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.15-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.15 Findings and Recommendations—Building 27—Psychology Building (848-49-RP)
September 2017

Additional building-specific recommendations to be considered are provided below.

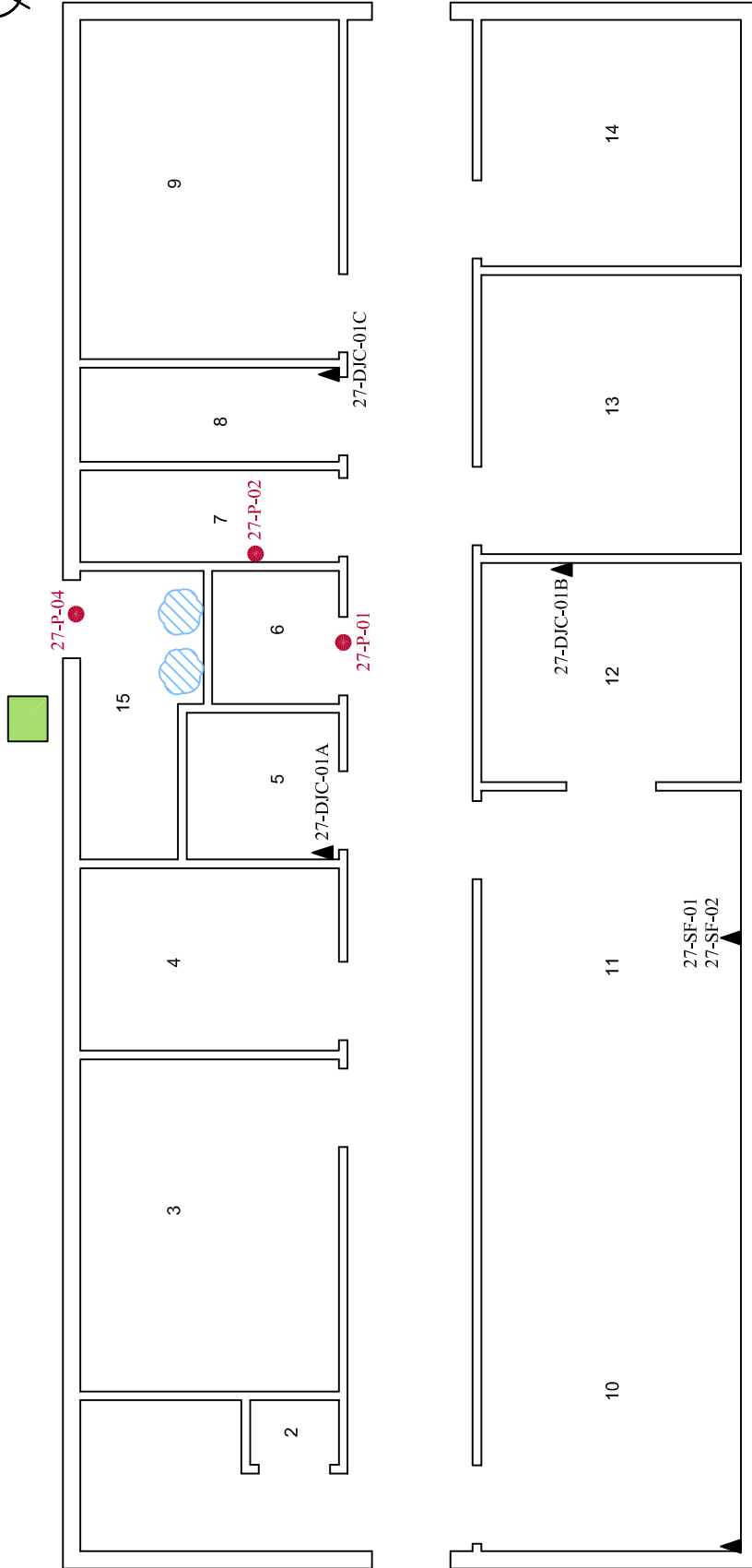
5.15-8.1 Mould

Documents published by Health Canada, Ontario Ministry of Health, American Industrial Hygiene Association (AIHA), American Conference of Governmental Industrial Hygienists (ACGIH) and others, provide guidance for interpreting the results of mold investigations. The Health Canada Guide states that:

“...current knowledge supports the need to prevent damp conditions and mold growth and to remediate any fungal contamination in buildings.”

To this end, Stantec recommends the following course of action within the subject building:

- Remove and replace moisture-stained ceiling tiles with new tiles. If staining re-appears on the new tiles, the source of moisture should be identified and corrected.
 - This work can be conducted by regular facility maintenance staff, if conducted prior to the onset of mould growth.



27-RS-01A (ROOF)
 27-RS-01B (ROOF)
 27-RS-01C (ROOF)

● 27-P-03

● 27-P-04
 ● 27-P-01
 ● 27-P-02

▲ 27-ES-01A
 ▲ 27-ES-01B
 ▲ 27-ES-01C

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- ODS-CONTAINING EQUIPMENT
- ⊘ MOISTURE-STAINED CEILING TILE

**FIRST FLOOR
 PSYCHOLOGY BUILDING**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION		Scale: N.T.S.	15.1
33737 DEWDNEY TRUNK ROAD, MISSION, BC		Date: 17/09/09	
PUBLIC SERVICES AND PROCUREMENT CANADA		Dwn. By: CD VM/DM	
		App'd By: TW	



Unit 27		
Psychology Building - First Floor		
Rm. #	Name	Area m ²
1	Corridor	27.3
2	Closet	0.8
3	Office Clerical	10.6
4	Office	6.0
5	Washroom	2.8
6	Washroom	2.1
7	Shower	3.1
8	Shower	3.1
9	Office Psychologist	11.4
10	Conference Room	12.3
11	Programs Delivery	12.0
12	Kitchen	7.1
13	Office Psychologist	9.0
14	Office Psychologist	8.4
15	Furnace Room	4.3

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD PK SL2017040014

App'd By: TW

Dwg. No.:

15.2





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EMSL Canada Order 691700539
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/29/2017

Proj: CSC MISSION-MINIMUM / 123220822 / BUILDING 27-PSYCHOLOGY

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 27-DJC-01A **Lab Sample ID:** 691700539-0001

Sample Description: Room 5, Washroom, Near Door/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 27-DJC-01B **Lab Sample ID:** 691700539-0002

Sample Description: Room 12, Kitchen, South Wall/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 27-DJC-01C **Lab Sample ID:** 691700539-0003

Sample Description: Room 8, Shower, Near Door/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/29/2017	White	0%	100%	None Detected	

Client Sample ID: 27-SF-01 **Lab Sample ID:** 691700539-0004

Sample Description: Room 11, program delivery, near south window/Vinyl Sheet Flooring, 1st Layer, Cream w/Brown & White Streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 27-SF-02 **Lab Sample ID:** 691700539-0005

Sample Description: Room 11, program delivery, near south window/Vinyl Sheet Flooring, 2nd Layer, Grey

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 27-ES-01A **Lab Sample ID:** 691700539-0006

Sample Description: Exterior West Wall, Below 2nd Window/Exterior Stucco Applied Under Windows

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: 27-ES-01B **Lab Sample ID:** 691700539-0007

Sample Description: Exterior West Wall, Below 2nd Window/Exterior Stucco Applied Under Windows

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	



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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700539
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 27-ES-01C **Lab Sample ID:** 691700539-0008
Sample Description: Exterior West Wall, Below 2nd Window/Exterior Stucco Applied Under Windows

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/29/2017	Gray	0%	100%	None Detected	

Client Sample ID: 27-RS-01A **Lab Sample ID:** 691700539-0009
Sample Description: Exterior west corner/Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 27-RS-01B **Lab Sample ID:** 691700539-0010
Sample Description: Exterior west corner/Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 27-RS-01C **Lab Sample ID:** 691700539-0011
Sample Description: Exterior west corner/Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/29/2017	Black	0.0%	100%	None Detected	

Analyst(s):

Kathleen Cruz PLM (6)
PLM Grav. Reduction (5)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 08/15/2017 09:34:23 Replaces amended report from: 05/02/2017 14:59:45 Reason Code: Data Entry-Change to Location



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EMSL Canada Or	551702850
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Received: 03/21/17 10:58 AM
Collected:

Project: CSCMISSION- MINIMUM/123220822/Building 27 - Psychology

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
27-P-01 Site: Room 6, washroom, trim Desc: Beige on metal	551702850-0001	3/23/2017		<90 ppm
27-P-02 Site: Room 7, shower, north wall Desc: Off-White on drywall	551702850-0002	3/23/2017		<90 ppm
27-P-03 Site: Exterior, northwest wall below window Desc: Blue on stucco	551702850-0003	3/23/2017		<90 ppm
27-P-04 Site: Exterior main door Desc: Grey on metal	551702850-0004	3/23/2017		590 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Report Amended: 08/15/2017 12:50:45 Replaces the Initial Report 03/27/2017 17:06:28. Reason Code: Client-Change to Location

**APPENDIX 5.16
FINDINGS AND RECOMMENDATIONS—
BUILDING 28—EQUIPMENT SHED
(848-35-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.16 Findings and Recommendations—Building 28—Equipment Shed (848-35-RP)
September 2017

Appendix 5.16 FINDINGS AND RECOMMENDATIONS— BUILDING 28—EQUIPMENT SHED (848-35-RP)

Building 28—Equipment Shed (subject building) was reportedly constructed in 1987 and has been assigned Real Property ID #860. The typical structural components and finishes associated with this building consist of corrugated metal exterior walls; corrugated metal and wood ceilings; metal and wood interior walls; and, concrete and wood flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.16-1 ASBESTOS

Stantec identified and sampled various suspected ACMs. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.16-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.16-1 Suspected ACM Sample Collection and Analysis Summary
Building 28—Equipment Shed**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
28-EPS-01A	Exterior penetration sealant, brown	Exterior, west wall	None Detected
28-EPS-01B	Exterior penetration sealant, brown	Exterior, west wall	None Detected
28-EPS-01C	Exterior penetration sealant, brown	Exterior, west wall	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.16 Findings and Recommendations—Building 28—Equipment Shed (848-35-RP)
September 2017

5.16-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.16-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used on domestic water lines and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.16-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.16-2 Suspected LCP Sample Collection and Analysis Summary
Building 28—Equipment Shed**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
28-P-01	White on wood	Room 7, storage, interior wall	<160
28-P-02	Grey on wood	Room 7, storage, floor	<90
28-P-03	Grey on concrete	Room 3, workshop, floor near stairs	<90
28-P-04	White on metal	Room 2, tractor storage, column	180
28-P-05	Blue on wood	Room 2, tractor storage, west wall	<90
28-P-06	Red on steel beam	Outside of room 9, storage	720
NOTE: Bold, highlighted text indicates confirmed LCP			

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.16-3, below was identified as an LCP:

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.16 Findings and Recommendations—Building 28—Equipment Shed (848-35-RP)
September 2017

**Table 5.16-3 Summary of Identified LCPs
Building 28—Equipment Shed**

Identified LCP Description		Photo
Paint colour	Red	
Substrate	Steel	
Location/approx. extent	Beams	
Lead content	720 ppm	
Condition	Good	

5.16-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.16-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 30 fluorescent light fixtures observed.

Mercury may also be present in paints and adhesives.

5.16-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.16-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.16-7 SILICA

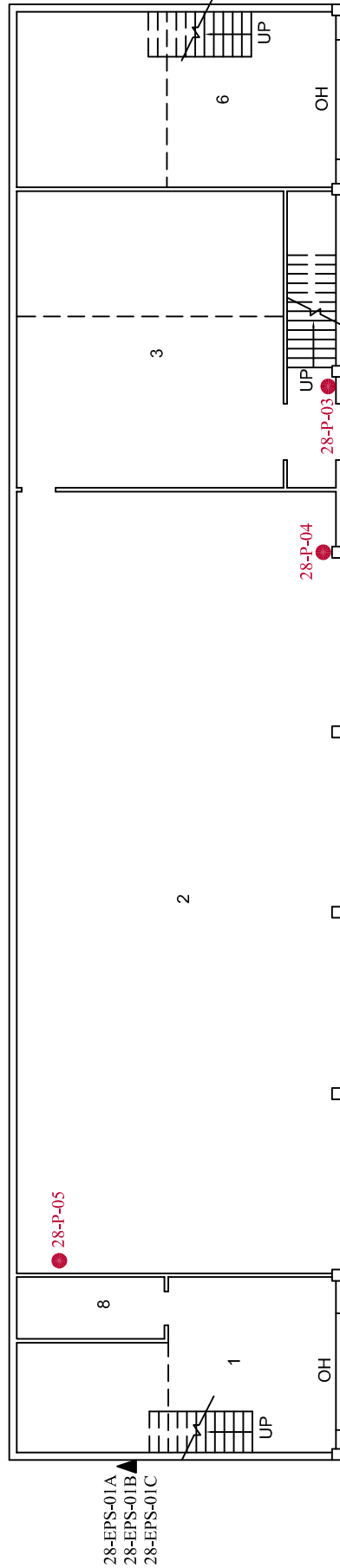
Silica is expected to be present in the concrete foundation.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.16 Findings and Recommendations—Building 28—Equipment Shed (848-35-RP)
September 2017

5.16-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

FIRST FLOOR EQUIPMENT SHED

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Dwg. No.: 16.1	
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC		Project No.: 123220822	Scale: N.T.S.
PUBLIC SERVICES AND PROCUREMENT CANADA		Date: 17/04/01	Dwn. By: CD PK
		App'd By: TW	SL2017040015

Unit 28		
Equipment Shed - First Floor		
Rm. #	Name	Area m ²
1	Storage	37.6
2	Tractor Storage	190.5
3	Workshop	72.8
6	Office Furniture	45.2
8	Storage	7.7

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

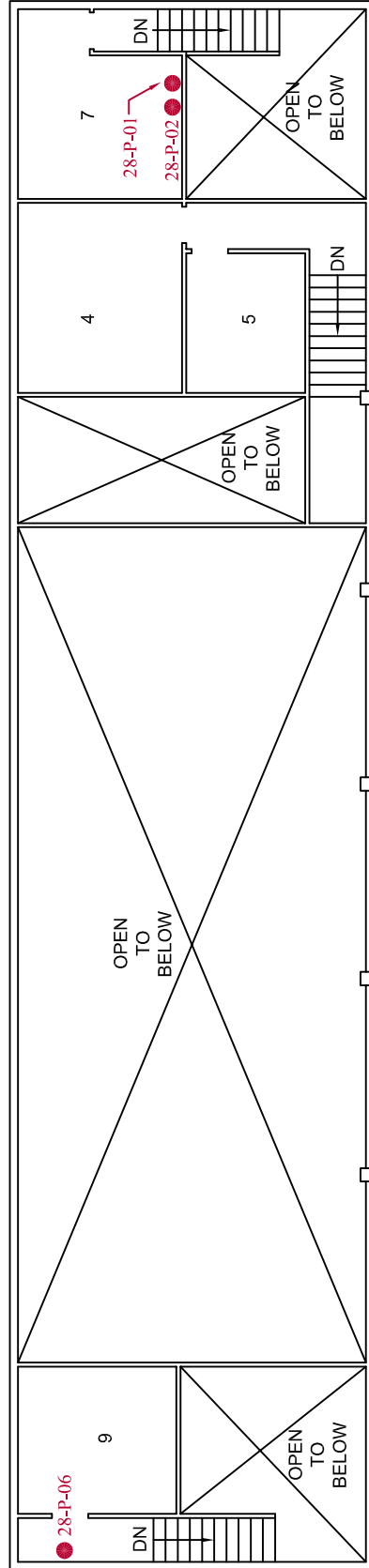
Dwn. By: CD PK SL2017040016

App'd By: TW

Dwg. No.:

16.2





SECOND FLOOR EQUIPMENT SHED

LEGEND
● LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Dwg. No.: 16.3	
Project No.: 123220822			
Scale: N.T.S.			
Date: 17/08/19			
Dwn. By: CD VM/PM			
App'd By: TW			
Client: PUBLIC SERVICES AND PROCUREMENT CANADA			
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC			

Unit 28		
Equipment Shed - Second Floor		
Rm. #	Name	Area m ²
4	Storage	27.9
5	Storage	11.7
7	Storage	21.1
9	Storage	21.0

SECOND FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD _{VM} SL2017040018

App'd By: TW

Dwg. No.:

16.4





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EMSL Canada Order 691700542
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Attn: Steve Chou
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6
Phone: (604) 412-3004
Fax:
Collected:
Received: 3/22/2017
Analyzed: 3/28/2017
Proj: CSC MISSION-MINIMUM / 123220822 / BUILDING 28-EQUIPMENT SHED

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 28-EPS-01A **Lab Sample ID:** 691700542-0001

Sample Description: EXTERIOR, WEST WALL/EXTERIOR PENETRATION SEALANT, BROWN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 28-EPS-01B **Lab Sample ID:** 691700542-0002

Sample Description: EXTERIOR, WEST WALL/EXTERIOR PENETRATION SEALANT, BROWN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 28-EPS-01C **Lab Sample ID:** 691700542-0003

Sample Description: EXTERIOR, WEST WALL/EXTERIOR PENETRATION SEALANT, BROWN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Analyst(s):

Kathleen Cruz PLM Grav. Reduction (2)
Nicole Yeo PLM Grav. Reduction (1)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 15:42:11



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CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
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500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Received: 03/21/17 10:58 AM
Collected:

Project: CSCMISSION- MINIMUM/123220822/Building 28-Equipment Shed

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
28-P-01 Site: Room 7, storage, interior wall Desc: White on wood Insufficient sample to reach reporting limit.	551702852-0001	3/23/2017		<160 ppm
28-P-02 Site: Room 7, storage, floor Desc: Grey on wood	551702852-0002	3/23/2017		<90 ppm
28-P-03 Site: Room 3, workshop, floor near stairs Desc: Grey on concrete	551702852-0003	3/23/2017		<90 ppm
28-P-04 Site: Room 2, tractor storage, column Desc: White on metal	551702852-0004	3/23/2017		180 ppm
28-P-05 Site: Room 2, tractor storage, west wall Desc: Blue on wood	551702852-0005	3/23/2017		<90 ppm
28-P-06 Site: Outside of room 9, storage Desc: Red on steel beam	551702852-0006	3/23/2017		720 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/27/2017 17:07:30

**APPENDIX 5.17
FINDINGS AND RECOMMENDATIONS—
BUILDING 29A—PRIVATE FAMILY
VISITING (848-43-RP)**



Appendix 5.17 FINDINGS AND RECOMMENDATIONS— BUILDING 29A—PRIVATE FAMILY VISITING (848-43-RP)

Building 29a—Private Family Visiting (subject building) was reportedly constructed in 1990 and has been assigned Real Property ID #861. The typical structural components and finishes associated with this building consist of vinyl exterior siding; drywall and texture coat ceilings; drywall interior walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.17-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.17-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.17-1 Suspected ACM Sample Collection and Analysis Summary
Building 29a—Private Family Visiting**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
29A-DJC-01A	Joint compound applied to drywall walls and ceiling	Room 2, kitchen, west perimeter wall by window	None Detected
29A-DJC-01B	Joint compound applied to drywall walls and ceiling	Room 5, utility room, southwest partition wall	None Detected
29A-DJC-01C	Joint compound applied to drywall walls and ceiling	Room 1, living room perimeter wall by front door	None Detected
29A-DJC-01D	Joint compound applied to drywall walls and ceiling	Room 13, bedroom, east perimeter wall by window	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.17 Findings and Recommendations—Building 29a—Private Family Visiting (848-43-RP)
September 2017

**Table 5.17-1 Suspected ACM Sample Collection and Analysis Summary
Building 29a—Private Family Visiting**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
29A-DJC-01E	Joint compound applied to drywall walls and ceiling	Room 10, bedroom partition wall adjacent to hallway	None Detected
29A-CTC-01A	Texture coat applied to drywall ceilings	Room 2, kitchen, near exterior door	None Detected
29A-CTC-01B	Texture coat applied to drywall ceilings	Room 1, living room, east end	None Detected
29A-CTC-01C	Texture coat applied to drywall ceilings	Room 9, hallway, near room 8, closet	None Detected
29A-CTC-01D	Texture coat applied to drywall ceilings	Room 13, bedroom, east-central	None Detected
29A-CTC-01E	Texture coat applied to drywall ceilings	Room 10, bedroom, near door	None Detected
29A-SF-01	Vinyl sheet flooring, cream pebble pattern	Room 5, utility room	None Detected
29A-SF-02	Vinyl sheet flooring, blue and white streak pattern	Room 9, hallway, by front entrance	None Detected
29A-RS-01A	Asphalt roof shingle	Exterior, north by mechanical room	None Detected
29A-RS-01B	Asphalt roof shingle	Exterior, north by mechanical room	None Detected
29A-RS-01C	Asphalt roof shingle	Exterior, north by mechanical room	None Detected
29A-CP-01	Textured cement panel	Exterior, by front door, under living room window	None Detected
29A-PS-01A	Blue pipe sealant applied natural gas and water pipe	Room 4, mechanical room	None Detected
29A-PS-01B	Blue pipe sealant applied natural gas and water pipe	Room 4, mechanical room	None Detected
29A-PS-01C	Blue pipe sealant applied natural gas and water pipe	Room 4, mechanical room	None Detected
29A-HS-01A	Heat shield inside ceiling light fixture, tan covered in silver foil	Room 9, hallway	None Detected
29A-HS-01B	Heat shield inside ceiling light fixture, tan covered in silver foil	Room 9, hallway	None Detected
29A-HS-01C	Heat shield inside ceiling light fixture, tan covered in silver foil	Room 9, hallway	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.17 Findings and Recommendations—Building 29a—Private Family Visiting (848-43-RP)
September 2017

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.17-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.17-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings for cast iron pipes and in electrical equipment
- Vent, pipe, and penetration flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.17-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.17-2 Suspected LCP Sample Collection and Analysis Summary
Building 29a—Private Family Visiting**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
29A-P-01	Off-white on drywall and wood trim	Room 5, utility room	<90
29A-P-02	Blue on wood window sill	Room 2, kitchen	<200
29A-P-03	Cream on wood trim and metal door	Exterior, room 4, mechanical room	3,500
29A-P-04	White on metal handrail	Exterior, front entrance	<100


NOTE:
Bold, highlighted text indicates confirmed LCP

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.17-3, below was identified as an LCP:

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.17 Findings and Recommendations—Building 29a—Private Family Visiting (848-43-RP)
September 2017

**Table 5.17-3 Summary of Identified LCPs
Building 29a—Private Family Visiting**

Identified LCP Description		Photo
Paint colour	Cream	
Substrate	Wood and metal	
Location/approx. extent	Trim and doors	
Lead content	3,500 ppm	
Condition	Good	

5.17-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.17-4 MERCURY

Mercury vapour is present in the light tubes within the two fluorescent light fixtures observed.

One mercury-containing thermostat was identified on the south wall of room 9, hallway adjacent to room 16, bedroom, as indicated on the attached floor plan drawing.

Mercury may also be present in paints and adhesives.

5.17-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.17-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.17 Findings and Recommendations—Building 29a—Private Family Visiting (848-43-RP)
September 2017

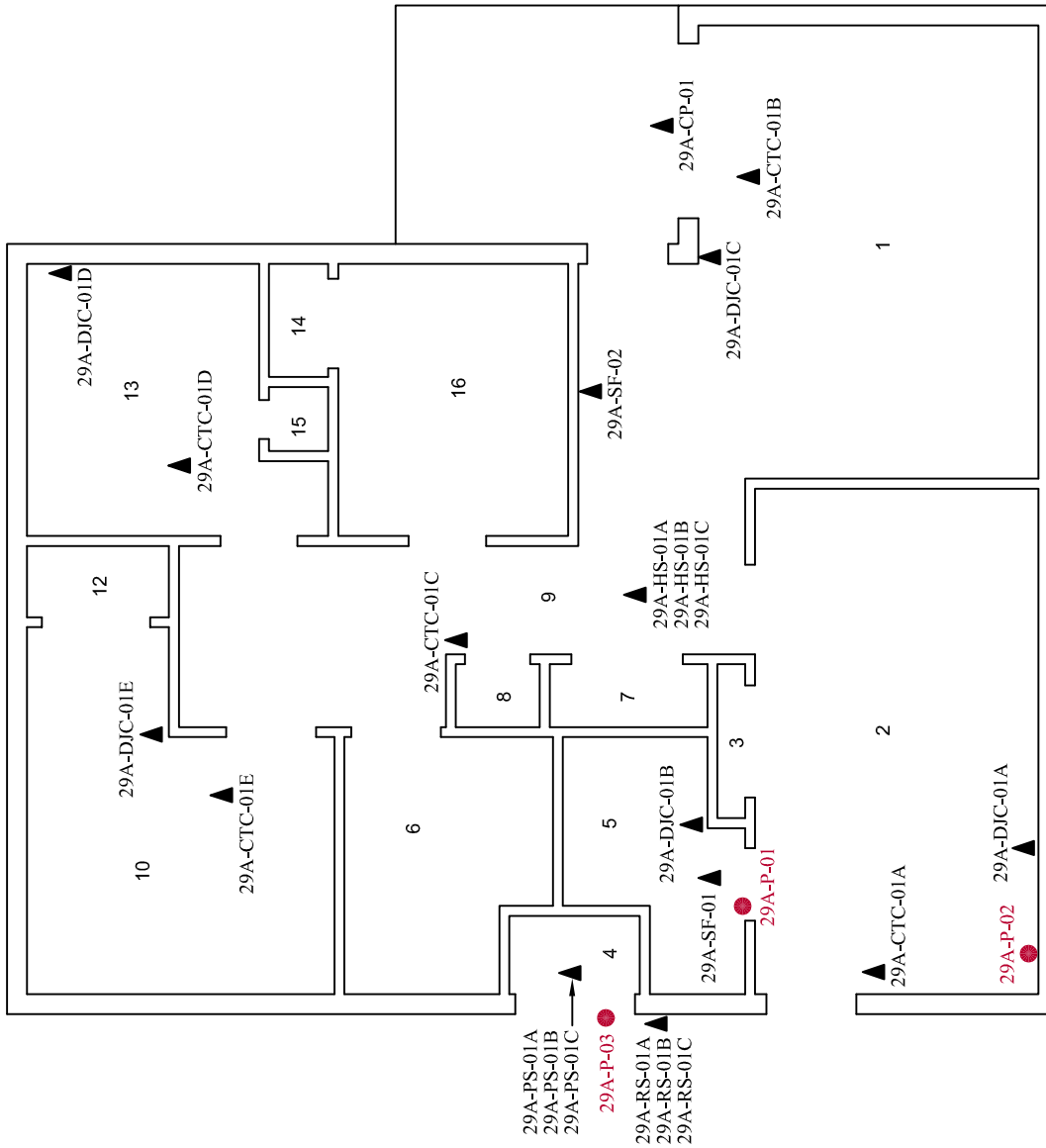
5.17-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Asphalt roof shingles

5.17-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR PRIVATE FAMILY VISITING 1

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Dwg. No.:	17.1
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC		Project No.: 123220822	Scale: N.T.S.
PUBLIC SERVICES AND PROCUREMENT CANADA		Date: 17/08/19	Dwn. By: CD VM/ PK
		App'd By: TW	



Unit 29A		
Private Family Visiting 1 - First Floor		
Rm. #	Name	Area m ²
1	Living Room	22.3
2	Kitchen	18.1
3	Closet	0.7
4	Mechanical Room	1.6
5	Utility Room	4.3
6	B. F. Washroom	5.9
7	Closet	1.3
8	Closet	0.7
9	Hallway	10.7
10	Bedroom	11.9
12	Closet	1.4
13	Bedroom	8.9
14	Closet	1.0
15	Closet	0.6
16	Bedroom	7.7

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD_{VM} SL2017040020

App'd By: TW

Dwg. No.:

17.2





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EMSL Canada Order 691700402
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou Phone: (604) 412-3004
 Stantec Consulting, Ltd. Fax:
 500 - 4730 Kingsway Collected:
 Burnaby, BC V5H 0C6 Received: 3/14/2017
 Analyzed: 3/21/2017

Proj: CSC MISSION - MINIMUM/123220822 / BUILDING 29A - PRIVATE FAMILY VISIT

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 29A-DJC-01A **Lab Sample ID:** 691700402-0001
Sample Description: ROOM 2, KITCHEN, WEST PERIMETER WALL BY WINDOW/JOINT COMPOUND APPLIED TO DRYWALL WALLS AND CEILING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: 29A-DJC-01B **Lab Sample ID:** 691700402-0002
Sample Description: ROOM 5, UTILITY ROOM, PARTITION WALL ADJACENT TO CLOSET/JOINT COMPOUND APPLIED TO DRYWALL WALLS AND CEILING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: 29A-DJC-01C **Lab Sample ID:** 691700402-0003
Sample Description: ROOM 1, LIVING ROOM PERIMETER WALL BY FRONT DOOR/JOINT COMPOUND APPLIED TO DRYWALL WALLS AND CEILING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: 29A-DJC-01D **Lab Sample ID:** 691700402-0004
Sample Description: ROOM 13, BEDROOM, EAST PERIMETER WALL BY WINDOW/JOINT COMPOUND APPLIED TO DRYWALL WALLS AND CEILING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: 29A-DJC-01E **Lab Sample ID:** 691700402-0005
Sample Description: ROOM 10, BEDROOM PARTITION WALL ADJACENT TO HALLWAY/JOINT COMPOUND APPLIED TO DRYWALL WALLS AND CEILING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: 29A-CTC-01A **Lab Sample ID:** 691700402-0006
Sample Description: ROOM 2, KITCHEN/TEXTURE COAT APPLIED TO DRYWALL CEILINGS

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	5%	95%	None Detected	

Client Sample ID: 29A-CTC-01B **Lab Sample ID:** 691700402-0007
Sample Description: ROOM 1, LIVING ROOM/TEXTURE COAT APPLIED TO DRYWALL CEILINGS

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	5%	95%	None Detected	



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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700402
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 29A-CTC-01C **Lab Sample ID:** 691700402-0008
Sample Description: ROOM 9, HALLWAY/TEXTURE COAT APPLIED TO DRYWALL CEILINGS

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	5%	95%	None Detected	

Client Sample ID: 29A-CTC-01D **Lab Sample ID:** 691700402-0009
Sample Description: ROOM 13, BEDROOM/TEXTURE COAT APPLIED TO DRYWALL CEILINGS

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	5%	95%	None Detected	

Client Sample ID: 29A-CTC-01E **Lab Sample ID:** 691700402-0010
Sample Description: ROOM 10, BEDROOM/TEXTURE COAT APPLIED TO DRYWALL CEILINGS

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	5%	95%	None Detected	

Client Sample ID: 29A-SF-01 **Lab Sample ID:** 691700402-0011
Sample Description: ROOM 5, UTILITY ROOM/VINYL SHEET FLOORING, CREAM PEBBLE PATTERN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Beige	0.0%	100%	None Detected	

Client Sample ID: 29A-SF-02 **Lab Sample ID:** 691700402-0012
Sample Description: ROOM 9, HALLWAY, BY FRONT ENTRANCE/VINYL SHEET FLOORING, BLUE AND WHITE STREAK PATTERN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: 29A-RS-01A **Lab Sample ID:** 691700402-0013
Sample Description: EXTERIOR, NORTH BY MECHANICAL ROOM/ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	1.3%	98.7%	None Detected	

Client Sample ID: 29A-RS-01B **Lab Sample ID:** 691700402-0014
Sample Description: EXTERIOR, NORTH BY MECHANICAL ROOM/ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	1.8%	98.2%	None Detected	

Client Sample ID: 29A-RS-01C **Lab Sample ID:** 691700402-0015
Sample Description: EXTERIOR, NORTH BY MECHANICAL ROOM/ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	1.2%	98.8%	None Detected	



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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700402
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 29A-CP-01 **Lab Sample ID:** 691700402-0016

Sample Description: EXTERIOR, BY FRONT DOOR, UNDER LIVING ROOM WINDOW/TEXTURED CEMENT PANEL

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 29A-PS-01A **Lab Sample ID:** 691700402-0017

Sample Description: ROOM 4, MECHANICAL ROOM/BLUE PIPE SEALANT APPLIED NATURAL GAS AND WATER PIPE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 29A-PS-01B **Lab Sample ID:** 691700402-0018

Sample Description: ROOM 4, MECHANICAL ROOM/BLUE PIPE SEALANT APPLIED NATURAL GAS AND WATER PIPE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: 29A-PS-01C **Lab Sample ID:** 691700402-0019

Sample Description: ROOM 4, MECHANICAL ROOM/BLUE PIPE SEALANT APPLIED NATURAL GAS AND WATER PIPE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: 29A-HS-01A **Lab Sample ID:** 691700402-0020

Sample Description: ROOM 9, HALLWAY/HEAT SHIELD INSIDE CEILING LIGHT FIXTURE, TAN COVERED IN SILVER FOIL

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	Beige	90%	10%	None Detected	

Client Sample ID: 29A-HS-01B **Lab Sample ID:** 691700402-0021

Sample Description: ROOM 9, HALLWAY/HEAT SHIELD INSIDE CEILING LIGHT FIXTURE, TAN COVERED IN SILVER FOIL

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	Beige	90%	10%	None Detected	

Client Sample ID: 29A-HS-01C **Lab Sample ID:** 691700402-0022

Sample Description: ROOM 9, HALLWAY/HEAT SHIELD INSIDE CEILING LIGHT FIXTURE, TAN COVERED IN SILVER FOIL

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	90%	10%	None Detected	



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EMSL Canada Order 691700402
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Kathleen Cruz PLM (5)
PLM Grav. Reduction (9)
Nicole Yeo PLM (8)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/21/2017 19:11:16



EMSL Canada Inc.

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torontolab@emsl.com

EMSL Canada Or	551702664
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/14/17 10:47 AM
 Collected:

Project: **CSC MISSION-MINIMUM/123220822 - BUILDING 29A-PRIVATE FAMILY VISIT**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
29A-P-01 Site: ROOM 5, UTILITY ROOM Desc: OFF-WHITE ON DRYWALL AND WOOD TRIM	551702664-0001	3/17/2017		<90 ppm
29A-P-02 Site: ROOM 2, KITCHEN Desc: BLUE ON WOOD WINDOW SILL Insufficient sample to reach reporting limit.	551702664-0002	3/17/2017		<200 ppm
29A-P-03 Site: EXTERIOR, ROOM 4, MECHANICAL ROOM Desc: CREAM ON WOOD TRIM AND METAL DOOR	551702664-0003	3/17/2017		3500 ppm
29A-P-04 Site: EXTERIOR, FRONT ENTRANCE Desc: WHITE ON METAL HANDRAIL Insufficient sample to reach reporting limit.	551702664-0004	3/17/2017		<100 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/21/2017 08:19:00

**APPENDIX 5.18
FINDINGS AND RECOMMENDATIONS—
BUILDING 29B—PRIVATE FAMILY VISITING
(848-44-RP)**



Appendix 5.18 FINDINGS AND RECOMMENDATIONS— BUILDING 29B—PRIVATE FAMILY VISITING (848-44-RP)

Building 29b—Private Family Visiting (subject building) was reportedly constructed in 2001 and has been assigned Real Property ID #862. The typical structural components and finishes associated with this building consist of vinyl exterior siding; drywall and texture coat ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.18-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.18-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.18-1 Suspected ACM Sample Collection and Analysis Summary
Building 29b—Private Family Visiting**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
29b-DJC-01A	Joint compound applied to drywall walls and ceilings	Room 3, living room, perimeter wall near back door	None Detected
29b-DJC-01B	Joint compound applied to drywall walls and ceilings	Room 11, front entrance closet partition wall	None Detected
29b-DJC-01C	Joint compound applied to drywall walls and ceilings	Room 12, laundry closet partition wall	None Detected
29b-DJC-01D	Joint compound applied to drywall walls and ceilings	Room 13, corridor closet partition wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.18 Findings and Recommendations— Building 29b—Private Family Visiting (848-44-RP)
September 2017

**Table 5.18-1 Suspected ACM Sample Collection and Analysis Summary
Building 29b—Private Family Visiting**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
29b-DJC-01E	Joint compound applied to drywall walls and ceilings	Room 8, bedroom, partition wall by door	None Detected
29b-SF-01	Vinyl sheet flooring, blue with white streaks	Room 4, vestibule	None Detected
29b-SF-02	Vinyl sheet flooring, grey with blue and white streaks	Room 3, living room, near window	None Detected
29b-CTC-01A	Ceiling texture coat applied to drywall	Room 1, dining room, near back door	None Detected
29b-CTC-01B	Ceiling texture coat applied to drywall	Room 3, living room, near window	None Detected
29b-CTC-01C	Ceiling texture coat applied to drywall	Room 5, corridor, north end	None Detected
29b-CTC-01D	Ceiling texture coat applied to drywall	Room 7, bedroom, near window	None Detected
29b-CTC-01E	Ceiling texture coat applied to drywall	Room 8, bedroom, south end	None Detected
29b-WPC-01A	Window pane caulking, black	Room 7, bedroom, west window	None Detected
29b-WPC-01B	Window pane caulking, black	Room 8, bedroom, east window	None Detected
29b-WPC-01C	Window pane caulking, black	Room 2, kitchen, east window	None Detected
29b-RS-01A	Asphalt roof shingle	Exterior north corner	None Detected
29b-RS-01B	Asphalt roof shingle	Exterior north corner	None Detected
29b-RS-01C	Asphalt roof shingle	Exterior north corner	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.18-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.18 Findings and Recommendations— Building 29b—Private Family Visiting (848-44-RP)
September 2017

5.18-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Solder used on domestic water lines and in electrical equipment
- Ceramic tile glaze
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.18-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.18-2 Suspected LCP Sample Collection and Analysis Summary
Building 29b—Private Family Visiting**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
29b-P-01	Sky blue on wood	Room 5, corridor, interior trim outside of bedroom 6	<130
29b-P-02	Cream on drywall	Room 14, closet	<90
29b-P-03	Light blue on metal	Exterior front door	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.18-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.18-4 MERCURY

Mercury vapour is present in the light tubes within the approximately two fluorescent light fixtures observed.

5.18-5 MOULD

Suspect mould and/or moisture impacted building materials were not observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.18 Findings and Recommendations— Building 29b—Private Family Visiting (848-44-RP)
September 2017

5.18-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

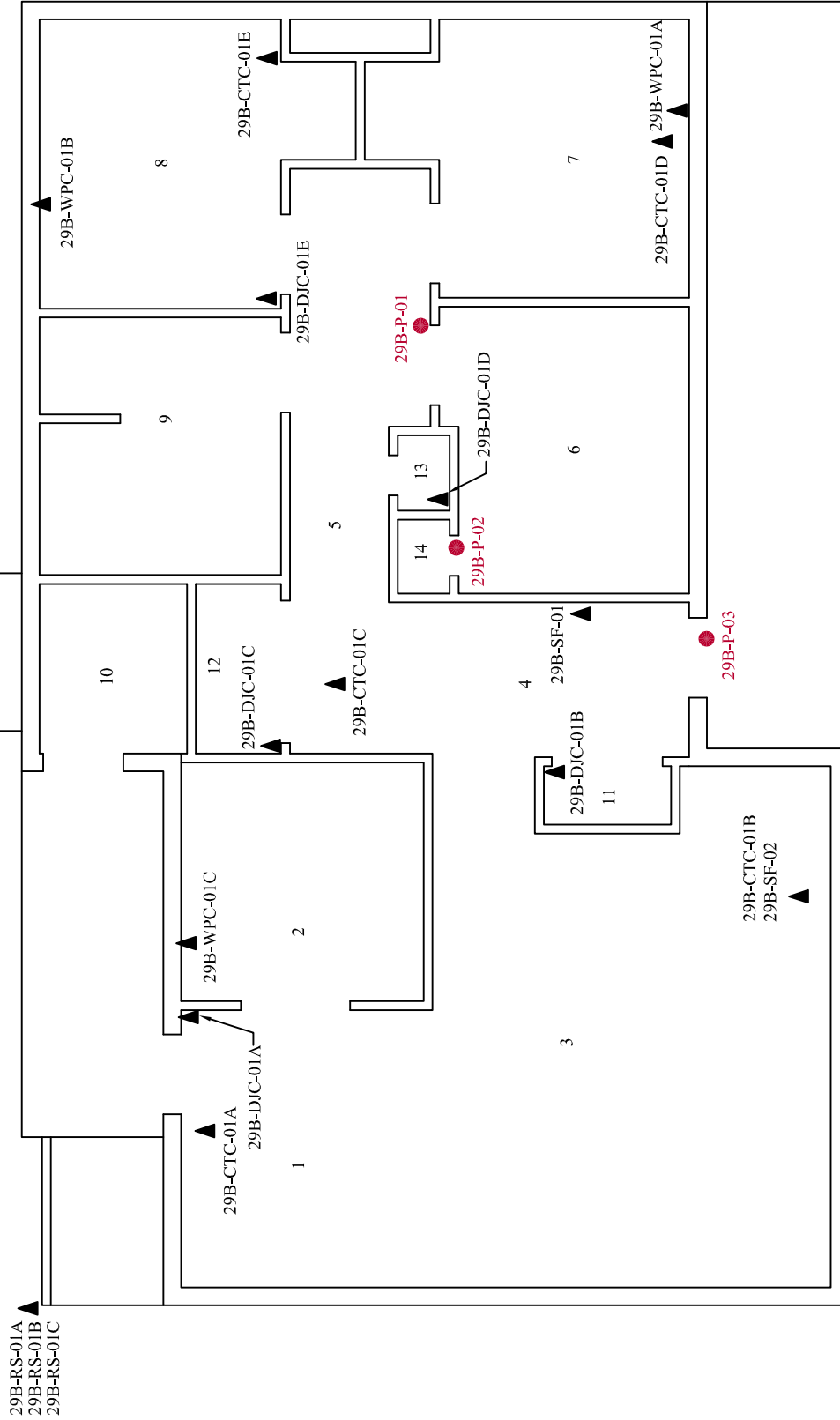
5.18-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Cement products such as:
 - Concrete foundation
 - Ceramic tiles and associated grouts and mortars
- Gypsum and associated wall/ceiling finish materials
- Asphalt roof shingles

5.18-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR PRIVATE FAMILY VISITING 2

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/08/19

Dwn. By: CD VMP/K
SL2017080132

App'd By: TW

Dwg. No.:

18.1



Unit 29B		
Private Family Visiting 2 - First Floor		
Rm. #	Name	Area m ²
1	Dining Room	9.2
2	Kitchen	7.4
3	Living Room	25.3
4	Vestibule	8.0
5	Corridor	6.7
6	Bedroom	8.7
7	Bedroom	10.7
8	Bedroom	10.9
9	B. F. Washroom	8.0
10	Mechanical Room	3.8
11	Closet	1.1
12	Laundry Closet	2.0
13	Closet	0.6
14	Closet	0.6

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD_{VM} SL2017040022

App'd By: TW

Dwg. No.:

18.2





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EMSL Canada Order 691700538
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou Phone: (604) 412-3004
 Stantec Consulting, Ltd. Fax:
 500 - 4730 Kingsway Collected:
 Burnaby, BC V5H 0C6 Received: 3/21/2017
 Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / BUILDING 29B-PRIVATE FAMILY VISITING 2

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 29b-DJC-01A **Lab Sample ID:** 691700538-0001

Sample Description: Room 3, Living Room, Back Door/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 29b-DJC-01B **Lab Sample ID:** 691700538-0002

Sample Description: Room 11, Front Entrance Closet/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 29b-DJC-01C **Lab Sample ID:** 691700538-0003

Sample Description: Room 12, Laundry Closet/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 29b-DJC-01D **Lab Sample ID:** 691700538-0004

Sample Description: Room 13, Corridor Closet/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 29b-DJC-01E **Lab Sample ID:** 691700538-0005

Sample Description: Room 8, Bedroom, by Door/Joint Compound Applied to Drywall Walls & Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 29b-SF-01 **Lab Sample ID:** 691700538-0006

Sample Description: Room 4, Vestibule/Vinyl Sheet Flooring, Blue w/White Streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: 29b-SF-02 **Lab Sample ID:** 691700538-0007

Sample Description: Room 3, Living Room, Near Window/Vinyl Sheet Flooring, Grey w/Blue & White Streaks

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700538
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 29b-CTC-01A **Lab Sample ID:** 691700538-0008

Sample Description: Room 1, Dining Room, Near Back Door/Ceiling Texture Coat Applied to Drywall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	3%	97%	None Detected	

Client Sample ID: 29b-CTC-01B **Lab Sample ID:** 691700538-0009

Sample Description: Room 3, Living Room, Near Window/Ceiling Texture Coat Applied to Drywall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	5%	95%	None Detected	

Client Sample ID: 29b-CTC-01C **Lab Sample ID:** 691700538-0010

Sample Description: Room 5, Corridor, North End/Ceiling Texture Coat Applied to Drywall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	5%	95%	None Detected	

Client Sample ID: 29b-CTC-01D **Lab Sample ID:** 691700538-0011

Sample Description: Room 7, Bedroom, Near Window/Ceiling Texture Coat Applied to Drywall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 29b-CTC-01E **Lab Sample ID:** 691700538-0012

Sample Description: Room 8, Bedroom/Ceiling Texture Coat Applied to Drywall

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: 29b-WPC-01A **Lab Sample ID:** 691700538-0013

Sample Description: Room 7, Bedroom/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Black	0%	100%	None Detected	

Client Sample ID: 29b-WPC-01B **Lab Sample ID:** 691700538-0014

Sample Description: Room 8, Bedroom/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Black	0%	100%	None Detected	

Client Sample ID: 29b-WPC-01C **Lab Sample ID:** 691700538-0015

Sample Description: Room 2, Kitchen/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Black	0%	100%	None Detected	



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EMSL Canada Order 691700538
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 29b-RS-01A **Lab Sample ID:** 691700538-0016
Sample Description: Exterior North Corner/Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 29b-RS-01B **Lab Sample ID:** 691700538-0017
Sample Description: Exterior North Corner/Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	1.6%	98.4%	None Detected	

Client Sample ID: 29b-RS-01C **Lab Sample ID:** 691700538-0018
Sample Description: Exterior North Corner/Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Analyst(s):

Kathleen Cruz PLM (8)
PLM Grav. Reduction (4)
Nicole Yeo PLM (5)
PLM Grav. Reduction (1)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 18:46:01



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EMSL Canada Or	551702854
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822/Building 29b-Private Family Visiting 2

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
29b-P-01 Site: Room 5, corridor, interior trim outside of bedroom 6 Desc: Sky blue on wood Insufficient sample to reach reporting limit.	551702854-0001	3/23/2017		<130 ppm
29b-P-02 Site: Room 14, closet Desc: Cream on drywall	551702854-0002	3/23/2017		<90 ppm
29b-P-03 Site: Exterior front door Desc: Light blue on metal	551702854-0003	3/23/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/27/2017 17:05:13

**APPENDIX 5.19
FINDINGS AND RECOMMENDATIONS—
BUILDING 30A, B, C—GREENHOUSES
(848-45-RP)**



Appendix 5.19 FINDINGS AND RECOMMENDATIONS— BUILDING 30A, B, C—GREENHOUSES (848-45-RP)

Building 30a, b, c—Greenhouses (subject building) was reportedly constructed in 1990 and has been assigned Real Property ID #863. The typical structural components and finishes associated with this building consist of exterior plastic panel walls/ceilings and dirt/concrete flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.19-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.19-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.19-1 Suspected ACM Sample Collection and Analysis Summary
Building 30a, b, c—Greenhouses**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
30-PP-01A	White penetration putty	Unit A, room 1, plants, southeast vent	None Detected
30-PP-01B	White penetration putty	Unit A, room 1, plants, southeast vent	None Detected
30-PP-01C	White penetration putty	Unit A, room 1, plants, southeast vent	None Detected
30-FS-01A	Clear foam sealant	Unit A, room 1, plants, east wall	None Detected
30-FS-01B	Clear foam sealant	Unit A, room 1, plants, east wall	None Detected
30-FS-01C	Clear foam sealant	Unit A, room 1, plants, east wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.19 Findings and Recommendations—Building 30a, b, c—Greenhouses (848-45-RP)
September 2017

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.19-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.19-2 LEAD

Lead is expected to be present in the following:

- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes and in electrical equipment

With respect to paint, one chip sample was obtained from the predominant suspected LCP application within the subject building. A summary of the sample type, location and analytical result is presented in Table 5.19-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP sample submitted is attached to this Appendix.

**Table 5.19-2 Suspected LCP Sample Collection and Analysis Summary
Building 30a, b, c—Greenhouses**


Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
31-P-01	Yellow on concrete	South side bollard	890
NOTE: Bold, highlighted text indicates confirmed LCP			

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.19-3, below was identified as an LCP.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.19 Findings and Recommendations—Building 30a, b, c—Greenhouses (848-45-RP)
September 2017

**Table 5.19-3 Summary of Identified LCPs
Building 30a, b, c—Greenhouses**

Identified LCP Description		Photo
Paint colour	Yellow	
Substrate	Concrete	
Location/approx. extent	Exterior bollards	
Lead content	890 ppm	
Condition	Good	

5.19-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.19-4 MERCURY

One thermostat with a mercury-containing switch was observed on the south wall of greenhouse A. The location of the thermostat is indicated on the floor plan drawing within this appendix.

5.19-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.19-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.19-7 SILICA

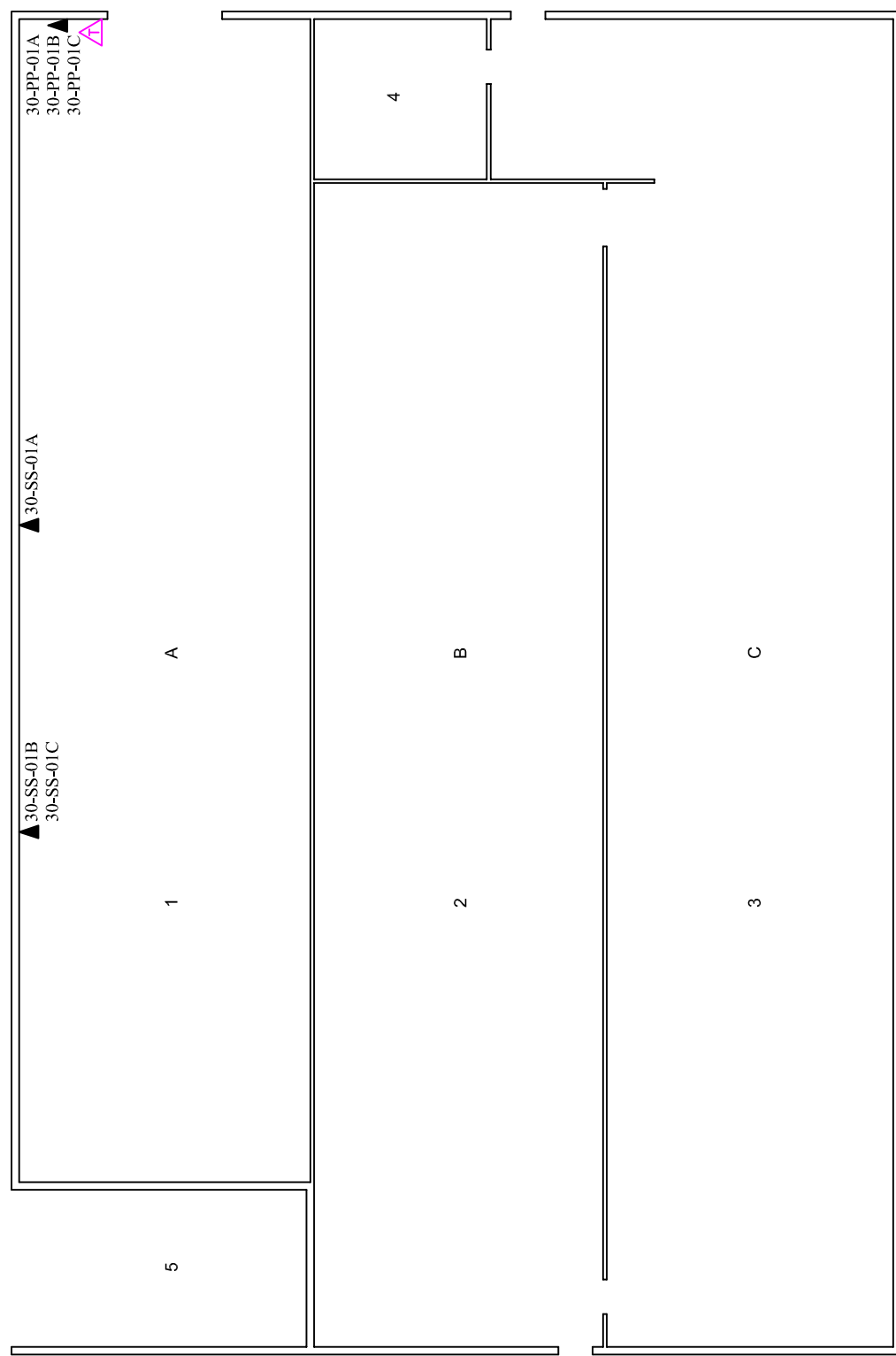
Silica is expected to be present in the concrete foundations.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.19 Findings and Recommendations—Building 30a, b, c—Greenhouses (848-45-RP)
September 2017

5.19-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR GREENHOUSES

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- ▲ MERCURY-CONTAINING THERMOSTAT

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC		Scale: N.T.S.	19.1
PUBLIC SERVICES AND PROCUREMENT CANADA		Date: 17/08/19	
		Dwn. By: CD PK	
		App'd By: TW	



Unit 30a-b-c		
Greenhouses - First Floor		
Rm. #	Name	Area m ²
1	Plants	166.7
2	Plants	165.0
3	Plants	199.6
4	Heating Unit	14.6
5	Road Salt Storage	23.7

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040103

App'd By: TW

Dwg. No.:

19.2





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EMSL Canada Order 691700544
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / GREENHOUSE-30

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 30-PP-01A **Lab Sample ID:** 691700544-0001

Sample Description: UNIT A, ROOM 1, PLANTS, SOUTHEAST VENT/WHITE PENETRATION PUTTY

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: 30-PP-01B **Lab Sample ID:** 691700544-0002

Sample Description: UNIT A, ROOM 1, PLANTS, SOUTHEAST VENT/WHITE PENETRATION PUTTY

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: 30-PP-01C **Lab Sample ID:** 691700544-0003

Sample Description: UNIT A, ROOM 1, PLANTS, SOUTHEAST VENT/WHITE PENETRATION PUTTY

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: 30-FS-01A **Lab Sample ID:** 691700544-0004

Sample Description: UNIT A, ROOM 1, PLANTS, EAST WALL/CLEAR FOAM SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 30-FS-01B **Lab Sample ID:** 691700544-0005

Sample Description: UNIT A, ROOM 1, PLANTS, EAST WALL/CLEAR FOAM SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 30-FS-01C **Lab Sample ID:** 691700544-0006

Sample Description: UNIT A, ROOM 1, PLANTS, EAST WALL/CLEAR FOAM SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Clear	0.0%	100%	None Detected	



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EMSL Canada Order 691700544
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s): _____

Kathleen Cruz PLM Grav. Reduction (6)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 19:03:43



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CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 11:03 AM
 Collected:

Project: CSCMISSION-MINIMUM/123220822 - Greenhouse - 30

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
31-P-01	551702920-0001		3/24/2017	110 ppm
	Site: North Side Bollard Desc: Yellow on concrete			

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Report Amended: 08/29/2017 08:32:25 Replaces the Initial Report 03/28/2017 09:19:43. Reason Code: Client-Change to Location

**APPENDIX 5.20
FINDINGS AND RECOMMENDATIONS—
BUILDING 31—GREENHOUSE (848-46-RP)**



Appendix 5.20 FINDINGS AND RECOMMENDATIONS— BUILDING 31—GREENHOUSE (848-46-RP)

Building 31—Greenhouse (subject building) was reportedly constructed in 1998 and has been assigned Real Property ID #864. The typical structural components and finishes associated with this building consist of a metal frame structure covered with plastic sheeting and dirt/concrete flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.20-1 ASBESTOS

Through our visual review of building construction and building materials present, no suspected ACMs were observed.

5.20-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.20-2 LEAD

Lead is expected to be present in the following within the subject building:

- Solder used in bell fittings for cast iron pipes and in electrical equipment

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.20-1, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.20 Findings and Recommendations—Building 31—Greenhouse (848-46-RP)
September 2017

**Table 5.20-1 Suspected LCP Sample Collection and Analysis Summary
Building 31—Greenhouse**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
31-P-01	Yellow on concrete	North side bollard	110

Based on our observations and on our interpretations of suspected LCP sample analytical results, LCPs were not identified.

5.20-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.20-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 10 fluorescent light fixtures observed.

5.20-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.20-6 OZONE-DEPLETING SUBSTANCES

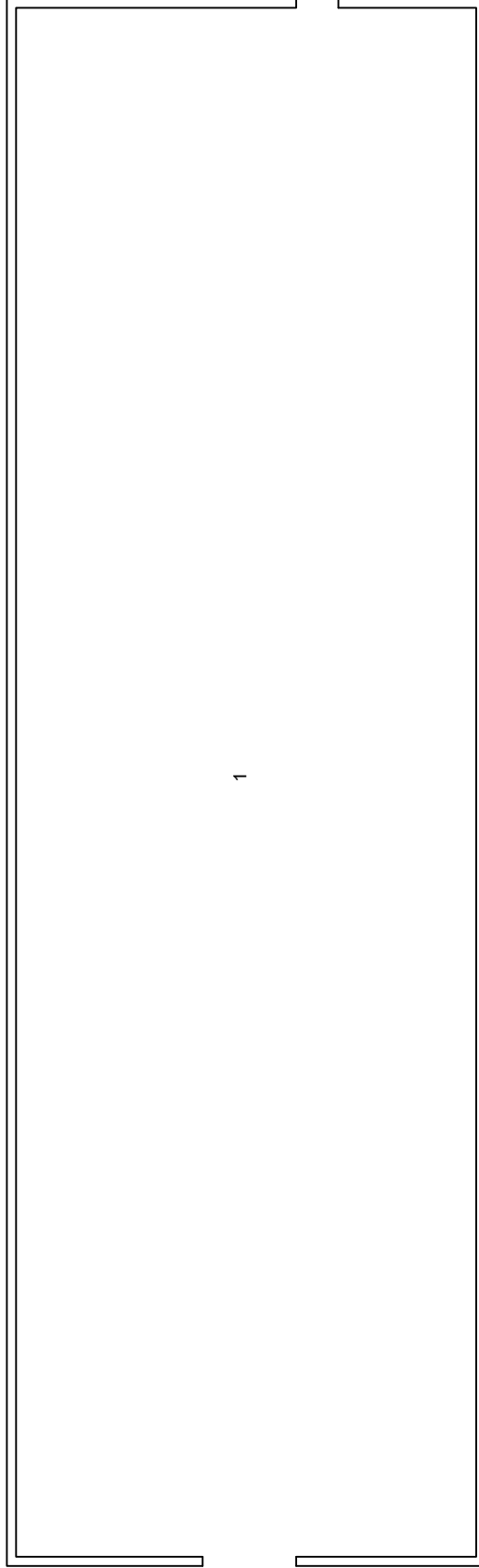
No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.20-7 SILICA

Silica is expected to be present in the concrete foundation.

5.20-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



● 31-P-01

FIRST FLOOR GREENHOUSE

LEGEND

● LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040104

App'd By: TW

Dwg. No.:

20.1

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Client:



Unit 31		
Greenhouse - First Floor	Rm. #	Area m ²
Plants	1	281.0

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040105

App'd By: TW

Dwg. No.:

20.2





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EMSL Canada Or	551702920
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 11:03 AM
 Collected:

Project: CSCMISSION-MINIMUM/123220822 - Greenhouse - 30

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
31-P-01	551702920-0001		3/24/2017	110 ppm
	Site: North Side Bollard Desc: Yellow on concrete			

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Report Amended: 08/29/2017 08:32:25 Replaces the Inital Report 03/28/2017 09:19:43. Reason Code: Client-Change to Location

**APPENDIX 5.21
FINDINGS AND RECOMMENDATIONS—
BUILDING 34—GARAGE (848-40-RP)**



Appendix 5.21 FINDINGS AND RECOMMENDATIONS— BUILDING 34—GARAGE (848-40-RP)

Building 34—Garage (subject building) was reportedly constructed in 1992 and has been assigned Real Property ID #865. The typical structural components and finishes associated with this building consist of exterior metal panel siding; metal panel ceilings; metal panel walls; and, concrete, vinyl floor tile and vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.21-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.21-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.21-1 Suspected ACM Sample Collection and Analysis Summary
Building 34—Garage**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
34-EPP-01A	Grey electrical penetration putty	Room 2, mechanical room, west side on floor	None Detected
34-EPP-01B	Grey electrical penetration putty	Room 2, mechanical room, west side on floor	None Detected
34-EPP-01C	Grey electrical penetration putty	Room 2, mechanical room, west side on floor	None Detected
34-TF-01A	Red texture flooring	Room 3, compressor room	None Detected
34-TF-01B	Red texture flooring	Room 3, compressor room	None Detected
34-TF-01C	Red texture flooring	Room 3, compressor room	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.21 Findings and Recommendations—Building 34—Garage (848-40-RP)
September 2017

**Table 5.21-1 Suspected ACM Sample Collection and Analysis Summary
Building 34—Garage**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
34-FT-01	12"x12" blue and aqua floor tile	Room 5, office	None Detected
34-SF-01	Blue and white smeared sheet flooring	Room 7, second floor office	None Detected
34-SF-02	Cork pattern sheet flooring	Room 4, bathroom	None Detected
34-PP-01A	Clear penetration putty	Exterior south wall	None Detected
34-PP-01B	Clear penetration putty	Exterior south wall	None Detected
34-PP-01C	Clear penetration putty	Exterior south wall	None Detected
34-PP-02A	Black penetration putty	Exterior east wall	None Detected
34-PP-02B	Black penetration putty	Exterior east wall	None Detected
34-PP-02C	Black penetration putty	Exterior east wall	None Detected
34-PP-03A	White penetration putty	Exterior east wall	None Detected
34-PP-03B	White penetration putty	Exterior east wall	None Detected
34-PP-03C	White penetration putty	Exterior east wall	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.21-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.21-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings for cast iron pipes and in electrical equipment
- Vent and pipe flashings

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.21 Findings and Recommendations—Building 34—Garage (848-40-RP)
September 2017


With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.21-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.21-2 Suspected LCP Sample Collection and Analysis Summary
Building 34 - Garage**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
34-P-01	White on drywall	Room 3, compressor room, west wall	<90
34-P-02	Grey on metal door frame	Exterior south door	660
34-P-03	White on metal door	Exterior west door	970
34-P-04	Grey on metal	Exterior west wall	320

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paints presented in Table 5.21-3 below were identified as LCPs:


**Table 5.21-3 Summary of Identified LCPs
Building 34 - Garage**

Identified LCP Description		Photo
Paint colour	Grey	
Substrate	Metal	
Location/approx. extent	Exterior door frames	
Lead content	660 ppm	
Condition	Good	

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.21 Findings and Recommendations—Building 34—Garage (848-40-RP)
September 2017

**Table 5.21-3 Summary of Identified LCPs
Building 34 - Garage**

Identified LCP Description		Photo
Paint colour	White	
Substrate	Metal	
Location/approx. extent	Exterior of garage doors	
Lead content	970 ppm	
Condition	Good	

5.21-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.21-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 20 fluorescent light fixtures observed.

Two side-by-side thermostats with mercury-containing switches were observed in the stairwell on the first floor. The locations of the thermostats are indicated on the floor plan drawing within this appendix.

Mercury may also be present in paints and adhesives.

5.21-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.21-6 OZONE-DEPLETING SUBSTANCES

The following equipment was identified by labels or reported to have ODS-containing refrigerants:

- One Mitsubishi air conditioning unit (R-22, 0.99 kg, identified by labels and reported)
- One Danby air conditioning unit (R-22)

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.21 Findings and Recommendations—Building 34—Garage (848-40-RP)
September 2017

5.21-7 SILICA

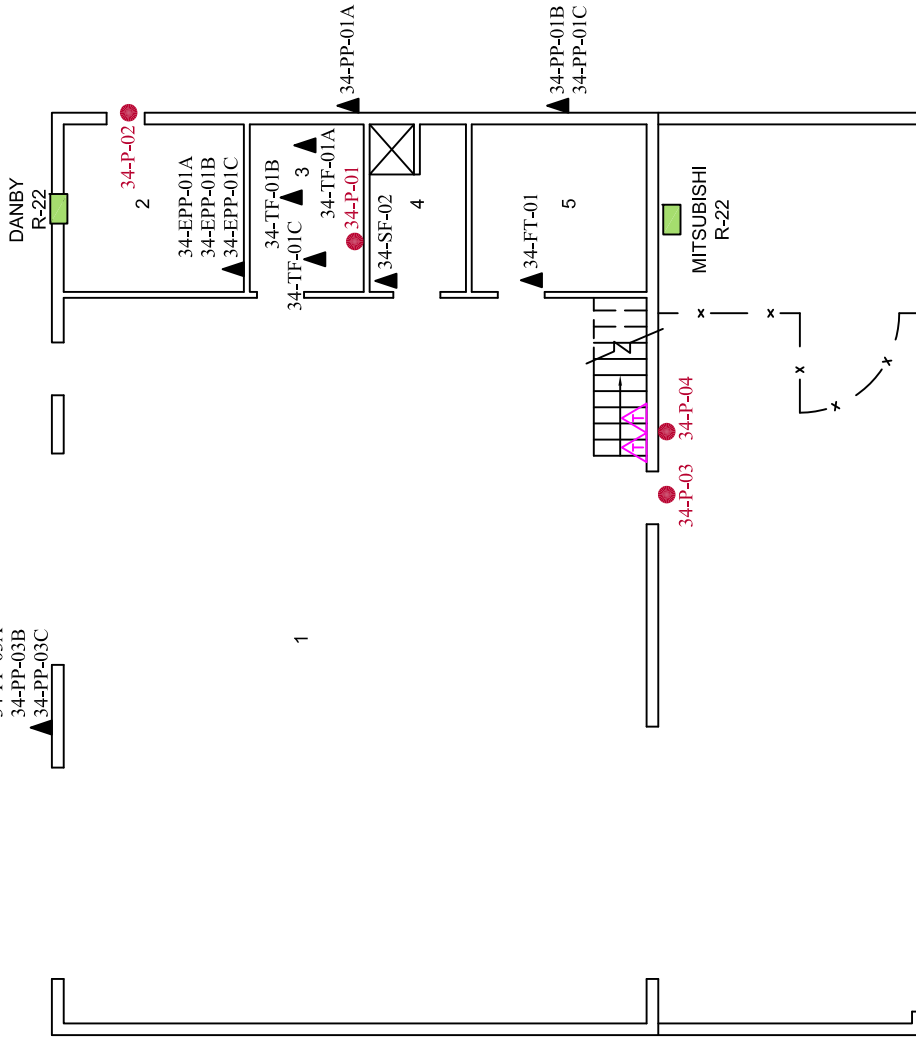
Silica is expected to be present in the concrete foundation.

5.21-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



34-PP-02A
 34-PP-02B
 34-PP-02C
 34-PP-03A
 34-PP-03B
 34-PP-03C



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- ▲ MERCURY-CONTAINING THERMOSTAT
- ODS-CONTAINING EQUIPMENT

**FIRST FLOOR
 GARAGE**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA		Project No.: 123220822	Dwg. No.:
		Scale: N.T.S.	21.1
Date: 17/04/03	Dwn. By: CD PK		SL2017040110
App'd By: TW			

Unit 34		
Garage - First Floor		
Rm. #	Name	Area m ²
1	Institute Garage	133.1
2	Mechanical Room	10.4
3	Compressor Room	6.4
4	Bathroom	5.5
5	Office	10.0

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

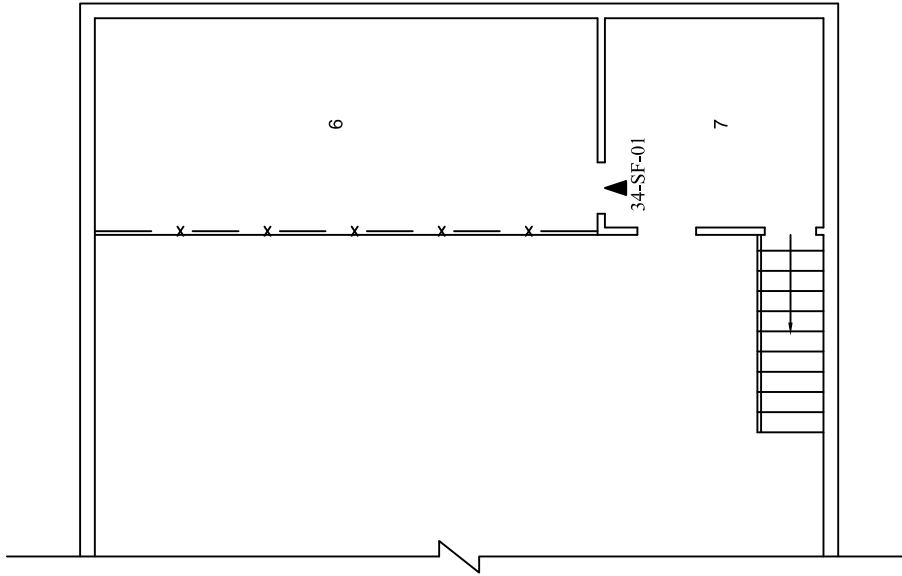
Dwn. By: CD PK SL2017040111

App'd By: TW

Dwg. No.:

21.2





**SECOND FLOOR
GARAGE**

LEGEND

▲ ASBESTOS BULK SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC		Scale: N.T.S.	21.3
PUBLIC SERVICES AND PROCUREMENT CANADA		Date: 17/04/03	
		Dwn. By: CD PK SL2017040112	
		App'd By: TW	



Unit 34		
Garage - Second Floor		
Rm. #	Name	Area m ²
6	Mezzanine Storage	22.4
7	Mezzanine Office	10.7

SECOND FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
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 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/08/19

Dwn. By: CD PK SL2017080134

App'd By: TW

Dwg. No.:

21.4





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EMSL Canada Order 691700500
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/27/2017
Proj: CSC MISSION-MINIMUM / 123220822 / GARAGE-34

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 34-EPP-01A **Lab Sample ID:** 691700500-0001

Sample Description: Room 2, Mechanical Room, West Side on Floor/Grey Electrical Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 34-EPP-01B **Lab Sample ID:** 691700500-0002

Sample Description: Room 2, Mechanical Room, West Side on Floor/Grey Electrical Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 34-EPP-01C **Lab Sample ID:** 691700500-0003

Sample Description: Room 2, Mechanical Room, West Side on Floor/Grey Electrical Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 34-TF-01A **Lab Sample ID:** 691700500-0004

Sample Description: Room 3, Compressor Room/Red Texture Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	9.6%	90.4%	None Detected	

Client Sample ID: 34-TF-01B **Lab Sample ID:** 691700500-0005

Sample Description: Room 3, Compressor Room/Red Texture Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	8.2%	91.8%	None Detected	

Client Sample ID: 34-TF-01C **Lab Sample ID:** 691700500-0006

Sample Description: Room 3, Compressor Room/Red Texture Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	12.0%	88.0%	None Detected	

Client Sample ID: 34-FT-01 **Lab Sample ID:** 691700500-0007

Sample Description: Room 5, Office/12"x12" Blue & Aqua Floor Tile

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Blue	0.0%	100%	None Detected	



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EMSL Canada Order 691700500
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 34-SF-01 **Lab Sample ID:** 691700500-0008
Sample Description: Room 7, Mezzanine Office/Blue & White Smear Sheet Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Blue	0.38%	99.6%	None Detected	

Client Sample ID: 34-SF-02 **Lab Sample ID:** 691700500-0009
Sample Description: Room 4, Bathroom/Cork Pattern Sheet Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 34-PP-01A **Lab Sample ID:** 691700500-0010
Sample Description: Exterior South Wall/Clear Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 34-PP-01B **Lab Sample ID:** 691700500-0011
Sample Description: Exterior South Wall/Clear Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 34-PP-01C **Lab Sample ID:** 691700500-0012
Sample Description: Exterior South Wall/Clear Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: 34-PP-02A **Lab Sample ID:** 691700500-0013
Sample Description: Exterior East Wall/Black Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 34-PP-02B **Lab Sample ID:** 691700500-0014
Sample Description: Exterior East Wall/Black Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 34-PP-02C **Lab Sample ID:** 691700500-0015
Sample Description: Exterior East Wall/Black Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	



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Phone/Fax: 604-757-3158 / (604) 757-4731
<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700500
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 34-PP-03A **Lab Sample ID:** 691700500-0016

Sample Description: Exterior East Wall/White Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	White	0.0%	100%	None Detected	

Client Sample ID: 34-PP-03B **Lab Sample ID:** 691700500-0017

Sample Description: Exterior East Wall/White Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	White	0.0%	100%	None Detected	

Client Sample ID: 34-PP-03C **Lab Sample ID:** 691700500-0018

Sample Description: Exterior East Wall/White Penetration Putty

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	White	0.0%	100%	None Detected	

Analyst(s):
Emmanuel Moise PLM Grav. Reduction (18)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. New York, NY AIHA-LAP, LLC--IHLAP Accredited #102581, NVLAP Lab Code 101048-9, NYS ELAP 11506, NJ NY022, CT PH-0170, MA AA000170



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EMSL Canada Or	551702926
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 11:03 AM
 Collected:

Project: CSCMISSION-MINIMUM/123220822 - Garage-34

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
34-P-01 Site: Room 3, compressor room, west wall Desc: White on drywall	551702926-0001	3/24/2017		<90 ppm
34-P-02 Site: Exterior south door Desc: Grey on steel	551702926-0002	3/24/2017		660 ppm
34-P-03 Site: Exterior west door Desc: White on steel	551702926-0003	3/24/2017		970 ppm
34-P-04 Site: Exterior west wall Desc: Grey on steel	551702926-0004	3/24/2017		320 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:30:45

**APPENDIX 5.22
FINDINGS AND RECOMMENDATIONS—
BUILDING 35—WORKSHOP (848-36-RP)**



Appendix 5.22 FINDINGS AND RECOMMENDATIONS— BUILDING 35—WORKSHOP (848-36-RP)

Building 35—Workshop (subject building) was reportedly constructed in 1991 and has been assigned Real Property ID #866. The typical structural components and finishes associated with this building consist of metal exterior siding; wood panel interior walls and concrete floors.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.22-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.22-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.22-1 Suspected ACM Sample Collection and Analysis Summary
Building 35—Workshop**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
35-PS-01A	White pipe sealant	Room 2, grounds shop, on natural gas unit heater	None Detected
35-PS-01B	White pipe sealant	Room 2, grounds shop, on natural gas unit heater	None Detected
35-PS-01C	White pipe sealant	Room 2, grounds shop, on natural gas unit heater	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.22 Findings and Recommendations—Building 35—Workshop (848-36-RP)
September 2017

5.22-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.22-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.22-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.22-2 Suspected LCP Sample Collection and Analysis Summary
Building 35—Workshop**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
35-P-01	White on drywall	Room 3, corcan textile storage, east wall	390
35-P-02	Grey on metal	Exterior of room 2, grounds shop, bay door	3,400
35-P-03	Grey on metal	Exterior of room 1, electrical/paint shop, north wall	950



NOTE:
Bold, highlighted text indicates confirmed LCP

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paints presented in Table 5.22-3, below were identified as LCPs or potential LCPs:

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.22 Findings and Recommendations—Building 35—Workshop (848-36-RP)
September 2017

**Table 5.22-3 Summary of Identified LCPs
Building 35—Workshop**

Identified LCP Description		Photo
Paint colour	Grey	
Substrate	Metal	
Location/approx. extent	Exterior bay door	
Lead content	3,400 ppm	
Condition	Good	
Paint colour	Grey	
Substrate	Metal	
Location/approx. extent	Exterior walls	
Lead content	950 ppm	
Condition	Good	

5.22-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.22-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 24 fluorescent light fixtures observed.

One thermostat with a mercury-containing switch was observed on the south wall in room 1, electrical/paint shop. The location of the thermostat is indicated on the floor plan drawing within this appendix.

Mercury may also be present in paints and adhesives.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.22 Findings and Recommendations—Building 35—Workshop (848-36-RP)
September 2017

5.22-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.22-6 OZONE-DEPLETING SUBSTANCES

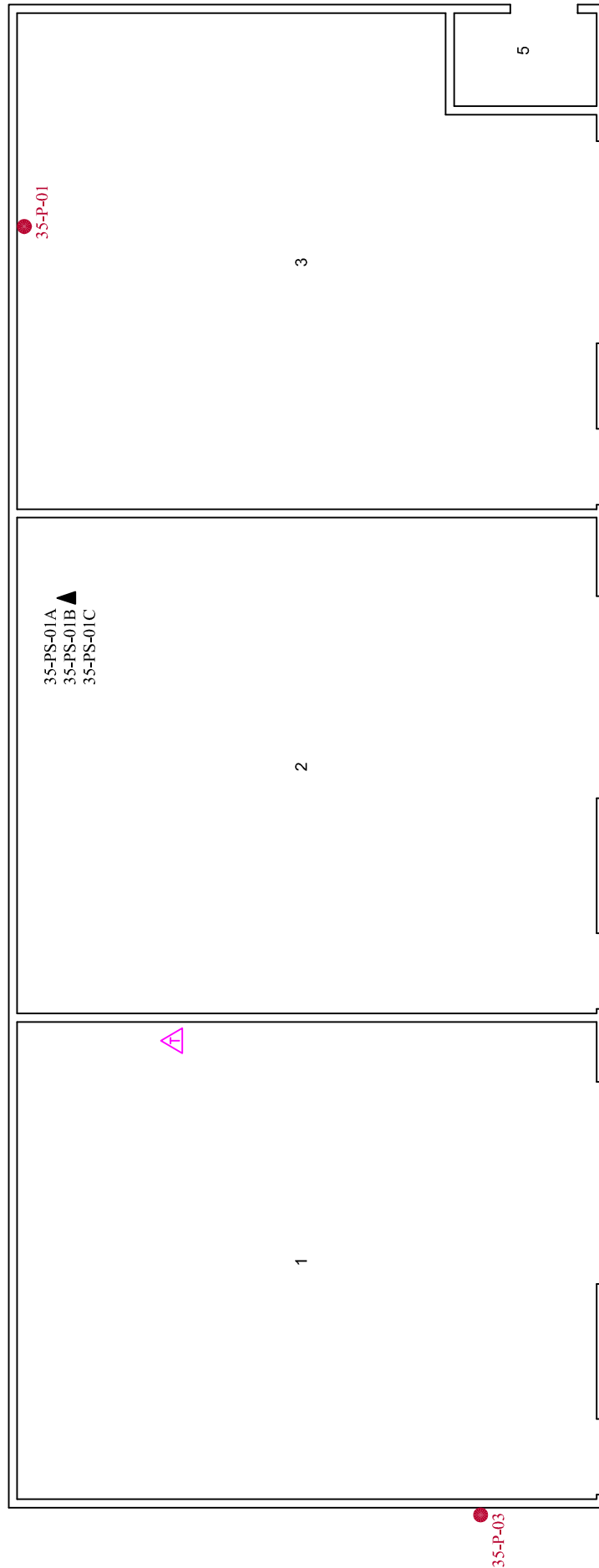
No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.22-7 SILICA

Silica is expected to be present in the concrete foundation.

5.22-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- △ MERCURY-CONTAINING THERMOSTAT

**FIRST FLOOR
WORKSHOP**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION		Scale: N.T.S.	22.1
33737 DEWDNEY TRUNK ROAD, MISSION, BC		Date: 17/04/03	
Client: PUBLIC SERVICES AND PROCUREMENT CANADA		Dwn. By: CD PK	
		App'd By: TW	



Unit 35		
Workshop Building - First Floor		
Rm. #	Name	Area m ²
1	Electrical / Paint Shop	41.6
2	Grounds Shop	42.6
3	Corcan Textile Storage	40.7
5	Washroom	2.3

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040096

App'd By: TW

Dwg. No.:

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Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Attn: Steve Chou
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Burnaby, BC V5H 0C6
Phone: (604) 412-3004
Fax:
Collected:
Received: 3/22/2017
Analyzed: 3/29/2017
Proj: CSC MISSION-MINIMUM / 123220822 / WORKSHOP-35

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 35-PS-01A **Lab Sample ID:** 691700550-0001

Sample Description: ROOM 2, GROUNDS SHOP, ON NATURAL GAS UNIT HEATER/WHITE PIPE SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/29/2017	White	0%	100%	None Detected	

Client Sample ID: 35-PS-01B **Lab Sample ID:** 691700550-0002

Sample Description: ROOM 2, GROUNDS SHOP, ON NATURAL GAS UNIT HEATER/WHITE PIPE SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/29/2017	White	1%	99%	None Detected	

Client Sample ID: 35-PS-01C **Lab Sample ID:** 691700550-0003

Sample Description: ROOM 2, GROUNDS SHOP, ON NATURAL GAS UNIT HEATER/WHITE PIPE SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/29/2017	White	0%	100%	None Detected	

Analyst(s): _____

Kathleen Cruz PLM (3)

Reviewed and approved by: _____

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/29/2017 11:39:28



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Attn: **Steve Chou**
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Phone: (604) 412-3004
Fax:
Received: 03/21/17 11:03 AM
Collected:

Project: CSCMISSION-MINIMUM/123220822 - Workshop-35

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
35-P-01 Site: Room 3, corcan textile storage, east wall Desc: White on drywall	551702919-0001	3/24/2017		390 ppm
35-P-02 Site: Exterior of room 2, grounds shop, bay door Desc: Grey on steel	551702919-0002	3/24/2017		3400 ppm
35-P-03 Site: Exterior or room 1, electrical/paint shop, north wall Desc: Grey on steel	551702919-0003	3/24/2017		950 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:17:54

**APPENDIX 5.23
FINDINGS AND RECOMMENDATIONS—
BUILDING 36—IN-VESSEL COMPOSTING
BUILDING (848-00-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.23 Findings and Recommendations—Building 36—In-Vessel Composting Building (848-00-RP)
September 2017

Appendix 5.23 FINDINGS AND RECOMMENDATIONS— BUILDING 36—IN-VESSEL COMPOSTING BUILDING (848-00-RP)

Building 36—In-Vessel Composting Building (subject building) was reportedly constructed in 2001 and has been assigned Real Property ID #867. The typical structural components and finishes associated with this building consist of exterior corrugated metal siding; corrugated metal and wood ceilings; wood interior walls; and, concrete and vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.23-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.23-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.23-1 Suspected ACM Sample Collection and Analysis Summary
Building 36—In-Vessel Composting Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
36-SF-01	Vinyl sheet flooring, light and dark blue	Room 3, washroom	None Detected
36-EJS-01A	Expansion joint compound applied to floor, grey	Room 1, composting room, north end	None Detected
36-EJS-01B	Expansion joint compound applied to floor, grey	Room 1, composting room, central	None Detected
36-EJS-01C	Expansion joint compound applied to floor, grey	Room 1, composting room, south end	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.23 Findings and Recommendations—Building 36—In-Vessel Composting Building (848-00-RP)
September 2017

**Table 5.23-1 Suspected ACM Sample Collection and Analysis Summary
Building 36—In-Vessel Composting Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
36-PW-01A	Pipe wrap applied to composter, green	Room 1, composting room, north end	None Detected
36-PW-01B	Pipe wrap applied to composter, green	Room 1, composting room, north end	None Detected
36-PW-01C	Pipe wrap applied to composter, green	Room 1, composting room, north end	None Detected
36-WPC-01A	Window pane caulking applied to garage door window, grey	Exterior, south	None Detected
36-WPC-01B	Window pane caulking applied to garage door window, grey	Exterior, south	None Detected
36-WPC-01C	Window pane caulking applied to garage door window, grey	Exterior, south	None Detected
36-WFC-01A	Window frame caulking, white	Exterior south window	None Detected
36-WFC-01B	Window frame caulking, white	Exterior east window	None Detected
36-WFC-01C	Window frame caulking, white	Exterior west window	None Detected
36-EPS-01A	Exterior penetration sealant, white	Exterior, east	None Detected
36-EPS-01B	Exterior penetration sealant, white	Exterior, east	None Detected
36-EPS-01C	Exterior penetration sealant, white	Exterior, east	None Detected
36-EPS-02A	Exterior penetration sealant, black	Exterior, west	None Detected
36-EPS-02B	Exterior penetration sealant, black	Exterior, west	None Detected
36-EPS-02C	Exterior penetration sealant, black	Exterior, west	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.23-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.23 Findings and Recommendations—Building 36—In-Vessel Composting Building (848-00-RP)
September 2017

5.23-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Solder used in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.23-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.23-2 Suspected LCP Sample Collection and Analysis Summary
Building 36—In-Vessel Composting Building**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
36-P-01	Red on steel beam	Room 1, composting room, south	<90
36-P-02	Light blue on wood	Room 3, washroom	<90
36-P-03	Green on metal	Room 1, composting room on composter	<90
36-P-04	Blue on metal	Exterior east wall	<180

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.23-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.23-4 MERCURY

Items suspected to contain liquid mercury or mercury vapour were not observed.

5.23-5 MOULD

Suspect mould and/or moisture impacted building materials were not observed.

Rodent droppings, which may be contaminated with mould and other microbial organisms with adverse health effects, were present on surfaces throughout Room 2, electrical room, as indicated on the floor plan drawing.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.23 Findings and Recommendations—Building 36—In-Vessel Composting Building (848-00-RP)
September 2017

5.23-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.23-7 SILICA

Silica is expected to be present in the concrete foundation.

5.23-8 RECOMMENDATIONS

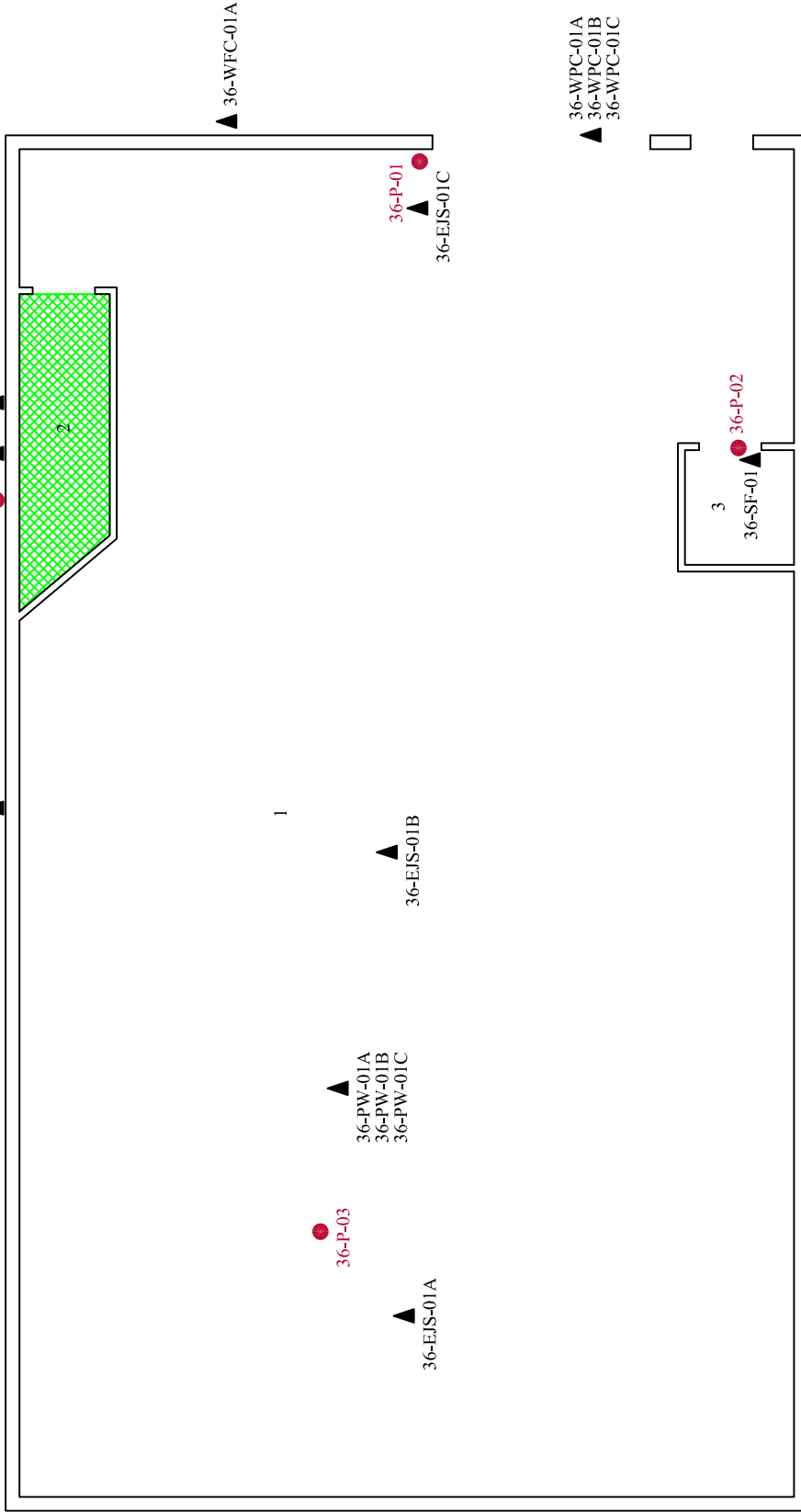
In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

Additional building-specific recommendations to be considered are provided below.

5.23-8.5 Mould

Rodent droppings observed within Room 2, electrical room, should be removed. Workers should be notified of the presence of rodent contamination and provided with respiratory protection and/or other personal protective equipment as deemed necessary for the work that they will be conducting, in accordance with applicable standards for such work. At a minimum, this would include:

- Use of impervious, protective gloves (rubber or nitrile or a combination thereof)
- Use of N95 respirators
- Provision of a decontamination station for workers including clean soapy water and appropriate towels/rags
- Use of wet removal techniques or use of HEPA vacuums to remove waste
- Cleaning of surface where rodent waste was removed with detergent/disinfectant



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- ▨ RODENT DROPPINGS PRESENT ON SURFACES THROUGHOUT

**FIRST FLOOR
IN-VESSEL COMPOSTING BUILDING**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS	
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC	
Client: PUBLIC SERVICES AND PROCUREMENT CANADA	

Project No.: 123220822	Dwg. No.: 23.1
Scale: N.T.S.	
Date: 17/08/19	
Dwn. By: CD VMPK	
App'd By: TW	



Unit 36		
In-Vessel Rm. #	Composting Building - First Floor Name	Area.m ²
1	Composting Room	223.5
2	Electrical Room	6.6
3	Washroom	3.3

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Project No.:	123220822
Scale:	N.T.S.
Date:	17/04/03
Dwn. By:	CD _{VM} SL2017040024
App'd By:	TW

GENERAL ROOM INFORMATION
CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC
PUBLIC SERVICES AND PROCUREMENT CANADA

Dwg. No.:
23.2





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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700510
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / BUILDING 36 - IN-VESSEL COMPOST BUILDING

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 36-SF-01 **Lab Sample ID:** 691700510-0001

Sample Description: Room 3 Washroom/Vinyl Sheet Flooring Light and Dark Blue - Sheet Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: 36-EJS-01A **Lab Sample ID:** 691700510-0002

Sample Description: Room 1 Composting Room North End/Expansion Joint Compound Applied to Floor Grey - Expansion Joint

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 36-EJS-01B **Lab Sample ID:** 691700510-0003

Sample Description: Room 1 Composting Room Central/Expansion Joint Compound Applied to Floor Grey - Expansion Joint

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 36-EJS-01C **Lab Sample ID:** 691700510-0004

Sample Description: Room 1 Composting Room South End/Expansion Joint Compound Applied to Floor Grey - Expansion Joint

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: 36-PW-01A **Lab Sample ID:** 691700510-0005

Sample Description: Room 1 Composting Room North End/Pipe Wrap Applied to Composter Green

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Green	30%	70%	None Detected	

Client Sample ID: 36-PW-01B **Lab Sample ID:** 691700510-0006

Sample Description: Room 1 Composting Room North End/Pipe Wrap Applied to Composter Green

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White/Green	30%	70%	None Detected	

Client Sample ID: 36-PW-01C **Lab Sample ID:** 691700510-0007

Sample Description: Room 1 Composting Room North End/Pipe Wrap Applied to Composter Green

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Green	30%	70%	None Detected	



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EMSL Canada Order 691700510
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 36-WPC-01A **Lab Sample ID:** 691700510-0008

Sample Description: Exterior South/Window Pane Caulking Applied to Garage Door Window Grey

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: 36-WPC-01B **Lab Sample ID:** 691700510-0009

Sample Description: Exterior South/Window Pane Caulking Applied to Garage Door Window Grey

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: 36-WPC-01C **Lab Sample ID:** 691700510-0010

Sample Description: Exterior South/Window Pane Caulking Applied to Garage Door Window Grey

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: 36-WFC-01A **Lab Sample ID:** 691700510-0011

Sample Description: Exterior South Window/Window Frame Caulking White

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: 36-WFC-01B **Lab Sample ID:** 691700510-0012

Sample Description: Exterior East Window/Window Frame Caulking White

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: 36-WFC-01C **Lab Sample ID:** 691700510-0013

Sample Description: Exterior West Window/Window Frame Caulking White

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: 36-EPS-01A **Lab Sample ID:** 691700510-0014

Sample Description: Exterior East/Exterior Penetration Sealant White - Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: 36-EPS-01B **Lab Sample ID:** 691700510-0015

Sample Description: Exterior East/Exterior Penetration Sealant White - Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	



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EMSL Canada Order 691700510
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 36-EPS-01C **Lab Sample ID:** 691700510-0016

Sample Description: Exterior East/Exterior Penetration Sealant White - Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: 36-EPS-02A **Lab Sample ID:** 691700510-0017

Sample Description: Exterior West/Exterior Penetration Sealant Black - Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 36-EPS-02B **Lab Sample ID:** 691700510-0018

Sample Description: Exterior West/Exterior Penetration Sealant Black - Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 36-EPS-02C **Lab Sample ID:** 691700510-0019

Sample Description: Exterior West/Exterior Penetration Sealant Black - Sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Analyst(s):

Daniel Fricker PLM (4)
PLM Grav. Reduction (9)
Seri Smith PLM (2)
PLM Grav. Reduction (4)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial report from: 03/28/2017 15:07:12



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EMSL Canada Or 551702856
CustomerID: 55JACQ30L
CustomerPO: 123220822
ProjectID:

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Received: 03/21/17 10:58 AM
Collected:

Project: **CSCMISSION- MINIMUM/123220822/Building 36 - In-Vessel Compost Building**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
36-P-01 Site: Room 1, composting room, south Desc: Red on steel beam	551702856-0001	3/23/2017		<90 ppm
36-P-02 Site: Room 3, washroom Desc: Light blue on wood	551702856-0002	3/23/2017		<90 ppm
36-P-03 Site: Room 1, composting room on composter Desc: Green on metal	551702856-0003	3/23/2017		<90 ppm
36-P-04 Site: Exterior east wall Desc: Blue on metal Insufficient sample to reach reporting limit.	551702856-0004	3/23/2017		<180 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/27/2017 17:08:50

APPENDIX 5.24

FINDINGS AND RECOMMENDATIONS— BUILDING 37—FUEL TANKS (848-00-RP)



Appendix 5.24 FINDINGS AND RECOMMENDATIONS— BUILDING 37—FUEL TANKS (848-00-RP)

Building 37—Fuel Tanks (subject building) was constructed at an unknown date (presumed to be pre-1990) and has been assigned Real Property ID #2056. The typical structural components and finishes associated with this structure consist of two steel fuel storage tanks built on a concrete pad, inside a metal linked fence.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.24-1 ASBESTOS

Stantec identified and sampled various suspected ACMs. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.24-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.24-1 Suspected ACM Sample Collection and Analysis Summary
Building 37—Fuel Tanks**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
37-PFT-01A	White pipe fitting tape	Top of north tank piping	None Detected
37-PFT-01B	White pipe fitting tape	Top of south tank piping	None Detected
37-PFT-01C	White pipe fitting tape	Top of south tank piping	None Detected
37-PS-01A	Green pipe sealant	South tank piping	None Detected
37-PS-01B	Green pipe sealant	South tank piping	None Detected
37-PS-01C	Green pipe sealant	South tank piping	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.24 Findings and Recommendations—Building 37—Fuel Tanks (848-00-RP)
September 2017

5.24-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.24-2 LEAD

Lead is expected to be present in the following:

- Old electrical wiring materials and sheathing
- Solder used in bell fittings for cast iron pipes and in electrical equipment

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.24-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.24-2 Suspected LCP Sample Collection and Analysis Summary
Building 37—Fuel Tanks**


Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
37-P-01	Yellow on concrete	East side bollard	89,000
37-P-02	Red on metal	Fuel pump base on east side	<90
37-P-03	Green on metal	Stairwell for north tank	120
37-P-04	White on metal	South tank walls	<90
NOTE: Bold, highlighted text indicates confirmed LCP			

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.24-3, below was identified as an LCP:

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.24 Findings and Recommendations—Building 37—Fuel Tanks (848-00-RP)
September 2017

**Table 5.24-3 Summary of Identified LCPs
Building 37—Fuel Tanks**

Identified LCP Description		Photo
Paint colour	Yellow	
Substrate	Concrete	
Location/approx. extent	Exterior bollards	
Lead content	89,000 ppm	
Condition	Good	

5.24-3 POLYCHLORINATED BIPHENYLS

PCBs may be present in plastics, molded rubber parts, applied dried paints, coatings or sealants, caulking, adhesives, paper, sound-deadening materials, insulation, or felt and fabric products such as gaskets.

5.24-4 MERCURY

Mercury may be present in paints and adhesives.

5.24-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.24-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.24-7 SILICA

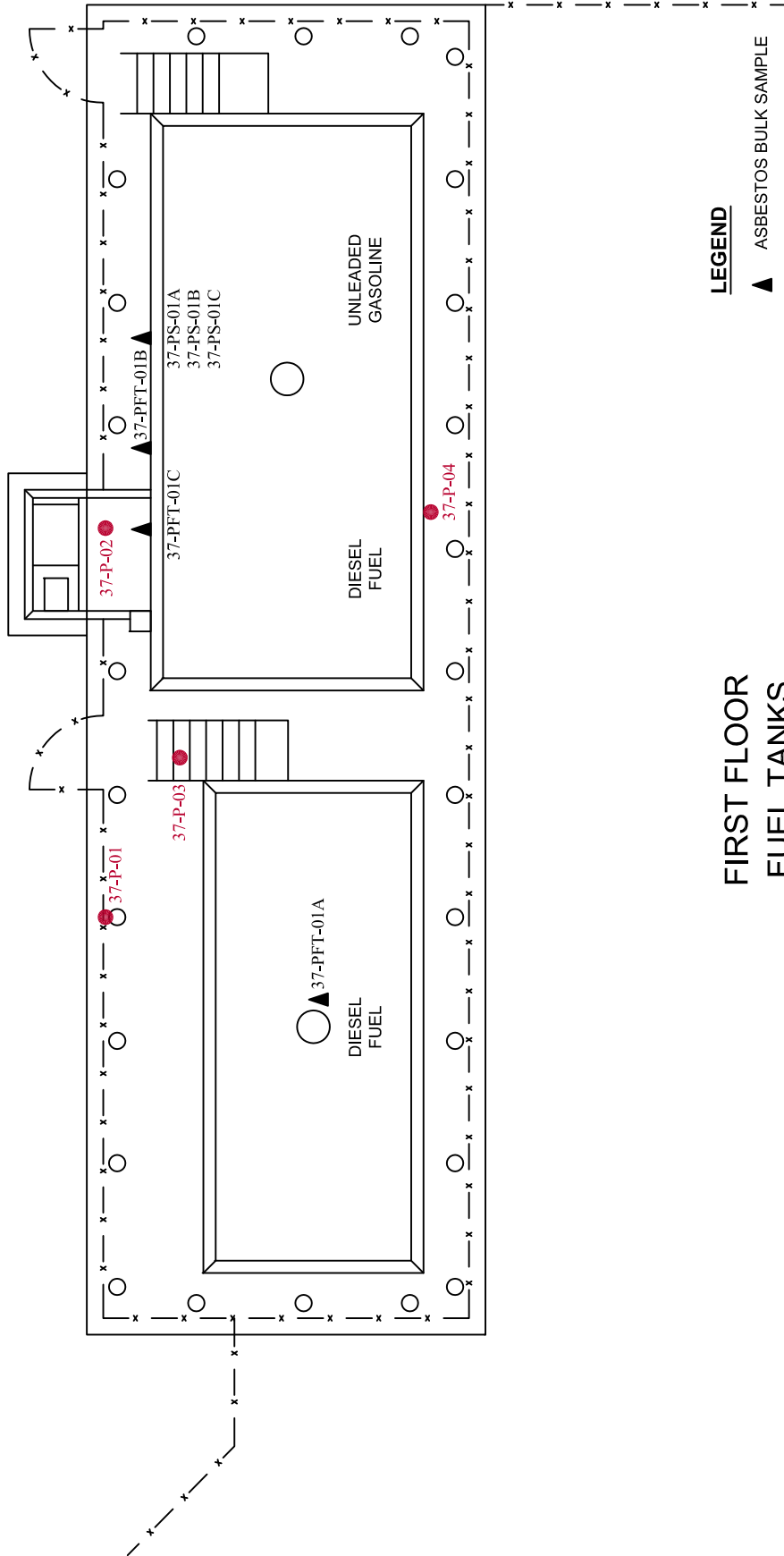
Silica is expected to be present in the concrete pad and bollards observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.24 Findings and Recommendations—Building 37—Fuel Tanks (848-00-RP)
September 2017

5.24-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



**FIRST FLOOR
FUEL TANKS**

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
AND BULK SAMPLE LOCATIONS**

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC
PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040108

App'd By: TW

Dwg. No.:

24.1



Unit 37		
Fuel Tanks - First Floor		
Rm. #	Name	Area m ²
	Diesel Fuel	
	Diesel Fuel	
	Unleaded Gasoline	

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040109

App'd By: TW

Dwg. No.:

24.2





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EMSL Canada Order 691700546
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Attn: Steve Chou
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6
Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/29/2017
Proj: CSC MISSION-MINIMUM / 123220822 / FUEL TANKS-37

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 37-PFT-01A **Lab Sample ID:** 691700546-0001

Sample Description: TOP OF NORTH TANK PIPING/WHITE PIPE FITTING TAPE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: 37-PFT-01B **Lab Sample ID:** 691700546-0002

Sample Description: TOP OF SOUTH TANK PIPING/WHITE PIPE FITTING TAPE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: 37-PFT-01C **Lab Sample ID:** 691700546-0003

Sample Description: TOP OF SOUTH TANK PIPING/WHITE PIPE FITTING TAPE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/29/2017	White	0.0%	100%	None Detected	

Client Sample ID: 37-PS-01A **Lab Sample ID:** 691700546-0004

Sample Description: SOUTH TANK PIPING/GREEN PIPE SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Green	0.0%	100%	None Detected	

Client Sample ID: 37-PS-01B **Lab Sample ID:** 691700546-0005

Sample Description: SOUTH TANK PIPING/GREEN PIPE SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Green	0.0%	100%	None Detected	

Client Sample ID: 37-PS-01C **Lab Sample ID:** 691700546-0006

Sample Description: SOUTH TANK PIPING/GREEN PIPE SEALANT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/29/2017	Green	0.0%	100%	None Detected	



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EMSL Canada Order 691700546
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Kathleen Cruz PLM Grav. Reduction (6)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 06/13/2017 16:50:12 Replaces amended report from: 05/26/2017 16:01:19 Reason Code: Client-Change to Location



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CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 11:03 AM
 Collected:

Project: CSCMISSION-MINIMUM/123220822 - Fuel Tanks - 37

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
37-P-01 Site: East side bollard Desc: Yellow on concrete	551702915-0001	3/24/2017		89000 ppm
37-P-02 Site: Fuel pump base on east side Desc: Red on steel	551702915-0002	3/24/2017		<90 ppm
37-P-03 Site: Stairwell for north tank Desc: Green on steel	551702915-0003	3/24/2017		120 ppm
37-P-04 Site: South tank walls Desc: White on steel	551702915-0004	3/24/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:12:56

**APPENDIX 5.25
FINDINGS AND RECOMMENDATIONS—
BUILDING 38—ABORIGINAL CHANGE
BUILDING (848-50-RP)**



Appendix 5.25 FINDINGS AND RECOMMENDATIONS— BUILDING 38—ABORIGINAL CHANGE BUILDING (848-50-RP)

Building 38—Aboriginal Change Building (subject building) was reportedly constructed in 2006, has been assigned Real Property ID #868 and consists of a main building and an adjacent shed. The typical structural components and finishes associated with these structures consist of wooden exterior siding; wood ceilings; wood walls; and, concrete/wood flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.25-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.25-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.25-1 Suspected ACM Sample Collection and Analysis Summary
Building 38—Aboriginal Change Building**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
38-RS-01A	Roof shingle, asphalt	Main building roof	None Detected
38-RS-01B	Roof shingle, asphalt	Main building roof	None Detected
38-RS-01C	Roof shingle, asphalt	Main building roof	None Detected
38-RS-02A	Roof shingle, asphalt	Shed roof	None Detected
38-RS-02B	Roof shingle, asphalt	Shed roof	None Detected
38-RS-02C	Roof shingle, asphalt	Shed roof	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.25 Findings and Recommendations—Building 38—Aboriginal Change Building (848-50-RP)
September 2017

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.25-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.25-2 LEAD

Lead is expected to be present in the following:

- Solder used in electrical equipment

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.25-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.25-2 Suspected LCP Sample Collection and Analysis Summary
Building 38—Aboriginal Change Building**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
38-P-01	Green on wood	Room 1, near door	<90
38-P-02	Brown on wood	Exterior southeast corner	<90
38-P-03	White on wood trim	Room 1, east window trim	<90
38-P-04	Blue on wood	Exterior trim of shed	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.25-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.25 Findings and Recommendations—Building 38—Aboriginal Change Building (848-50-RP)
September 2017

5.25-4 MERCURY

Items suspected to contain liquid mercury or mercury vapour were not observed.

5.25-5 MOULD

Suspect mould and/or moisture impacted building materials were not observed.

5.25-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.25-7 SILICA

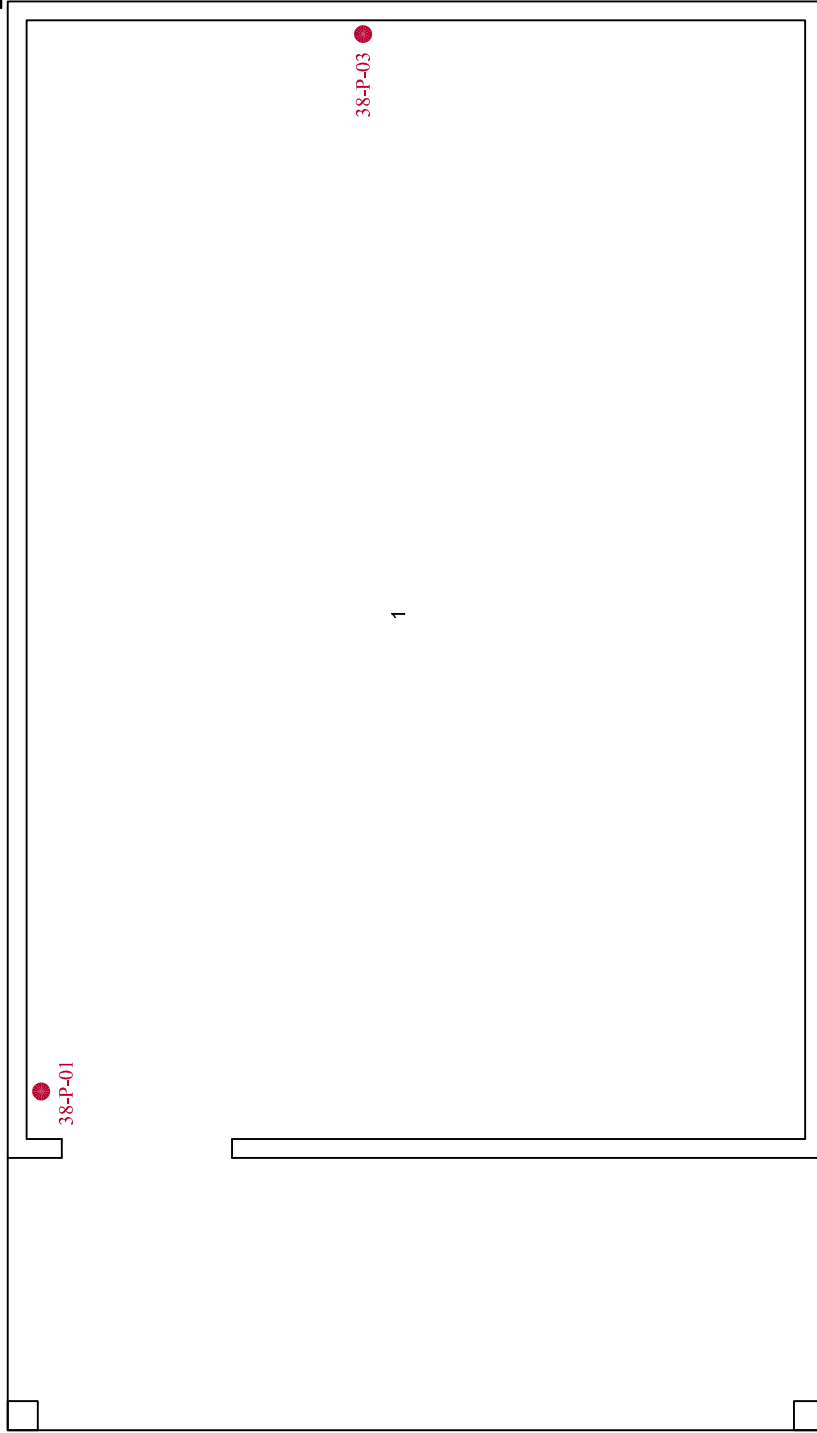
Silica is expected to be present in the concrete foundation.

5.25-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

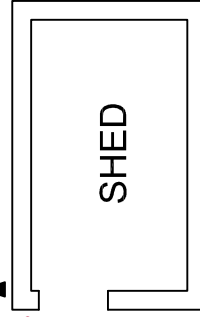


38-RS-01A
38-RS-01B
38-RS-01C



**FIRST FLOOR
ABORIGINAL CHANGE BUILDING**

38-RS-02A
38-RS-02B
38-RS-02C



SHED

38-P-04

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

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FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
		Scale: N.T.S.	25.1
		Date: 17/08/19	
		Dwn. By: CD VMPK	
		App'd By: TW	



Unit 38	
Rm. #	Name
1	Aboriginal Change Building
	Area m ²
	27.1

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Project No.: 123220822
Scale: N.T.S.
Date: 17/04/03
Dwn. By: CD <small>VM</small> SL2017040026
App'd By: TW

Dwg. No.:
25.2



GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Client:



EMSL Canada Inc.

4506 Dawson Street Burnaby, BC V5C 4C1
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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700537
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

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500 - 4730 Kingsway
Burnaby, BC V5H 0C6
Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017
Proj: CSC MISSION-MINIMUM / 123220822 / BUILDING 38-ABORIGINAL CHANGE ROOM

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 38-RS-01A **Lab Sample ID:** 691700537-0001

Sample Description: MAIN BUILDING ROOF/ROOF SHINGLE, ASPHALT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	1.1%	98.9%	None Detected	

Client Sample ID: 38-RS-01B **Lab Sample ID:** 691700537-0002

Sample Description: MAIN BUILDING ROOF/ROOF SHINGLE, ASPHALT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.27%	99.7%	None Detected	

Client Sample ID: 38-RS-01C **Lab Sample ID:** 691700537-0003

Sample Description: MAIN BUILDING ROOF/ROOF SHINGLE, ASPHALT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.29%	99.7%	None Detected	

Client Sample ID: 38-RS-02A **Lab Sample ID:** 691700537-0004

Sample Description: SHED ROOF/ROOF SHINGLE, ASPHALT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	1.9%	98.1%	None Detected	

Client Sample ID: 38-RS-02B **Lab Sample ID:** 691700537-0005

Sample Description: SHED ROOF/ROOF SHINGLE, ASPHALT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.61%	99.4%	None Detected	

Client Sample ID: 38-RS-02C **Lab Sample ID:** 691700537-0006

Sample Description: SHED ROOF/ROOF SHINGLE, ASPHALT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.49%	99.5%	None Detected	



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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700537
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s): _____

Kathleen Cruz PLM Grav. Reduction (6)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 12:20:02



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EMSL Canada Or	551702857
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Received: 03/21/17 10:58 AM
Collected:

Project: CSCMISSION- MINIMUM/123220822/Building 38-Aboriginal Change Room

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
38-P-01 Site: Room 1, near door Desc: Green on wood	551702857-0001	3/23/2017		<90 ppm
38-P-02 Site: Exterior southeast corner Desc: Brown on wood	551702857-0002	3/23/2017		<90 ppm
38-P-03 Site: Room 1, east window trim Desc: White on wood trim	551702857-0003	3/23/2017		<90 ppm
38-P-04 Site: Exterior trim of shed Desc: Blue on wood	551702857-0004	3/23/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/27/2017 17:10:01

**APPENDIX 5-26
FINDINGS AND RECOMMENDATIONS—
BUILDING 39—COMPOST AND
EQUIPMENT STORAGE SHELTER
(848-00-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.26 Findings and Recommendations—Building 39—Compost and Equipment Storage Shelter (848-00-RP)
September 2017

Appendix 5.26 FINDINGS AND RECOMMENDATIONS— BUILDING 39—COMPOST AND EQUIPMENT STORAGE SHELTER (848-00-RP)

Building 39—Compost and Equipment Storage Shelter (subject building) was reportedly constructed in 2006 and has been assigned Real Property ID #869. The typical structural components and finishes associated with this outdoor building consist of wooden exterior; corrugated metal ceiling; wood walls (with asphalt siding applied to one wood wall); and, earth flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.26-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.26-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.26-1 Suspected ACM Sample Collection and Analysis Summary
Building 39—Compost and Equipment Storage Shelter**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
39-AS-01A	Asphalt siding	Second south wall, north side	None Detected
39-AS-01B	Asphalt siding	Second south wall, north side	None Detected
39-AS-01C	Asphalt siding	Second south wall, north side	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.26 Findings and Recommendations—Building 39—Compost and Equipment Storage Shelter (848-00-RP)
September 2017

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.26-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.26-2 LEAD

Suspected lead-containing items, other than paint, were not observed within the subject building.

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.26-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.26-2 Suspected LCP Sample Collection and Analysis Summary
Building 39—Compost and Equipment Storage Shelter**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
39-P-01	Brown on wood	Exterior, central	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.26-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.26-4 MERCURY

Items suspected to contain liquid mercury or mercury vapour were not observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.26 Findings and Recommendations—Building 39—Compost and Equipment Storage Shelter
(848-00-RP)
September 2017

5.26-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.26-6 OZONE-DEPLETING SUBSTANCES

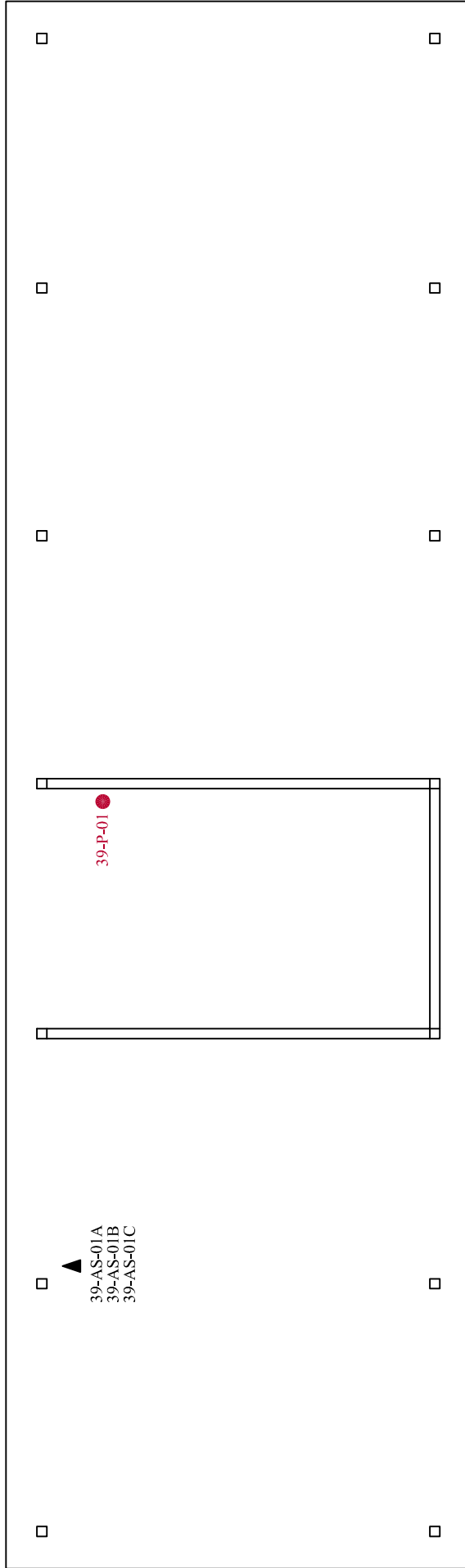
No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.26-7 SILICA

Silica is expected to be present in the asphalt siding.

5.26-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



**FIRST FLOOR
COMPOST & EQUIPMENT STORAGE SHELTER**

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC		Scale: N.T.S.	26.1
		Date: 17/08/19	
		Dwn. By: CD VMPK	
		App'd By: TW	





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EMSL Canada Order 691700541
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Attn: Steve Chou
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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017
Proj: CSC MISSION-MINIMUM / 123220822 / BUILDING 39-COMPOST&EQUIPMENT SHELTER

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 39-AS-01A **Lab Sample ID:** 691700541-0001
Sample Description: SECOND SOUTH WALL, NORTH SIDE/ASPHALT SIDING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 39-AS-01B **Lab Sample ID:** 691700541-0002
Sample Description: SECOND SOUTH WALL, NORTH SIDE/ASPHALT SIDING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: 39-AS-01C **Lab Sample ID:** 691700541-0003
Sample Description: SECOND SOUTH WALL, NORTH SIDE/ASPHALT SIDING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Analyst(s):
Kathleen Cruz PLM Grav. Reduction (3)

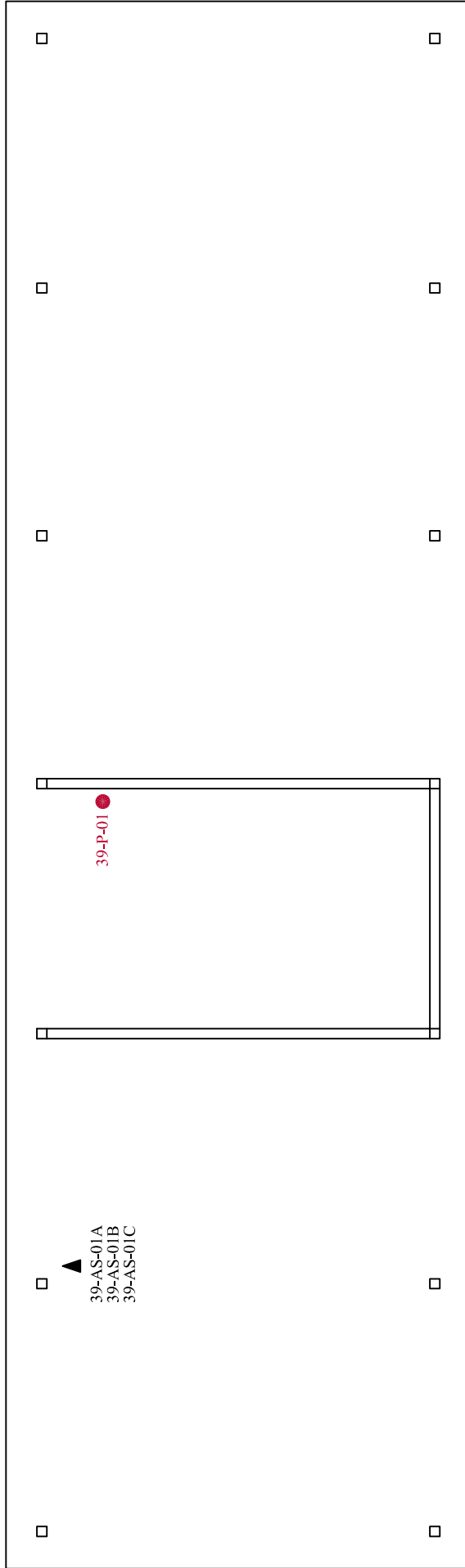
Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 11:54:00



**FIRST FLOOR
COMPOST & EQUIPMENT STORAGE SHELTER**

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC		Scale: N.T.S.	26.1
		Date: 17/08/19	
		Dwn. By: CD VMPK	
		App'd By: TW	





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EMSL Canada Or	551702858
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822/Building 39-Compost & Equipment Shelter

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
39- P-01	551702858-0001		3/23/2017	<90 ppm
	Site: Exterior, central Desc: Brown on Wood			

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 08:07:29

**APPENDIX 5-27
FINDINGS AND RECOMMENDATIONS—
BUILDING 40—FARM FIELD STORAGE
BUILDING 1 (848-00-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.27 Findings and Recommendations—Building 40—Farm Field Storage Building 1 (848-00-RP)
September 2017

Appendix 5.27 FINDINGS AND RECOMMENDATIONS— BUILDING 40—FARM FIELD STORAGE BUILDING 1 (848-00-RP)

Building 40—Farm Field Storage Building 1 (Main Building) was reportedly constructed in 1990 and has been assigned Real Property ID #870.

The typical structural components and finishes associated with the main building consist of steel frame, wood walls and earth floor.

The following structures that reportedly have not been assigned any identification numbers are also associated with the subject buildings, and will have findings and recommendations also included in this appendix:

- Shed 1 (construction date unknown; wood-framed structure with asphalt roof)
- Shed 2 (construction date unknown; wood-framed structure with corrugated roof)
- Storage (construction date unknown; wood-framed structure)
- Greenhouses (unknown construction date; wood-framed structure with metal/poly walls and poly roof)

The results of the assessment for each of the considered hazardous materials within Farm Field Storage Building 1 and the associated structures (subject buildings) are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.27-1 ASBESTOS

Based on the construction date of the subject buildings, ACMs are unlikely to be present. Suspected ACMs were not observed in the following buildings/structures:

- Farm Field Storage Building 1
- Shed 2
- Storage

As a measure of diligence, Stantec collected samples from various materials that were present in Shed 1 and the Greenhouse buildings, and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.27 Findings and Recommendations—Building 40—Farm Field Storage Building 1 (848-00-RP)
September 2017

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.27-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.27-1 Suspected ACM Sample Collection and Analysis Summary
Building 40—Farm Field Storage Building 1 and Associated Structures**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
Shed 1			
S1-WC-01A	Window caulking applied to window panes and frames, white	Shed 1, exterior east window	None Detected
S1-WC-01B	Window caulking applied to window panes and frames, white	Shed 1, exterior east window	None Detected
S1-WC-01C	Window caulking applied to window panes and frames, white	Shed 1, exterior east window	None Detected
S1-RS-01A	Roof shingle, asphalt	Shed 1, exterior northwest corner	None Detected
S1-RS-01B	Roof shingle, asphalt	Shed 1, exterior northwest corner	None Detected
S1-RS-01C	Roof shingle, asphalt	Shed 1, exterior northwest corner	None Detected
Greenhouses			
G1-DL-01A	Door lining, woven	Greenhouse door	None Detected
G1-DL-01B	Door lining, woven	Greenhouse door	None Detected
G1-DL-01C	Door lining, woven	Greenhouse door	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.27-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject buildings for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.27 Findings and Recommendations—Building 40—Farm Field Storage Building 1 (848-00-RP)
September 2017

5.27-2 LEAD

Suspected lead-containing items, other than paint, were not observed within the subject building.

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject buildings. A summary of the sample types, locations and analytical results is presented in Table 5.27-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.27-2 Suspected LCP Sample Collection and Analysis Summary
Building 40—Farm Field Storage Building 1**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
Main Building			
40-P-01	Green on wood	Exterior siding	<90
40-P-02	Brown on wood	Canopy	<90
Shed 1			
S1-P-01	Brown on wood	Shed 1, exterior siding	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.27-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject buildings, PCBs are not anticipated to be present.

5.27-4 MERCURY

Items suspected to contain liquid mercury or mercury vapour were not observed.

5.27-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.27-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

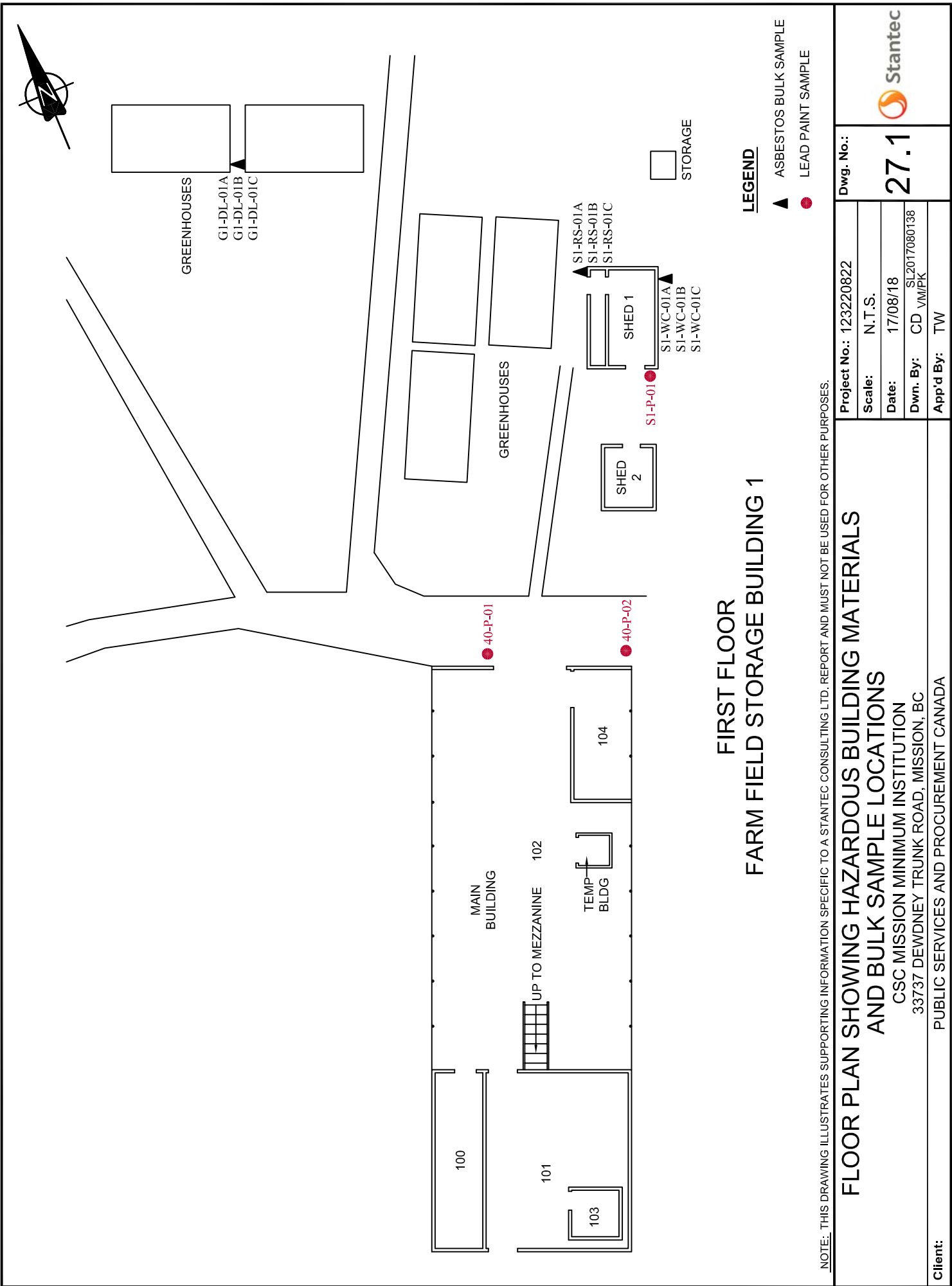
Appendix 5.27 Findings and Recommendations—Building 40—Farm Field Storage Building 1 (848-00-RP)
September 2017

5.27-7 SILICA

Silica is expected to be present in asphalt roof shingles observed in Shed 1.

5.27-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC		Scale: N.T.S.	27.1
PUBLIC SERVICES AND PROCUREMENT CANADA		Date: 17/08/18	
		Dwn. By: CD VMP/K	
		App'd By: TW	



Unit 40		
FARM FIELD STORAGE BUILDING 1 - First Floor		
Rm. #	Name	Area m ²
100	Tool Storage Room	15.7
101	Equipment Storage Room	39.6
102	Work Area	120.9
103	Storage Room	4.3
104	Equipment Room	13.3

FIRST FLOOR

_NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD VM SL2017040029

App'd By: TW

Dwg. No.:

27.2





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 Customer PO: 123220822
 Project ID:

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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/29/2017

Proj: CSC MISSION-MINIMUM / 123220822 / BUILDING 40-FARM STORAGE BUILDING 1

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: S1-WC-01A **Lab Sample ID:** 691700543-0001

Sample Description: SHED 1, EXTERIOR EAST WINDOW/WINDOW CAULKING APPLIED TO WINDOW PANES AND FRAMES, WHITE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: S1-WC-01B **Lab Sample ID:** 691700543-0002

Sample Description: SHED 1, EXTERIOR EAST WINDOW/WINDOW CAULKING APPLIED TO WINDOW PANES AND FRAMES, WHITE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: S1-WC-01C **Lab Sample ID:** 691700543-0003

Sample Description: SHED 1, EXTERIOR EAST WINDOW/WINDOW CAULKING APPLIED TO WINDOW PANES AND FRAMES, WHITE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/29/2017	White	0.0%	100%	None Detected	

Client Sample ID: S1-RS-01A **Lab Sample ID:** 691700543-0004

Sample Description: SHED 1, EXTERIOR NORTHWEST CORNER/ROOF SHINGLE, ASPHALT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: S1-RS-01B **Lab Sample ID:** 691700543-0005

Sample Description: SHED 1, EXTERIOR NORTHWEST CORNER/ROOF SHINGLE, ASPHALT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: S1-RS-01C **Lab Sample ID:** 691700543-0006

Sample Description: SHED 1, EXTERIOR NORTHWEST CORNER/ROOF SHINGLE, ASPHALT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/29/2017	Black	2.4%	97.6%	None Detected	

Client Sample ID: G1-DL-01A **Lab Sample ID:** 691700543-0007

Sample Description: GREENHOUSE DOOR/DOOR LINING, WOVEN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Clear	95%	5%	None Detected	



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EMSL Canada Order 691700543
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: G1-DL-01B **Lab Sample ID:** 691700543-0008

Sample Description: GREENHOUSE DOOR/DOOR LINING, WOVEN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Clear	99%	1%	None Detected	

Client Sample ID: G1-DL-01C **Lab Sample ID:** 691700543-0009

Sample Description: GREENHOUSE DOOR/DOOR LINING, WOVEN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/29/2017	Clear	99%	1%	None Detected	

Analyst(s):

Kathleen Cruz PLM (3)
PLM Grav. Reduction (6)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/29/2017 12:03:16



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CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822/Main Building/Shed

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
40-P-01 Site: Exterior siding Desc: Green on wood	551702861-0001	3/23/2017		<90 ppm
40-P-02 Site: Canopy Desc: Brown on wood	551702861-0002	3/23/2017		<90 ppm
S1-P-01 Site: Shed 1, exterior siding Desc: Brown on wood	551702861-0003	3/23/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 08:13:25

**APPENDIX 5-28
FINDINGS AND RECOMMENDATIONS—
BUILDING 41—FARM FIELD STORAGE
BUILDING 2 (848-00-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.28 Findings and Recommendations—Building 41—Farm Field Storage Building 2 (848-00-RP)
September 2017

Appendix 5.28 FINDINGS AND RECOMMENDATIONS— BUILDING 41—FARM FIELD STORAGE BUILDING 2 (848-00-RP)

Building 41—Farm Field Storage Building 2 (subject building) was reportedly constructed in 1990 and has been assigned Real Property ID #871. The typical structural components and finishes associated with this building consist of wooden and plastic exterior; plastic sheet ceiling; wood and plastic walls; and, earth flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.28-1 ASBESTOS

Through our visual review of building construction and building materials present, no suspected ACMs were observed.

5.28-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.28-2 LEAD

Suspected lead-containing items, other than paint, were not observed within the subject building.

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.28-1, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

HAZARDOUS BUILDING MATERIALS ASSESSMENT


Appendix 5.28 Findings and Recommendations—Building 41—Farm Field Storage Building 2 (848-00-RP)
September 2017

**Table 5.28-1 Suspected LCP Sample Collection and Analysis Summary
Building 41—Farm Field Storage Building 2**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
41-P-01	White on wood	Exterior north siding	<90
41-P-02	Blue on wood	Exterior frame beneath plywood siding, north	2,000
NOTE: Bold, highlighted text indicates confirmed LCP			

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.28-2, below was identified as an LCP:

**Table 5.28-2 Summary of Identified LCPs
Building 41—Farm Field Storage Building 2**

Identified LCP Description		Photo
Paint colour	Blue	
Substrate	Wood	
Location/approx. extent	Exterior frame beneath plywood siding	
Lead content	2,000 ppm	
Condition	Poor	

5.28-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.28-4 MERCURY

Mercury may be present in paints and adhesives.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.28 Findings and Recommendations—Building 41—Farm Field Storage Building 2 (848-00-RP)
September 2017

5.28-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.28-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.28-7 SILICA

Silica-containing materials were not observed.

5.28-8 RECOMMENDATIONS

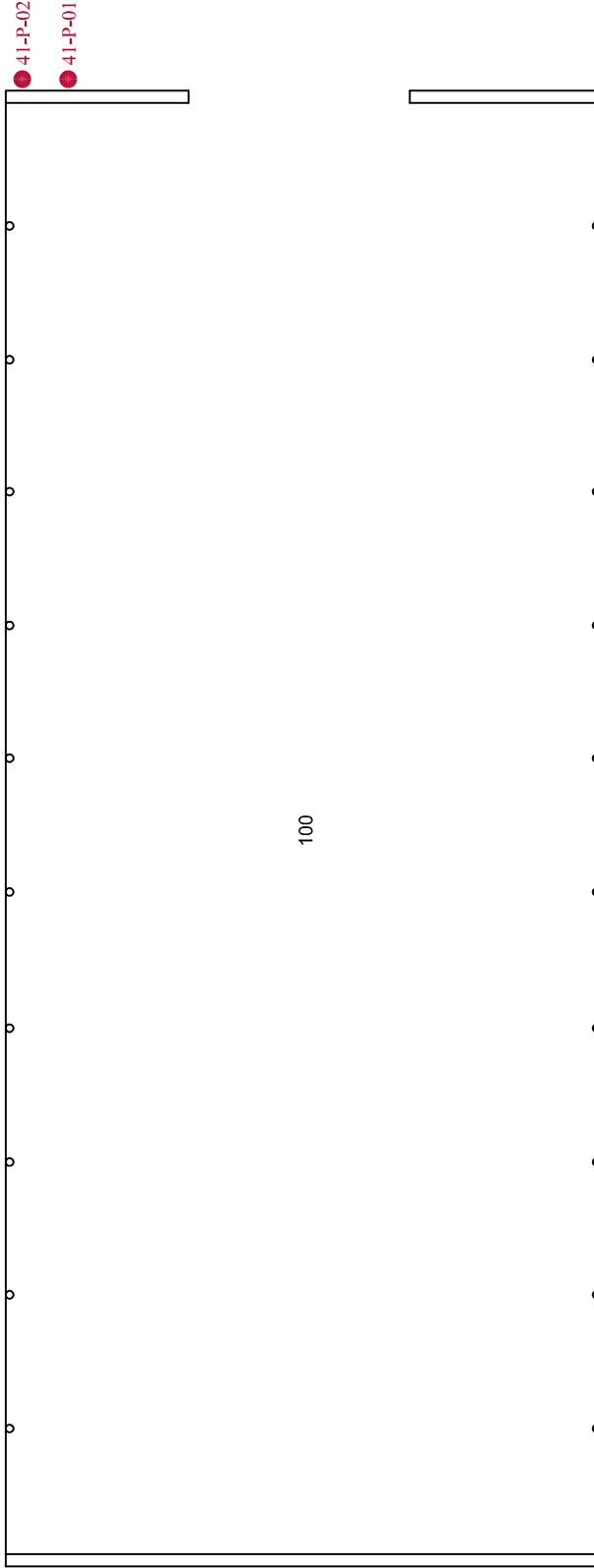
In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

Additional building-specific recommendations to be considered are provided below.

5.28-8.2 Lead

Lead-containing paint observed in poor condition within the building should be cleaned-up and/or addressed to mitigate potential for additional deterioration and dispersal of lead-containing paint chips/dust. Consideration should be given to re-painting surfaces to mitigate the potential for additional deterioration and hazards associated with the lead-containing paint chips/dust that may be created. If re-painting is completed, appropriate precautions to protect workers and work areas from exposure to lead will be required during painting preparation activities.

Provisions for worker protection and waste disposal related to the above are included in Section 5.2 of the main body of this report.



**FIRST FLOOR
FARM FIELD STORAGE BUILDING 2**

LEGEND

● LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Dwg. No.: 28.1	
Project No.: 123220822			
Scale: N.T.S.			
Date: 17/08/19			
Dwn. By: CD <small>SL2017080139</small> VM/PK			
App'd By: TW			
Client: PUBLIC SERVICES AND PROCUREMENT CANADA			

Unit 41	
FARM FIELD STORAGE BUILDING 2 - First Floor	
Rm. #	Area m ²
100	164.1
Tool Storage Room	

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Project No.:	123220822
Scale:	N.T.S.
Date:	17/04/03
Dwn. By:	CD _{VM} SL2017040031
App'd By:	TW

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Dwg. No.:
28.2





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 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822/Building 41-Farmfield Storage Building 2

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
41-P-01	551702859-0001		3/23/2017	<90 ppm
Site: Exterior north siding Desc: White on wood				
41-P-02	551702859-0002		3/23/2017	2000 ppm
Site: Exterior frame, north Desc: Blue on wood				

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Report Amended: 09/12/2017 16:43:04 Replaces the Initial Report 03/28/2017 08:15:27. Reason Code: Client-Change to Location

**APPENDIX 5-29
FINDINGS AND RECOMMENDATIONS—
BUILDING 42—TELEPHONE KIOSK
(848-51-RP)**



Appendix 5.29 FINDINGS AND RECOMMENDATIONS— BUILDING 42—TELEPHONE KIOSK (848-51-RP)

Building 42—Telephone Kiosk (subject building) was reportedly constructed in 2008 and has been assigned Real Property ID #2007. The typical structural components and finishes associated with this building consist of wood exterior siding; asphalt roof shingles; corrugated metal ceilings; wood interior walls; and, cast concrete flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.29-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.29-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.29-1 Suspected ACM Sample Collection and Analysis Summary
Building 42—Telephone Kiosk**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
42-RS-01A	Roof shingle, black asphalt	Roof, north end	None Detected
42-RS-01B	Roof shingle, black asphalt	Roof, north end	None Detected
42-RS-01C	Roof shingle, black asphalt	Roof, north end	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.29 Findings and Recommendations—Building 42—Telephone Kiosk (848-51-RP)
September 2017

5.29-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.29-2 LEAD

Suspected lead-containing items, other than paint, were not observed within the subject building.

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.29-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.29-2 Suspected LCP Sample Collection and Analysis Summary
Building 42—Telephone Kiosk**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
42-P-01	Beige on wood	Exterior wall	<90
42-P-02	White on wood	Interior wall	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.29-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.29-4 MERCURY

Items suspected to contain liquid mercury or mercury vapour were not observed.

5.29-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.29 Findings and Recommendations—Building 42—Telephone Kiosk (848-51-RP)
September 2017

5.29-6 OZONE-DEPLETING SUBSTANCES

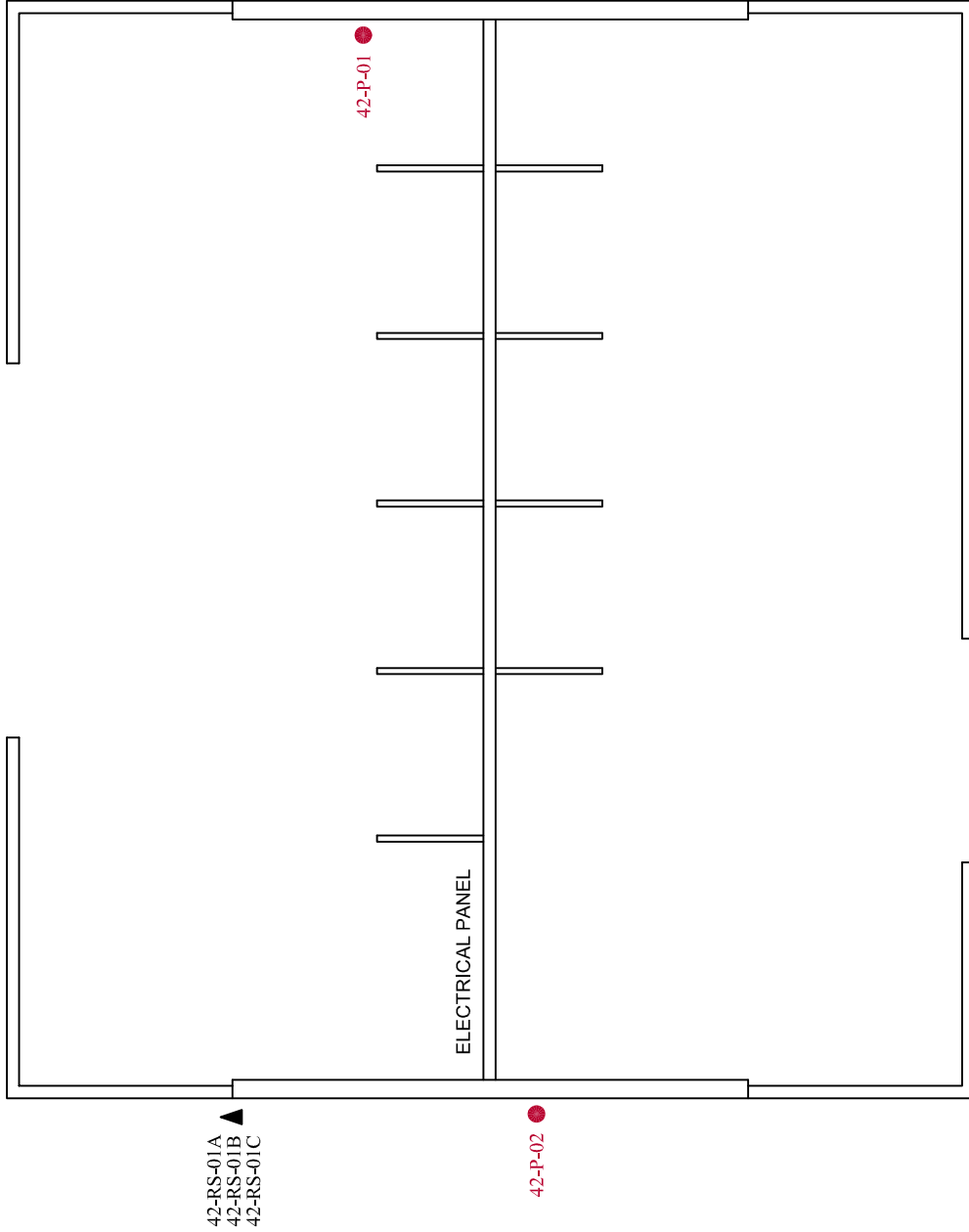
No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.29-7 SILICA

Silica is expected to be present in the cast concrete floors and asphalt roof shingles.

5.29-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



**FIRST FLOOR
TELEPHONE KIOSK**

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA		Project No.: 123220822	Dwg. No.:
		Scale: N.T.S.	29.1
		Date: 17/08/19	
		Dwn. By: CD VM/PMK	
		App'd By: TW	



Unit 42	
Telephone Kiosk - First Floor	
Rm. #	Name
Telephone Kiosk	Area m ²
	31.0

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD SL2017040033
VM

App'd By: TW

Dwg. No.:

29.2



GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA



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EMSL Canada Order 691700400
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

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Burnaby, BC V5H 0C6
Phone: (604) 412-3004
Fax:
Collected:
Received: 3/14/2017
Analyzed: 3/21/2017
Proj: CSC MISSION - MINIMUM/123220822 / BUILDING 42 - TELEPHONE KIOSK

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 42-RS-01A **Lab Sample ID:** 691700400-0001

Sample Description: ROOF, NORTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	1.5%	98.5%	None Detected	

Client Sample ID: 42-RS-01B **Lab Sample ID:** 691700400-0002

Sample Description: ROOF, NORTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	1.7%	98.3%	None Detected	

Client Sample ID: 42-RS-01C **Lab Sample ID:** 691700400-0003

Sample Description: ROOF, NORTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	1.5%	98.5%	None Detected	

Analyst(s): _____

Kathleen Cruz PLM Grav. Reduction (3)

Reviewed and approved by: _____

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/21/2017 18:13:32



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CustomerPO:	123220822
ProjectID:	

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Phone: (604) 412-3004
 Fax:
 Received: 03/14/17 10:47 AM
 Collected:

Project: **CSC MISSION-MINIMUM/123220822 - BUILDING 42-TELEPHONE KIOSK**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
42-P-01	551702661-0001 Site: EXTERIOR WALL Desc: BEIGE ON WOOD	3/16/2017		<90 ppm
42-P-02	551702661-0002 Site: INTERIOR WALL Desc: WHITE ON WOOD	3/16/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/21/2017 08:15:59

**APPENDIX 5.30
FINDINGS AND RECOMMENDATIONS—
BUILDING 43—GAZEBO (848-53-RP)**



Appendix 5.30 FINDINGS AND RECOMMENDATIONS— BUILDING 43—GAZEBO (848-53-RP)

Building 43—Gazebo (subject building) was reportedly constructed at an unknown date (appears to be of pre-1990 vintage) and has been assigned Real Property ID #2336. The subject building is a wood frame structure with asphalt roof shingles.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.30-1 ASBESTOS

Stantec identified and sampled various suspected ACMs. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the materials sampled as part of the current assessment, along with the sample locations and analytical results is presented in Table 5.30-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted as part of this assessment is attached at the end of this Appendix.

**Table 5.30-1 Suspected ACM Sample Collection and Analysis Summary
Building 43—Gazebo**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
43-RS-01A	Black asphalt roof shingle	Roof, north	None Detected
43-RS-01B	Black asphalt roof shingle	Roof, north	None Detected
43-RS-01C	Black asphalt roof shingle	Roof, north	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.30 Findings and Recommendations—Building 43—Gazebo (848-53-RP)
September 2017

5.30-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.30-2 LEAD

Suspected lead-containing items, other than paint, were not observed within the subject building.

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.30-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.30-2 Suspected LCP Sample Collection and Analysis Summary
Building 43—Gazebo**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
43-P-01	Brown on wood	Gazebo	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.30-3 POLYCHLORINATED BIPHENYLS

No suspected PCB-containing equipment or items were observed.

5.30-4 MERCURY

Items suspected to contain liquid mercury or mercury vapour were not observed.

5.30-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.30 Findings and Recommendations—Building 43—Gazebo (848-53-RP)
September 2017

5.30-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

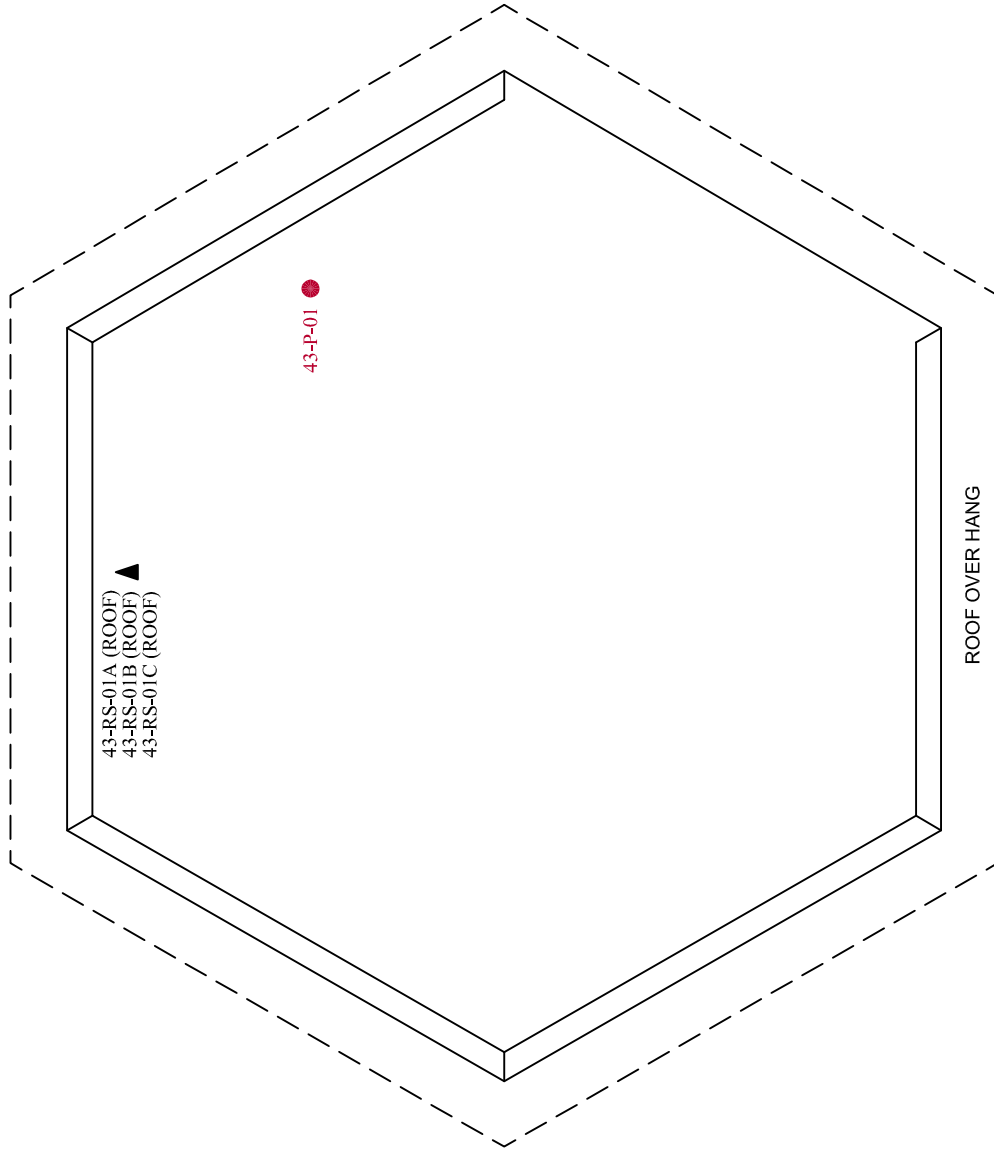
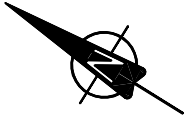
5.30-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Cement products such as:
 - Concrete—foundations and floors
- Asphalt and asphalt products containing rock or stone (e.g., roof shingles)

5.30-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



**FIRST FLOOR
GAZEBO**

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822	Dwg. No.:
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC		Scale: N.T.S.	30.1
PUBLIC SERVICES AND PROCUREMENT CANADA		Date: 17/08/19	
		Dwn. By: CD VM/PMK	
		App'd By: TW	





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EMSL Canada Order 691700401
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/14/2017
Analyzed: 3/21/2017
Proj: CSC MISSION - MINIMUM/123220822 / BUILDING 43 - GAZEBO

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 43-RS-01A **Lab Sample ID:** 691700401-0001

Sample Description: ROOF, NORTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	1.9%	98.1%	None Detected	

Client Sample ID: 43-RS-01B **Lab Sample ID:** 691700401-0002

Sample Description: ROOF, NORTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	1.6%	98.4%	None Detected	

Client Sample ID: 43-RS-01C **Lab Sample ID:** 691700401-0003

Sample Description: ROOF, NORTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.71%	99.3%	None Detected	

Analyst(s): _____

Kathleen Cruz PLM Grav. Reduction (3)

Reviewed and approved by: _____

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 05/02/2017 15:03:50 Replaces initial report from: 03/21/2017 18:46:03 Reason Code: Client-Other (see report comment)



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EMSL Canada Or	551702663
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/14/17 10:47 AM
 Collected:

Project: **CSC MISSION-MINIMUM/123220822 - BUILDING 43-GAZEBO**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
43-P-01	551702663-0001 Site: GAZEBO Desc: BROWN ON WOOD		3/16/2017	<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/21/2017 08:17:29

**APPENDIX 5.31
FINDINGS AND RECOMMENDATIONS—
BUILDING 44—EMERGENCY GENERATOR
(848-54-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.31 Findings and Recommendations—Building 44—Emergency Generator (848-54-RP)
September 2017

Appendix 5.31 FINDINGS AND RECOMMENDATIONS— BUILDING 44—EMERGENCY GENERATOR (848-54-RP)

Building 44—Emergency Generator (subject building) was reportedly constructed in 2014 and has been assigned Real Property ID #2337. The typical structural components and finishes associated with this building consist of metal exterior siding; metal ceiling; metal walls; and, concrete flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.31-1 ASBESTOS

Through our visual review of building construction and building materials present, no suspected ACMs were observed.

5.31-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.31-2 LEAD

Through our visual review of building construction and building materials present, no suspected lead-containing items or LCPs were observed.

5.31-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.31-4 MERCURY

Items suspected to contain liquid mercury or mercury vapour were not observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.31 Findings and Recommendations—Building 44—Emergency Generator (848-54-RP)
September 2017

5.31-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.31-6 OZONE-DEPLETING SUBSTANCES

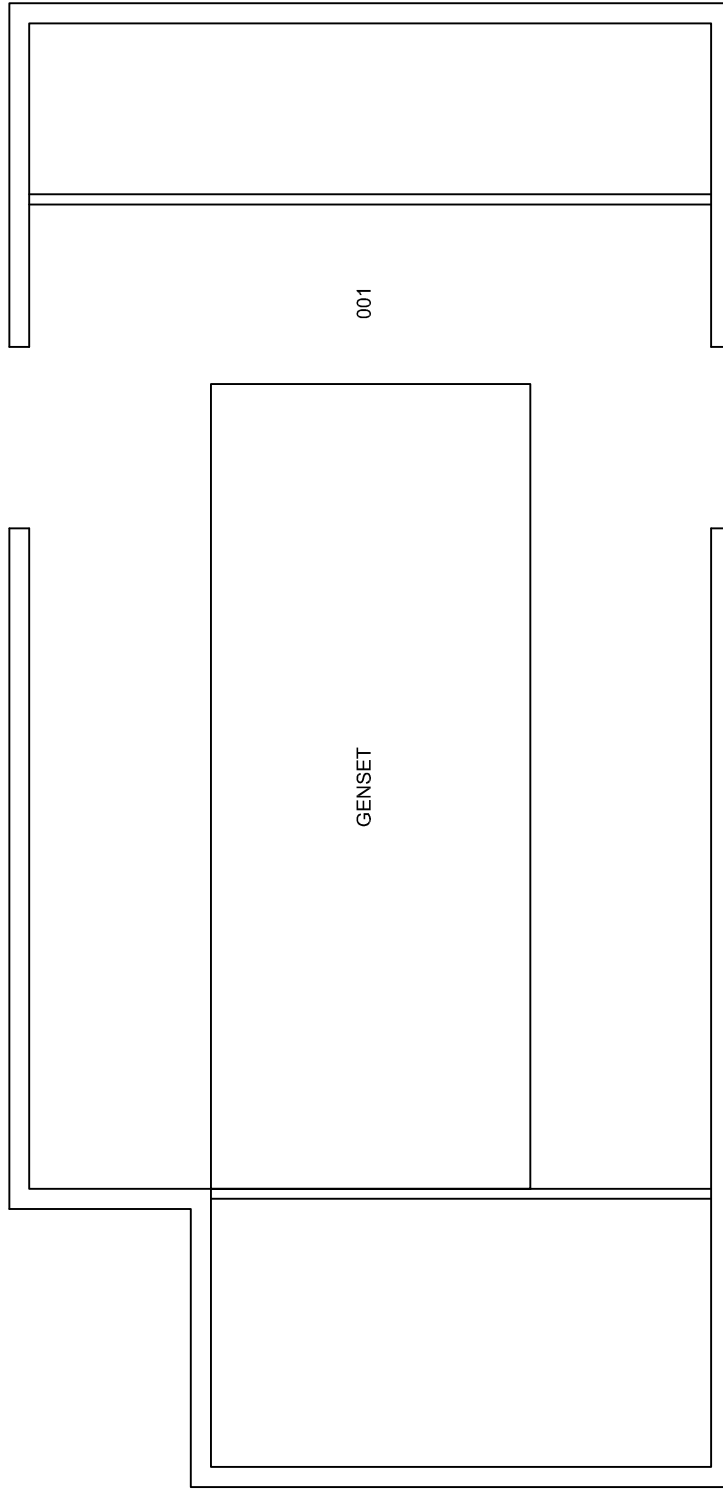
No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.31-7 SILICA

Silica is expected to be present in the concrete foundation.

5.31-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



**FIRST FLOOR
EMERGENCY GENERATOR**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
AND BULK SAMPLE LOCATIONS**
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK
App'd By: TW

Dwg. No.:

31.1



Unit 44		
Emergency Generator- First Floor		
Rm. #	Name	Area m ²
001	Generator	26.1

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040107

App'd By: TW

Dwg. No.:

31.2



**APPENDIX 5.32
FINDINGS AND RECOMMENDATIONS—
BUILDING A01—NORTH RESIDENCE
(848 25 RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.32 Findings and Recommendations—Building A01—North Residence (848-25-RP)
September 2017

Appendix 5.32 FINDINGS AND RECOMMENDATIONS— BUILDING A01—NORTH RESIDENCE (848-25-RP)

Building A01—North Residence (subject building) was reportedly constructed in 1994 and has been assigned Real Property ID #872. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.32-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.32-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.32-1 Suspected ACM Sample Collection and Analysis Summary
Building A01—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A1-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 16, living room, south wall	None Detected
A1-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 6, bathroom, west wall	None Detected
A1-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 14, laundry room, west wall	None Detected
A1-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 8, corridor, north wall	None Detected
A1-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 9, shower, west wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.32 Findings and Recommendations—Building A01—North Residence (848-25-RP)
September 2017

**Table 5.32-1 Suspected ACM Sample Collection and Analysis Summary
Building A01—North Residence**

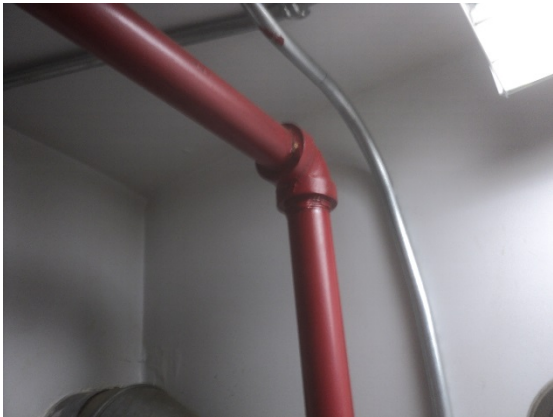
Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A1-SF-01	Vinyl sheet flooring, dark grey smudged	Room 16, living room	None Detected
A1-SF-02	Vinyl sheet flooring, light grey smudged	Room 5, dining room	None Detected
A1-SF-03	Vinyl sheet flooring, light and dark blue	Room 15, vestibule	None Detected
A1-SF-04-Sheet Flooring	Vinyl sheet flooring, grey pebble pattern with blue	Room 14, laundry	None Detected
A1-SF-04-Caulk	Vinyl sheet flooring, grey pebble pattern with blue	Room 14, laundry	None Detected
A1-SF-05	Vinyl sheet flooring, tan and light blue pebble pattern	Room 6, bathroom	None Detected
A1-PS-01A	Grey pipe sealant applied around seams of red sprinkler system	Room 3, mechanical room	<0.50% Anthophyllite, see note 5.32-1.2
A1-PS-01B	Grey pipe sealant applied around seams of red sprinkler system	Room 3, mechanical room	2.4% Anthophyllite, see note 5.32-1.2
A1-PS-01C	Grey pipe sealant applied around seams of red sprinkler system	Room 3, mechanical room	Positive Stop (Not Analyzed), see 5.32-1.2
A1-RS-01A	Black asphalt roof shingle	Roof, northeast	None Detected
A1-RS-01B	Black asphalt roof shingle	Roof, northeast	None Detected
A1-RS-01C	Black asphalt roof shingle	Roof, northeast	None Detected
A1-ES-01A	Exterior stucco, grey painted blue	Exterior, south	None Detected
A1-ES-01B	Exterior stucco, grey painted blue	Exterior, south	None Detected
A1-ES-01C	Exterior stucco, grey painted blue	Exterior, north	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the material presented in Table 5.32-2, below was identified as an ACM.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.32 Findings and Recommendations—Building A01—North Residence (848-25-RP)
September 2017

**Table 5.32-2 Summary of Identified ACMs
Building A01—North Residence**

Identified ACM Description and Condition Information		Photo
<p>Grey pipe sealant applied to threaded joints in red sprinkler system. See section 5.32-1.2</p>		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threads of joints on sprinkler pipes throughout	
Content	2.4% Anthophyllite	

5.32-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.32-1.2 Sprinkler Pipe Sealant

Through initial analysis using Polarized Light Microscopy methods, fibrous material with properties similar to those of anthophyllite asbestos was detected in all three samples of the grey sprinkler pipe sealant that were submitted. EMSL recommended additional analysis of these samples using Transmission Electron Microscopy (TEM) in order to identify the fibrous material. Stantec authorized EMSL to proceed with the TEM analysis, and anthophyllite asbestos was detected in concentrations indicating that this material should be considered an ACM.

5.32-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.32 Findings and Recommendations—Building A01—North Residence (848-25-RP)
September 2017


With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.32-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.32-3 Suspected LCP Sample Collection and Analysis Summary
Building A01—North Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A1-P-01	Cream on drywall	Room 15, vestibule, interior walls	<90
A1-P-02	Blue on metal	Room 6, bathroom, Interior trim, door, door frame	<200
A1-P-03	Cream on wood	Room 3, mechanical room, exterior trim	<90
A1-P-04	Blue on stucco	Exterior wall, north	870
NOTE: Bold, highlighted text indicates confirmed LCP			

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.32-4, below was identified as an LCP:

**Table 5.32-4 Summary of Identified LCPs
Building A01—North Residence**

Identified LCP Description		Photo
Paint colour	Blue	
Substrate	Stucco	
Location/approx. extent	Exterior siding below windows	
Lead content	870 ppm	
Condition	Good	

5.32-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.32 Findings and Recommendations—Building A01—North Residence (848-25-RP)
September 2017


5.32-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.32-5 MOULD

Observations pertaining to mould and/or moisture impacted building materials are summarized in the following table.

**Table 5.32-5 Mould/Moisture Observations Summary—March 13, 2017
Building A01—North Residence**

Building Area	Observation	Suspected Source of Moisture	Photo
Room 11, Corridor, south portion of ceiling adjacent to bathroom	5'x1' moisture stained drywall ceiling	Pipe leaks or roof leaks	

5.32-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.32-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.32 Findings and Recommendations—Building A01—North Residence (848-25-RP)
September 2017

5.32-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

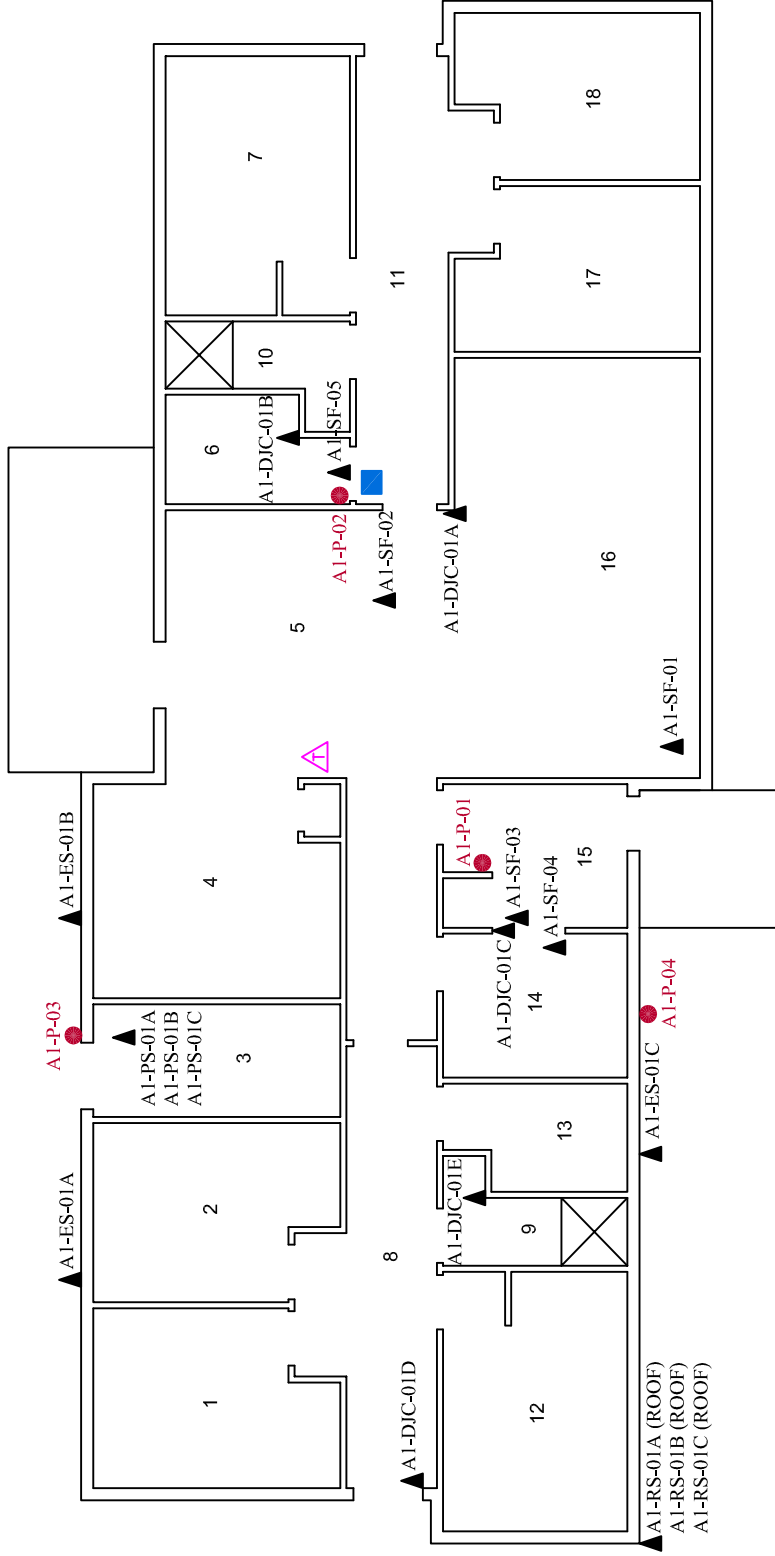
5.32-8.2 Mould

Documents published by Health Canada, Ontario Ministry of Health, American Industrial Hygiene Association (AIHA), American Conference of Governmental Industrial Hygienists (ACGIH) and others, provide guidance for interpreting the results of mold investigations. The Health Canada Guide states that:

“...current knowledge supports the need to prevent damp conditions and mold growth and to remediate any fungal contamination in buildings.”

To this end, Stantec recommends the following course of action within the subject building:

- Monitor the stained ceiling material. If staining worsens, affected materials should be removed for disposal.
 - Due to the potential for mould growth on the ceiling cavity side of the moisture-impacted drywall, this work should be conducted by competent personnel, who are knowledgeable of the potential hazards of mould exposure, and using personal protective equipment and procedures in accordance with industry accepted practices for mould abatement (e.g., CCA 82).
 - A specialized mould abatement contractor may be required if significant mould growth is identified in concealed locations.
 - The source of moisture should be identified and corrected prior to the reinstatement of new materials.



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- ▲ MERCURY-CONTAINING THERMOSTAT
- MOISTURE STAINED DRYWALL

**FIRST FLOOR
RESIDENCE A01**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA		Project No.: 123220822	Dwg. No.: 32.1
		Scale: N.T.S.	
Date: 17/08/22	Dwn. By: CD PK/DM	App'd By: TW	



Unit A1		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	9.5
2	Bedroom	9.0
3	Furnace Room	6.0
4	Kitchen	11.7
5	Dining Room	16.1
6	Bathroom	4.1
7	Bedroom	10.8
8	Corridor	15.1
9	Shower	3.5
10	Shower	3.3
11	Corridor	10.3
12	Bedroom	11.3
13	Bathroom	4.2
14	Laundry Room	6.1
15	Vestibule	6.1
16	Living Room	23.3
17	Bedroom	8.5
18	Bedroom	8.9

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040086

App'd By: TW

Dwg. No.:

32.2





EMSL Canada Inc.

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EMSL Canada Order 691700388
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/10/2017
Analyzed: 5/11/2017

Proj: CSC MISSION- MINIMUM/ 123220822/ LIVING UNIT A1

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A1-DJC-01A **Lab Sample ID:** 691700388-0001

Sample Description: Room 16, Living Room, South Wall/Drywall Joint Compound applied to walls & ceilings throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A1-DJC-01B **Lab Sample ID:** 691700388-0002

Sample Description: Room 6, Bathroom, West Wall/Drywall Joint Compound applied to walls & ceilings throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A1-DJC-01C **Lab Sample ID:** 691700388-0003

Sample Description: Room 14, Laundry Room, West Wall/Drywall Joint Compound applied to walls & ceilings throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A1-DJC-01D **Lab Sample ID:** 691700388-0004

Sample Description: Room 8, Corridor, North Wall/Drywall Joint Compound applied to walls & ceilings throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A1-DJC-01E **Lab Sample ID:** 691700388-0005

Sample Description: Room 9, Shower, West Wall/Drywall Joint Compound applied to walls & ceilings throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A1-SF-01 **Lab Sample ID:** 691700388-0006

Sample Description: Room 16, Living Room/Vinyl Sheet Flooring, Dark Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A1-SF-02 **Lab Sample ID:** 691700388-0007

Sample Description: Room 5, Dining Room/Vinyl Sheet Flooring, Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	



EMSL Canada Inc.

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EMSL Canada Order 691700388
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A1-SF-03 **Lab Sample ID:** 691700388-0008

Sample Description: Room 15, Vestibule/ Vinyl sheet flooring, light and dark blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A1-SF-04-Sheet Flooring **Lab Sample ID:** 691700388-0009

Sample Description: Room 14, Laundry/Vinyl Sheet Flooring, Grey Pebble Pattern w/ Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A1-SF-04-Caulk **Lab Sample ID:** 691700388-0009A

Sample Description: Room 14, Laundry/Vinyl Sheet Flooring, Grey Pebble Pattern w/ Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: A1-SF-05 **Lab Sample ID:** 691700388-0010

Sample Description: Room 6, Bathroom/Vinyl Sheet Flooring, Tan & Light Blue Pebble Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A1-PS-01A **Lab Sample ID:** 691700388-0011

Sample Description: Room 3, Mechanical Room/Gray Pipe Sealant applied around seams of red sprinkler system

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray/Red	0.99%	99.0%	None Detected	Recommmend TEM
TEM Grav. Reduction	5/11/2017	Gray/Red	0.0%	100%	<0.50% Anthophyllite	

Client Sample ID: A1-PS-01B **Lab Sample ID:** 691700388-0012

Sample Description: Room 3, Mechanical Room/Gray Pipe Sealant applied around seams of red sprinkler system

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray/Red	0.95%	99.0%	None Detected	Recommend TEM
TEM Grav. Reduction	5/11/2017	Gray/Red	0.0%	97.6%	2.4% Anthophyllite	

Client Sample ID: A1-PS-01C **Lab Sample ID:** 691700388-0013

Sample Description: Room 3, Mechanical Room/Gray Pipe Sealant applied around seams of red sprinkler system

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray/Red	0.96%	99.0%	None Detected	Recommend TEM
TEM Grav. Reduction	5/11/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A1-RS-01A **Lab Sample ID:** 691700388-0014

Sample Description: Roof, Northeast/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	2.1%	97.9%	None Detected	



EMSL Canada Inc.

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Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A1-RS-01B **Lab Sample ID:** 691700388-0015
Sample Description: Roof, Northeast/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.88%	99.1%	None Detected	

Client Sample ID: A1-RS-01C **Lab Sample ID:** 691700388-0016
Sample Description: Roof, Northeast/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A1-ES-01A **Lab Sample ID:** 691700388-0017
Sample Description: Exterior, South/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Blue	0%	100%	None Detected	

Client Sample ID: A1-ES-01B **Lab Sample ID:** 691700388-0018
Sample Description: Exterior, South/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Blue	0%	100%	None Detected	

Client Sample ID: A1-ES-01C **Lab Sample ID:** 691700388-0019
Sample Description: Exterior, North/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Blue	0%	100%	None Detected	

Analyst(s):

- Kathleen Cruz PLM (5)
PLM Grav. Reduction (8)
- Matthew Davis TEM Grav. Reduction (2)
- Nicole Yeo PLM (3)
PLM Grav. Reduction (4)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 09/08/2017 11:52:22 Replaces amended report from: 08/28/2017 14:16:16 Reason Code: Client-Other (see report comment)



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EMSL Canada Or	551702652
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
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Phone: (604) 412-3004
 Fax:
 Received: 03/13/17 9:59 AM
 Collected:

Project: **CSC MISSION-MINIMUM/123220822 - LIVING UNIT A1**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A1-P-01 Site: ROOM 15, VESTIBULE, INTERIOR WALLS Desc: CREAM ON DRYWALL	551702652-0001	3/16/2017		<90 ppm
A1-P-02 Site: ROOM 6, BATHROOM, INTERIOR TRIM, DOOR, DOOR FRAME Desc: BLUE ON METAL Insufficient sample to reach reporting limit.	551702652-0002	3/16/2017		<200 ppm
A1-P-03 Site: ROOM 3, MECHANICAL ROOM, EXTERIOR TRIM Desc: CREAM ON WOOD	551702652-0003	3/16/2017		<90 ppm
A1-P-04 Site: EXTERIOR WALL, NORTH Desc: BLUE ON STUCCO	551702652-0004	3/16/2017		870 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/20/2017 08:35:15

**APPENDIX 5.33
FINDINGS AND RECOMMENDATIONS—
BUILDING A02—NORTH RESIDENCE
(848 24 RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.33 Findings and Recommendations—Building A02—North Residence (848-24-RP)
September 2017

Appendix 5.33 FINDINGS AND RECOMMENDATIONS— BUILDING A02—NORTH RESIDENCE (848-24-RP)

Building A02—North Residence (subject building) was reportedly constructed in 1997 and has been assigned Real Property ID #873. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.33-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.33-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.33-1 Suspected ACM Sample Collection and Analysis Summary
Building A02—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A2-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 15, vestibule, south wall	None Detected
A2-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 16, laundry room, west wall	None Detected
A2-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 13, corridor, north wall	None Detected
A2-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 7, bathroom, south wall	None Detected
A2-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 2, corridor, south wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.33 Findings and Recommendations—Building A02—North Residence (848-24-RP)
September 2017

**Table 5.33-1 Suspected ACM Sample Collection and Analysis Summary
Building A02—North Residence**


Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A2-SF-01	Vinyl sheet flooring, dark grey smudged	Room 10, living room	None Detected
A2-SF-02	Vinyl sheet flooring, light grey smudged	Room 13, corridor	None Detected
A2-SF-03	Vinyl sheet flooring, light and dark blue	Room 9, dining room	None Detected
A2-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 7, bathroom	None Detected
A2-SF-05	Vinyl sheet flooring, tan and light blue pebble pattern	Room16, laundry room	None Detected
A2-PS-01A	Grey pipe sealant applied around seams of red sprinkler system	Room 5, mechanical room	1.2% Anthophyllite see note 5.33-1.2
A2-PS-01B	Grey pipe sealant applied around seams of red sprinkler system	Room 5, mechanical room	Positive Stop (Not Analyzed), see note 5.33-1.2
A2-PS-01C	Grey pipe sealant applied around seams of red sprinkler system	Room 5, mechanical room	Positive Stop (Not Analyzed), see note 5.33-1.2
A2-RS-01A	Black asphalt roof shingle	Roof, southwest	None Detected
A2-RS-01B	Black asphalt roof shingle	Roof, southwest	None Detected
A2-RS-01C	Black asphalt roof shingle	Roof, southwest	None Detected
A2-ES-01A	Exterior stucco, grey painted blue	Exterior, west	None Detected
A2-ES-01B	Exterior stucco, grey painted blue	Exterior, east	None Detected
A2-ES-01C	Exterior stucco, grey painted blue	Exterior, east	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the material presented in Table 5.33-2, below was identified as an ACM.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.33 Findings and Recommendations—Building A02—North Residence (848-24-RP)
September 2017

**Table 5.33-2 Summary of Identified ACMs
Building A02—North Residence**

Identified ACM Description and Condition Information		Photo
<p>Grey pipe sealant applied to threaded joints in red sprinkler system. See section 5.33-1.2</p>		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threads of joints on sprinkler pipes throughout	
Content	1.2% Anthophyllite	

5.33-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.33-1.2 Sprinkler Pipe Sealant

Through initial analysis using Polarized Light Microscopy methods, fibrous material with properties similar to those of anthophyllite asbestos was detected in all three samples of the grey sprinkler pipe sealant that were submitted. EMSL recommended additional analysis of these samples using Transmission Electron Microscopy (TEM) in order to identify the fibrous material. Stantec authorized EMSL to proceed with the TEM analysis, and anthophyllite asbestos was detected in concentrations indicating that this material should be considered an ACM.

5.33-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.33 Findings and Recommendations—Building A02—North Residence (848-24-RP)
September 2017

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.33-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.33-3 Suspected LCP Sample Collection and Analysis Summary
Building A02—North Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A2-P-01	Cream on drywall	Room 16, laundry, interior walls	<90
A2-P-02	Grey on metal	Room 2, corridor, Interior trim, door, door frame	<410
A2-P-03	Cream on wood	Room 5, mechanical room, exterior trim	<90
A2-P-04	Blue on stucco	Exterior wall, south	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.33-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.33-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.33-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.33-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.33 Findings and Recommendations—Building A02—North Residence (848-24-RP)
September 2017

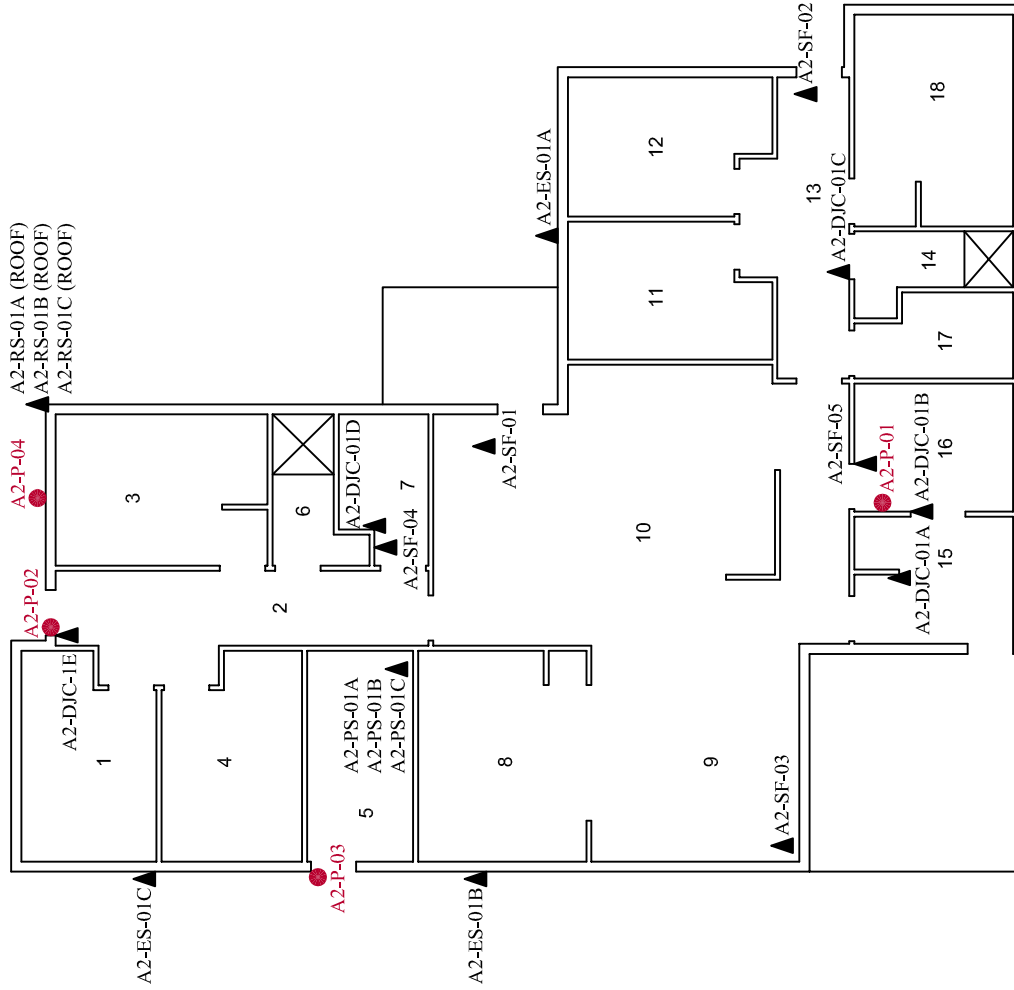
5.33-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.33-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR RESIDENCE A02

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/08/22

Dwn. By: CD PK/DM SL2017080203

App'd By: TW

Dwg. No.:

33.1



Unit A2		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	9.0
2	Corridor	10.3
3	Bedroom	10.6
4	Bedroom	8.5
5	Mechanical Room	7.4
6	Shower	3.5
7	Bathroom	4.1
8	Kitchen	11.2
9	Dining Room	14.3
10	Living Room	33.0
11	Bedroom	8.2
12	Bedroom	8.6
13	Corridor	8.5
14	Shower	3.3
15	Vestibule	7.0
16	Laundry	6.7
17	Bathroom	4.3
18	Bedroom	11.2

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040084

App'd By: TW

Dwg. No.:

33.2





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EMSL Canada Order 691700390
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/10/2017
Analyzed: 5/11/2017

Proj: CSC MISSION- MINIMUM/ 123220822/ LIVING UNIT A2

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A2-DJC-01A **Lab Sample ID:** 691700390-0001

Sample Description: Room 15, Vestibule, South Wall/Drywall Joint Compound Applied to Walls and Ceiling Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A2-DJC-01B **Lab Sample ID:** 691700390-0002

Sample Description: Room 16, Laundry Room, East Wall/Drywall Joint Compound Applied to Walls and Ceiling Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A2-DJC-01C **Lab Sample ID:** 691700390-0003

Sample Description: Room 13, Corridor, North Wall/Drywall Joint Compound Applied to Walls and Ceiling Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A2-DJC-01D **Lab Sample ID:** 691700390-0004

Sample Description: Room 7, Bathroom, South Wall/Drywall Joint Compound Applied to Walls and Ceiling Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A2-DJC-01E **Lab Sample ID:** 691700390-0005

Sample Description: Room 2, Corridor, South Wall/Drywall Joint Compound Applied to Walls and Ceiling Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A2-SF-01 **Lab Sample ID:** 691700390-0006

Sample Description: Room 10, Living Room/Vinyl Sheet Flooring Dark Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A2-SF-02 **Lab Sample ID:** 691700390-0007

Sample Description: Room 13, Corridor/Vinyl Sheet Flooring Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	



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 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A2-SF-03 **Lab Sample ID:** 691700390-0008

Sample Description: Room 9, Dining Room/Vinyl Sheet Flooring Light and Dark Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A2-SF-04 **Lab Sample ID:** 691700390-0009

Sample Description: Room 7, Bathroom/Vinyl Sheet Flooring Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A2-SF-05 **Lab Sample ID:** 691700390-0010

Sample Description: Room 16, Laundry Room/Vinyl Sheet Flooring Tan and Light Blue Pebble Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A2-PS-01A **Lab Sample ID:** 691700390-0011

Sample Description: Room 5 Mechanical Room/Gray Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.80%	99.2%	None Detected	Recommend TEM
TEM Grav. Reduction	5/11/2017	Gray	0.0%	98.8%	1.2% Anthophyllite	

Client Sample ID: A2-PS-01B **Lab Sample ID:** 691700390-0012

Sample Description: Room 5 Mechanical Room/Gray Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray/Red	0.58%	99.4%	None Detected	Recommend TEM
TEM Grav. Reduction	5/11/2017		Positive Stop (Not Analyzed)			

Client Sample ID: A2-PS-01C **Lab Sample ID:** 691700390-0013

Sample Description: Room 5 Mechanical Room/Gray Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray/Red	0.57%	99.4%	None Detected	Recommend TEM
TEM Grav. Reduction	5/11/2017		Positive Stop (Not Analyzed)			

Client Sample ID: A2-RS-01A **Lab Sample ID:** 691700390-0014

Sample Description: Roof, Southwest/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A2-RS-01B **Lab Sample ID:** 691700390-0015

Sample Description: Roof, Southwest/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700390
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A2-RS-01C **Lab Sample ID:** 691700390-0016
Sample Description: Roof, Southwest/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A2-ES-01A **Lab Sample ID:** 691700390-0017
Sample Description: Exterior, South/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Blue	0%	100%	None Detected	

Client Sample ID: A2-ES-01B **Lab Sample ID:** 691700390-0018
Sample Description: Exterior, East/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Blue	0%	100%	None Detected	

Client Sample ID: A2-ES-01C **Lab Sample ID:** 691700390-0019
Sample Description: Exterior, East/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Blue	0%	100%	None Detected	

Analyst(s):

Matthew Davis TEM Grav. Reduction (1)
Nicole Yeo PLM (8)
PLM Grav. Reduction (11)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/17/2017 19:03:08



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Attn: **Steve Chou**
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Phone: (604) 412-3004
Fax:
Received: 03/13/17 9:59 AM
Collected:

Project: **CSC MISSION-MINIMUM/123220822 - LIVING UNIT A2**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A2-P-01 Site: ROOM 16, LAUNDRY, INTERIOR WALLS Desc: CREAM ON DRYWALL	551702654-0001	3/16/2017		<90 ppm
A2-P-02 Site: ROOM 2, CORRIDOR, INTERIOR TRIM, DOOR, DOOR FRAME Desc: GREY ON METAL Insufficient sample to reach reporting limit.	551702654-0002	3/16/2017		<410 ppm
A2-P-03 Site: ROOM 5, MECHANICAL ROOM, EXTERIOR TRIM Desc: CREAM ON WOOD	551702654-0003	3/16/2017		<90 ppm
A2-P-04 Site: EXTERIOR WALL, NORTH Desc: BLUE ON STUCCO	551702654-0004	3/16/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/20/2017 08:37:46

**APPENDIX 5.34
FINDINGS AND RECOMMENDATIONS—
BUILDING A03—NORTH RESIDENCE
(848-28-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.34 Findings and Recommendations—Building A03—North Residence (848-28-RP)
September 2017

Appendix 5.34 FINDINGS AND RECOMMENDATIONS— BUILDING A03—NORTH RESIDENCE (848-28-RP)

Building A03—North Residence (subject building) was reportedly constructed in 1994 and has been assigned Real Property ID #874. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.34-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.34-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.34-1 Suspected ACM Sample Collection and Analysis Summary
Building A03—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A3-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 1, vestibule, west wall	None Detected
A3-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 3, bathroom, west wall	None Detected
A3-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 5, corridor, west wall	None Detected
A3-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 12, living room, east wall	None Detected
A3-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 16, corridor, east wall	None Detected



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.34 Findings and Recommendations—Building A03—North Residence (848-28-RP)
September 2017

**Table 5.34-1 Suspected ACM Sample Collection and Analysis Summary
Building A03—North Residence**


Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A3-SF-01	Vinyl sheet flooring, dark grey smudged	Room 12, living room	None Detected
A3-SF-02	Vinyl sheet flooring, light grey smudged	Room 16, corridor	None Detected
A3-SF-03	Vinyl sheet flooring, light and dark blue	Room 1, vestibule	None Detected
A3-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 2, laundry room	None Detected
A3-SF-05	Vinyl sheet flooring, tan and light blue pebble pattern	Room 3, bathroom	None Detected
A3-PS-01A	Grey pipe sealant applied around seams of red sprinkler system	Room 9, mechanical room	1% Anthophyllite
A3-PS-01B	Grey pipe sealant applied around seams of red sprinkler system	Room 9, mechanical room	Positive Stop (Not Analyzed)
A3-PS-01C	Grey pipe sealant applied around seams of red sprinkler system	Room 9, mechanical room	Positive Stop (Not Analyzed)
A3-RS-01A	Black asphalt roof shingle	Roof, west	None Detected
A3-RS-01B	Black asphalt roof shingle	Roof, west	None Detected
A3-RS-01C	Black asphalt roof shingle	Roof, west	None Detected
A3-ES-01A	Exterior stucco, grey painted blue	Exterior, east	None Detected
A3-ES-01B	Exterior stucco, grey painted blue	Exterior, west	None Detected
A3-ES-01C	Exterior stucco, grey painted blue	Exterior, west	None Detected
NOTE: Bold, highlighted text indicates confirmed ACM			

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the material presented in Table 5.34-2, below is identified as an ACM.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.34 Findings and Recommendations—Building A03—North Residence (848-28-RP)
September 2017

**Table 5.34-2 Summary of Identified ACMs
Building A03—North Residence**

Identified ACM Description and Condition Information		Photo
Grey pipe sealant applied to threaded joints in red sprinkler system.		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threaded joints in sprinkler pipes throughout	
Content	1% Anthophyllite	

5.34-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.34-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.34-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

HAZARDOUS BUILDING MATERIALS ASSESSMENT


Appendix 5.34 Findings and Recommendations—Building A03—North Residence (848-28-RP)
September 2017

**Table 5.34-3 Suspected LCP Sample Collection and Analysis Summary
Building A03—North Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A3-P-01	Cream on drywall	Room 2, laundry room, interior walls	<90
A3-P-02	Blue on metal	Room 2, laundry room, interior trim, door, door frame	<130
A3-P-03	Cream on wood	Room 9, mechanical room, exterior trim	<130
A3-P-04	Blue on stucco	Exterior walls, east	620
NOTE: Bold, highlighted text indicates confirmed LCP			

Based on our observations and on our interpretations of suspected LCP sample analytical results, the paint presented in Table 5.34-4, below is identified as an LCP:

**Table 5.34-4 Summary of Identified LCPs
Building A03—North Residence**

Identified LCP Description		Photo
Paint colour	Blue	
Substrate	Stucco	
Location/approx. extent	Exterior siding below windows	
Lead content	620 ppm	
Condition	Good	

5.34-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.34-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.34 Findings and Recommendations—Building A03—North Residence (848-28-RP)
September 2017

5.34-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.34-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

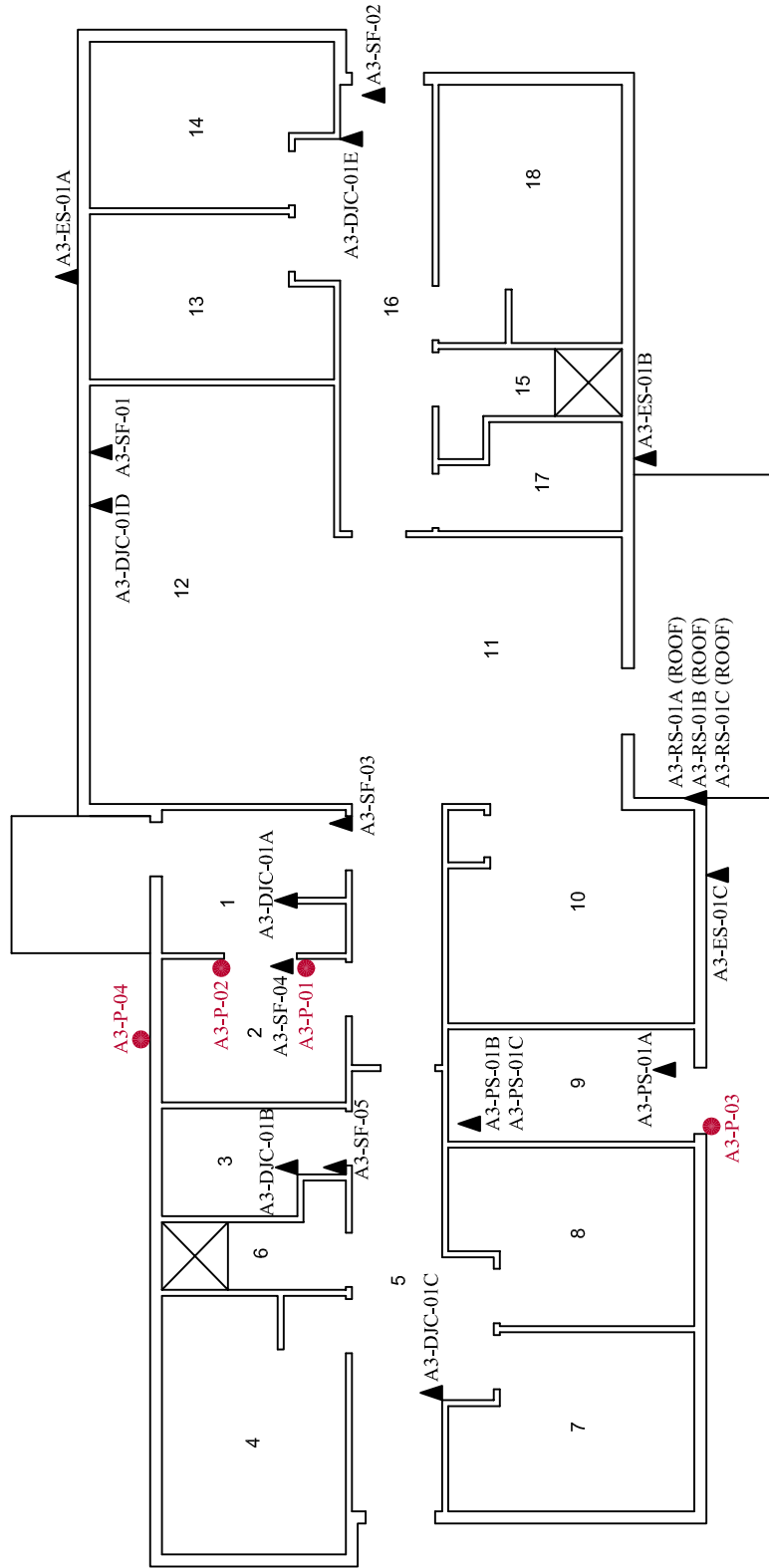
5.34-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.34-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR RESIDENCE A03

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTES: 1. GREY PIPE SEALANT APPLIED AROUND SEAMS OF SPRINKLER SYSTEM IS ASBESTOS-CONTAINING.
 2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/08/22

Dwn. By: CD PK/DM
 SL2017080204

App'd By: TW

Dwg. No.:

34.1



Unit A3		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Vestibule	6.1
2	Laundry Room	6.1
3	Bathroom	4.2
4	Bedroom	11.3
5	Corridor	15.1
6	Shower	3.5
7	Bedroom	9.5
8	Bedroom	9.0
9	Furnace Room	6.0
10	Kitchen	11.7
11	Dining Room	16.1
12	Living Room	23.3
13	Bedroom	8.5
14	Bedroom	8.9
15	Shower	3.3
16	Corridor	10.3
17	Bathroom	4.1
18	Bedroom	10.8

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD PK SL2017040082

App'd By: TW

Dwg. No.:

34.2





EMSL Canada Inc.

4506 Dawson Street Burnaby, BC V5C 4C1
 Phone/Fax: 604-757-3158 / (604) 757-4731
<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700391
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/10/2017
Analyzed: 3/17/2017

Proj: CSC MISSION- MINIMUM/ 123220822/ LIVING UNIT A3

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A3-DJC-01A **Lab Sample ID:** 691700391-0001

Sample Description: Room 1, Vestibule, West Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A3-DJC-01B **Lab Sample ID:** 691700391-0002

Sample Description: Room 3, Bathroom, West Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A3-DJC-01C **Lab Sample ID:** 691700391-0003

Sample Description: Room 5, Corridor, West Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A3-DJC-01D **Lab Sample ID:** 691700391-0004

Sample Description: Room 12, Living Room, East Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A3-DJC-01E **Lab Sample ID:** 691700391-0005

Sample Description: Room 16, Corridor, East Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	White	0%	100%	None Detected	

Client Sample ID: A3-SF-01 **Lab Sample ID:** 691700391-0006

Sample Description: Room 12, Living Room/Vinyl Sheet Flooring, Dray Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A3-SF-02 **Lab Sample ID:** 691700391-0007

Sample Description: Room 16 Corridor/Vinyl Sheet Flooring Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	



EMSL Canada Inc.

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 Phone/Fax: 604-757-3158 / (604) 757-4731
<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700391
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A3-SF-03 **Lab Sample ID:** 691700391-0008

Sample Description: Room 1, Vestibule/Vinyl Sheet Flooring Light and Dark Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A3-SF-04 **Lab Sample ID:** 691700391-0009

Sample Description: Room 2, Laundry Room/Vinyl Sheet Flooring Grey Pebbl Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A3-SF-05 **Lab Sample ID:** 691700391-0010

Sample Description: Room 3, Bathroom/Vinyl Sheet Flooring Tan and Light Blue Pebble Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A3-PS-01A **Lab Sample ID:** 691700391-0011

Sample Description: Room 9, Mechanical Room/Grey Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Gray	0%	99%	1% Anthophyllite	

Client Sample ID: A3-PS-01B **Lab Sample ID:** 691700391-0012

Sample Description: Room 9, Mechanical Room/Grey Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A3-PS-01C **Lab Sample ID:** 691700391-0013

Sample Description: Room 9, Mechanical Room/Grey Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A3-RS-01A **Lab Sample ID:** 691700391-0014

Sample Description: Roof, West/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A3-RS-01B **Lab Sample ID:** 691700391-0015

Sample Description: Roof, West/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	



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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700391
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A3-RS-01C **Lab Sample ID:** 691700391-0016
Sample Description: Roof, West/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/17/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A3-ES-01A **Lab Sample ID:** 691700391-0017
Sample Description: Exterior East/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Blue	0%	100%	None Detected	

Client Sample ID: A3-ES-01B **Lab Sample ID:** 691700391-0018
Sample Description: Exterior West/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Blue	0%	100%	None Detected	

Client Sample ID: A3-ES-01C **Lab Sample ID:** 691700391-0019
Sample Description: Exterior West/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/17/2017	Gray	0%	100%	None Detected	

Analyst(s):

Nicole Yeo PLM (9)
PLM Grav. Reduction (8)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/17/2017 18:37:56



EMSL Canada Inc.

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torontolab@emsl.com

EMSL Canada Or	551702656
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/13/17 9:59 AM
 Collected:

Project: **CSC MISSION-MINIMUM/123220822 - LIVING UNIT A3**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A3-P-01 Site: ROOM 2, LAUNDRY ROOM, INTERIOR WALLS Desc: CREAM ON DRYWALL	551702656-0001	3/16/2017		<90 ppm
A3-P-02 Site: ROOM 2, LAUNDRY ROOM, INTERIOR TRIM, DOOR, DOOR FRAME Desc: BLUE ON METAL Insufficient sample to reach reporting limit.	551702656-0002	3/16/2017		<130 ppm
A3-P-03 Site: ROOM 9, MECHANICAL ROOM, EXTERIOR TRIM Desc: CREAM ON WOOD Insufficient sample to reach reporting limit.	551702656-0003	3/16/2017		<130 ppm
A3-P-04 Site: EXTERIOR WALLS, EAST Desc: BLUE ON STUCCO	551702656-0004	3/16/2017		620 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/20/2017 08:31:47

**APPENDIX 5.35
FINDINGS AND RECOMMENDATIONS—
BUILDING A04—NORTH RESIDENCE
(848 26 RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.35 Findings and Recommendations—Building A04—North Residence (848-26-RP)
September 2017

Appendix 5.35 FINDINGS AND RECOMMENDATIONS— BUILDING A04—NORTH RESIDENCE (848-26-RP)

Building A04—North Residence (subject building) was reportedly constructed in 1994 and has been assigned Real Property ID #875. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.35-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.35-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.35-1 Suspected ACM Sample Collection and Analysis Summary
Building A04—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A4-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 2, corridor, east wall	None Detected
A4-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 10, living room, south wall	None Detected
A4-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 8, kitchen, east wall	None Detected
A4-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 16, laundry, west wall	None Detected
A4-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 13, corridor, north wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.35 Findings and Recommendations—Building A04—North Residence (848-26-RP)
September 2017

**Table 5.35-1 Suspected ACM Sample Collection and Analysis Summary
Building A04—North Residence**


Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A4-SF-01	Vinyl sheet flooring, dark grey smudged	Room 10, living room	None Detected
A4-SF-02	Vinyl sheet flooring, light grey smudged	Room 2, corridor	None Detected
A4-SF-03	Vinyl sheet flooring, light and dark blue	Room 8, kitchen	None Detected
A4-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 16, laundry	None Detected
A4-SF-05	Vinyl sheet flooring, tan and light blue pebble pattern	Room 17, bathroom	None Detected
A4-PS-01A	Grey pipe sealant applied around seams of red sprinkler system	Room 5, mechanical room	1% Anthophyllite, see note 5.35-1.2
A4-PS-01B	Grey pipe sealant applied around seams of red sprinkler system	Room 5, mechanical room	Positive Stop (Not Analyzed), see note 5.35-1.2
A4-PS-01C	Grey pipe sealant applied around seams of red sprinkler system	Room 5, mechanical room	Positive Stop (Not Analyzed), see note 5.35-1.2
A4-RS-01A	Black asphalt roof shingle	Roof, west	None Detected
A4-RS-01B	Black asphalt roof shingle	Roof, west	None Detected
A4-RS-01C	Black asphalt roof shingle	Roof, west	None Detected
A4-ES-01A	Exterior stucco, grey painted blue	Exterior, west	None Detected
A4-ES-01B	Exterior stucco, grey painted blue	Exterior, west	None Detected
A4-ES-01C	Exterior stucco, grey painted blue	Exterior, west	None Detected
NOTE: Bold, highlighted text indicates confirmed ACM			

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the material presented in Table 5.35-2 below is identified as an ACM.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.35 Findings and Recommendations—Building A04—North Residence (848-26-RP)
September 2017

**Table 5.35-2 Summary of Identified ACMs
Building A04—North Residence**

Identified ACM Description and Condition Information		Photo
<p>Grey pipe sealant applied to threaded joints in red sprinkler system. See section 5.35-1.2</p>		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threads of joints on sprinkler pipes throughout	
Content	1% Anthophyllite	

5.35-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.35-1.2 Sprinkler Pipe Sealant

Through initial analysis using Polarized Light Microscopy methods, fibrous material with properties similar to those of anthophyllite asbestos was detected in all three samples of the grey sprinkler pipe sealant that were submitted. EMSL recommended additional analysis of these samples using Transmission Electron Microscopy (TEM) in order to identify the fibrous material. Stantec authorized EMSL to proceed with the TEM analysis, and anthophyllite asbestos was detected in concentrations indicating that this material should be considered an ACM.

5.35-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.35 Findings and Recommendations—Building A04—North Residence (848-26-RP)
September 2017

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.35-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.35-3 Suspected LCP Sample Collection and Analysis Summary
Building A04—North Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A4-P-01	Cream on drywall	Room 16, laundry, interior walls	<97
A4-P-02	Blue on metal	Room 2, corridor, Interior trim, door, door frame	<140
A4-P-03	Cream on wood	Room 5, mechanical room, exterior trim	<90
A4-P-04	Blue on stucco	Exterior wall, east	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.35-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.35-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

One thermostat with a mercury-containing switch was observed on the south wall in room 10, living room adjacent to the kitchen. The location of the thermostat is indicated on the floor plan drawing attached to this appendix.

5.35-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.35-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.35 Findings and Recommendations—Building A04—North Residence (848-26-RP)
September 2017

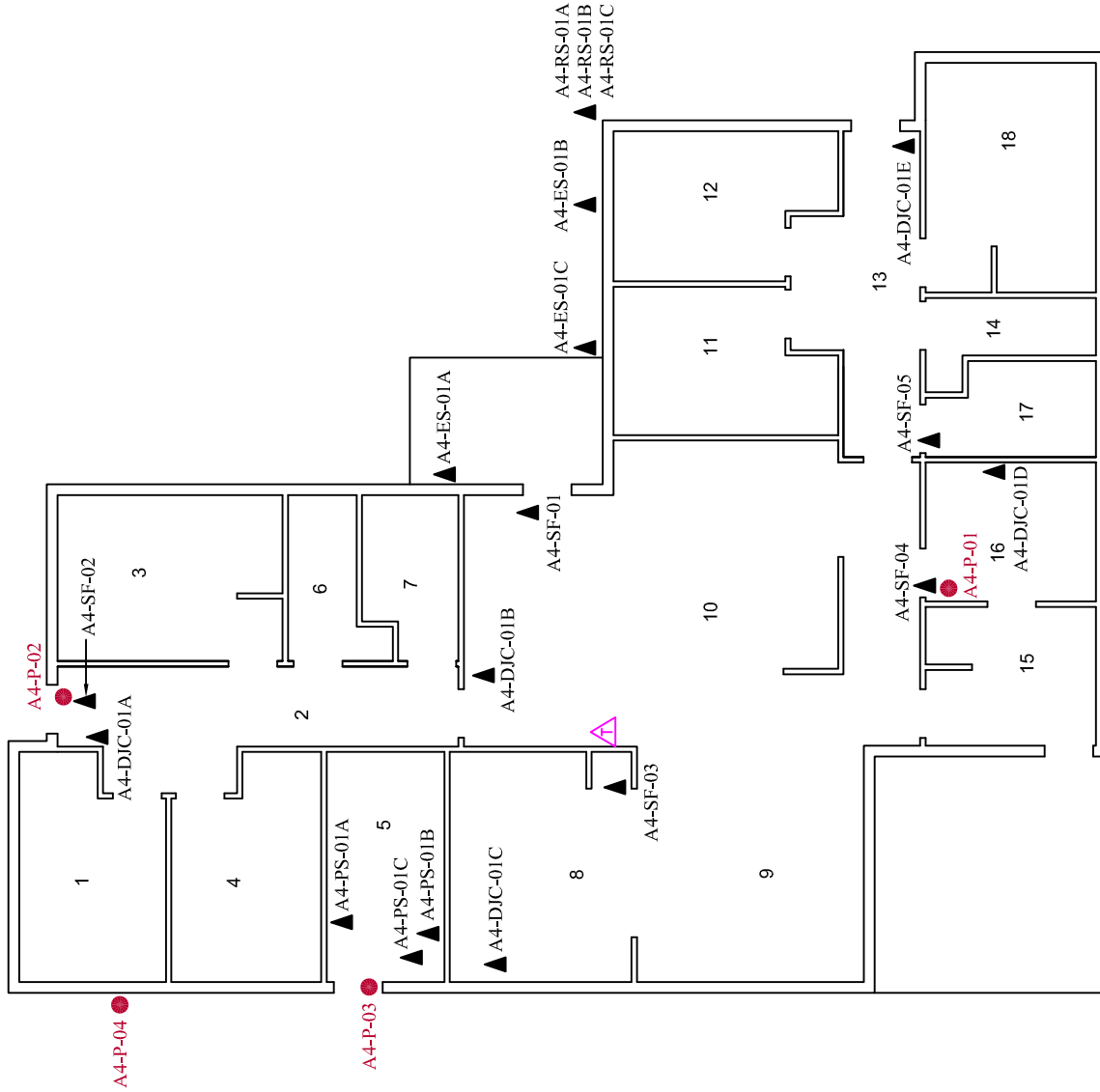
5.35-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.35-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR RESIDENCE A04

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- △ MERCURY-CONTAINING THERMOSTAT

NOTES: 1. GREY PIPE SEALANT APPLIED AROUND SEAMS OF SPRINKLER SYSTEM IS ASBESTOS-CONTAINING.
2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC
PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.:	123220822
Scale:	N.T.S.
Date:	17/08/22
Dwn. By:	CD SL2017080205 VM/DM
App'd By:	TW

Dwg. No.:
35.1



Unit A4		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	9.0
2	Corridor	10.3
3	Bedroom	10.6
4	Bedroom	8.5
5	Mechanical Room	7.4
6	Shower	3.5
7	Bathroom	4.1
8	Kitchen	11.2
9	Dining Room	14.3
10	Living Room	33.0
11	Bedroom	8.2
12	Bedroom	8.6
13	Corridor	8.5
14	Shower	3.3
15	Vestibule	7.0
16	Laundry	6.7
17	Bathroom	4.3
18	Bedroom	11.2

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD _{VM} SL2017040036

App'd By: TW

Dwg. No.:

35.2





EMSL Canada Inc.

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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700356
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou Phone: (604) 412-3004
 Stantec Consulting, Ltd. Fax:
 500 - 4730 Kingsway Collected: 3/ 7/2017
 Burnaby, BC V5H 0C6 Received: 3/08/2017
 Analyzed: 3/15/2017

Proj: CSC MISSION- MINIMUM/123220822/LIVING UNIT A4

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A4-DJC-01A **Lab Sample ID:** 691700356-0001

Sample Description: ROOM 2, CORRIDOR, EAST WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/14/2017	White	0%	100%	None Detected	

Client Sample ID: A4-DJC-01B **Lab Sample ID:** 691700356-0002

Sample Description: ROOM 10, LIVING ROOM, SOUTH WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/14/2017	White	0%	100%	None Detected	

Client Sample ID: A4-DJC-01C **Lab Sample ID:** 691700356-0003

Sample Description: ROOM 8, KITCHEN, EAST WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/14/2017	White	0%	100%	None Detected	

Client Sample ID: A4-DJC-01D **Lab Sample ID:** 691700356-0004

Sample Description: ROOM 16, LAUNDRY, WEST WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A4-DJC-01E **Lab Sample ID:** 691700356-0005

Sample Description: ROOM 13, CORRIDOR, NORTH WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A4-SF-01 **Lab Sample ID:** 691700356-0006

Sample Description: ROOM 10, LIVING ROOM/VINYL SHEET FLOORING, DARK GREY SMUDGED

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A4-SF-02 **Lab Sample ID:** 691700356-0007

Sample Description: ROOM 2, CORRIDOR/VINYL SHEET FLOORING, LIGHT GREY SMUDGED

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700356
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A4-SF-03 **Lab Sample ID:** 691700356-0008
Sample Description: ROOM 8, KITCHEN/VINYL SHEET FLOORING, LIGHT AND DARK BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A4-SF-04 **Lab Sample ID:** 691700356-0009
Sample Description: ROOM 16, LAUNDRY/VINYL SHEET FLOORING, GREY PEBBLE PATTERN WITH BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	White	0.0%	100%	None Detected	

Client Sample ID: A4-SF-05 **Lab Sample ID:** 691700356-0010
Sample Description: ROOM 17, BATHROOM/VINYL SHEET FLOORING, TAN AND LIGHT BLUE PEBBLE PATTERN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A4-PS-01A **Lab Sample ID:** 691700356-0011
Sample Description: ROOM 5, MECHANICAL ROOM/GREY PIPE SEALANT APPLIED AROUND SEAMS OF RED SPRINKLER SYSTEM

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Gray/Red	0%	99%	1% Anthophyllite	

Client Sample ID: A4-PS-01B **Lab Sample ID:** 691700356-0012
Sample Description: ROOM 5, MECHANICAL ROOM/GREY PIPE SEALANT APPLIED AROUND SEAMS OF RED SPRINKLER SYSTEM

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A4-PS-01C **Lab Sample ID:** 691700356-0013
Sample Description: ROOM 5, MECHANICAL ROOM/GREY PIPE SEALANT APPLIED AROUND SEAMS OF RED SPRINKLER SYSTEM

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A4-RS-01A **Lab Sample ID:** 691700356-0014
Sample Description: ROOF, WEST/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Black	1.5%	98.5%	None Detected	

Client Sample ID: A4-RS-01B **Lab Sample ID:** 691700356-0015
Sample Description: ROOF, WEST/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Black	0.67%	99.3%	None Detected	



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EMSL Canada Order 691700356
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A4-RS-01C **Lab Sample ID:** 691700356-0016
Sample Description: ROOF, WEST/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A4-ES-01A **Lab Sample ID:** 691700356-0017
Sample Description: EXTERIOR, WEST/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/14/2017	Blue	0%	100%	None Detected	

Client Sample ID: A4-ES-01B **Lab Sample ID:** 691700356-0018
Sample Description: EXTERIOR, WEST/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/14/2017	Blue	0%	100%	None Detected	

Client Sample ID: A4-ES-01C **Lab Sample ID:** 691700356-0019
Sample Description: EXTERIOR, WEST/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Analyst(s):

- Kathleen Cruz PLM (6)
PLM Grav. Reduction (7)
- Nicole Yeo PLM (3)
PLM Grav. Reduction (1)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 06/05/2017 11:05:25 Replaces amended report from: 05/02/2017 15:11:06 Reason Code: Client-Change to Location



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torontolab@emsl.com

EMSL Canada Or	551702409
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/09/17 2:52 PM
 Collected:

Project: **CSCMission-Minimum/123220822 - Living Unit A4**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A4-P-01 Site: Room 16, Laundry, Interior walls Desc: Cream on drywall Insufficient sample to reach reporting limit.	551702409-0001	3/13/2017		<97 ppm
A4-P-02 Site: Room 2, Corridor, Interior trim, Door, Door frame Desc: Blue on metal Insufficient sample to reach reporting limit.	551702409-0002	3/13/2017		<140 ppm
A4-P-03 Site: Room 5, Mechanical Room, Exterior trim Desc: Cream on wood	551702409-0003	3/13/2017		<90 ppm
A4-P-04 Site: Exterior wall, East Desc: Blue on stucco	551702409-0004	3/13/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/16/2017 08:01:58

**APPENDIX 5.36
FINDINGS AND RECOMMENDATIONS—
BUILDING A05—NORTH RESIDENCE
(848 27 RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.36 Findings and Recommendations—Building A05—North Residence (848-27-RP)
September 2017

Appendix 5.36 FINDINGS AND RECOMMENDATIONS— BUILDING A05—NORTH RESIDENCE (848-27-RP)

Building A05—North Residence (subject building) was reportedly constructed in 1994 and has been assigned Real Property ID #876. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.36-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.36-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.36-1 Suspected ACM Sample Collection and Analysis Summary
Building A05—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A5-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 9, living room, south wall	None Detected
A5-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 9, living room, north wall	None Detected
A5-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 5, corridor, east wall	None Detected
A5-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 15, corridor, south wall	None Detected
A5-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 1, vestibule, east wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.36 Findings and Recommendations—Building A05—North Residence (848-27-RP)
September 2017

**Table 5.36-1 Suspected ACM Sample Collection and Analysis Summary
Building A05—North Residence**


Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A5-SF-01	Vinyl sheet flooring, dark grey smudged	Room 9, living room	None Detected
A5-SF-02	Vinyl sheet flooring, light grey smudged	Room 15, corridor	None Detected
A5-SF-03	Vinyl sheet flooring, light and dark blue	Room 11, kitchen	None Detected
A5-SF-04- Vinyl Sheet Flooring	Vinyl sheet flooring, grey pebble pattern with blue	Room 2, laundry room	None Detected
A5-SF-04- Caulk	Vinyl sheet flooring, grey pebble pattern with blue	Room 2, laundry room	None Detected
A5-SF-05	Vinyl sheet flooring, tan and light blue pebble pattern	Room 12, bathroom	None Detected
A5-PS-01A	Grey pipe sealant applied around seams of red sprinkler system	Room 16, mechanical room	1% Anthophyllite
A5-PS-01B	Grey pipe sealant applied around seams of red sprinkler system	Room 16, mechanical room	Positive Stop (Not Analyzed)
A5-PS-01C	Grey pipe sealant applied around seams of red sprinkler system	Room 16, mechanical room	Positive Stop (Not Analyzed)
A5-RS-01A	Black asphalt roof shingle	Roof, south east	None Detected
A5-RS-01B	Black asphalt roof shingle	Roof, south east	None Detected
A5-RS-01C	Black asphalt roof shingle	Roof, south east	None Detected
A5-ES-01A	Exterior stucco, grey painted blue	Exterior, south	None Detected
A5-ES-01B	Exterior stucco, grey painted blue	Exterior, south	None Detected
A5-ES-01C	Exterior stucco, grey painted blue	Exterior, east	None Detected
NOTE: Bold, highlighted text indicates confirmed ACM			

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the material presented in Table 5.36-2, below is identified as an ACM.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.36 Findings and Recommendations—Building A05—North Residence (848-27-RP)
September 2017

**Table 5.36-2 Summary of Identified ACMs
Building A05—North Residence**

Identified ACM Description and Condition Information		Photo
Grey pipe sealant applied to threaded joints in red sprinkler system.		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threads of joints on sprinkler pipes throughout	
Content	1% Anthophyllite	

5.36-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.36-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.36-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.36 Findings and Recommendations—Building A05—North Residence (848-27-RP)
September 2017

**Table 5.36-3 Suspected LCP Sample Collection and Analysis Summary
Building A05—North Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A5-P-01	Cream on drywall	Room 2, laundry, interior walls	<90
A5-P-02	Grey on metal	Room 1, vestibule, Interior trim, door, door frame	<90
A5-P-03	Cream on wood	Room 16, mechanical room, exterior trim	<90
A5-P-04	Blue on stucco	Exterior wall, south	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.36-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.36-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.36-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.36-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.36-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

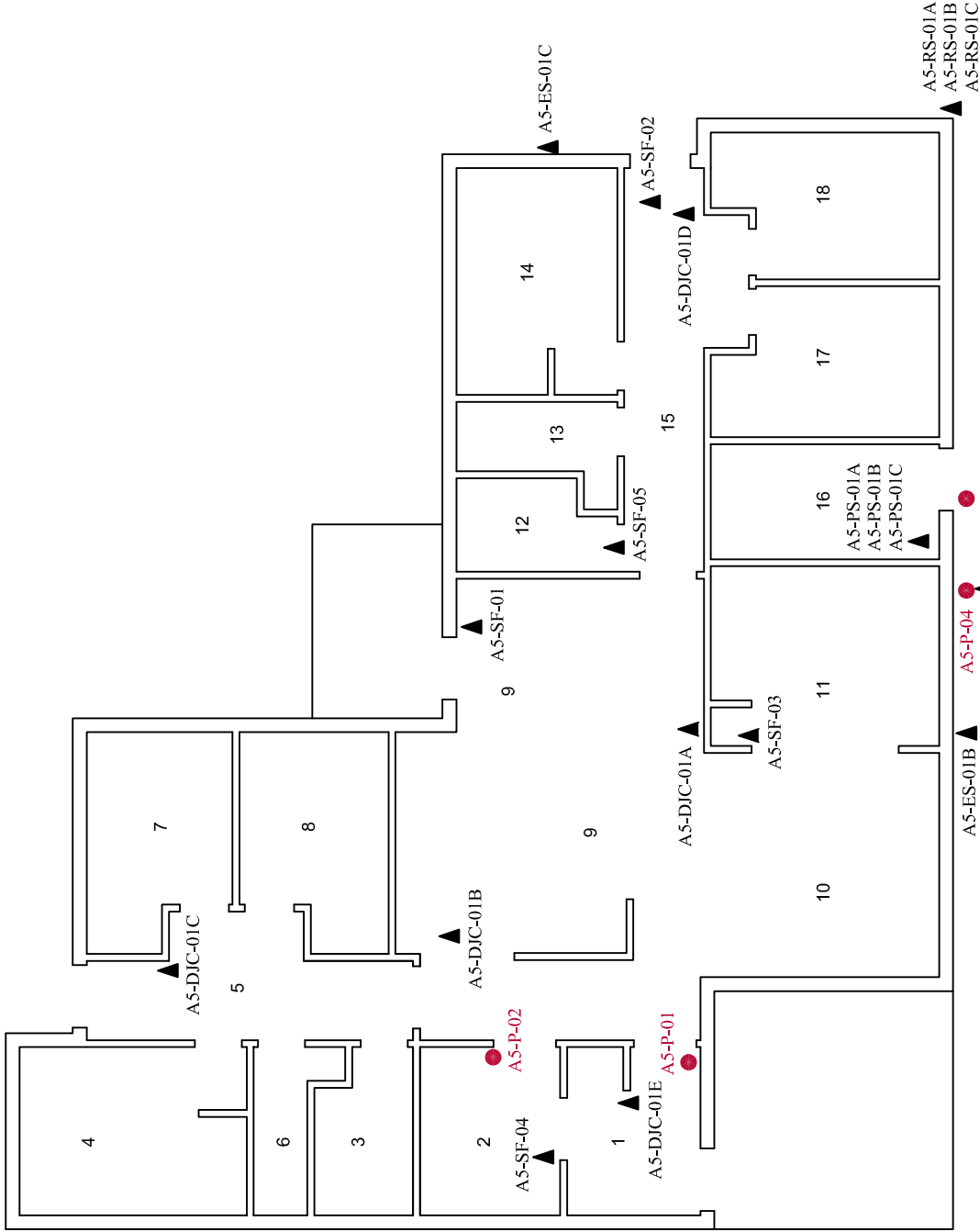
- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.36 Findings and Recommendations—Building A05—North Residence (848-27-RP)
September 2017

5.36-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



**FIRST FLOOR
RESIDENCE A05**

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTES: 1. GREY PIPE SEALANT APPLIED AROUND SEAMS OF SPRINKLER SYSTEM IS ASBESTOS-CONTAINING.
2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

<p>FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA</p>		Project No.: 123220822
		Scale: N.T.S.
		Date: 17/08/22
		Dwn. By: CD SL2017080206 VM/DM
		App'd By: TW

Dwg. No.: **36.1**

Unit A5		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Vestibule	7.0
2	Laundry Room	6.7
3	Bathroom	4.3
4	Bedroom	11.2
5	Corridor	8.5
6	Shower	3.3
7	Bedroom	8.6
8	Bedroom	8.2
9	Living Room	33.0
10	Dining Room	14.3
11	Kitchen	11.2
12	Washroom	4.1
13	Shower	3.5
14	Bedroom	10.6
15	Corridor	10.3
16	Mechanical Room	7.4
17	Bedroom	8.5
18	Bedroom	9.0

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD _{VM} SL2017040038

App'd By: TW

Dwg. No.:

36.2





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EMSL Canada Order 691700357
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/08/2017
Analyzed: 3/15/2017

Proj: CSC MISSION- MINIMUM/123220822/ LIVING UNIT A5

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A5-DJC-01A **Lab Sample ID:** 691700357-0001

Sample Description: Room 9, Living Room, South Wall/Drywall Joint Compound Applied To Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A5-DJC-01B **Lab Sample ID:** 691700357-0002

Sample Description: Room 9, Living Room, North Wall/Drywall Joint Compound Applied To Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A5-DJC-01C **Lab Sample ID:** 691700357-0003

Sample Description: Room 5, Corridor, East Wall/Drywall Joint Compound Applied To Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A5-DJC-01D **Lab Sample ID:** 691700357-0004

Sample Description: Room 15, Corridor, South Wall/Drywall Joint Compound Applied To Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A5-DJC-01E **Lab Sample ID:** 691700357-0005

Sample Description: Room 1, Vestibule, East Wall/Drywall Joint Compound Applied To Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A5-SF-01 **Lab Sample ID:** 691700357-0006

Sample Description: Room 9, Living Room/Vinyl Sheet Flooring, Dark Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A5-SF-02 **Lab Sample ID:** 691700357-0007

Sample Description: Room 15, Corridor/Vinyl Sheet Flooring, Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700357
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A5-SF-03 **Lab Sample ID:** 691700357-0008
Sample Description: Room 11, Kitchen/Vinyl Sheet Flooring, Light & Dark Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A5-SF-04-Vinyl Sheet Flooring **Lab Sample ID:** 691700357-0009
Sample Description: Room 2, Laundry Room/Vinyl Sheet Flooring, Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A5-SF-04-Caulk **Lab Sample ID:** 691700357-0009A
Sample Description: Room 2, Laundry Room/Vinyl Sheet Flooring, Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Clear	0.0%	100%	None Detected	

Client Sample ID: A5-SF-05 **Lab Sample ID:** 691700357-0010
Sample Description: Room 12, Bathroom/Vinyl Sheet Flooring, Tan & Light Blue Pebble Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A5-PS-01A **Lab Sample ID:** 691700357-0011
Sample Description: Room 16, Mechanical Room/Grey Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Gray	0%	99%	1% Anthophyllite	

Client Sample ID: A5-PS-01B **Lab Sample ID:** 691700357-0012
Sample Description: Room 16, Mechanical Room/Grey Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017					Positive Stop (Not Analyzed)

Client Sample ID: A5-PS-01C **Lab Sample ID:** 691700357-0013
Sample Description: Room 16, Mechanical Room/Grey Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017					Positive Stop (Not Analyzed)

Client Sample ID: A5-RS-01A **Lab Sample ID:** 691700357-0014
Sample Description: Roof, South East/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Black	0.94%	99.1%	None Detected	



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EMSL Canada Order 691700357
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A5-RS-01B **Lab Sample ID:** 691700357-0015
Sample Description: Roof, South East/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Black	<0.25%	100%	None Detected	

Client Sample ID: A5-RS-01C **Lab Sample ID:** 691700357-0016
Sample Description: Roof, South East/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A5-ES-01A **Lab Sample ID:** 691700357-0017
Sample Description: Exterior, South/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Client Sample ID: A5-ES-01B **Lab Sample ID:** 691700357-0018
Sample Description: Exterior, South/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Client Sample ID: A5-ES-01C **Lab Sample ID:** 691700357-0019
Sample Description: Exterior, East/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Analyst(s):

Kathleen Cruz PLM (6)
PLM Grav. Reduction (8)
Nicole Yeo PLM (3)
PLM Grav. Reduction (1)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/15/2017 15:50:11



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EMSL Canada Or	551702419
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/09/17 12:21 PM
 Collected:

Project: **CSCMission - Minimum/123220822 - Living Unit A5**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A5-P-01 Site: Room 2, Laundry, Interior Walls Desc: Cream on drywall	551702419-0001	3/13/2017		<90 ppm
A5-P-02 Site: Room 1, Vestibule, Interior trim, Door, Door frame Desc: Grey on metal	551702419-0002	3/13/2017		<90 ppm
A5-P-03 Site: Room 16, Mechanical Room, Exterior trim Desc: Cream on wood	551702419-0003	3/13/2017		<90 ppm
A5-P-04 Site: Exterior Wall, South Desc: Blue on stucco	551702419-0004	3/13/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/16/2017 08:15:37

**APPENDIX 5.37
FINDINGS AND RECOMMENDATIONS—
BUILDING A06—NORTH RESIDENCE
(848 32 RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.37 Findings and Recommendations—Building A06—North Residence (848-32-RP)
September 2017

Appendix 5.37 FINDINGS AND RECOMMENDATIONS— BUILDING A06—NORTH RESIDENCE (848-32-RP)

Building A06—North Residence (subject building) was reportedly constructed in 1994 and has been assigned Real Property ID #877. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.37-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.37-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.37-1 Suspected ACM Sample Collection and Analysis Summary
Building A06—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A6-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 2, kitchen, south wall	None Detected
A6-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 5, corridor, north wall	None Detected
A6-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 9, living room, east wall	None Detected
A6-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 12, washroom, north wall	None Detected
A6-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 13, shower, north wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.37 Findings and Recommendations—Building A06—North Residence (848-32-RP)
September 2017

**Table 5.37-1 Suspected ACM Sample Collection and Analysis Summary
Building A06—North Residence**


Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A6-SF-01	Vinyl sheet flooring, dark grey smudged	Room 9, living room	None Detected
A6-SF-02	Vinyl sheet flooring, light grey smudged	Room 15, corridor	None Detected
A6-SF-03	Vinyl sheet flooring, light and dark blue	Room 10, dining room	None Detected
A6-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 2, laundry room	None Detected
A6-SF-05	Vinyl sheet flooring, tan and light blue pebble pattern	Room 12, washroom	None Detected
A6-PS-01A	Grey pipe sealant applied around seams of red sprinkler system	Room 16, mechanical room	0.93% Anthophyllite
A6-PS-01B	Grey pipe sealant applied around seams of red sprinkler system	Room 16, mechanical room	Positive Stop (Not Analyzed)
A6-PS-01C	Grey pipe sealant applied around seams of red sprinkler system	Room 16, mechanical room	Positive Stop (Not Analyzed)
A6-RS-01A	Black asphalt roof shingle	Roof, north east	None Detected
A6-RS-01B	Black asphalt roof shingle	Roof, north east	None Detected
A6-RS-01C	Black asphalt roof shingle	Roof, north east	None Detected
A6-ES-01A	Exterior stucco, grey painted blue	Exterior, east	None Detected
A6-ES-01B	Exterior stucco, grey painted blue	Exterior, east	None Detected
A6-ES-01C	Exterior stucco, grey painted blue	Exterior, east	None Detected
NOTE: Bold, highlighted text indicates confirmed ACM			

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the material presented in Table 5.37-2, below is identified as an ACM.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.37 Findings and Recommendations—Building A06—North Residence (848-32-RP)
September 2017

**Table 5.37-2 Summary of Identified ACMs
Building A06—North Residence**

Identified ACM Description and Condition Information		Photo
Grey pipe sealant applied to threaded joints in red sprinkler system.		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threads of joints on sprinkler pipes throughout	
Content	0.93% Anthophyllite	

5.37-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.37-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.37-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.37 Findings and Recommendations—Building A06—North Residence (848-32-RP)
September 2017

**Table 5.37-3 Suspected LCP Sample Collection and Analysis Summary
Building A06—North Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A6-P-01	Cream on drywall	Room 13, shower, interior walls	<140
A6-P-02	Blue on metal	Room 2, laundry room, interior trim, door, door frame	<90
A6-P-03	Cream on wood	Room 16, mechanical room, exterior trim	<90
A6-P-04	Blue on stucco	Exterior walls, east	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.37-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.37-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

One thermostat with a mercury-containing switch was observed on the south wall in room 9, living room adjacent to the kitchen. The location of the thermostat is indicated on the floor plan drawing attached to appendix.

5.37-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.37-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.37 Findings and Recommendations—Building A06—North Residence (848-32-RP)
September 2017

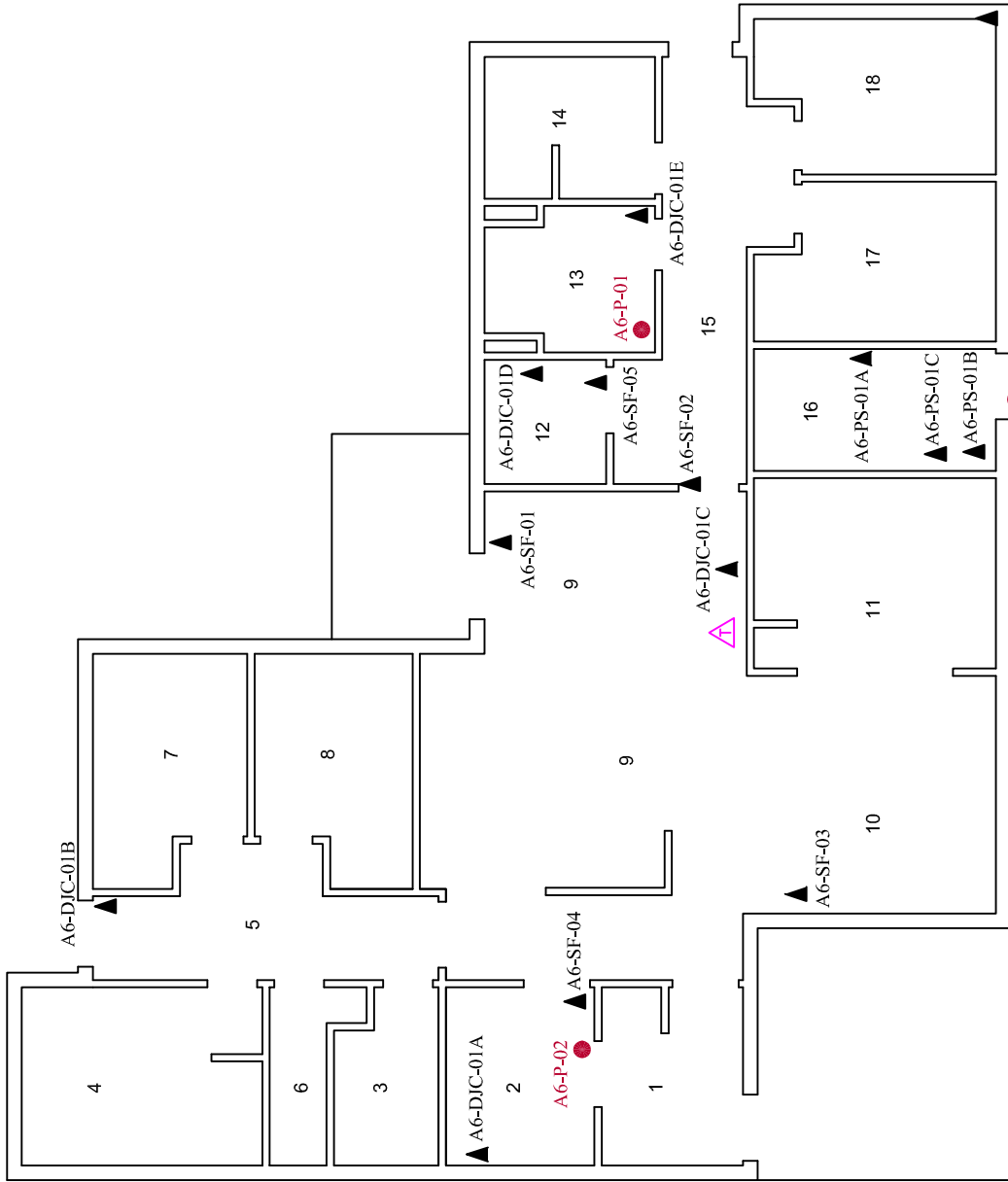
5.37-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.37-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND
 ▲ ASBESTOS BULK SAMPLE
 ● LEAD PAINT SAMPLE
 ▲ MERCURY-CONTAINING THERMOSTAT

**FIRST FLOOR
 RESIDENCE A06**

NOTES: 1. GREY PIPE SEALANT APPLIED AROUND SEAMS OF SPRINKLER SYSTEM IS ASBESTOS-CONTAINING.
 2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

<p>FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA</p>		Project No.: 123220822
		Dwg. No.: 37.1
Scale: N.T.S.	Date: 17/08/22	Dwn. By: CD SL2017080207 VM/DM
App'd By: TW		



Unit A6		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Vestibule	7.0
2	Laundry Room	6.7
3	Bathroom	4.3
4	Bedroom	11.2
5	Corridor	8.5
6	Shower	3.3
7	Bedroom	8.6
8	Bedroom	8.2
9	Living Room	33.0
10	Dining Room	14.3
11	Kitchen	11.2
12	Washroom	4.0
13	Shower	6.3
14	Bedroom	6.5
15	Corridor	11.7
16	Mechanical Room	7.4
17	Bedroom	8.5
18	Bedroom	9.0

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD _{VM} SL2017040040

App'd By: TW

Dwg. No.:

37.2





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EMSL Canada Order 691700358
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

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 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/08/2017
Analyzed: 3/15/2017

Proj: CSC MISSION- MINIMUM/123220822/ LIVING UNIT A6

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A6-DJC-01A **Lab Sample ID:** 691700358-0001

Sample Description: Room 2, Kitchen, South Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A6-DJC-01B **Lab Sample ID:** 691700358-0002

Sample Description: Room 5, Corridor, North Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A6-DJC-01C **Lab Sample ID:** 691700358-0003

Sample Description: Room 9, Living Room, East Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A6-DJC-01D **Lab Sample ID:** 691700358-0004

Sample Description: Room 12, Washroom, North Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A6-DJC-01E **Lab Sample ID:** 691700358-0005

Sample Description: Room 13, Shower, North Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A6-SF-01 **Lab Sample ID:** 691700358-0006

Sample Description: Room 9, Living Room/Vinyl Sheet Flooring, Dark Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A6-SF-02 **Lab Sample ID:** 691700358-0007

Sample Description: Room 15, Corridor/Vinyl Sheet Flooring, Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700358
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A6-SF-03 **Lab Sample ID:** 691700358-0008
Sample Description: Room 10, Dining Room/Vinyl Sheet Flooring, Light & Dark Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A6-SF-04 **Lab Sample ID:** 691700358-0009
Sample Description: Room 2, Laundry Room/Vinyl Sheet Flooring, Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A6-SF-05 **Lab Sample ID:** 691700358-0010
Sample Description: Room 12, Washroom/Vinyl Sheet Flooring, Tan & Light Blue Pebble Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A6-PS-01A **Lab Sample ID:** 691700358-0011
Sample Description: Room 16, Mechanical Room/Grey Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Gray	0.0%	99.1%	0.93% Anthophyllite	

Client Sample ID: A6-PS-01B **Lab Sample ID:** 691700358-0012
Sample Description: Room 16, Mechanical Room/Grey Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017					Positive Stop (Not Analyzed)

Client Sample ID: A6-PS-01C **Lab Sample ID:** 691700358-0013
Sample Description: Room 16, Mechanical Room/Grey Pipe Sealant Applied Around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017					Positive Stop (Not Analyzed)

Client Sample ID: A6-RS-01A **Lab Sample ID:** 691700358-0014
Sample Description: Roof, North East/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Black	0.82%	99.2%	None Detected	

Client Sample ID: A6-RS-01B **Lab Sample ID:** 691700358-0015
Sample Description: Roof, North East/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Black	1.2%	98.8%	None Detected	



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EMSL Canada Order 691700358
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A6-RS-01C **Lab Sample ID:** 691700358-0016

Sample Description: Roof, North East/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A6-ES-01A **Lab Sample ID:** 691700358-0017

Sample Description: Exterior, East/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Client Sample ID: A6-ES-01B **Lab Sample ID:** 691700358-0018

Sample Description: Exterior, East/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Client Sample ID: A6-ES-01C **Lab Sample ID:** 691700358-0019

Sample Description: Exterior, East/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Analyst(s):

- Kathleen Cruz PLM (5)
PLM Grav. Reduction (8)
- Nicole Yeo PLM (3)
PLM Grav. Reduction (1)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/15/2017 15:39:37



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CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
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500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/09/17 12:21 PM
 Collected:

Project: **CSCMission - Minimum/123220822 - Living Unit A6**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A6-P-01 Site: Room 13, Shower, Interior walls Desc: Cream on drywall Insufficient sample to reach reporting limit.	551702427-0001	3/13/2017		<140 ppm
A6-P-02 Site: Room 2, Laundry room, Interior trim, Door, Door frame Desc: Blue on metal	551702427-0002	3/13/2017		<90 ppm
A6-P-03 Site: Room 16, Mechanical room, Exterior trim Desc: Cream on wood	551702427-0003	3/13/2017		<90 ppm
A6-P-04 Site: Exterior walls, East Desc: Blue on stucco	551702427-0004	3/13/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/16/2017 08:08:30

**APPENDIX 5.38
FINDINGS AND RECOMMENDATIONS—
BUILDING A07—NORTH RESIDENCE
(848 31 RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.38 Findings and Recommendations—Building A07—North Residence (848-31-RP)
September 2017

Appendix 5.38 FINDINGS AND RECOMMENDATIONS— BUILDING A07—NORTH RESIDENCE (848-31-RP)

Building A07—North Residence (subject building) was reportedly constructed in 1994 and has been assigned Real Property ID #878. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.38-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.38-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.38-1 Suspected ACM Sample Collection and Analysis Summary
Building A07—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A7-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 4, kitchen, east wall	None Detected
A7-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 16, living room, east wall	None Detected
A7-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 8, corridor, west wall	None Detected
A7-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 11, corridor, east wall	None Detected
A7-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 15, vestibule, west wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.38 Findings and Recommendations—Building A07—North Residence (848-31-RP)
September 2017

**Table 5.38-1 Suspected ACM Sample Collection and Analysis Summary
Building A07—North Residence**


Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A7-SF-01	Vinyl sheet flooring, dark grey smudged	Room 16, living room	None Detected
A7-SF-02	Vinyl sheet flooring, light grey smudged	Room 11, corridor	None Detected
A7-SF-03	Vinyl sheet flooring, light and dark blue	Room 4, kitchen	None Detected
A7-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 14, laundry room	None Detected
A7-SF-05	Vinyl sheet flooring, tan and light blue pebble pattern	Room 6, bathroom	None Detected
A7-PS-01A	Grey pipe sealant applied around seams of red sprinkler system	Room 3, furnace room	1% Anthophyllite
A7-PS-01B	Grey pipe sealant applied around seams of red sprinkler system	Room 3, furnace room	Positive Stop (Not Analyzed)
A7-PS-01C	Grey pipe sealant applied around seams of red sprinkler system	Room 3, furnace room	Positive Stop (Not Analyzed)
A7-RS-01A	Black asphalt roof shingle	Roof, west	<0.26% Chrysotile (see 5.38-1.1)
A7-RS-01B	Black asphalt roof shingle	Roof, west	<0.28% Chrysotile (see 5.38-1.1)
A7-RS-01C	Black asphalt roof shingle	Roof, west	<0.37% Chrysotile (see 5.38-1.1)
A7-ES-01A	Exterior stucco, grey painted blue	Exterior, west	None Detected
A7-ES-01B	Exterior stucco, grey painted blue	Exterior, west	None Detected
A7-ES-01C	Exterior stucco, grey painted blue	Exterior, east	None Detected
NOTE: Bold, highlighted text indicates confirmed ACM			

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the material presented in Table 5.38-2, below is identified as an ACM.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.38 Findings and Recommendations—Building A07—North Residence (848-31-RP)
September 2017

**Table 5.38-2 Summary of Identified ACMs
Building A07—North Residence**

Identified ACM Description and Condition Information		Photo
Grey pipe sealant applied to threaded joints in red sprinkler system.		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threads of joints on sprinkler pipes throughout	
Content	1% Anthophyllite	

5.38-1.1 Materials with less than 0.5% Asbestos

It should be noted that less than 0.5% chrysotile asbestos was detected in samples of roof asphalt (less than 0.26%, less than 0.28%, and less than 0.37%). Given the apparent consistent application (visual similarity throughout) of this material, the sample results are considered representative of each entire application. Given the analytical results, this material would not be considered an ACM, as the asbestos content is less than 0.5%, and there would not be a reasonable chance that asbestos fibres would be released when the material is disturbed.

5.38-1.2 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.38-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.38 Findings and Recommendations—Building A07—North Residence (848-31-RP)
September 2017

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.38-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.38-3 Suspected LCP Sample Collection and Analysis Summary
Building A07—North Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A7-P-01	Cream on drywall	Room 15, vestibule, interior walls	<90
A7-P-02	Blue on metal	Room 15, vestibule, interior trim, door, door frame	140
A7-P-03	Cream on wood	Room 3, furnace room, exterior trim	<90
A7-P-04	Blue on stucco	Exterior walls, west	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.38-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.38-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.38-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.38-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.38 Findings and Recommendations—Building A07—North Residence (848-31-RP)
September 2017

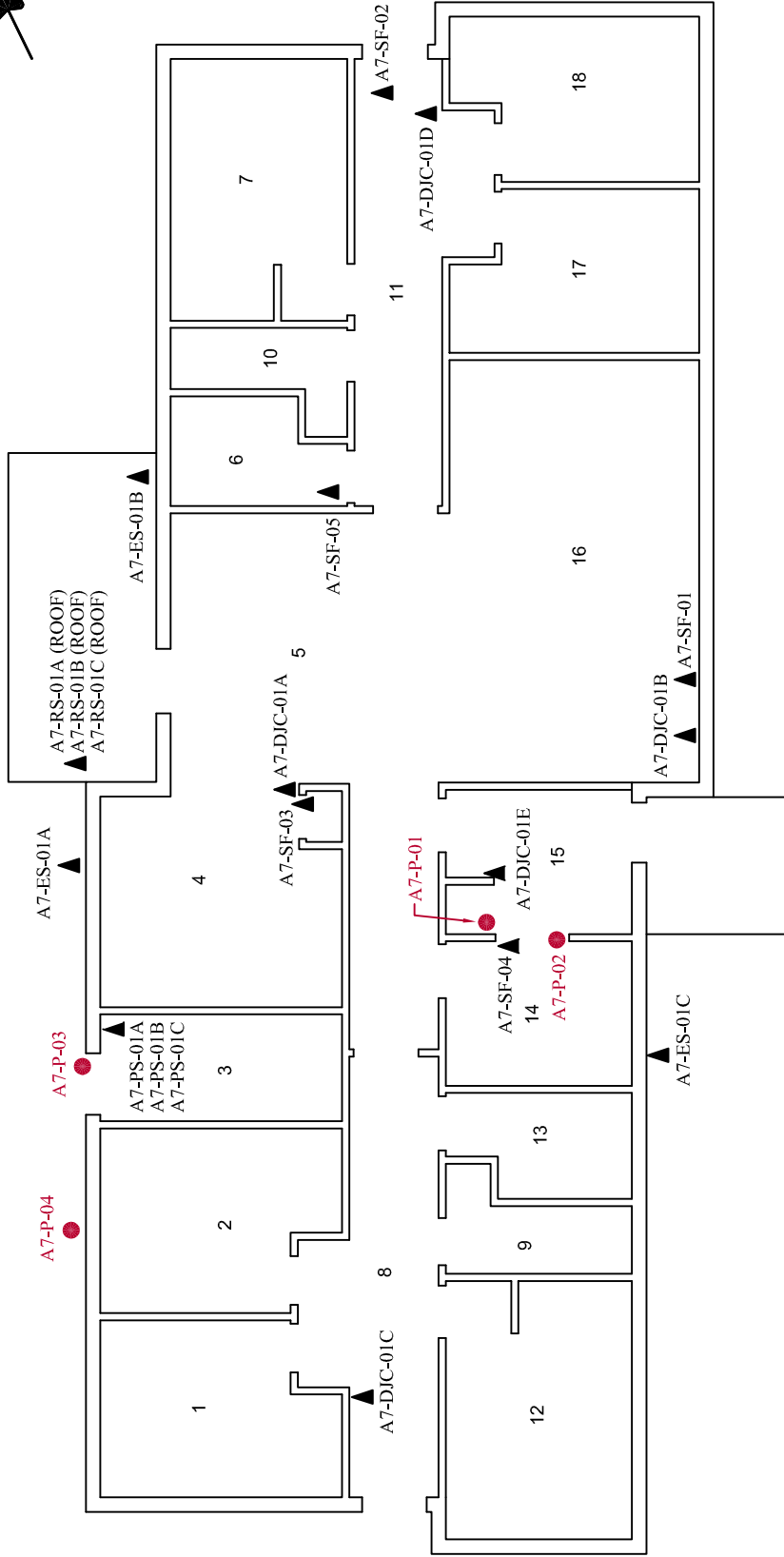
5.38-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.38-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR RESIDENCE A07

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTES: 1. GREY PIPE SEALANT APPLIED AROUND SEAMS OF SPRINKLER SYSTEM IS ASBESTOS-CONTAINING.
 2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/08/22

Dwn. By: CD SL2017080208
 VM/DM

App'd By: TW

Dwg. No.:

38.1



Unit A7		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	9.5
2	Bedroom	9.0
3	Furnace Room	6.0
4	Kitchen	11.7
5	Dining Room	16.1
6	Bathroom	4.1
7	Bedroom	10.8
8	Corridor	15.1
9	Shower	3.5
10	Shower	3.3
11	Corridor	10.3
12	Bedroom	11.3
13	Bathroom	4.2
14	Laundry Room	6.1
15	Vestibule	6.1
16	Living Room	23.3
17	Bedroom	8.5
18	Bedroom	8.9

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD _{VM} SL2017040042

App'd By: TW

Dwg. No.:

38.2





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EMSL Canada Order 691700359
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected: 3/ 7/2017
Received: 3/08/2017
Analyzed: 3/15/2017

Proj: CSC MISSION- MINIMUM/123220822/ LIVING UNIT A7

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A7-DJC-01A **Lab Sample ID:** 691700359-0001

Sample Description: Room 4, Kitchen, East Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A7-DJC-01B **Lab Sample ID:** 691700359-0002

Sample Description: Room 16, Living Room, East Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A7-DJC-01C **Lab Sample ID:** 691700359-0003

Sample Description: Room 8, Corridor, West Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A7-DJC-01D **Lab Sample ID:** 691700359-0004

Sample Description: Room 11, Corridor, East Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A7-DJC-01E **Lab Sample ID:** 691700359-0005

Sample Description: Room 15, Vestibule, West Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A7-SF-01 **Lab Sample ID:** 691700359-0006

Sample Description: Room 16, Living Room/Vinyl Sheet Flooring, Dark Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A7-SF-02 **Lab Sample ID:** 691700359-0007

Sample Description: Room 11, Corridor/Vinyl Sheet Flooring, Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700359
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A7-SF-03 **Lab Sample ID:** 691700359-0008

Sample Description: Room 4, Kitchen/Vinyl Sheet Flooring, Light & Dark Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A7-SF-04 **Lab Sample ID:** 691700359-0009

Sample Description: Room 14, Laundry Room/Vinyl Sheet Flooring, Grey Pebble Pattern w/ Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A7-SF-05 **Lab Sample ID:** 691700359-0010

Sample Description: Room 6, Bathroom/Vinyl Sheet Flooring, Tan & Light Blue Pebble Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A7-PS-01A **Lab Sample ID:** 691700359-0011

Sample Description: Room 3, Furnace Room/Grey Pipe Sealant Applied around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Gray/Red	0%	99%	1% Anthophyllite	

Client Sample ID: A7-PS-01B **Lab Sample ID:** 691700359-0012

Sample Description: Room 3, Furnace Room/Grey Pipe Sealant Applied around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017					Positive Stop (Not Analyzed)

Client Sample ID: A7-PS-01C **Lab Sample ID:** 691700359-0013

Sample Description: Room 3, Furnace Room/Grey Pipe Sealant Applied around Seams of Red Sprinkler System

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017					Positive Stop (Not Analyzed)

Client Sample ID: A7-RS-01A **Lab Sample ID:** 691700359-0014

Sample Description: Roof, West/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Black	0.0%	100%	<0.26% Chrysotile	

Client Sample ID: A7-RS-01B **Lab Sample ID:** 691700359-0015

Sample Description: Roof, West/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Black	0.0%	100%	<0.28% Chrysotile	



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EMSL Canada Order 691700359
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A7-RS-01C **Lab Sample ID:** 691700359-0016

Sample Description: Roof, West/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	<0.37% Chrysotile	

Client Sample ID: A7-ES-01A **Lab Sample ID:** 691700359-0017

Sample Description: Exterior, West/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Client Sample ID: A7-ES-01B **Lab Sample ID:** 691700359-0018

Sample Description: Exterior, West/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Client Sample ID: A7-ES-01C **Lab Sample ID:** 691700359-0019

Sample Description: Exterior, East/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Analyst(s):

Kathleen Cruz	PLM (6) PLM Grav. Reduction (7)
Nicole Yeo	PLM (3) PLM Grav. Reduction (1)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 08/28/2017 14:13:20 Replaces amended report from: 06/05/2017 11:08:06 Reason Code: Client-Other (see report comment)



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Attn: **Steve Chou**
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500 - 4730 Kingsway
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Phone: (604) 412-3004
 Fax:
 Received: 03/09/17 12:21 PM
 Collected:

Project: **CSCMission - Minimum/123220822 - Living Unit A7**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A7-P-01 Site: Room 15, Vestibule, Interior walls Desc: Cream on drywall	551702428-0001	3/14/2017		<90 ppm
A7-P-02 Site: Room 15, Vestibule, Interior trim, Door, Door frame Desc: Blue on metal	551702428-0002	3/14/2017		140 ppm
A7-P-03 Site: Room 3, Furnace room, Exterior trim Desc: Cream on wood	551702428-0003	3/14/2017		<90 ppm
A7-P-04 Site: Exterior walls, West Desc: Blue on stucco	551702428-0004	3/14/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Report Amended: 08/29/2017 08:36:43 Replaces the Initial Report 03/16/2017 08:21:38. Reason Code: Client-Change to Location

**APPENDIX 5.39
FINDINGS AND RECOMMENDATIONS—
BUILDING A08—NORTH RESIDENCE
(848 34 RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.39 Findings and Recommendations—Building A08—North Residence (848-34-RP)
September 2017

Appendix 5.39 FINDINGS AND RECOMMENDATIONS— BUILDING A08—NORTH RESIDENCE (848-34-RP)

Building A08—North Residence (subject building) was reportedly constructed in 1994 and has been assigned Real Property ID #879. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.39-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.39-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.39-1 Suspected ACM Sample Collection and Analysis Summary
Building A08—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A8-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 16, laundry, east wall	None Detected
A8-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 15, vestibule, south wall	None Detected
A8-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 2, corridor, east wall	None Detected
A8-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 10, living room, south wall	None Detected
A8-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 10, living room, south dividing wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.39 Findings and Recommendations—Building A08—North Residence (848-34-RP)
September 2017

**Table 5.39-1 Suspected ACM Sample Collection and Analysis Summary
Building A08—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A8-SF-01	Vinyl sheet flooring, dark grey smudged	Room 10, living room	None Detected
A8-SF-02	Vinyl sheet flooring, light grey smudged	Room 2, corridor	None Detected
A8-SF-03	Vinyl sheet flooring, light and dark blue	Room 9, dining room	None Detected
A8-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 16, laundry	None Detected
A8-SF-05	Vinyl sheet flooring, tan and light blue pebble pattern	Room 7, bathroom	None Detected
A8-PS-01A	Grey pipe sealant applied around seams of red sprinkler system	Room 5, mechanical room	0.82% Anthophyllite
A8-PS-01B	Grey pipe sealant applied around seams of red sprinkler system	Room 5, mechanical room	Positive Stop (Not Analyzed)
A8-PS-01C	Grey pipe sealant applied around seams of red sprinkler system	Room 5, mechanical room	Positive Stop (Not Analyzed)
A8-RS-01A	Black asphalt roof shingle	Roof, south	None Detected
A8-RS-01B	Black asphalt roof shingle	Roof, south	None Detected
A8-RS-01C	Black asphalt roof shingle	Roof, south	<0.25% Chrysotile (see 5.39-1.1)
A8-ES-01A	Exterior stucco, grey painted blue	Exterior, east	None Detected
A8-ES-01B	Exterior stucco, grey painted blue	Exterior, east	None Detected
A8-ES-01C	Exterior stucco, grey painted blue	Exterior, east	None Detected
NOTE: Bold, highlighted text indicates confirmed ACM			

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the material presented in Table 5.39-2, below is identified as an ACM.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.39 Findings and Recommendations—Building A08—North Residence (848-34-RP)
September 2017

**Table 5.39-2 Summary of Identified ACMs
Building A08—North Residence**

Identified ACM Description and Condition Information		Photo
Grey pipe sealant applied to threaded joints in red sprinkler system.		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threads of joints on sprinkler pipes throughout	
Content	0.82% Anthophyllite	

5.39-1.1 Materials with less than 0.5% Asbestos

It should be noted that less than 0.25% chrysotile asbestos was detected in limited samples of roof asphalt (with no asbestos detected in other samples of this materials analyzed). Given the limited extent of this non-friable material and its apparent consistent application (visual similarity throughout), the sample results are considered representative of each entire application. Given the analytical results, this material would not be considered an ACM, as the asbestos content is less than 0.5%, and there would not be a reasonable chance that asbestos fibres would be released when the material is disturbed.

5.39-1.2 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.39-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used on in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.39 Findings and Recommendations—Building A08—North Residence (848-34-RP)
September 2017

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.39-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.39-3 Suspected LCP Sample Collection and Analysis Summary
Building A08—North Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A8-P-01	Cream on drywall	Room 16, laundry, interior walls	<140
A8-P-02	Grey on metal	Room 16, laundry, Interior trim, door, door frame	<90
A8-P-03	Cream on wood	Room 5, mechanical room, exterior trim	<90
A8-P-04	Blue on stucco	Exterior walls, east	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.39-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.39-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.39-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.39-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.39 Findings and Recommendations—Building A08—North Residence (848-34-RP)
September 2017

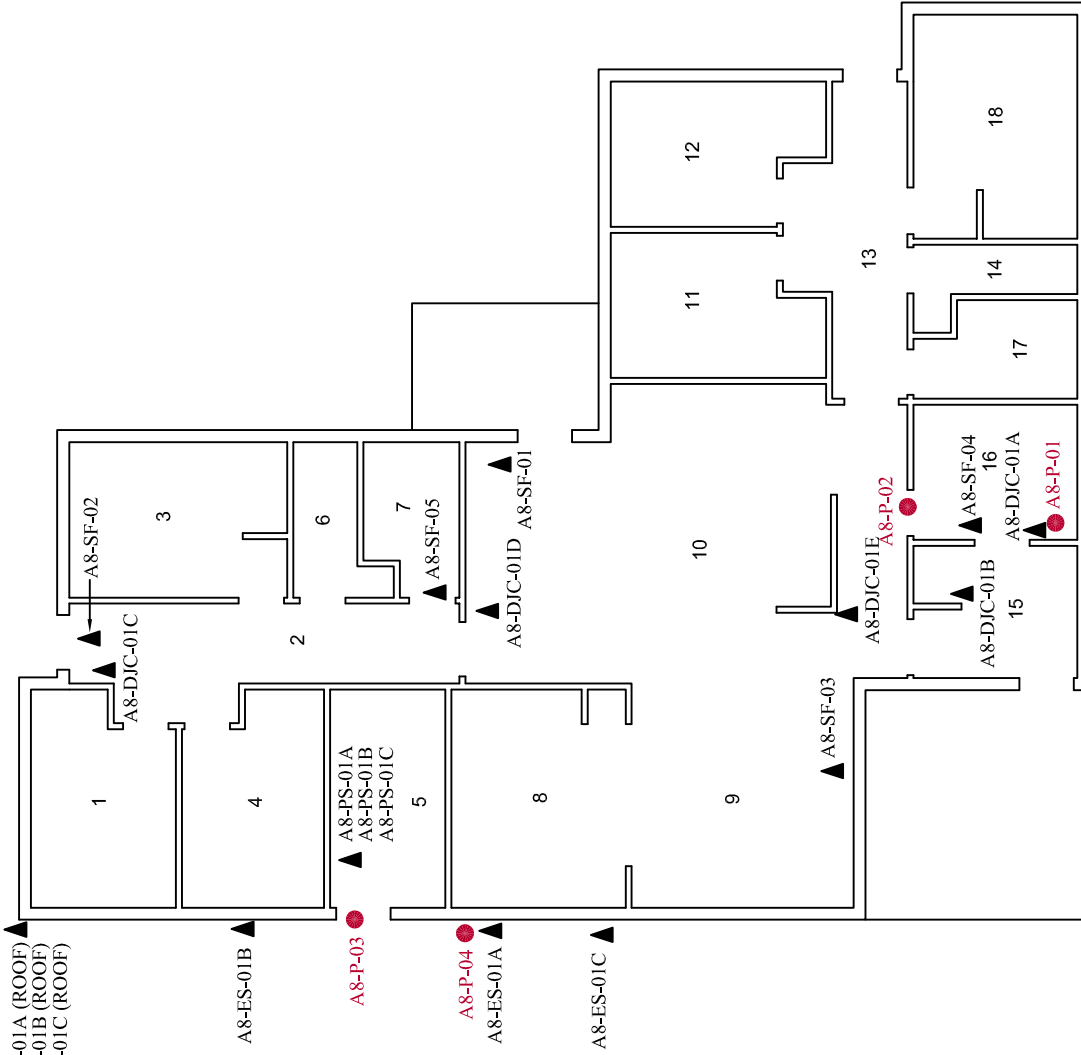
5.39-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.39-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR RESIDENCE A08

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTES: 1. GREY PIPE SEALANT APPLIED AROUND SEAMS OF SPRINKLER SYSTEM IS ASBESTOS-CONTAINING.
2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/08/22

Dwn. By: CD SL2017080209
VM/DM

App'd By: TW

Dwg. No.:

39.1



Unit A8		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	9.0
2	Corridor	10.3
3	Bedroom	10.6
4	Bedroom	8.5
5	Mechanical Room	7.4
6	Shower	3.5
7	Bathroom	4.1
8	Kitchen	11.2
9	Dining Room	14.3
10	Living Room	33.0
11	Bedroom	8.2
12	Bedroom	8.6
13	Corridor	8.5
14	Shower	3.3
15	Vestibule	7.0
16	Laundry	6.7
17	Bathroom	4.3
18	Bedroom	11.2

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD _{VM} SL2017040044

App'd By: TW

Dwg. No.:

39.2





EMSL Canada Inc.

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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700360
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected: 3/ 7/2017
Received: 3/08/2017
Analyzed: 3/15/2017

Proj: CSC MISSION- MINIMUM/123220822/LIVING UNIT A8

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A8-DJC-01A **Lab Sample ID:** 691700360-0001

Sample Description: ROOM 16, LAUNDRY, EAST WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A8-DJC-01B **Lab Sample ID:** 691700360-0002

Sample Description: ROOM 15, VESTIBULE, SOUTH WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A8-DJC-01C **Lab Sample ID:** 691700360-0003

Sample Description: ROOM 2, CORRIDOR EAST WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A8-DJC-01D **Lab Sample ID:** 691700360-0004

Sample Description: ROOM 10, LIVING ROOM, SOUTH WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A8-DJC-01E **Lab Sample ID:** 691700360-0005

Sample Description: ROOM 10, LIVING ROOM, SOUTH DIVING WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A8-SF-01 **Lab Sample ID:** 691700360-0006

Sample Description: ROOM 10, LIVING ROOM/VINYL SHEET FLOORING, DARK GREY SMUDGED

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A8-SF-02 **Lab Sample ID:** 691700360-0007

Sample Description: ROOM 2, CORRIDOR/VINYL SHEET FLOORING, LIGHT GREY SMUDGED

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	



EMSL Canada Inc.

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 Phone/Fax: 604-757-3158 / (604) 757-4731
<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700360
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A8-SF-03 **Lab Sample ID:** 691700360-0008
Sample Description: ROOM 9, DINING ROOM/VINYL SHEET FLOORING, LIGHT AND DARK BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A8-SF-04 **Lab Sample ID:** 691700360-0009
Sample Description: ROOM 16, LAUNDRY/VINYL SHEET FLOORING, GREY PEBBLE PATTERN WITH BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	White	0.0%	100%	None Detected	

Client Sample ID: A8-SF-05 **Lab Sample ID:** 691700360-0010
Sample Description: ROOM 7, BATHROOM/VINYL SHEET FLOORING, TAN AND LIGHT BLUE PEBBLE PATTERN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/14/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A8-PS-01A **Lab Sample ID:** 691700360-0011
Sample Description: ROOM 5, MECHANICAL ROOM/GREY PIPE SEALANT APPLIED AROUND SEAMS OF RED SPRINKLER SYSTEM

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Gray	0.0%	99.2%	0.82% Anthophyllite	

Client Sample ID: A8-PS-01B **Lab Sample ID:** 691700360-0012
Sample Description: ROOM 5, MECHANICAL ROOM/GREY PIPE SEALANT APPLIED AROUND SEAMS OF RED SPRINKLER SYSTEM

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A8-PS-01C **Lab Sample ID:** 691700360-0013
Sample Description: ROOM 5, MECHANICAL ROOM/GREY PIPE SEALANT APPLIED AROUND SEAMS OF RED SPRINKLER SYSTEM

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A8-RS-01A **Lab Sample ID:** 691700360-0014
Sample Description: ROOF, SOUTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A8-RS-01B **Lab Sample ID:** 691700360-0015
Sample Description: ROOF, SOUTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700360
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A8-RS-01C **Lab Sample ID:** 691700360-0016
Sample Description: ROOF, SOUTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	<0.25% Chrysotile	

Client Sample ID: A8-ES-01A **Lab Sample ID:** 691700360-0017
Sample Description: EXTERIOR, EAST/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Client Sample ID: A8-ES-01B **Lab Sample ID:** 691700360-0018
Sample Description: EXTERIOR, EAST/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Client Sample ID: A8-ES-01C **Lab Sample ID:** 691700360-0019
Sample Description: EXTERIOR, EAST/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Analyst(s):

Kathleen Cruz PLM (3)
PLM Grav. Reduction (6)
Nicole Yeo PLM (5)
PLM Grav. Reduction (3)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/15/2017 16:45:53



EMSL Canada Inc.

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torontolab@emsl.com

EMSL Canada Or	551702429
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/09/17 12:21 PM
 Collected:

Project: **CSCMission - Minimum/123220822 - Living Unit A8**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A8-P-01	551702429-0001	3/14/2017		<140 ppm
Site: Room 16, Laundry, Interior walls Desc: Cream on drywall Insufficient sample to reach reporting limit.				
A8-P-02	551702429-0002	3/14/2017		<90 ppm
Site: Room 16, Laundry, Interior trim, Door, Door frame Desc: Int. Grey trim				
A8-P-03	551702429-0003	3/14/2017		<90 ppm
Site: Room 5, Mechanical room, Exterior trim Desc: Cream on wood				
A8-P-04	551702429-0004	3/14/2017		<90 ppm
Site: Exterior walls, East Desc: Blue on stucco				

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/16/2017 08:19:13

**APPENDIX 5.40
FINDINGS AND RECOMMENDATIONS—
BUILDING A09—NORTH RESIDENCE
(848 33 RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.40 Findings and Recommendations—Building A09—North Residence (848-33-RP)
September 2017

Appendix 5.40 FINDINGS AND RECOMMENDATIONS— BUILDING A09—NORTH RESIDENCE (848-33-RP)

Building A09—North Residence (subject building) was reportedly constructed in 1994 and has been assigned Real Property ID #880. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.40-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.40-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.40-1 Suspected ACM Sample Collection and Analysis Summary
Building A09—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A9-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 4, kitchen, west wall	None Detected
A9-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 16, living room, east wall	None Detected
A9-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 11, corridor, west wall	None Detected
A9-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 8, corridor, east wall	None Detected
A9-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 15, vestibule, east wall	None Detected



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.40 Findings and Recommendations—Building A09—North Residence (848-33-RP)
September 2017

**Table 5.40-1 Suspected ACM Sample Collection and Analysis Summary
Building A09—North Residence**

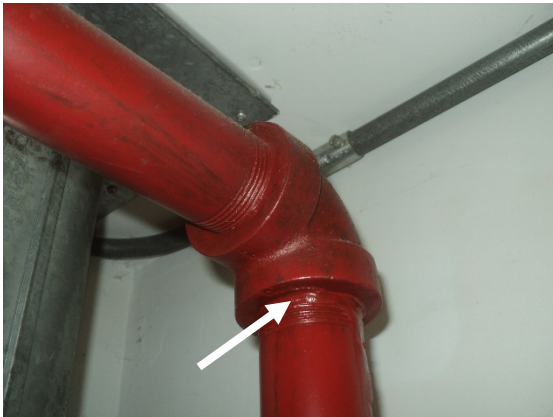
Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A9-SF-01	Vinyl sheet flooring, dark grey smudged	Room 16, living room	None Detected
A9-SF-02	Vinyl sheet flooring, light grey smudged	Room 8, corridor	None Detected
A9-SF-03	Vinyl sheet flooring, light and dark blue	Room 5, dining room	None Detected
A9-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 14, laundry room	None Detected
A9-SF-05	Vinyl sheet flooring, tan and light blue pebble pattern	Room 13, bathroom	None Detected
A9-PS-01A	Grey pipe sealant applied around seams of red sprinkler system	Room 3, furnace room	0.52% Anthophyllite
A9-PS-01B	Grey pipe sealant applied around seams of red sprinkler system	Room 3, furnace room	Positive Stop (Not Analyzed)
A9-PS-01C	Grey pipe sealant applied around seams of red sprinkler system	Room 3, furnace room	Positive Stop (Not Analyzed)
A9-RS-01A	Black asphalt roof shingle	Roof, north east	None Detected
A9-RS-01B	Black asphalt roof shingle	Roof, north east	None Detected
A9-RS-01C	Black asphalt roof shingle	Roof, north east	None Detected
A9-ES-01A	Exterior stucco, grey painted blue	Exterior, east	None Detected
A9-ES-01B	Exterior stucco, grey painted blue	Exterior, east	None Detected
A9-ES-01C	Exterior stucco, grey painted blue	Exterior, south	None Detected
NOTE: Bold, highlighted text indicates confirmed ACM			

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the material presented in Table 5.40-2, below is identified as an ACM.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.40 Findings and Recommendations—Building A09—North Residence (848-33-RP)
September 2017

**Table 5.40-2 Summary of Identified ACMs
Building A09—North Residence**

Identified ACM Description and Condition Information		Photo
Grey pipe sealant applied to threaded joints in red sprinkler system.		
Friability	Non-friable	
Condition	Good	
Total Quantity	On threads of joints on sprinkler pipes throughout	
Content	0.52% Anthophyllite	

5.40-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.40-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.40-3, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.40 Findings and Recommendations—Building A09—North Residence (848-33-RP)
September 2017

**Table 5.40-3 Suspected LCP Sample Collection and Analysis Summary
Building A09—North Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A9-P-01	Cream on drywall	Room 15, vestibule, interior walls	<90
A9-P-02	Blue on metal	Room 15, vestibule, Interior trim, door, door frame	<90
A9-P-03	Cream on wood	Room 3, furnace room, exterior trim	<90
A9-P-04	Blue on stucco	Exterior wall, east	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.40-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.40-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.40-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.40-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.40-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

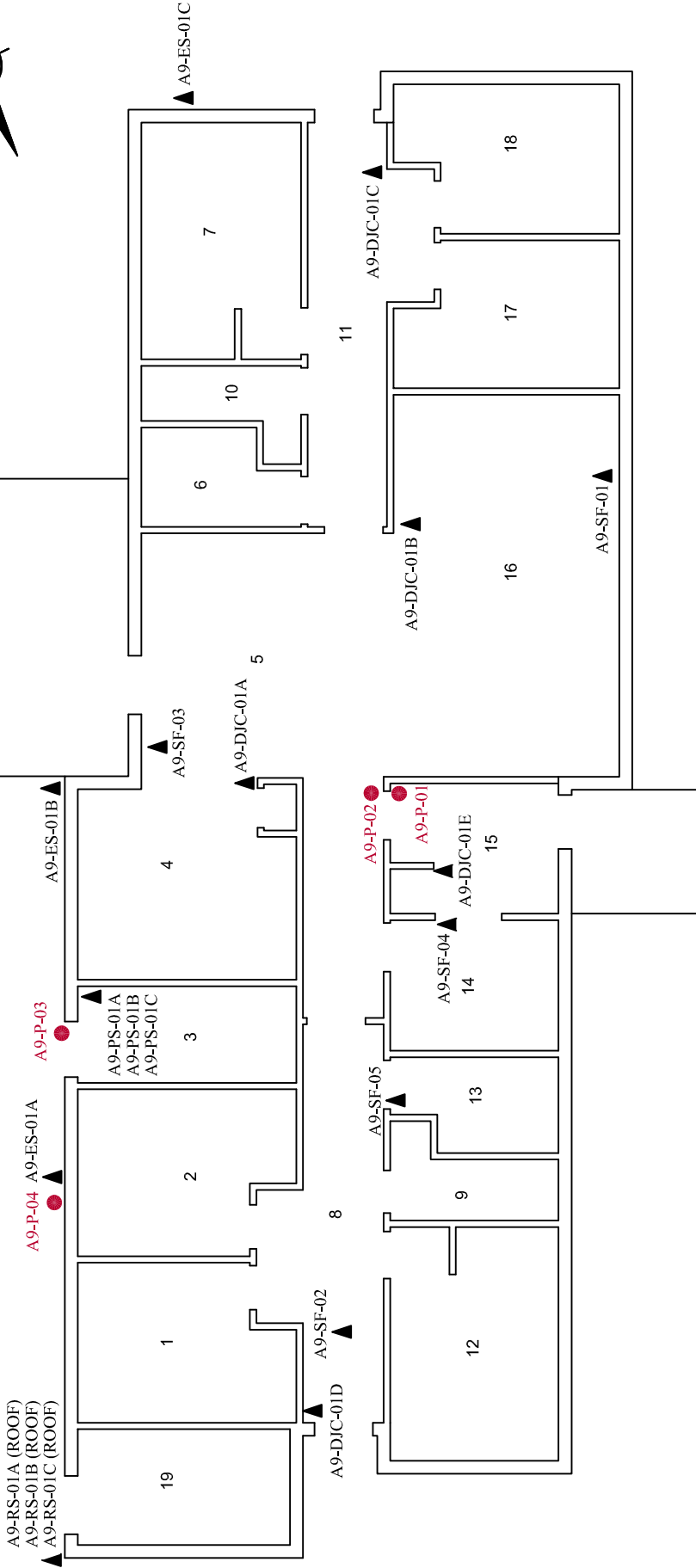
- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.40 Findings and Recommendations—Building A09—North Residence (848-33-RP)
September 2017

5.40-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR RESIDENCE A09

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTES: 1. GREY PIPE SEALANT APPLIED AROUND SEAMS OF SPRINKLER SYSTEM IS ASBESTOS-CONTAINING.
 2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS	
CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC	
PUBLIC SERVICES AND PROCUREMENT CANADA	
Client:	
Project No.: 123220822	Dwg. No.:
Scale: N.T.S.	40.1
Date: 17/08/22	
Dwn. By: CD VM/DM	
App'd By: TW	



Unit A9		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	9.5
2	Bedroom	9.0
3	Furnace Room	6.0
4	Kitchen	11.7
5	Dining Room	16.1
6	Bathroom	4.1
7	Bedroom	10.8
8	Corridor	15.1
9	Shower	3.5
10	Shower	3.3
11	Corridor	10.3
12	Bedroom	11.3
13	Bathroom	4.2
14	Laundry Room	6.1
15	Vestibule	6.1
16	Living Room	23.3
17	Bedroom	8.5
18	Bedroom	8.9
19	Electrical Room	7.6

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD _{VM} SL2017040046

App'd By: TW

Dwg. No.:

40.2





EMSL Canada Inc.

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 Phone/Fax: 604-757-3158 / (604) 757-4731
<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700361
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected: 3/ 7/2017
Received: 3/08/2017
Analyzed: 3/15/2017

Proj: CSC MISSION- MINIMUM/123220822/ LIVING UNIT A9

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A9-DJC-01A **Lab Sample ID:** 691700361-0001

Sample Description: ROOM 4, KITCHEN, WEST WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A9-DJC-01B **Lab Sample ID:** 691700361-0002

Sample Description: ROOM 16, LIVING ROOM, EAST WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A9-DJC-01C **Lab Sample ID:** 691700361-0003

Sample Description: ROOM 11, CORRIDOR, WEST WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A9-DJC-01D **Lab Sample ID:** 691700361-0004

Sample Description: ROOM 8, CORRIDOR, EAST WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A9-DJC-01E **Lab Sample ID:** 691700361-0005

Sample Description: ROOM 15, VESTIBULE, EAST WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	White	0%	100%	None Detected	

Client Sample ID: A9-SF-01 **Lab Sample ID:** 691700361-0006

Sample Description: ROOM 16, LIVING ROOM/VINYL SHEET FLOORING, DARK GREY SMUDGED

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A9-SF-02 **Lab Sample ID:** 691700361-0007

Sample Description: ROOM 8, CORRIDOR/VINYL SHEET FLOORING, LIGHT GREY SMUDGED

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Gray	0.0%	100%	None Detected	



EMSL Canada Inc.

4506 Dawson Street Burnaby, BC V5C 4C1
Phone/Fax: 604-757-3158 / (604) 757-4731
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EMSL Canada Order 691700361
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A9-SF-03 **Lab Sample ID:** 691700361-0008
Sample Description: ROOM 5, DINING ROOM/VINYL SHEET FLOORING, LIGHT AND DARK BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A9-SF-04 **Lab Sample ID:** 691700361-0009
Sample Description: ROOM 14, LAUNDRY ROOM/VINYL SHEET FLOORING, GREY PEBBLE PATTERN WITH BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A9-SF-05 **Lab Sample ID:** 691700361-0010
Sample Description: ROOM 13, BATHROOM/VINYL SHEET FLOORING, TAN AND LIGH BLUE PEBBLE PATTERN

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A9-PS-01A **Lab Sample ID:** 691700361-0011
Sample Description: ROOM 3, FURNACE ROOM/GREY PIPE SEALANT APPLIED AROUND SEAMS OF RED SPRINKLER SYSTEM

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Gray	0.0%	99.5%	0.52% Anthophyllite	

Client Sample ID: A9-PS-01B **Lab Sample ID:** 691700361-0012
Sample Description: ROOM 3, FURNACE ROOM/GREY PIPE SEALANT APPLIED AROUND SEAMS OF RED SPRINKLER SYSTEM

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A9-PS-01C **Lab Sample ID:** 691700361-0013
Sample Description: ROOM 3, FURNACE ROOM/GREY PIPE SEALANT APPLIED AROUND SEAMS OF RED SPRINKLER SYSTEM

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017				Positive Stop (Not Analyzed)	

Client Sample ID: A9-RS-01A **Lab Sample ID:** 691700361-0014
Sample Description: ROOF, NORTH EAST/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A9-RS-01B **Lab Sample ID:** 691700361-0015
Sample Description: ROOF, NORTH EAST/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	None Detected	



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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700361
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A9-RS-01C **Lab Sample ID:** 691700361-0016
Sample Description: ROOF, NORTH EAST/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/15/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A9-ES-01A **Lab Sample ID:** 691700361-0017
Sample Description: EXTERIOR, EAST/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Client Sample ID: A9-ES-01B **Lab Sample ID:** 691700361-0018
Sample Description: EXTERIOR, EAST/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Client Sample ID: A9-ES-01C **Lab Sample ID:** 691700361-0019
Sample Description: EXTERIOR, SOUTH/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/15/2017	Blue	0%	100%	None Detected	

Analyst(s):

- Kathleen Cruz PLM (5)
PLM Grav. Reduction (8)
- Nicole Yeo PLM (3)
PLM Grav. Reduction (1)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 05/02/2017 15:14:46 Replaces initial report from: 03/15/2017 17:11:35 Reason Code: Client-Other (see report comment)

**EMSL Canada Inc.**

2756 Slough Street, Mississauga, ON L9T 5N4

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

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

EMSL Canada Or	551702431
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/09/17 12:21 PM
 Collected:

Project: **CSCMission - Minimum/123220822 - Living Unit A9****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A9-P-01 Site: Room 15, Vestibule, Interior walls Desc: Cream on drywall	551702431-0001	3/14/2017		<90 ppm
A9-P-02 Site: Room 15, Vestibule, Interior trim, Door, Door frame Desc: Blue on metal	551702431-0002	3/14/2017		<90 ppm
A9-P-03 Site: Room 3, Furnace room, Exterior trim Desc: Cream on wood	551702431-0003	3/14/2017		<90 ppm
A9-P-04 Site: Exterior wall, East Desc: Blue on stucco	551702431-0004	3/14/2017		<90 ppm

Rowena Fanto, Lead Supervisor
 or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/16/2017 08:25:42

**APPENDIX 5.41
FINDINGS AND RECOMMENDATIONS—
BUILDING A10—NORTH RESIDENCE
(848 04 RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.41 Findings and Recommendations—Building A10—North Residence (848-04-RP)
September 2017

Appendix 5.41 FINDINGS AND RECOMMENDATIONS— BUILDING A10—NORTH RESIDENCE (848-04-RP)

Building A10—North Residence (subject building) was reportedly constructed in 1996 and has been assigned Real Property ID #31. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall and texture coat ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.41-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.41-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.41-1 Suspected ACM Sample Collection and Analysis Summary
Building A10—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A10-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 9, dining room, near kitchen	None Detected
A10-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 15, vestibule, near laundry	None Detected
A10-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 13, corridor, near bedroom 19	None Detected
A10-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 2, corridor, near bedroom 4	None Detected
A10-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 10, living room, near back door	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.41 Findings and Recommendations—Building A10—North Residence (848-04-RP)
September 2017

**Table 5.41-1 Suspected ACM Sample Collection and Analysis Summary
Building A10—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A10-CTC-01A	Texture coat applied to drywall ceilings	Room 15, vestibule	None Detected
A10-CTC-01B	Texture coat applied to drywall ceilings	Room 10, living room	None Detected
A10-CTC-01C	Texture coat applied to drywall ceilings	Room 13, corridor	None Detected
A10-CTC-01D	Texture coat applied to drywall ceilings	Room 2, corridor	None Detected
A10-CTC-01E	Texture coat applied to drywall ceilings	Room 10, living room	None Detected
A10-SF-01	Vinyl sheet flooring, dark grey smudged	Room 10, living room	None Detected
A10-SF-03	Vinyl sheet flooring, grey pebble pattern with blue	Room 16, laundry	None Detected
A10-SF-04	Vinyl sheet flooring, beige smudges	Room 9, dining room	None Detected
A10-PS-01A	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	<0.25% Anthophyllite (see 5.41-1.1)
A10-PS-01B	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	None Detected
A10-PS-01C	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	None Detected
A10-RS-01A	Black asphalt roof shingle	Exterior, northeast corner	None Detected
A10-RS-01B	Black asphalt roof shingle	Exterior, northeast corner	None Detected
A10-RS-01C	Black asphalt roof shingle	Exterior, northeast corner	None Detected
A10-ES-01A	Exterior stucco, grey painted blue	Exterior south wall, below east window	None Detected
A10-ES-01B	Exterior stucco, grey painted blue	Exterior south wall, below central window	None Detected
A10-ES-01C	Exterior stucco, grey painted blue	Exterior south wall, below west window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.41 Findings and Recommendations—Building A10—North Residence (848-04-RP)
September 2017

5.41-1.1 Materials with less than 0.5% Asbestos

It should be noted that less than 0.25% anthophyllite asbestos was detected in limited samples of pipe sealant collected from the subject building (with no asbestos detected in the others). Given the limited extent of this non-friable materials and its apparent consistent application (visual similarity throughout), the sample results are considered representative of the entire application. Given the analytical results, this material would not be considered ACM, as the asbestos content is less than 0.5%, and there would not be a reasonable chance that asbestos fibres would be released when the material is disturbed.

5.41-1.2 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.41-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.41-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.41-2 Suspected LCP Sample Collection and Analysis Summary
Building A10—North Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A10-P-01	Cream on drywall	Room 10, living room, wall adjacent to living room	<90
A10-P-02	Beige on metal trim	Room 10, living room, adjacent to back door	<90
A10-P-03	Grey on metal trim	Exterior mechanical room trim	<90
A10-P-04	Blue on stucco	Exterior south wall, below centre window	<90

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.41 Findings and Recommendations—Building A10—North Residence (848-04-RP)
September 2017

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.41-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.41-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.41-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.41-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

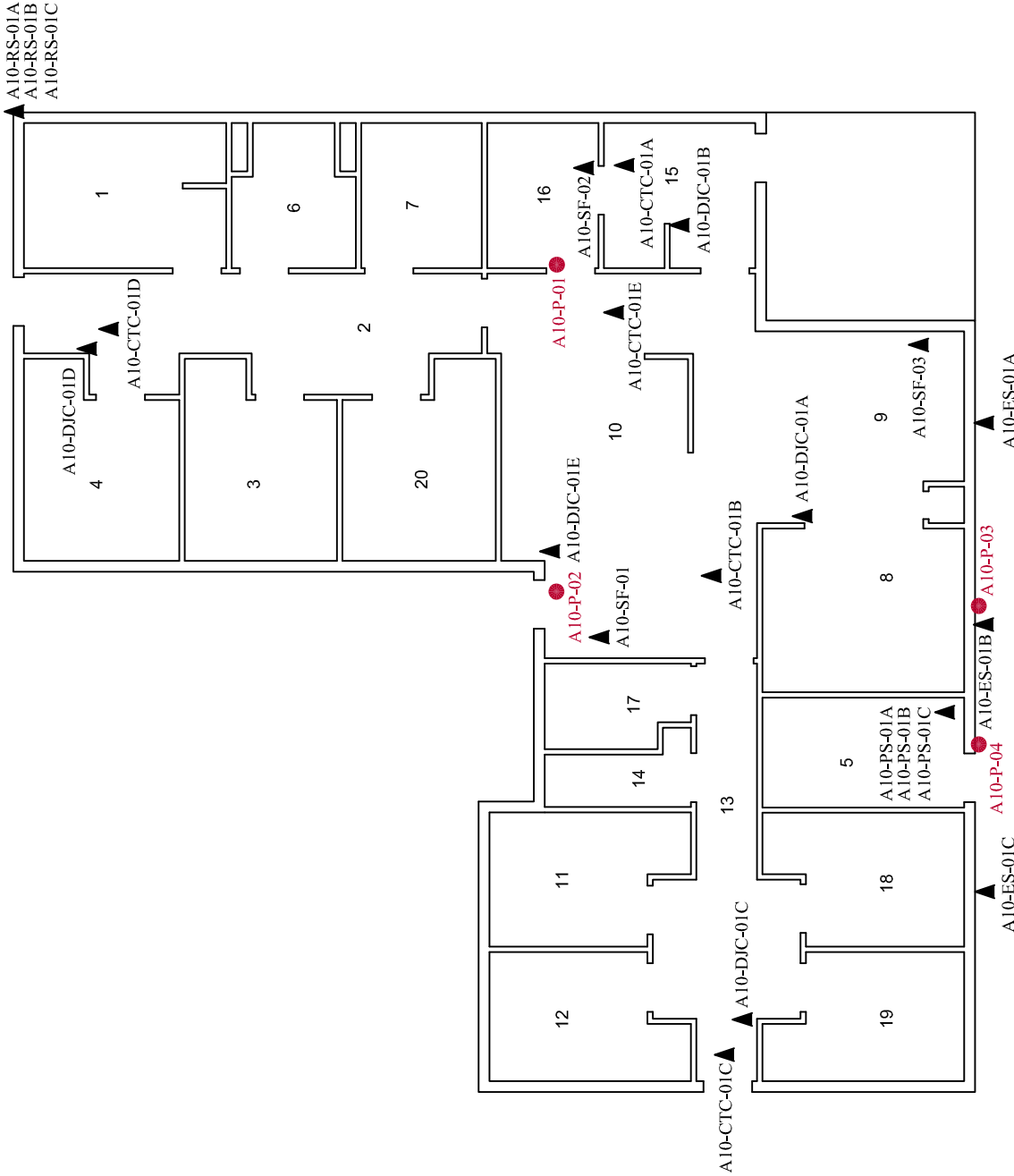
5.41-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.41-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

**FIRST FLOOR
RESIDENCE A10**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Project No.: 123220822		Dwg. No.:
Scale: N.T.S.	41.1	
Date: 17/09/21		
Dwn. By: CD VM/DM		
App'd By: TW		

**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
AND BULK SAMPLE LOCATIONS**

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC
PUBLIC SERVICES AND PROCUREMENT CANADA




Unit A10 (Barrier Free)		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	10.9
2	Corridor	17.2
3	Bedroom	9.8
4	Bedroom	10.1
5	Mechanical Room	8.2
6	B. F. Shower	6.6
7	B. F. Bathroom	6.5
8	Kitchen	11.7
9	Dining Room	14.3
10	Living Room	32.9
11	Bedroom	8.8
12	Bedroom	9.1
13	Corridor	13.8
14	Shower	3.2
15	Vestibule	8.3
16	Laundry	6.0
17	Bathroom	4.5
18	Bedroom	8.7
19	Bedroom	9.1
20	Bedroom	9.8

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Project No.: 123220822	
Scale:	N.T.S.
Date:	17/04/03
Dwn. By:	CD _{VM} SL2017040048
App'd By:	TW

Dwg. No.: **41.2**



GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Client:



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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700504
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/27/2017

Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A10

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A10-DJC-01A **Lab Sample ID:** 691700504-0001

Sample Description: Room 9 Dining Room Near Kitchen/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	

Client Sample ID: A10-DJC-01B **Lab Sample ID:** 691700504-0002

Sample Description: Room 15 Vestibule Near Laundry/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID: A10-DJC-01C **Lab Sample ID:** 691700504-0003

Sample Description: Room 13 Corridor Near Bedroom 19/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID: A10-DJC-01D **Lab Sample ID:** 691700504-0004

Sample Description: Room 2 Corridor Near Bedroom 4/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID: A10-DJC-01E **Lab Sample ID:** 691700504-0005

Sample Description: Room 10 Living Room Near Back Door/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	

Client Sample ID: A10-CTC-01A **Lab Sample ID:** 691700504-0006

Sample Description: Room 15 Vestibule/Textured Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	4%	96%	None Detected	

Client Sample ID: A10-CTC-01B **Lab Sample ID:** 691700504-0007

Sample Description: Room 10 Living Room/Textured Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	5%	95%	None Detected	



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EMSL Canada Order 691700504
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A10-CTC-01C **Lab Sample ID:** 691700504-0008
Sample Description: Room 13 Corridor/Textured Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	6%	94%	None Detected	

Client Sample ID: A10-CTC-01D **Lab Sample ID:** 691700504-0009
Sample Description: Room 2 Corridor/Textured Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	

Client Sample ID: A10-CTC-01E **Lab Sample ID:** 691700504-0010
Sample Description: Room 10 Living Room/Textured Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	

Client Sample ID: A10-SF-01 **Lab Sample ID:** 691700504-0011
Sample Description: Room 10 Living Room/Vinyl Sheet Flooring Dark Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A10-SF-03 **Lab Sample ID:** 691700504-0012
Sample Description: Room 16 Laundry/Vinyl Sheet Flooring Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A10-SF-04 **Lab Sample ID:** 691700504-0013
Sample Description: Room 9 Dining Room/Vinyl Sheet Flooring Beige Smudge

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A10-PS-01A **Lab Sample ID:** 691700504-0014
Sample Description: Room 5 Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	<0.25% Anthophyllite	

Client Sample ID: A10-PS-01B **Lab Sample ID:** 691700504-0015
Sample Description: Room 5 Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700504
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A10-PS-01C **Lab Sample ID:** 691700504-0016
Sample Description: Room 5 Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A10-RS-01A **Lab Sample ID:** 691700504-0017
Sample Description: Exterior Northeast Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A10-RS-01B **Lab Sample ID:** 691700504-0018
Sample Description: Exterior Northeast Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A10-RS-01C **Lab Sample ID:** 691700504-0019
Sample Description: Exterior Northeast Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A10-ES-01A **Lab Sample ID:** 691700504-0020
Sample Description: Exterior South Wall Below East Window/Exterior Stucco Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Blue	0%	100%	None Detected	

Client Sample ID: A10-ES-01B **Lab Sample ID:** 691700504-0021
Sample Description: Exterior South Wall Below Central Window/Exterior Stucco Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Blue	0%	100%	None Detected	

Client Sample ID: A10-ES-01C **Lab Sample ID:** 691700504-0022
Sample Description: Exterior South Wall Below West Window/Exterior Stucco Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Blue	0%	100%	None Detected	



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EMSL Canada Order 691700504
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Chad Layne PLM Grav. Reduction (8)
Deen Liang PLM Grav. Reduction (1)
Ghaly Hemaya PLM (10)
Yolanda Chow PLM (3)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. New York, NY AIHA-LAP, LLC--IHLAP Accredited #102581, NVLAP Lab Code 101048-9, NYS ELAP 11506, NJ NY022, CT PH-0170, MA AA000170

Initial report from: 03/28/2017 09:54:09



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CustomerID:	55JACQ30L
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ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822/Living Unit A10

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A10-P-01 Site: Room 10, living room, wall adjacent to living room Desc: Cream on drywall	551702866-0001	3/23/2017		<90 ppm
A10-P-02 Site: Room 10, living room, adjacent to back door Desc: Beige on metal trim	551702866-0002	3/23/2017		<90 ppm
A10-P-03 Site: Exterior mechanical room trim Desc: Grey on metal trim	551702866-0003	3/23/2017		<90 ppm
A10-P-04 Site: Exterior south wall, below centre window Desc: Blue on stucco	551702866-0004	3/23/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 08:12:10

**APPENDIX 5.42
FINDINGS AND RECOMMENDATIONS—
BUILDING A11—NORTH RESIDENCE
(848 05 RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.42 Findings and Recommendations—Building A11—North Residence (848-05-RP)
September 2017

Appendix 5.42 FINDINGS AND RECOMMENDATIONS— BUILDING A11—NORTH RESIDENCE (848-05-RP)

Building A11—North Residence (subject building) was reportedly constructed in 1996 and has been assigned Real Property ID #881. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall and texture coat ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.42-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.42-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.42-1 Suspected ACM Sample Collection and Analysis Summary
Building A11—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A11-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 10, living room, near corridor 2	None Detected
A11-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 10, living room, near kitchen	None Detected
A11-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 15, vestibule	None Detected
A11-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 13, corridor, near back door	None Detected
A11-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 2, corridor, near bedroom 4	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.42 Findings and Recommendations—Building A11—North Residence (848-05-RP)
September 2017

**Table 5.42-1 Suspected ACM Sample Collection and Analysis Summary
Building A11—North Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A11-CTC-01A	Texture coat applied to drywall ceilings	Room 10, living room	None Detected
A11-CTC-01B	Texture coat applied to drywall ceilings	Room 15, vestibule	None Detected
A11-CTC-01C	Texture coat applied to drywall ceilings	Room 2, corridor	None Detected
A11-CTC-01D	Texture coat applied to drywall ceilings	Room 13, corridor	None Detected
A11-CTC-01E	Texture coat applied to drywall ceilings	Room 10, living room	None Detected
A11-SF-01	Vinyl sheet flooring, dark grey smudged	Room 13, corridor	None Detected
A11-SF-02	Vinyl sheet flooring, grey pebble pattern with blue	Room 7, B.F. bathroom	None Detected
A11-SF-03	Vinyl sheet flooring, beige smudges	Room 9, dining room	None Detected
A11-PS-01A	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	None Detected
A11-PS-01B	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	None Detected
A11-PS-01C	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	None Detected
A11-PS-02A	Penetration sealant applied to ceiling, red	Room 5, mechanical room	None Detected
A11-PS-02B	Penetration sealant applied to ceiling, red	Room 5, mechanical room	None Detected
A11-PS-02C	Penetration sealant applied to ceiling, red	Room 5, mechanical room	None Detected
A11-RS-01A	Black asphalt roof shingle	Exterior, northwest corner	None Detected
A11-RS-01B	Black asphalt roof shingle	Exterior, northwest corner	None Detected
A11-RS-01C	Black asphalt roof shingle	Exterior, northwest corner	None Detected
A11-ES-01A	Exterior stucco, grey painted blue	Exterior south wall, below west window	None Detected
A11-ES-01B	Exterior stucco, grey painted blue	Exterior south wall, below central window	None Detected
A11-ES-01C	Exterior stucco, grey painted blue	Exterior south wall, below east window	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.42 Findings and Recommendations—Building A11—North Residence (848-05-RP)
September 2017

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.42-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.42-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.42-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.42-2 Suspected LCP Sample Collection and Analysis Summary
Building A11—North Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A11-P-01	Cream on drywall	Room 10, living room, interior wall near corridor 2 door	<90
A11-P-02	Beige on metal trim	Room 10, living room, interior trim near back door	<120
A11-P-03	Grey on metal trim	Room 5, mechanical room trim	<90
A11-P-04	Blue on stucco	Exterior south wall, below central window	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.42-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.42 Findings and Recommendations—Building A11—North Residence (848-05-RP)
September 2017

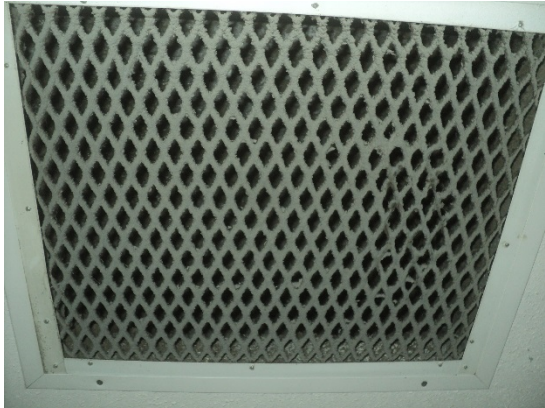
5.42-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.42-5 MOULD

Observations pertaining to mould and/or moisture impacted building materials are summarized in the following table.


**Table 5.42-3 Mould/Moisture Observations Summary—March 15, 2017
Building A11—North Residence**

Building Area	Observation or Reported Condition	Suspected Source of Moisture	Photo
Air return grille located in ceiling of room 10, living room adjacent to kitchen	Particulate accumulation observed on air return grille	Disconnected dryer vents or insufficient dryer maintenance (lint clean-out, system clean-out), which may be leading to increased airborne particulate loads, reduced air circulation (if filters are not changed regularly), increased particulate deposit, increased humidity, and potential moisture issues.	

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.42 Findings and Recommendations—Building A11—North Residence (848-05-RP)
September 2017

**Table 5.42-3 Mould/Moisture Observations Summary—March 15, 2017
Building A11—North Residence**

Building Area	Observation or Reported Condition	Suspected Source of Moisture	Photo
Soffit and siding material located east of central rear exit, outside of room 17, bathroom	Reports of water intrusion running behind soffit and siding material that may be leading to moisture issues and/or mould contamination within wall cavities in the affected areas	Roof leak	

5.42-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.42-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.42-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

Additional building-specific recommendations to be considered are provided below.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.42 Findings and Recommendations—Building A11—North Residence (848-05-RP)
September 2017

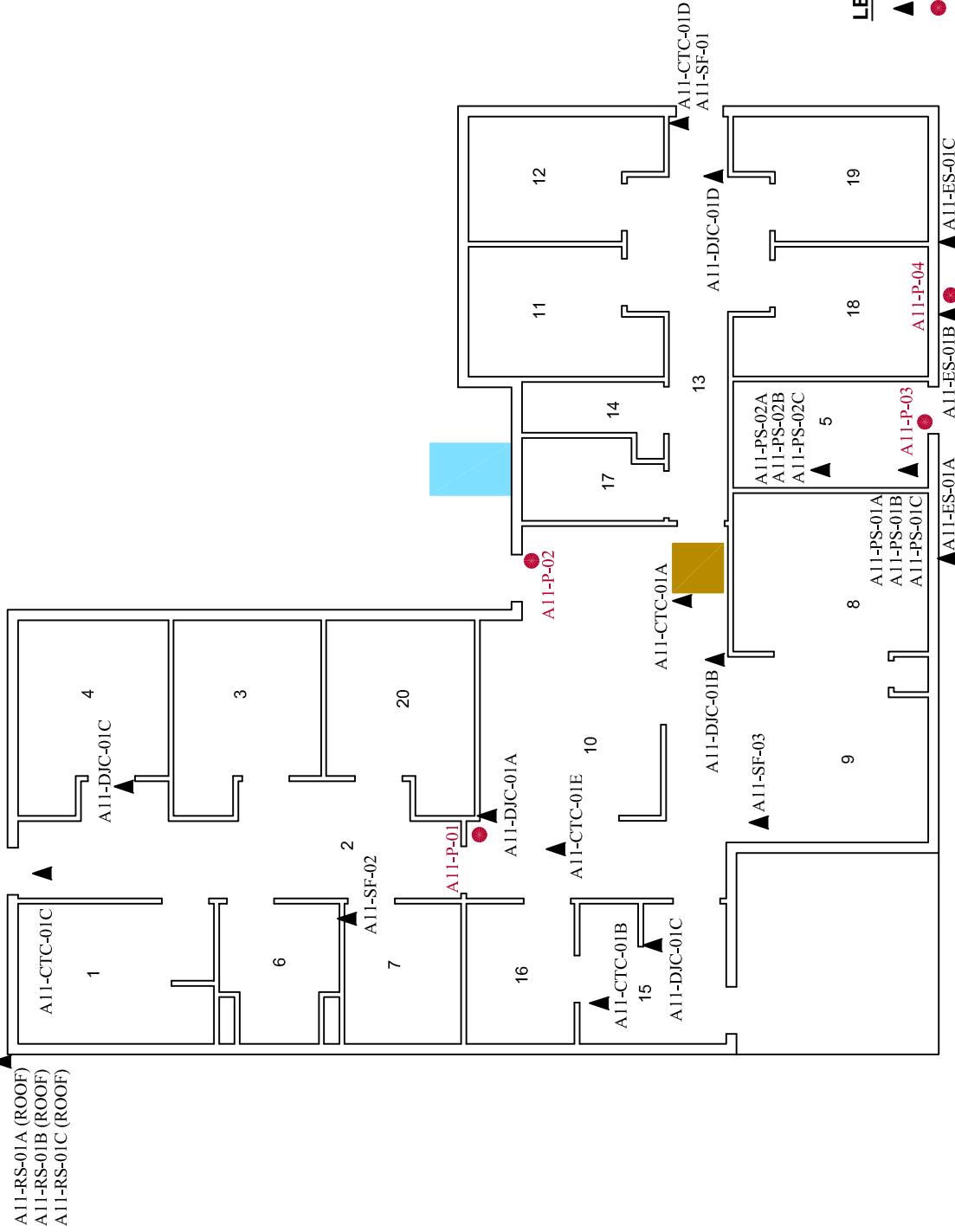
5.42-8.5 Mould

Documents published by Health Canada, Ontario Ministry of Health, American Industrial Hygiene Association (AIHA), American Conference of Governmental Industrial Hygienists (ACGIH) and others, provide guidance for interpreting the results of mold investigations. The Health Canada Guide states that:

“...current knowledge supports the need to prevent damp conditions and mold growth and to remediate any fungal contamination in buildings.”

To this end, Stantec recommends the following course of action within the subject building:

- Investigate air filters, have dryers cleaned/serviced and vents checked for lint/particulate accumulation.
 - This work can be conducted by regular facility maintenance staff, if conducted prior to the onset of mould growth.
- Monitor the areas for moisture intrusion, staining or suspect mould during or after rain events. If conditions of moisture intrusion appear to be occurring consistently, the issue should be identified and rectified (i.e. identify how water is getting into soffits and/or behind the siding) and corrected, and an intrusive assessment for mould within the wall cavity should be conducted.
 - This work—both monitoring and removal—can be conducted by regular facility maintenance, if conducted prior to the onset of mould growth



**FIRST FLOOR
RESIDENCE A11**

- LEGEND**
- ▲ ASBESTOS BULK SAMPLE
 - LEAD PAINT SAMPLE
 - PARTICULATE ACCUMULATION OBSERVED ON AIR RETURN GRILLE
 - LOCATION OF REPORTED WATER INTRUSION BEHIND SOFFIT & SIDING

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822
CSC MISSION MINIMUM INSTITUTION		Scale: N.T.S.
33737 DEWDNEY TRUNK ROAD, MISSION, BC		Date: 17/08/22
PUBLIC SERVICES AND PROCUREMENT CANADA		Dwn. By: CD VM/DM
		App'd By: TW

Dwg. No.:	42.1	

Unit A11 (Barrier Free)		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	10.9
2	Corridor	17.2
3	Bedroom	9.8
4	Bedroom	10.1
5	Mechanical Room	8.2
6	B. F. Shower	6.6
7	B. F. Bathroom	6.5
8	Kitchen	11.7
9	Dining Room	14.3
10	Living Room	32.9
11	Bedroom	8.8
12	Bedroom	9.1
13	Corridor	13.8
14	Shower	3.2
15	Vestibule	8.3
16	Laundry	6.0
17	Bathroom	4.5
18	Bedroom	8.7
19	Bedroom	9.1
20	Bedroom	9.8

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD_{VM} SL2017040050

App'd By: TW

Dwg. No.:

42.2





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EMSL Canada Order 691700505
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

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500 - 4730 Kingsway
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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/27/2017
Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A11

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID:	A11-DJC-01A				Lab Sample ID:	691700505-0001
Sample Description:	Room 10 Living Room Near Corridor 2/Drywall Joint Compound Applied to Walls and Ceilings Throughout					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID:	A11-DJC-01B				Lab Sample ID:	691700505-0002
Sample Description:	Room 10 Living Room Near Kitchen/Drywall Joint Compound Applied to Walls and Ceilings Throughout					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID:	A11-DJC-01C				Lab Sample ID:	691700505-0003
Sample Description:	Room 15 Vestibule/Drywall Joint Compound Applied to Walls and Ceilings Throughout					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID:	A11-DJC-01D				Lab Sample ID:	691700505-0004
Sample Description:	Room 13 Corridor Near Back Door/Drywall Joint Compound Applied to Walls and Ceilings Throughout					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	Inseparable paint / coating layer included in analysis

Client Sample ID:	A11-DJC-01E				Lab Sample ID:	691700505-0005
Sample Description:	Room 2 Corridor Near Bedroom 4/Drywall Joint Compound Applied to Walls and Ceilings Throughout					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	0%	100%	None Detected	

Client Sample ID:	A11-CTC-01A				Lab Sample ID:	691700505-0006
Sample Description:	Room 10 Living Room/Texture Coat applied to Drywall Ceilings					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	9%	91%	None Detected	

Client Sample ID:	A11-CTC-01B				Lab Sample ID:	691700505-0007
Sample Description:	Room 15 Vestibule/Texture Coat applied to Drywall Ceilings					
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	9%	91%	None Detected	



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EMSL Canada Order 691700505
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A11-CTC-01C **Lab Sample ID:** 691700505-0008

Sample Description: Room 2 Corridor/Texture Coat applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	10%	90%	None Detected	

Client Sample ID: A11-CTC-01D **Lab Sample ID:** 691700505-0009

Sample Description: Room 13 Corridor/Texture Coat applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	5%	95%	None Detected	

Client Sample ID: A11-CTC-01E **Lab Sample ID:** 691700505-0010

Sample Description: Room 10 Living Room/Texture Coat applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	3%	97%	None Detected	

Client Sample ID: A11-SF-01 **Lab Sample ID:** 691700505-0011

Sample Description: Room 13 Corridor/Vinyl Sheet Flooring Dark Grey Smudge

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A11-SF-02 **Lab Sample ID:** 691700505-0012

Sample Description: Room 7 BF Bathroom/Vinyl Sheet Flooring Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	White	0.0%	100%	None Detected	

Client Sample ID: A11-SF-03 **Lab Sample ID:** 691700505-0013

Sample Description: Room 9 Dining Room/Vinyl Sheet Flooring Beige Smudges

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A11-PS-01A **Lab Sample ID:** 691700505-0014

Sample Description: Room 5 Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Brown	5%	95%	None Detected	

Client Sample ID: A11-PS-01B **Lab Sample ID:** 691700505-0015

Sample Description: Room 5 Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Gray	7%	93%	None Detected	



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EMSL Canada Order 691700505
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A11-PS-01C **Lab Sample ID:** 691700505-0016

Sample Description: Room 5 Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A11-PS-02A **Lab Sample ID:** 691700505-0017

Sample Description: Room 5 Mechanical Room/Penetration Sealant Applied to Ceiling Red

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A11-PS-02B **Lab Sample ID:** 691700505-0018

Sample Description: Room 5 Mechanical Room/Penetration Sealant Applied to Ceiling Red

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A11-PS-02C **Lab Sample ID:** 691700505-0019

Sample Description: Room 5 Mechanical Room/Penetration Sealant Applied to Ceiling Red

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A11-RS-01A **Lab Sample ID:** 691700505-0020

Sample Description: Exterior Northwest Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A11-RS-01B **Lab Sample ID:** 691700505-0021

Sample Description: Exterior Northwest Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A11-RS-01C **Lab Sample ID:** 691700505-0022

Sample Description: Exterior Northwest Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A11-ES-01A **Lab Sample ID:** 691700505-0023

Sample Description: Exterior South Wall Below West Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Blue	0%	100%	None Detected	



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EMSL Canada Order 691700505
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A11-ES-01B **Lab Sample ID:** 691700505-0024

Sample Description: Exterior South Wall Below Central Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Blue	0%	100%	None Detected	

Client Sample ID: A11-ES-01C **Lab Sample ID:** 691700505-0025

Sample Description: Exterior South Wall Below East Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Blue	0%	100%	None Detected	

Analyst(s):

- Chad Layne PLM Grav. Reduction (10)
- Ghaly Hemaya PLM (11)
- Kamel Alawawda PLM (4)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. New York, NY AIHA-LAP, LLC--IHLAP Accredited #102581, NVLAP Lab Code 101048-9, NYS ELAP 11506, NJ NY022, CT PH-0170, MA AA000170

Initial report from: 03/28/2017 09:57:13

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CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822 - Living Unit A11

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A11-P-01 Site: Room 10, living room, interior wall near corridor 2 door Desc: Cream on drywall	551702867-0001	3/23/2017		<90 ppm
A11-P-02 Site: Room 10, living room, interior trim near back door Desc: Beige on metal trim Insufficient sample to reach reporting limit.	551702867-0002	3/23/2017		<120 ppm
A11-P-03 Site: Room 5, mechanical room trim Desc: Grey on metal trim	551702867-0003	3/23/2017		<90 ppm
A11-P-04 Site: Exterior south wall, below central window Desc: Blue on stucco	551702867-0004	3/23/2017		<90 ppm

Rowena Fanto, Lead Supervisor
 or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 08:10:44

**APPENDIX 5.43
FINDINGS AND RECOMMENDATIONS—
BUILDING A12—EAST RESIDENCE
(848-06-RP)**



Appendix 5.43 FINDINGS AND RECOMMENDATIONS— BUILDING A12—EAST RESIDENCE (848-06-RP)

Building A12—East Residence (subject building) was reportedly constructed in 1996 and has been assigned Real Property ID #882. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.43-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.43-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.43-1 Suspected ACM Sample Collection and Analysis Summary
Building A12—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A12-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 10, kitchen closet	None Detected
A12-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 8, living room, northeast wall	None Detected
A12-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 17, bedroom, near window	None Detected
A12-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 2, washroom, partition wall	None Detected
A12-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 6, bedroom, near window	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.43 Findings and Recommendations—Building A12—East Residence (848-06-RP)
September 2017

**Table 5.43-1 Suspected ACM Sample Collection and Analysis Summary
Building A12—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A12-SF-01	Vinyl sheet flooring, dark grey smudged	Room 8, living room, near back door	None Detected
A12-SF-02	Vinyl sheet flooring, light grey smudged	Room 7, corridor, near back door	None Detected
A12-SF-03	Vinyl sheet flooring, light and dark blue	Room 5, vestibule, near interior door	None Detected
A12-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 12, washroom, near door	None Detected
A12-PS-01A	Penetration sealant, red, applied to ceiling	Room 15, mechanical room	None Detected
A12-PS-01B	Penetration sealant, red, applied to ceiling	Room 15, mechanical room	None Detected
A12-PS-01C	Penetration sealant, red, applied to ceiling	Room 15, mechanical room	None Detected
A12-RS-01A	Black asphalt roof shingle	Exterior, north	None Detected
A12-RS-01B	Black asphalt roof shingle	Exterior, north	None Detected
A12-RS-01C	Black asphalt roof shingle	Exterior, north	None Detected
A12-ES-01A	Exterior stucco, grey painted blue	Exterior north wall, below window by the front door	None Detected
A12-ES-01B	Exterior stucco, grey painted blue	Exterior east wall, below west window	None Detected
A12-ES-01C	Exterior stucco, grey painted blue	Exterior west wall, below north window	None Detected
A12-WPC-01A	Window pane caulking, black	Exterior, main door window	None Detected
A12-WPC-01B	Window pane caulking, black	Exterior, main door window	None Detected
A12-WPC-01C	Window pane caulking, black	Exterior, main door window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.43-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.43 Findings and Recommendations—Building A12—East Residence (848-06-RP)
September 2017

found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.43-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.43-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.43-2 Suspected LCP Sample Collection and Analysis Summary
Building A12—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A12-P-01	Cream on drywall	Room 8, living room, interior wall	<90
A12-P-02	Blue on metal trim	Room 5, vestibule, interior trim	<130
A12-P-03	Grey on metal trim and door	Room 15, mechanical room, exterior door	<90
A12-P-04	Blue on stucco	Exterior north wall, below west window	<90
A12-P-05	Beige on metal doors	Exterior main door	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.43-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.43-4 MERCURY

Mercury vapour is present in the light tubes within the approximately six fluorescent light fixtures observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.43 Findings and Recommendations—Building A12—East Residence (848-06-RP)
September 2017

5.43-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.43-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

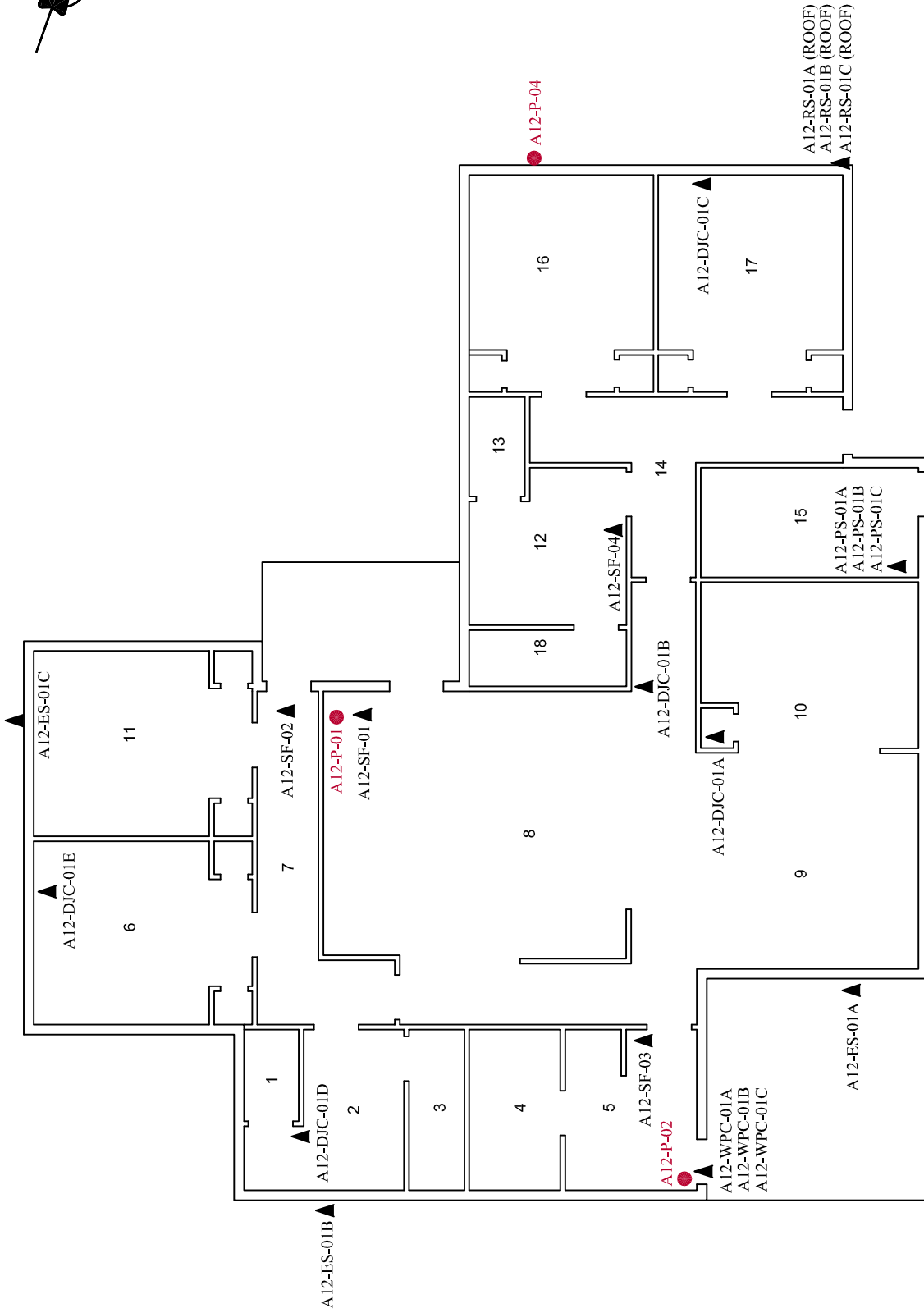
5.43-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.43-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND
 ▲ ASBESTOS BULK SAMPLE
 ● LEAD PAINT SAMPLE

**FIRST FLOOR
 RESIDENCE A12**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822
CSC MISSION MINIMUM INSTITUTION		Scale: N.T.S.
33737 DEWDNEY TRUNK ROAD, MISSION, BC		Date: 17/08/22
PUBLIC SERVICES AND PROCUREMENT CANADA		Dwn. By: CD VM/DM
		App'd By: TW

Dwg. No.: 43.1		
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Unit A12		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Washroom Stall	1.9
2	Washroom	6.4
3	Shower	2.9
4	Laundry Room	4.6
5	Vestibule	6.8
6	Bedroom	12.8
7	Corridor	7.9
8	Living Room	34.6
9	Dining Room	14.5
10	Kitchen	10.8
11	Bedroom	12.9
12	Bathroom	7.1
13	Bathroom Stall	2.0
14	Corridor	10.5
15	Mechanical Room	7.5
16	Bedroom	12.8
17	Bedroom	12.8
18	Shower	2.9

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/02

Dwn. By: CD_{VM} SL2017040052

App'd By: TW

Dwg. No.:

43.2





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EMSL Canada Order 691700509
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A12

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A12-DJC-01A **Lab Sample ID:** 691700509-0001

Sample Description: Room 10 Kitchen Closet/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A12-DJC-01B **Lab Sample ID:** 691700509-0002

Sample Description: Room 8 Living Room Northeast/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A12-DJC-01C **Lab Sample ID:** 691700509-0003

Sample Description: Room 17 Bedroom Near Window/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A12-DJC-01D **Lab Sample ID:** 691700509-0004

Sample Description: Room 2 Washroom Partition Wall/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A12-DJC-01E **Lab Sample ID:** 691700509-0005

Sample Description: Room 6 Bedroom Near Window/Drywall Joint Compound Applied to Walls and Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A12-SF-01 **Lab Sample ID:** 691700509-0006

Sample Description: Room 8 Living Room Near Back Door/Vinyl Sheet Flooring Dark Grey Smudge - Vinyl Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A12-SF-02 **Lab Sample ID:** 691700509-0007

Sample Description: Room 7 Corridor Near Back Door/Vinyl Sheet Flooring Light Grey Smudge - Vinyl Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700509
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A12-SF-03 **Lab Sample ID:** 691700509-0008

Sample Description: Room 5 Vestibule Near Interior Door/Vinyl Sheet Flooring Light and Dark Blue Smudge - Vinyl Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A12-SF-04 **Lab Sample ID:** 691700509-0009

Sample Description: Room 12 Washroom Near Door/Vinyl Sheet Flooring Grey Pebble Pattern w/Blue - Vinyl Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray/Blue	0.0%	100%	None Detected	

Client Sample ID: A12-PS-01A **Lab Sample ID:** 691700509-0010

Sample Description: Room 15 Mechanical Room/Penetration Sealant Red Applied to Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Red	0%	100%	None Detected	

Client Sample ID: A12-PS-01B **Lab Sample ID:** 691700509-0011

Sample Description: Room 15 Mechanical Room/Penetration Sealant Red Applied to Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Red	0%	100%	None Detected	

Client Sample ID: A12-PS-01C **Lab Sample ID:** 691700509-0012

Sample Description: Room 15 Mechanical Room/Penetration Sealant Red Applied to Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Red	0%	100%	None Detected	

Client Sample ID: A12-RS-01A **Lab Sample ID:** 691700509-0013

Sample Description: Exterior North/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	1.3%	98.7%	None Detected	

Client Sample ID: A12-RS-01B **Lab Sample ID:** 691700509-0014

Sample Description: Exterior North/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A12-RS-01C **Lab Sample ID:** 691700509-0015

Sample Description: Exterior North/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	3.0%	97.0%	None Detected	



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EMSL Canada Order 691700509
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A12-ES-01A **Lab Sample ID:** 691700509-0016

Sample Description: Exterior North Wall Below Window By the Front Door/Exterior Stucco Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A12-ES-01B **Lab Sample ID:** 691700509-0017

Sample Description: Exterior East Wall Below West Window/Exterior Stucco Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A12-ES-01C **Lab Sample ID:** 691700509-0018

Sample Description: Exterior West Wall Below North Window/Exterior Stucco Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A12-WPC-01A **Lab Sample ID:** 691700509-0019

Sample Description: Exterior Main Door Window/Window Pane Caulking Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A12-WPC-01B **Lab Sample ID:** 691700509-0020

Sample Description: Exterior Main Door Window/Window Pane Caulking Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A12-WPC-01C **Lab Sample ID:** 691700509-0021

Sample Description: Exterior Main Door Window/Window Pane Caulking Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	



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Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Andrew Castellano PLM (3)
PLM Grav. Reduction (3)
Quynh Vu PLM (8)
PLM Grav. Reduction (7)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036

Report amended: 09/08/2017 11:57:57 Replaces amended report from: 05/02/2017 15:17:45 Reason Code: Client-Other (see report comment)



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EMSL Canada Or	551702868
CustomerID:	55JACQ30L
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ProjectID:	

Attn: **Steve Chou**
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Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822 - Living Unit A12

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A12-P-01 Site: Room 8, living room, interior wall Desc: Cream on drywall	551702868-0001	3/23/2017		<90 ppm
A12-P-02 Site: Room 5, vestibule, interior trim Desc: Blue on metal trim Insufficient sample to reach reporting limit.	551702868-0002	3/23/2017		<130 ppm
A12-P-03 Site: Room 15, mechanical room, exterior door Desc: Grey on metal trim and door	551702868-0003	3/23/2017		<90 ppm
A12-P-04 Site: Exterior north wall, below west window Desc: Blue on stucco	551702868-0004	3/23/2017		<90 ppm
A12-P-05 Site: Exterior main door Desc: Beige on metal doors	551702868-0005	3/23/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 08:08:58

**APPENDIX 5.44
FINDINGS AND RECOMMENDATIONS—
BUILDING A13—EAST RESIDENCE
(848-07-RP)**



Appendix 5.44 FINDINGS AND RECOMMENDATIONS— BUILDING A13—EAST RESIDENCE (848-07-RP)

Building A13—East Residence (subject building) was reportedly constructed in 1996 and has been assigned Real Property ID #883. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.44-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.44-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.44-1 Suspected ACM Sample Collection and Analysis Summary
Building A13—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A13-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 12, bathroom, near door	None Detected
A13-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 4, laundry room	None Detected
A13-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 10, kitchen closet	None Detected
A13-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 7, corridor, near back door	None Detected
A13-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 8, living room, near south door	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.44 Findings and Recommendations—Building A13—East Residence (848-07-RP)
September 2017

**Table 5.44-1 Suspected ACM Sample Collection and Analysis Summary
Building A13—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A13-SF-01	Vinyl sheet flooring, dark grey smudged	Room 8, living room, near back door	None Detected
A13-SF-02	Vinyl sheet flooring, light grey smudged	Room 7, corridor	None Detected
A13-SF-03	Vinyl sheet flooring, light and dark blue	Room 10, kitchen closet	None Detected
A13-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 2, washroom, near door	None Detected
A13-RS-01A	Black asphalt roof shingle	Roof, south	None Detected
A13-RS-01B	Black asphalt roof shingle	Roof, south	None Detected
A13-RS-01C	Black asphalt roof shingle	Roof, south	None Detected
A13-ES-01A	Exterior stucco, grey painted blue	Exterior west wall, below north window	None Detected
A13-ES-01B	Exterior stucco, grey painted blue	Exterior south wall, below west window	None Detected
A13-ES-01C	Exterior stucco, grey painted blue	Exterior east wall, below north window	None Detected
A13-WPC-01A	Window pane caulking, black	Exterior, main door window	None Detected
A13-WPC-01B	Window pane caulking, black	Exterior, main door window	None Detected
A13-WPC-01C	Window pane caulking, black	Exterior, main door window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.44-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.44 Findings and Recommendations—Building A13—East Residence (848-07-RP)
September 2017

5.44-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.44-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.44-2 Suspected LCP Sample Collection and Analysis Summary
Building A13—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A13-P-01	Cream on drywall	Room 5, vestibule, interior wall	<91
A13-P-02	Blue on metal trim	Room 10, kitchen closet, Interior trim	<90
A13-P-03	Grey on metal trim	Room 15, mechanical room, interior trim	<160
A13-P-04	Blue on stucco	Exterior east wall, below south window	<90
A13-P-05	Beige on metal door	Exterior main door	<95

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.44-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.44-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.44-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.44 Findings and Recommendations—Building A13—East Residence (848-07-RP)
September 2017

5.44-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

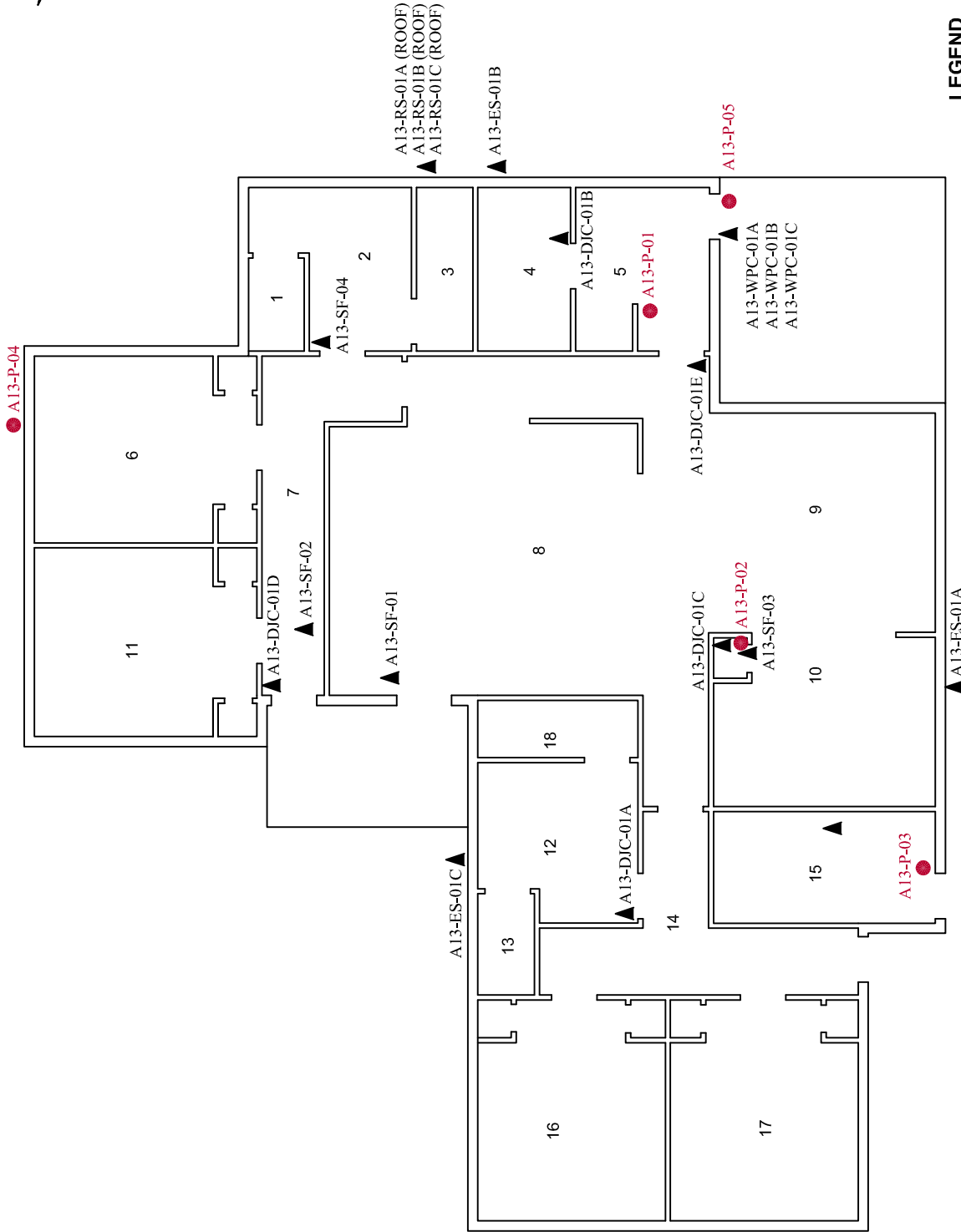
5.44-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.44-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND
 ▲ ASBESTOS BULK SAMPLE
 ● LEAD PAINT SAMPLE

**FIRST FLOOR
 RESIDENCE A13**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

<p>FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA</p>		<p>Project No.: 123220822</p>	<p>Dwg. No.: 44.1</p>	
		<p>Scale: N.T.S.</p>		
		<p>Date: 17/08/22</p>		
		<p>Dwn. By: CD VM/DM</p>		
		<p>App'd By: TW</p>		

Unit A13		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Washroom Stall	1.9
2	Washroom	6.4
3	Shower	2.9
4	Laundry Room	4.6
5	Vestibule	6.8
6	Bedroom	12.8
7	Corridor	7.9
8	Living Room	34.6
9	Dining Room	14.5
10	Kitchen	10.8
11	Bedroom	12.9
12	Bathroom	7.1
13	Bathroom Stall	2.0
14	Corridor	10.5
15	Mechanical Room	7.5
16	Bedroom	12.8
17	Bedroom	12.8
18	Shower	2.9

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD _{VM} SL2017040054

App'd By: TW

Dwg. No.:

44.2





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EMSL Canada Order 691700517
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

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Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A13

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A13-DJC-01A **Lab Sample ID:** 691700517-0001

Sample Description: Room 12, Bathroom, Near Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A13-DJC-01B **Lab Sample ID:** 691700517-0002

Sample Description: Room 4, Laundry Room/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A13-DJC-01C **Lab Sample ID:** 691700517-0003

Sample Description: Room 10, Kitchen Closet/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A13-DJC-01D **Lab Sample ID:** 691700517-0004

Sample Description: Room 7, Corridor, Near Back Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A13-DJC-01E **Lab Sample ID:** 691700517-0005

Sample Description: Room 8, Living Room, Near South Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A13-SF-01 **Lab Sample ID:** 691700517-0006

Sample Description: Room 8, Living Room, Near Back Door/Vinyl Sheet Flooring, Dark Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A13-SF-02 **Lab Sample ID:** 691700517-0007

Sample Description: Room 7, Corridor/Vinyl Sheet Flooring, Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700517
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A13-SF-03 **Lab Sample ID:** 691700517-0008

Sample Description: Room 10, Kitchen Closet/Vinyl Sheet Flooring, Light & Dark Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A13-SF-04 **Lab Sample ID:** 691700517-0009

Sample Description: Room 2, Washroom, Near Door/Vinyl Sheet Flooring, Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	White	0.0%	100%	None Detected	

Client Sample ID: A13-RS-01A **Lab Sample ID:** 691700517-0010

Sample Description: Roof, South/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A13-RS-01B **Lab Sample ID:** 691700517-0011

Sample Description: Roof, South/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A13-RS-01C **Lab Sample ID:** 691700517-0012

Sample Description: Roof, South/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A13-ES-01A **Lab Sample ID:** 691700517-0013

Sample Description: Exterior West Wall, Below North Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: A13-ES-01B **Lab Sample ID:** 691700517-0014

Sample Description: Exterior South Wall, Below West Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A13-ES-01C **Lab Sample ID:** 691700517-0015

Sample Description: Exterior East Wall, Below North Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	



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EMSL Canada Order 691700517
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A13-WPC-01A **Lab Sample ID:** 691700517-0016

Sample Description: Exterior, Main Door Window/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A13-WPC-01B **Lab Sample ID:** 691700517-0017

Sample Description: Exterior, Main Door Window/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A13-WPC-01C **Lab Sample ID:** 691700517-0018

Sample Description: Exterior, Main Door Window/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Analyst(s):

Kathleen Cruz	PLM (5) PLM Grav. Reduction (8)
Nicole Yeo	PLM (3) PLM Grav. Reduction (2)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 16:00:58

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ProjectID:	

Attn: **Steve Chou**
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Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: **CSCMISSION- MINIMUM/123220822 - Living Unit A13****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A13-P-01 Site: Room 5, vestibule, interior wall Desc: Cream on drywall Insufficient sample to reach reporting limit.	551702870-0001	3/23/2017		<91 ppm
A13-P-02 Site: Room 10, kitchen closet, Interior trim Desc: Blue on metal trim	551702870-0002	3/23/2017		<90 ppm
A13-P-03 Site: Room 15, mechanical room, interior trim Desc: Grey on metal trim Insufficient sample to reach reporting limit.	551702870-0003	3/23/2017		<160 ppm
A13-P-04 Site: Exterior east wall, below south window Desc: Blue on stucco	551702870-0004	3/23/2017		<90 ppm
A13-P-05 Site: Exterior main door Desc: Beige on metal door Insufficient sample to reach reporting limit.	551702870-0005	3/23/2017		<95 ppm

 Rowena Fanto, Lead Supervisor
 or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/27/2017 16:54:18

**APPENDIX 5.45
FINDINGS AND RECOMMENDATIONS—
BUILDING A14—EAST RESIDENCE
(848-10-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.45 Findings and Recommendations—Building A14—East Residence (848-10-RP)
September 2017

Appendix 5.45 FINDINGS AND RECOMMENDATIONS— BUILDING A14—EAST RESIDENCE (848-10-RP)

Building A14—East Residence (subject building) was reportedly constructed in 1996 and has been assigned Real Property ID #884. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.45-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.45-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.45-1 Suspected ACM Sample Collection and Analysis Summary
Building A14—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A14-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 10, kitchen, west window	None Detected
A14-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 4, laundry room, near door	None Detected
A14-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 2, washroom, near door	None Detected
A14-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 7, corridor, west wall	None Detected
A14-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 14, corridor, outside of room 16, bedroom	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.45 Findings and Recommendations—Building A14—East Residence (848-10-RP)
September 2017

**Table 5.45-1 Suspected ACM Sample Collection and Analysis Summary
Building A14—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A14-SF-01	Vinyl sheet flooring, dark grey smudged	Room 8, living room, near back door	None Detected
A14-SF-02	Vinyl sheet flooring, light grey smudged	Room 8, living room, near north door	None Detected
A14-SF-03	Vinyl sheet flooring, light and dark blue	Room 10, kitchen closet	None Detected
A14-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 4, laundry room	None Detected
A14-SF-05	Vinyl sheet flooring, grey pebble pattern	Room 15, mechanical room	None Detected
A14-RS-01A	Black asphalt roof shingle	Roof, east end	None Detected
A14-RS-01B	Black asphalt roof shingle	Roof, east end	None Detected
A14-RS-01C	Black asphalt roof shingle	Roof, east end	None Detected
A14-ES-01A	Exterior stucco, grey painted blue	Exterior east wall, below north window	None Detected
A14-ES-01B	Exterior stucco, grey painted blue	Exterior north wall, below west window	None Detected
A14-ES-01C	Exterior stucco, grey painted blue	Exterior south wall, below centre window	None Detected
A14-WPC-01A	Window pane caulking, black	Exterior, main door window	None Detected
A14-WPC-01B	Window pane caulking, black	Exterior, main door window	None Detected
A14-WPC-01C	Window pane caulking, black	Exterior, main door window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.45-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.45 Findings and Recommendations—Building A14—East Residence (848-10-RP)
September 2017

5.45-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.45-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.45-2 Suspected LCP Sample Collection and Analysis Summary
Building A14—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A14-P-01	Cream on drywall	Room 9, dining room, interior wall	<90
A14-P-02	Blue on metal trim	Room 10, kitchen closet, interior trim	<120
A14-P-03	Cream on metal door	Room 15, mechanical room, interior door	<250
A14-P-04	Blue on stucco	Exterior west wall, below north window	<90
A-14-P-05	Beige on metal door	Exterior main door	<110

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.45-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.45-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.45-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.45 Findings and Recommendations—Building A14—East Residence (848-10-RP)
September 2017

5.45-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

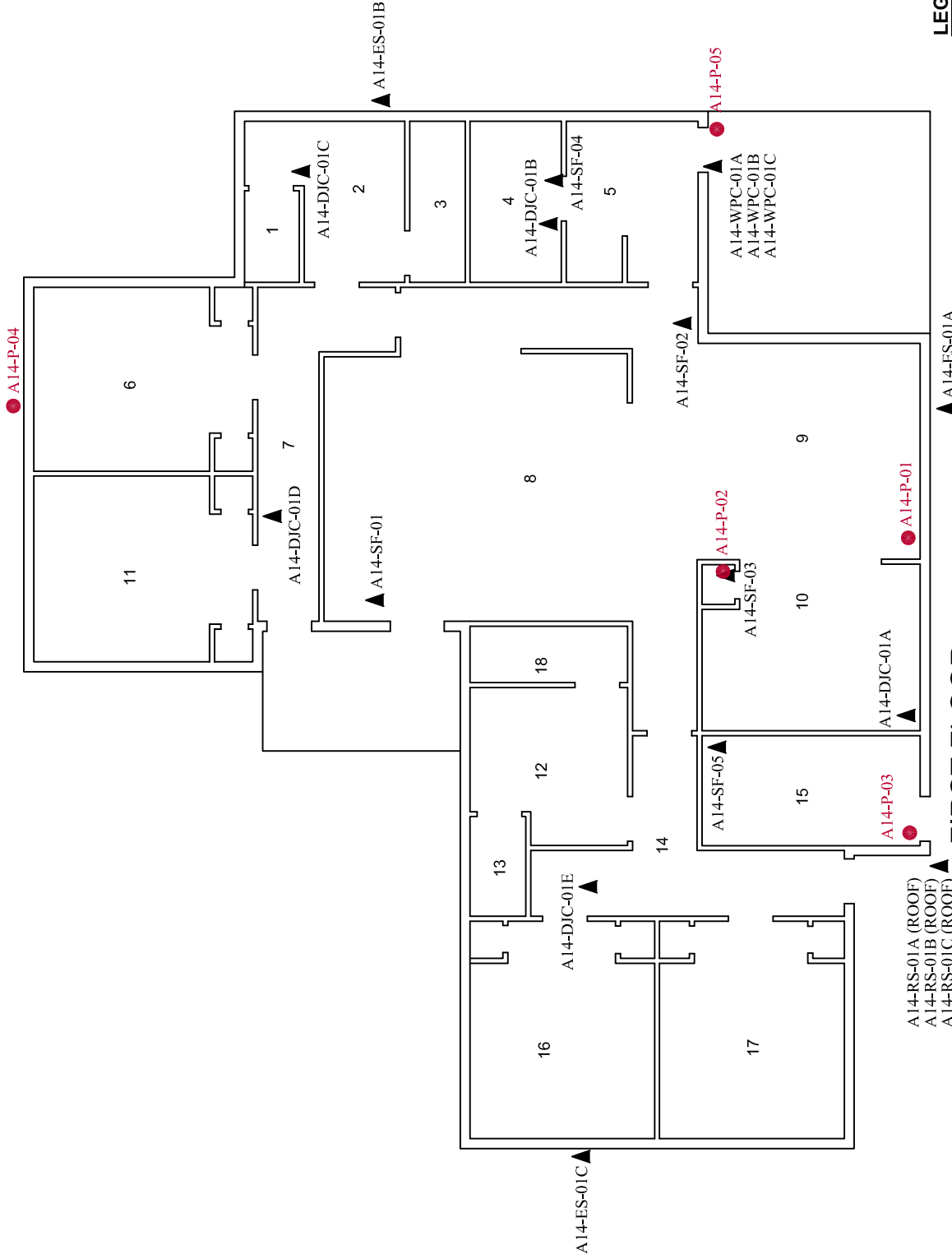
5.45-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.45-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND
 ▲ ASBESTOS BULK SAMPLE
 ● LEAD PAINT SAMPLE

**FIRST FLOOR
 RESIDENCE A14**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

<p>FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA</p>		Project No.: 123220822	Dwg. No.:
		Scale: N.T.S.	45.1
Date: 17/08/22	Dwn. By: CD VM/DM	SL2017080214	
App'd By: TW		Stantec	

Unit A14		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Washroom Stall	1.9
2	Washroom	6.4
3	Shower	2.9
4	Laundry Room	4.6
5	Vestibule	6.8
6	Bedroom	12.8
7	Corridor	7.9
8	Living Room	34.6
9	Dining Room	14.5
10	Kitchen	10.8
11	Bedroom	12.9
12	Bathroom	7.1
13	Bathroom Stall	2.0
14	Corridor	10.5
15	Mechanical Room	7.5
16	Bedroom	12.8
17	Bedroom	12.8
18	Shower	2.9

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD _{VM} SL2017040056

App'd By: TW

Dwg. No.:

45.2





EMSL Canada Inc.

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EMSL Canada Order 691700518
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A14

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A14-DJC-01A **Lab Sample ID:** 691700518-0001

Sample Description: Room 10, Kitchen, West Window/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A14-DJC-01B **Lab Sample ID:** 691700518-0002

Sample Description: Room 4, Laundry Room, Near Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A14-DJC-01C **Lab Sample ID:** 691700518-0003

Sample Description: Room 2, Washroom, Near Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A14-DJC-01D **Lab Sample ID:** 691700518-0004

Sample Description: Room 7, Corridor, West Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A14-DJC-01E **Lab Sample ID:** 691700518-0005

Sample Description: Room 14, Corridor, Outside of Room 16, Bedroom/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A14-SF-01 **Lab Sample ID:** 691700518-0006

Sample Description: Room 8, Living Room, Near Back Door/Vinyl Sheet Flooring, Dark Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A14-SF-02 **Lab Sample ID:** 691700518-0007

Sample Description: Room 8, Living Room, Near North Door/Vinyl Sheet Flooring, Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700518
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A14-SF-03 **Lab Sample ID:** 691700518-0008
Sample Description: Room 10, Kitchen Closet/Vinyl Sheet Flooring, Light & Dark Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A14-SF-04 **Lab Sample ID:** 691700518-0009
Sample Description: Room 4, Laundry Room/Vinyl Sheet Flooring, Grey Pebble Pattern w/ Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A14-SF-05 **Lab Sample ID:** 691700518-0010
Sample Description: Room 15, Mechanical Room/Vinyl Sheet Flooring, Grey Pebble Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A14-RS-01A **Lab Sample ID:** 691700518-0011
Sample Description: Roof, East End/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A14-RS-01B **Lab Sample ID:** 691700518-0012
Sample Description: Roof, East End/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A14-RS-01C **Lab Sample ID:** 691700518-0013
Sample Description: Roof, East End/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	3.2%	96.8%	None Detected	

Client Sample ID: A14-ES-01A **Lab Sample ID:** 691700518-0014
Sample Description: Exterior East Wall, Below North Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A14-ES-01B **Lab Sample ID:** 691700518-0015
Sample Description: Exterior North Wall, Below West Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	



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EMSL Canada Order 691700518
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A14-ES-01C **Lab Sample ID:** 691700518-0016

Sample Description: Exterior South Wall, Below Centre Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: A14-WPC-01A **Lab Sample ID:** 691700518-0017

Sample Description: Exterior, Main Door Window/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A14-WPC-01B **Lab Sample ID:** 691700518-0018

Sample Description: Exterior, Main Door Window/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A14-WPC-01C **Lab Sample ID:** 691700518-0019

Sample Description: Exterior, Main Door Window/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Analyst(s):

- Kathleen Cruz PLM (3)
PLM Grav. Reduction (2)
- Nicole Yeo PLM (5)
PLM Grav. Reduction (9)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 08/28/2017 14:18:55 Replaces initial report from: 03/28/2017 18:49:46 Reason Code: Client-Other (see report comment)



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2756 Slough Street, Mississauga, ON L9T 5N4

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EMSL Canada Or	551702871
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822 - Living Unit A14

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A14-P-01 Site: Room 9, dining room, interior wall Desc: Cream on drywall	551702871-0001	3/23/2017		<90 ppm
A14-P-02 Site: Room 10, kitchen closet, interior trim Desc: Blue on metal trim Insufficient sample to reach reporting limit.	551702871-0002	3/23/2017		<120 ppm
A14-P-03 Site: Room 15, mechanical room, interior door Desc: Cream on metal door Insufficient sample to reach reporting limit.	551702871-0003	3/23/2017		<250 ppm
A14-P-04 Site: Exterior west wall, below north window Desc: Blue on stucco	551702871-0004	3/23/2017		<90 ppm
A-14-P-05 Site: Exterior main door Desc: Beige on metal door Insufficient sample to reach reporting limit.	551702871-0005	3/23/2017		<110 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/27/2017 16:56:11

**APPENDIX 5.46
FINDINGS AND RECOMMENDATIONS—
BUILDING A15—EAST RESIDENCE
(848-11-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.46 Findings and Recommendations—Building A15—East Residence (848-11-RP)
September 2017

Appendix 5.46 FINDINGS AND RECOMMENDATIONS— BUILDING A15—EAST RESIDENCE (848-11-RP)

Building A15—East Residence (subject building) was reportedly constructed in 1996 and has been assigned Real Property ID #885. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.46-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.46-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.46-1 Suspected ACM Sample Collection and Analysis Summary
Building A15—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A15-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 10, kitchen closet	None Detected
A15-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 14, corridor, near room 8, living room door	None Detected
A15-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 12, bathroom, near door	None Detected
A15-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 14, corridor, near back door	None Detected
A15-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 4, laundry room, near door	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.46 Findings and Recommendations—Building A15—East Residence (848-11-RP)
September 2017

**Table 5.46-1 Suspected ACM Sample Collection and Analysis Summary
Building A15—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A15-SF-01	Vinyl sheet flooring, dark grey smudged	Room 8, living room, near back door	None Detected
A15-SF-02	Vinyl sheet flooring, light grey smudged	Room 7, corridor, near back door	None Detected
A15-SF-03	Vinyl sheet flooring, light and dark blue	Room 10, kitchen closet	None Detected
A15-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 12, bathroom, near shower	None Detected
A15-SF-05	Vinyl sheet flooring, grey pebble pattern	Room 15, mechanical room	None Detected
A15-PS-01A	Penetration sealant, red, applied to ceiling	Room 15, mechanical room	None Detected
A15-PS-01B	Penetration sealant, red, applied to ceiling	Room 15, mechanical room	None Detected
A15-PS-01C	Penetration sealant, red, applied to ceiling	Room 15, mechanical room	None Detected
A15-RS-01A	Black asphalt roof shingle	Roof, south	None Detected
A15-RS-01B	Black asphalt roof shingle	Roof, south	None Detected
A15-RS-01C	Black asphalt roof shingle	Roof, south	None Detected
A15-ES-01A	Exterior stucco, grey painted blue	Exterior south wall, below west window	None Detected
A15-ES-01B	Exterior stucco, grey painted blue	Exterior east wall, below south window	None Detected
A15-ES-01C	Exterior stucco, grey painted blue	Exterior east wall, below central window	None Detected
A15-WPC-01A	Window pane caulking, black	Exterior, main door window	None Detected
A15-WPC-01B	Window pane caulking, black	Exterior, main door window	None Detected
A15-WPC-01C	Window pane caulking, black	Exterior, main door window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.46 Findings and Recommendations—Building A15—East Residence (848-11-RP)
September 2017

5.46-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.46-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.46-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.46-2 Suspected LCP Sample Collection and Analysis Summary
Building A15—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A15-P-01	Cream on drywall	Room 4, laundry room, west wall	<90
A15-P-02	Blue on metal trim	Room 10, kitchen closet, interior trim	<90
A15-P-03	Cream on metal door	Room 15, mechanical room, interior door	<140
A15-P-04	Blue on stucco	Exterior north wall, below west window	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.46-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.46 Findings and Recommendations—Building A15—East Residence (848-11-RP)
September 2017

5.46-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.46-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.46-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

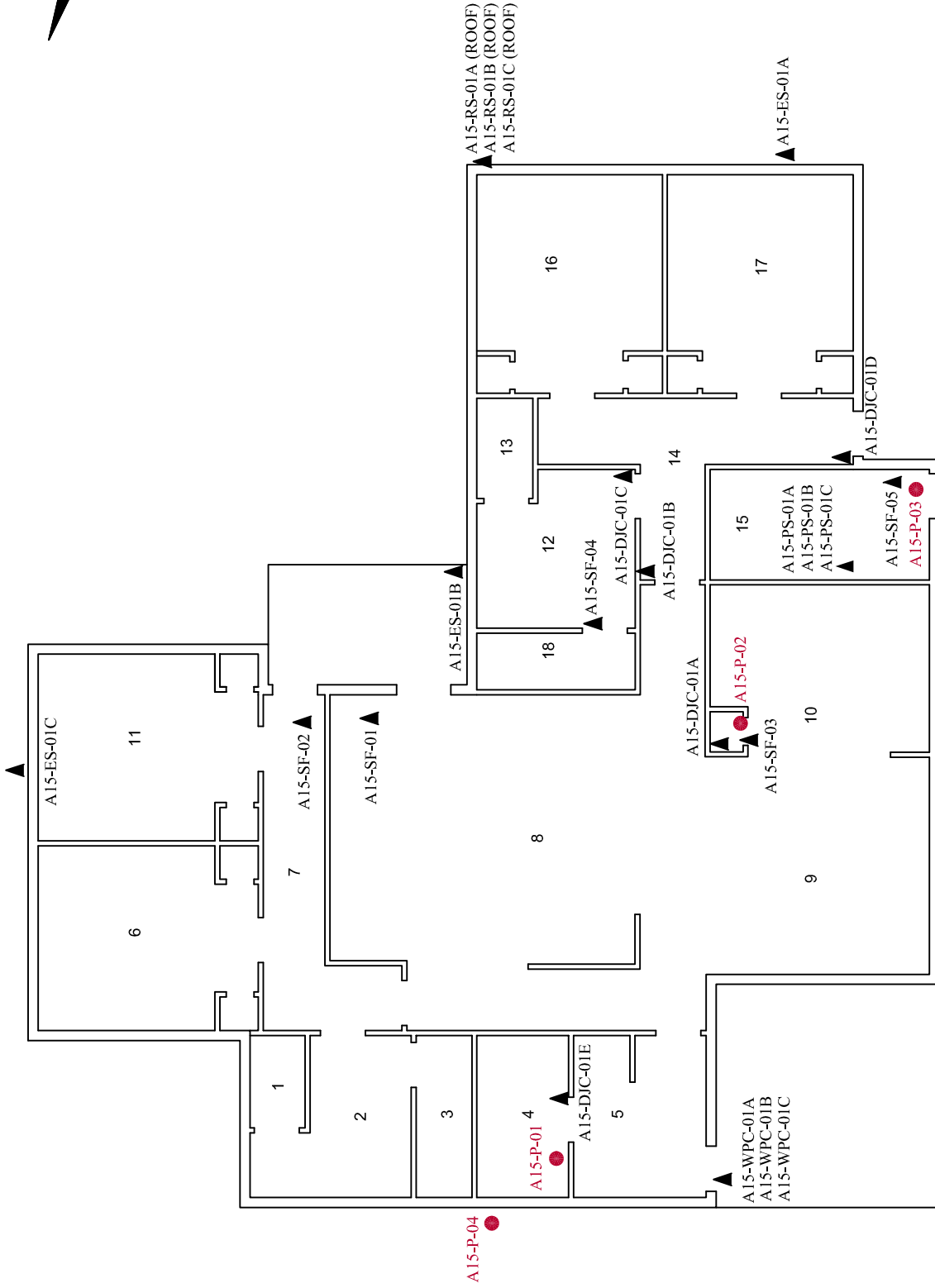
5.46-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.46-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND
 ▲ ASBESTOS BULK SAMPLE
 ● LEAD PAINT SAMPLE

**FIRST FLOOR
 RESIDENCE A15**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS		Project No.: 123220822
CSC MISSION MINIMUM INSTITUTION		Scale: N.T.S.
33737 DEWDNEY TRUNK ROAD, MISSION, BC		Date: 17/08/22
PUBLIC SERVICES AND PROCUREMENT CANADA		Dwn. By: CD VM/DM
		App'd By: TW

Dwg. No.: 46.1

Unit A15		
North Residence - First Floor		
Rm. #	Name	Area m ²
1	Washroom Stall	1.9
2	Washroom	6.4
3	Shower	2.9
4	Laundry Room	4.6
5	Vestibule	6.8
6	Bedroom	12.8
7	Corridor	7.9
8	Living Room	34.6
9	Dining Room	14.5
10	Kitchen	10.8
11	Bedroom	12.9
12	Bathroom	7.1
13	Bathroom Stall	2.0
14	Corridor	10.5
15	Mechanical Room	7.5
16	Bedroom	12.8
17	Bedroom	12.8
18	Shower	2.9

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/03

Dwn. By: CD _{VM} SL2017040058

App'd By: TW

Dwg. No.:

46.2





EMSL Canada Inc.

4506 Dawson Street Burnaby, BC V5C 4C1
 Phone/Fax: 604-757-3158 / (604) 757-4731
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EMSL Canada Order 691700503
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/27/2017

Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A15

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A15-DJC-01A **Lab Sample ID:** 691700503-0001

Sample Description: Room 10, Kitchen Closet/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Brown/Gray/Tan	20%	80%	None Detected	

Client Sample ID: A15-DJC-01B **Lab Sample ID:** 691700503-0002

Sample Description: Room 14, Corridor, Near Room 8, Living Room Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Brown/Gray/White	15%	85%	None Detected	

Client Sample ID: A15-DJC-01C **Lab Sample ID:** 691700503-0003

Sample Description: Room 12, Bathroom, Near Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Brown/Gray/White	16%	84%	None Detected	

Client Sample ID: A15-DJC-01D **Lab Sample ID:** 691700503-0004

Sample Description: Room 14, Corridor, Near Back Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Brown/Gray/White	12%	88%	None Detected	

Client Sample ID: A15-DJC-01E **Lab Sample ID:** 691700503-0005

Sample Description: Room 4, Laundry Room, Near Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	White	5%	95%	None Detected	

Client Sample ID: A15-SF-01 **Lab Sample ID:** 691700503-0006

Sample Description: Room 8, Living Room, Near Back Door/Vinyl Sheet Flooring, Dark Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A15-SF-02 **Lab Sample ID:** 691700503-0007

Sample Description: Room 7, Corridor, Near Back Door/Vinyl Sheet Flooring, Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	



EMSL Canada Inc.

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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700503
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A15-SF-03 **Lab Sample ID:** 691700503-0008

Sample Description: Room 10, Kitchen Closet/Vinyl Sheet Flooring, Light & Dark Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A15-SF-04 **Lab Sample ID:** 691700503-0009

Sample Description: Room 12, Bathroom, Near Shower/Vinyl Sheet Flooring, Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A15-SF-05 **Lab Sample ID:** 691700503-0010

Sample Description: Room 15, Mechanical Room/Vinyl Sheet Flooring, Grey Pebble Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A15-PS-01A **Lab Sample ID:** 691700503-0011

Sample Description: Room 15, Mechanical Room/Penetration Sealant, Red, Applied to Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A15-PS-01B **Lab Sample ID:** 691700503-0012

Sample Description: Room 15, Mechanical Room/Penetration Sealant, Red, Applied to Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A15-PS-01C **Lab Sample ID:** 691700503-0013

Sample Description: Room 15, Mechanical Room/Penetration Sealant, Red, Applied to Ceiling

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A15-RS-01A **Lab Sample ID:** 691700503-0014

Sample Description: Roof, South/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A15-RS-01B **Lab Sample ID:** 691700503-0015

Sample Description: Roof, South/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700503
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A15-RS-01C **Lab Sample ID:** 691700503-0016
Sample Description: Roof, South/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A15-ES-01A **Lab Sample ID:** 691700503-0017
Sample Description: Exterior South Wall, Below West Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A15-ES-01B **Lab Sample ID:** 691700503-0018
Sample Description: Exterior East Wall, Below South Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A15-ES-01C **Lab Sample ID:** 691700503-0019
Sample Description: Exterior East Wall, Below Central Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/27/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A15-WPC-01A **Lab Sample ID:** 691700503-0020
Sample Description: Exterior, Main Door Window/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A15-WPC-01B **Lab Sample ID:** 691700503-0021
Sample Description: Exterior, Main Door Window/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A15-WPC-01C **Lab Sample ID:** 691700503-0022
Sample Description: Exterior, Main Door Window/Window Pane Caulking, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/27/2017	Gray	0.0%	100%	None Detected	



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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700503
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

- Daena Charles PLM Grav. Reduction (14)
- Ghaly Hemaya PLM (6)
- Kamel Alawawda PLM (2)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. New York, NY AIHA-LAP, LLC--IHLAP Accredited #102581, NVLAP Lab Code 101048-9, NYS ELAP 11506, NJ NY022, CT PH-0170, MA AA000170

Initial report from: 03/28/2017 09:50:56



EMSL Canada Inc.

2756 Slough Street, Mississauga, ON L9T 5N4

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<http://www.EMSL.com>

torontolab@emsl.com

EMSL Canada Or	551702872
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822 - Living Unit A15

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A15-P-01 Site: Room 4, laundry room, west wall Desc: Cream on drywall	551702872-0001	3/23/2017		<90 ppm
A15-P-02 Site: Room 10, kitchen closet, interior trim Desc: Blue on metal trim	551702872-0002	3/23/2017		<90 ppm
A15-P-03 Site: Room 15, mechanical room, interior door Desc: Cream on metal door Insufficient sample to reach reporting limit.	551702872-0003	3/23/2017		<140 ppm
A15-P-04 Site: Exterior north wall, below west window Desc: Blue on stucco	551702872-0004	3/23/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/27/2017 16:58:01

**APPENDIX 5.47
FINDINGS AND RECOMMENDATIONS—
BUILDING A16—EAST RESIDENCE
(848-14-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.47 Findings and Recommendations—Building A16—East Residence (848-14-RP)
September 2017

Appendix 5.47 FINDINGS AND RECOMMENDATIONS— BUILDING A16—EAST RESIDENCE (848-14-RP)

Building A16—East Residence (subject building) was reportedly constructed in 1996 and has been assigned Real Property ID #886. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall and texture coat ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.47-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.47-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.47-1 Suspected ACM Sample Collection and Analysis Summary
Building A16—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A16-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 8, kitchen closet	None Detected
A16-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 13, corridor, near back door	None Detected
A16-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 16, laundry, near corridor door	None Detected
A16-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 2, corridor, near back door	None Detected
A16-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 7, bathroom, near door	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.47 Findings and Recommendations—Building A16—East Residence (848-14-RP)
September 2017

**Table 5.47-1 Suspected ACM Sample Collection and Analysis Summary
Building A16—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A16-CTC-01A	Texture coat applied to drywall ceilings	Room 9, dining room	None Detected
A16-CTC -01B	Texture coat applied to drywall ceilings	Room 13, corridor	None Detected
A16-CTC-01C	Texture coat applied to drywall ceilings	Room 2, corridor	None Detected
A16-CTC-01D	Texture coat applied to drywall ceilings	Room 15, vestibule	None Detected
A16-CTC-01E	Texture coat applied to drywall ceilings	Room 10, living room	None Detected
A16-SF-01	Vinyl sheet flooring, beige smudged	Room 9, dining room	None Detected
A16-SF-02	Vinyl sheet flooring, light grey smudged	Room 13, corridor, near back door	None Detected
A16-SF-03	Vinyl sheet flooring, grey pebble pattern with blue	Room 16, laundry	None Detected
A16-PS-01A	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	None Detected
A16-PS-01B	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	None Detected
A16-PS-01C	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	None Detected
A16-RS-01A	Black asphalt roof shingle	Exterior, west corner	None Detected
A16-RS-01B	Black asphalt roof shingle	Exterior, west corner	None Detected
A16-RS-01C	Black asphalt roof shingle	Exterior, west corner	None Detected
A16-ES-01A	Exterior stucco, grey painted blue	Exterior west wall, below south window	None Detected
A16-ES-01B	Exterior stucco, grey painted blue	Exterior west wall, below north window	None Detected
A16-ES-01C	Exterior stucco, grey painted blue	Exterior east wall, below north window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.47 Findings and Recommendations—Building A16—East Residence (848-14-RP)
September 2017

5.47-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.47-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.47-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.47-2 Suspected LCP Sample Collection and Analysis Summary
Building A16—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A16-P-01	Cream on drywall	Room 16, laundry room, interior wall	<90
A16-P-02	White on metal trim	Room 13, corridor, interior trim	<90
A16-P-03	Beige on metal trim	Room 13, corridor, back door interior trim	<160
A16-P-04	Grey on metal door	Exterior mechanical room door	<90
A16-P-05	Blue on stucco	Exterior east wall, below south window	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.47-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.47 Findings and Recommendations—Building A16—East Residence (848-14-RP)
September 2017

5.47-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.47-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.47-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

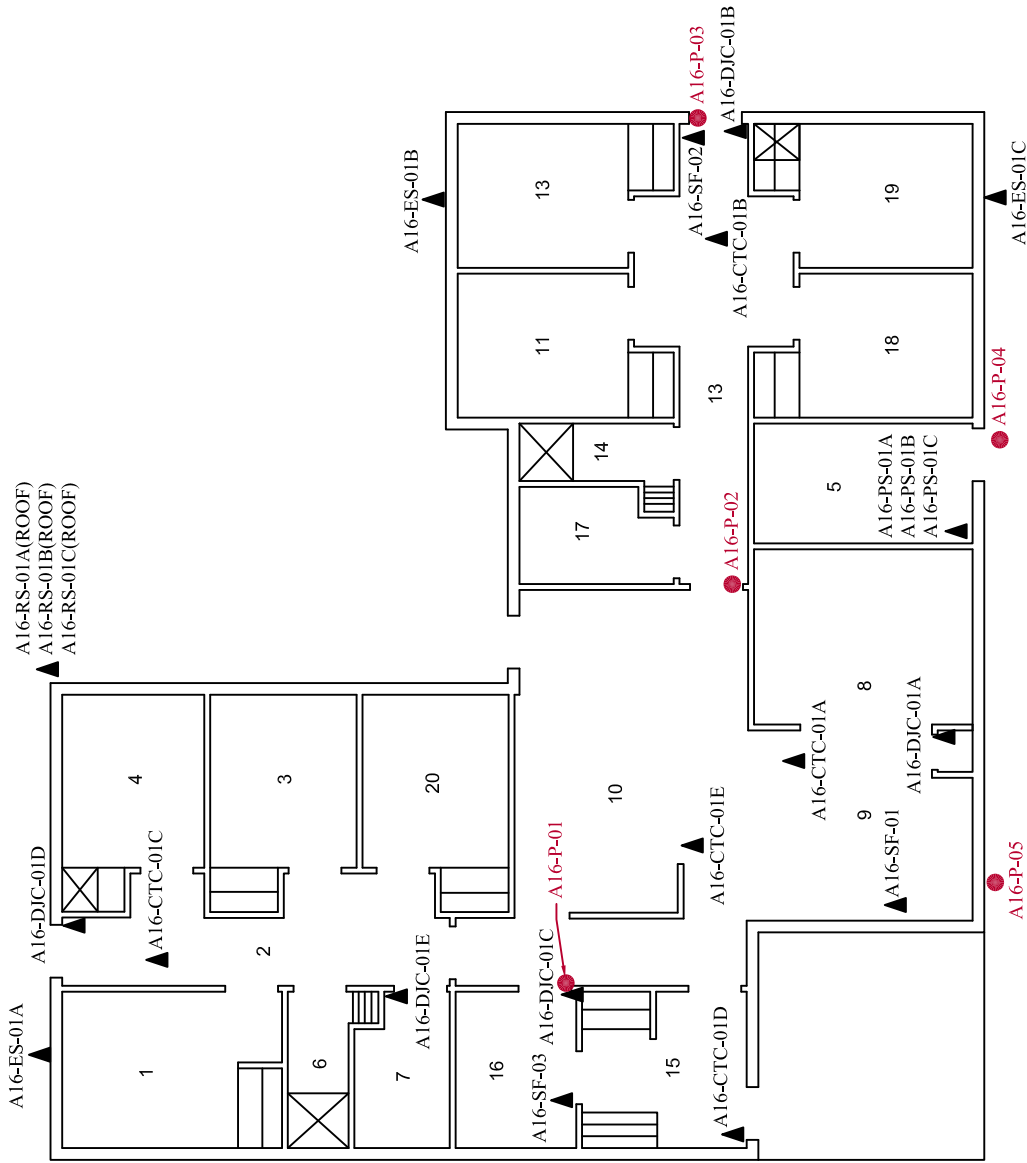
5.47-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.47-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



**FIRST FLOOR
RESIDENCE A16**

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
AND BULK SAMPLE LOCATIONS**

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC
PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD SL2017040069

App'd By: TW

Dwg. No.:

47.1



Unit A16		
East Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	10.8
2	Corridor	11.1
3	Bedroom	8.6
4	Bedroom	8.9
5	Mechanical Room	8.0
6	Shower	3.3
7	Bathroom	4.4
8	Kitchen	11.5
9	Dining Room	12.8
10	Living Room	27.6
11	Bedroom	8.7
12	Bedroom	8.9
13	Corridor	13.5
14	Shower	3.2
15	Vestibule	8.1
16	Laundry	5.9
17	Bathroom	4.4
18	Bedroom	8.6
19	Bedroom	8.9
20	Bedroom	8.6

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD CS SL2017040060

App'd By: TW

Dwg. No.:

47.2





EMSL Canada Inc.

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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700511
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A16

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A16-DJC-01A **Lab Sample ID:** 691700511-0001

Sample Description: Room 8, Kitchen Closet/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A16-DJC-01B **Lab Sample ID:** 691700511-0002

Sample Description: Room 13, Corridor, Near Back Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A16-DJC-01C **Lab Sample ID:** 691700511-0003

Sample Description: Room 16, Laundry, Near Corridor Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A16-DJC-01D **Lab Sample ID:** 691700511-0004

Sample Description: Room 2, Corridor, Near Back Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A16-DJC-01E **Lab Sample ID:** 691700511-0005

Sample Description: Room 7, Bathroom, Near Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A16-CTC-01A **Lab Sample ID:** 691700511-0006

Sample Description: Room 9, Dining Room/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A16-CTC-01B **Lab Sample ID:** 691700511-0007

Sample Description: Room 13, Corridor/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	



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EMSL Canada Order 691700511
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A16-CTC-01C **Lab Sample ID:** 691700511-0008
Sample Description: Room 2, Corridor/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A16-CTC-01D **Lab Sample ID:** 691700511-0009
Sample Description: Room 15, Vestibule/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A16-CTC-01E **Lab Sample ID:** 691700511-0010
Sample Description: Room 10, Living Room/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A16-SF-01 **Lab Sample ID:** 691700511-0011
Sample Description: Room 9, Dining Room/Vinyl Sheet Flooring, Beige Smudged - Sheet Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Beige	0.0%	100%	None Detected	

Client Sample ID: A16-SF-02 **Lab Sample ID:** 691700511-0012
Sample Description: Room 13, Corridor, Near Back Door/Vinyl Sheet Flooring, Light Grey Smudged - Sheet Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A16-SF-03 **Lab Sample ID:** 691700511-0013
Sample Description: Room 16, Laundry/Vinyl Sheet Flooring, Grey Pebble Pattern w/Blue - Sheet Flooring

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A16-PS-01A **Lab Sample ID:** 691700511-0014
Sample Description: Room 5, Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Brown	0%	100%	None Detected	

Client Sample ID: A16-PS-01B **Lab Sample ID:** 691700511-0015
Sample Description: Room 5, Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Brown	0%	100%	None Detected	



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EMSL Canada Order 691700511
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A16-PS-01C **Lab Sample ID:** 691700511-0016

Sample Description: Room 5, Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Brown	0%	100%	None Detected	

Client Sample ID: A16-RS-01A **Lab Sample ID:** 691700511-0017

Sample Description: Exterior, west Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	4.2%	95.8%	None Detected	

Client Sample ID: A16-RS-01B **Lab Sample ID:** 691700511-0018

Sample Description: Exterior, west Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	3.6%	96.4%	None Detected	

Client Sample ID: A16-RS-01C **Lab Sample ID:** 691700511-0019

Sample Description: Exterior, west Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	8.8%	91.2%	None Detected	

Client Sample ID: A16-ES-01A **Lab Sample ID:** 691700511-0020

Sample Description: Exterior West Wall, Below South Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A16-ES-01B **Lab Sample ID:** 691700511-0021

Sample Description: Exterior West Wall, Below North Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A16-ES-01C **Lab Sample ID:** 691700511-0022

Sample Description: Exterior East Wall, Below North Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	



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EMSL Canada Order 691700511
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Amy Johnson PLM (10)
PLM Grav. Reduction (4)
Seri Smith PLM (6)
PLM Grav. Reduction (2)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Report amended: 06/05/2017 11:06:30 Replaces initial report from: 03/28/2017 10:05:58 Reason Code: Client-Change to Location



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EMSL Canada Or	551702873
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822 - Living Unit A16

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A16-P-01 Site: Room 16, laundry room, interior wall Desc: Cream on drywall	551702873-0001	3/23/2017		<90 ppm
A16-P-02 Site: Room 13, corridor, interior trim Desc: White on metal trim	551702873-0002	3/23/2017		<90 ppm
A16-P-03 Site: Room 13, corridor, back door interior trim Desc: Beige on metal trim Insufficient sample to reach reporting limit.	551702873-0003	3/23/2017		<160 ppm
A16-P-04 Site: Exterior mechanical room door Desc: Grey on metal door	551702873-0004	3/23/2017		<90 ppm
A16-P-05 Site: Exterior east wall, below south window Desc: Blue on stucco	551702873-0005	3/23/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/27/2017 16:59:14

**APPENDIX 5.48
FINDINGS AND RECOMMENDATIONS—
BUILDING A17—EAST RESIDENCE
(848-08-RP)**



Appendix 5.48 FINDINGS AND RECOMMENDATIONS— BUILDING A17—EAST RESIDENCE (848-08-RP)

Building A17—East Residence (subject building) was reportedly constructed in 1999 and has been assigned Real Property ID #887. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.48-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.48-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.48-1 Suspected ACM Sample Collection and Analysis Summary
Building A17—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A17-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 10, kitchen closet, wall	None Detected
A17-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 4, laundry, partition wall, adjacent to vestibule	None Detected
A17-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 17, bedroom, beside window, perimeter wall	None Detected
A17-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 6, bed room beside window, perimeter wall	None Detected
A17-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 2, washroom, by washroom stall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.48 Findings and Recommendations—Building A17—East Residence (848-08-RP)
September 2017

**Table 5.48-1 Suspected ACM Sample Collection and Analysis Summary
Building A17—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A17-SF-01	Vinyl sheet flooring, dark grey smudged	Room 8, living room	None Detected
A17-SF-02	Vinyl sheet flooring, light grey smudged	Room 14, corridor	None Detected
A17-SF-03	Vinyl sheet flooring, light and dark blue	Room 10, kitchen	None Detected
A17-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 2, washroom	None Detected
A17-RS-01A	Black asphalt roof shingle	Exterior, south	None Detected
A17-RS-01B	Black asphalt roof shingle	Exterior, south	None Detected
A17-RS-01C	Black asphalt roof shingle	Exterior south	None Detected
A17-ES-01A	Exterior stucco, grey painted blue	Exterior, west wall, below kitchen window	None Detected
A17-ES-01B	Exterior stucco, grey painted blue	Exterior, west wall, below dining room window	None Detected
A17-ES-01C	Exterior stucco, grey painted blue	Exterior, west wall, below dining room window	None Detected
A17-WPC-01A	Window pane caulking, black	Exterior, main door window	None Detected
A17-WPC-01B	Window pane caulking, black	Exterior, main door window	None Detected
A17-WPC-01C	Window pane caulking, black	Exterior, main door window	None Detected
A17-SF-05	Vinyl sheet flooring, grey pebble pattern	Room 15, mechanical room	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.48-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.48 Findings and Recommendations—Building A17—East Residence (848-08-RP)
September 2017

5.48-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.48-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.48-2 Suspected LCP Sample Collection and Analysis Summary
Building A17—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A17-P-01	Cream on drywall	Room 8, living room	<98
A17-P-02	White on wood trim	Room 12, bathroom	<90
A17-P-03	Grey on metal trim and door	Room 15, mechanical room, exterior door	<90
A17-P-04	Blue on stucco	Exterior west wall, below kitchen exterior window	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.48-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.48-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.48-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.48 Findings and Recommendations—Building A17—East Residence (848-08-RP)
September 2017

5.48-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.48-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

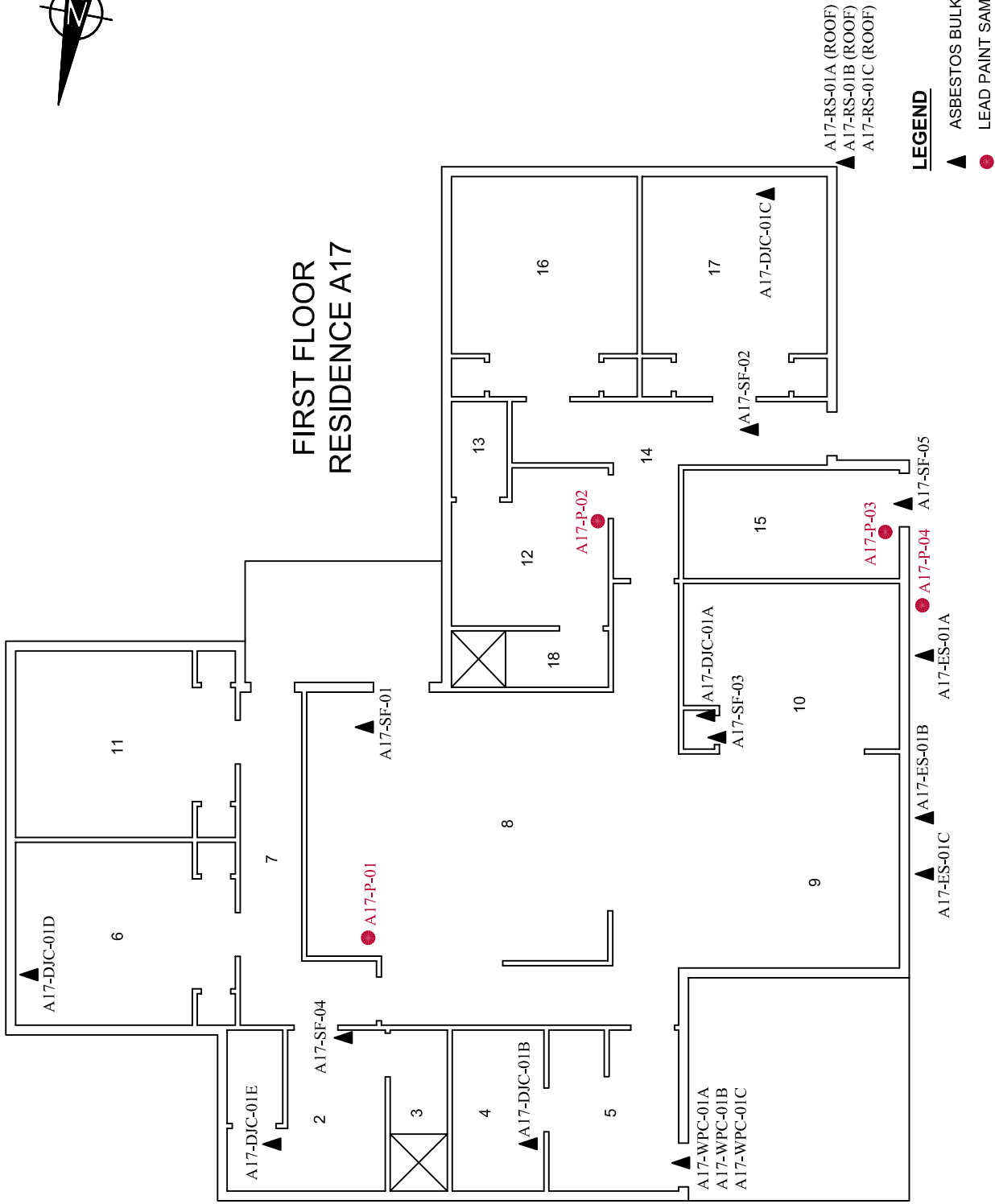
- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.48-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



FIRST FLOOR RESIDENCE A17



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/09/20

Dwn. By: CD SL2017090123
CS/DM

App'd By: TW

Dwg. No.:

48.1



Unit A17		
East Residence - First Floor		
Rm. #	Name	Area m ²
1	Washroom Stall	1.9
2	Washroom	6.4
3	Shower	2.9
4	Laundry Room	4.6
5	Vestibule	6.8
6	Bedroom	12.8
7	Corridor	7.9
8	Living Room	34.6
9	Dining Room	14.5
10	Kitchen	10.8
11	Bedroom	12.9
12	Bathroom	7.1
13	Bathroom Stall	2.0
14	Corridor	10.5
15	Mechanical Room	7.5
16	Bedroom	12.8
17	Bedroom	12.8
18	Shower	2.9

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD CS SL2017040062

App'd By: TW

Dwg. No.:

48.2





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EMSL Canada Order 691700403
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/14/2017
Analyzed: 3/21/2017

Proj: CSC MISSION - MINIMUM/123220822 / A17 - EAST RESIDENCE

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A17-DJC-01A **Lab Sample ID:** 691700403-0001

Sample Description: ROOM 10, KITCHEN CLOSET, WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: A17-DJC-01B **Lab Sample ID:** 691700403-0002

Sample Description: ROOM 4, SHOWER, PARTITION WALL, ADJACENT TO VESTIBULE/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: A17-DJC-01C **Lab Sample ID:** 691700403-0003

Sample Description: ROOM 17, BEDROOM, BESIDE WINDOW, PERIMETER WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: A17-DJC-01D **Lab Sample ID:** 691700403-0004

Sample Description: ROOM 6, BEDROOM BESIDE WINDOW, PERIMETER WALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: A17-DJC-01E **Lab Sample ID:** 691700403-0005

Sample Description: ROOM 2, WASHROOM, BY WASHROOM STALL/DRYWALL JOINT COMPOUND APPLIED TO WALLS AND CEILINGS THROUGHOUT

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	White	0%	100%	None Detected	

Client Sample ID: A17-SF-01 **Lab Sample ID:** 691700403-0006

Sample Description: ROOM 8, LIVING ROOM/VINYL SHEET FLOORING, DARK GREY SMUDGED

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A17-SF-02 **Lab Sample ID:** 691700403-0007

Sample Description: ROOM 14, CORRIDOR/VINYL SHEET FLOORING, LIGHT GREY SMUDGED

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Gray	0.0%	100%	None Detected	



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EMSL Canada Order 691700403
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A17-SF-03 **Lab Sample ID:** 691700403-0008
Sample Description: ROOM 10, KITCHEN/VINYL SHEET FLOORING, LIGHT AND DARK BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A17-SF-04 **Lab Sample ID:** 691700403-0009
Sample Description: ROOM 2, WASHROOM/VINYL SHEET FLOORING, GREY PEBBLE PATTERN WITH BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A17-RS-01A **Lab Sample ID:** 691700403-0010
Sample Description: EXTERIOR SOUTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.93%	99.1%	None Detected	

Client Sample ID: A17-RS-01B **Lab Sample ID:** 691700403-0011
Sample Description: EXTERIOR SOUTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.47%	99.5%	None Detected	

Client Sample ID: A17-RS-01C **Lab Sample ID:** 691700403-0012
Sample Description: EXTERIOR SOUTH/BLACK ASPHALT ROOF SHINGLE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.63%	99.4%	None Detected	

Client Sample ID: A17-ES-01A **Lab Sample ID:** 691700403-0013
Sample Description: EXTERIOR, WEST WALL, BELOW DINING ROOM WINDOW/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	Blue	0%	100%	None Detected	

Client Sample ID: A17-ES-01B **Lab Sample ID:** 691700403-0014
Sample Description: EXTERIOR, WEST WALL, BELOW DINING ROOM WINDOW/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	Blue	0%	100%	None Detected	

Client Sample ID: A17-ES-01C **Lab Sample ID:** 691700403-0015
Sample Description: EXTERIOR, WEST WALL, BELOW DINING ROOM WINDOW/EXTERIOR STUCCO, GREY PAINTED BLUE

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/21/2017	Gray/Blue	0%	100%	None Detected	



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EMSL Canada Order 691700403
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A17-WPC-01A **Lab Sample ID:** 691700403-0016

Sample Description: EXTERIOR, MAIN DOOR WINDOW/WINDOW PANE CAULKING, BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A17-WPC-01B **Lab Sample ID:** 691700403-0017

Sample Description: EXTERIOR, MAIN DOOR WINDOW/WINDOW PANE CAULKING, BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A17-WPC-01C **Lab Sample ID:** 691700403-0018

Sample Description: EXTERIOR, MAIN DOOR WINDOW/WINDOW PANE CAULKING, BLACK

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A17-SF-05 **Lab Sample ID:** 691700403-0019

Sample Description: NOT IN COC/MECH. ROOM

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/21/2017	Gray	0.0%	100%	None Detected	

Analyst(s):
Kathleen Cruz PLM (3)
PLM Grav. Reduction (11)
Nicole Yeo PLM (5)

Reviewed and approved by: 
Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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



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Phone: (604) 412-3004
Fax:
Received: 03/14/17 10:47 AM
Collected:

Project: **CSC MISSION-MINIMUM/123220822 - A17-EAST RESIDENCE**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A17-P-01 Site: ROOM 8, LIVING ROOM Desc: CREAM ON DRYWALL Insufficient sample to reach reporting limit.	551702665-0001	3/17/2017		<98 ppm
A17-P-02 Site: ROOM 12, BATHROOM Desc: WHITE ON WOOD TRIM	551702665-0002	3/17/2017		<90 ppm
A17-P-03 Site: ROOM 15, MECHANICAL ROOM, EXTERIOR DOOR Desc: GREY ON METAL TRIM AND DOOR	551702665-0003	3/17/2017		<90 ppm
A17-P-04 Site: EXTERIOR WEST WALL, BELOW KITCHEN EXTERIOR WINDOW Desc: BLUE ON STUCCO	551702665-0004	3/17/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/21/2017 08:08:47

**APPENDIX 5.49
FINDINGS AND RECOMMENDATIONS—
BUILDING A18—EAST RESIDENCE
(848-09-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.49 Findings and Recommendations—Building A18—East Residence (848-09-RP)
September 2017

Appendix 5.49 FINDINGS AND RECOMMENDATIONS— BUILDING A18—EAST RESIDENCE (848-09-RP)

Building A18—East Residence (subject building) was reportedly constructed in 1999 and has been assigned Real Property ID #888. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall and texture coat ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.49-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.49-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.49-1 Suspected ACM Sample Collection and Analysis Summary
Building A18—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A18-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 8, kitchen closet	None Detected
A18-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 16, laundry room	None Detected
A18-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 2, corridor, near back door	None Detected
A18-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 10, living room, near back door	None Detected
A18-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 17, bathroom, near door	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.49 Findings and Recommendations—Building A18—East Residence (848-09-RP)
September 2017

**Table 5.49-1 Suspected ACM Sample Collection and Analysis Summary
Building A18—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A18- CTC-01B	Texture coat applied to drywall ceilings	Room 15, vestibule	None Detected
A18-CTC-01C	Texture coat applied to drywall ceilings	Room 2, corridor	None Detected
A18-CTC-01D	Texture coat applied to drywall ceilings	Room 13, corridor	None Detected
A18-CTC-01E	Texture coat applied to drywall ceilings	Room 13, corridor, near back door	None Detected
A18-SF-01	Vinyl sheet flooring, beige smudged	Room 10, living room, near vestibule door	None Detected
A18-SF-02	Vinyl sheet flooring, light grey smudged	Room 10, living room, near back door	None Detected
A18-SF-03	Vinyl sheet flooring, grey pebble pattern with blue	Room 16, laundry	None Detected
A18-PS-01A	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	None Detected
A18-PS-01B	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	None Detected
A18-PS-01C	Brown pipe sealant applied to sprinkler lines	Room 5, mechanical room	None Detected
A18-RS-01A	Black asphalt roof shingle	Roof, southwest	None Detected
A18-RS-01B	Black asphalt roof shingle	Roof, southwest	None Detected
A18-RS-01C	Black asphalt roof shingle	Roof, southwest	None Detected
A18-ES-01A	Exterior stucco, grey painted blue	Exterior east wall, below south window	None Detected
A18-ES-01B	Exterior stucco, grey painted blue	Exterior north wall, below west window	None Detected
A18-ES-01C	Exterior stucco, grey painted blue	Exterior south wall, below center window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.49 Findings and Recommendations—Building A18—East Residence (848-09-RP)
September 2017

5.49-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.49-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.49-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.49-2 Suspected LCP Sample Collection and Analysis Summary
Building A18—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A18-P-01	Cream on drywall	Room 8, kitchen closet, interior wall	<90
A18-P-02	Beige on metal trim & doors	Room 13, corridor, interior trim on living room door	<180
A18-P-03	Blue on stucco	Exterior east wall, below north window	<90
A18-P-04	Grey on metal door	Exterior mechanical room door	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.49-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.49 Findings and Recommendations—Building A18—East Residence (848-09-RP)
September 2017

5.49-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.49-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.49-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

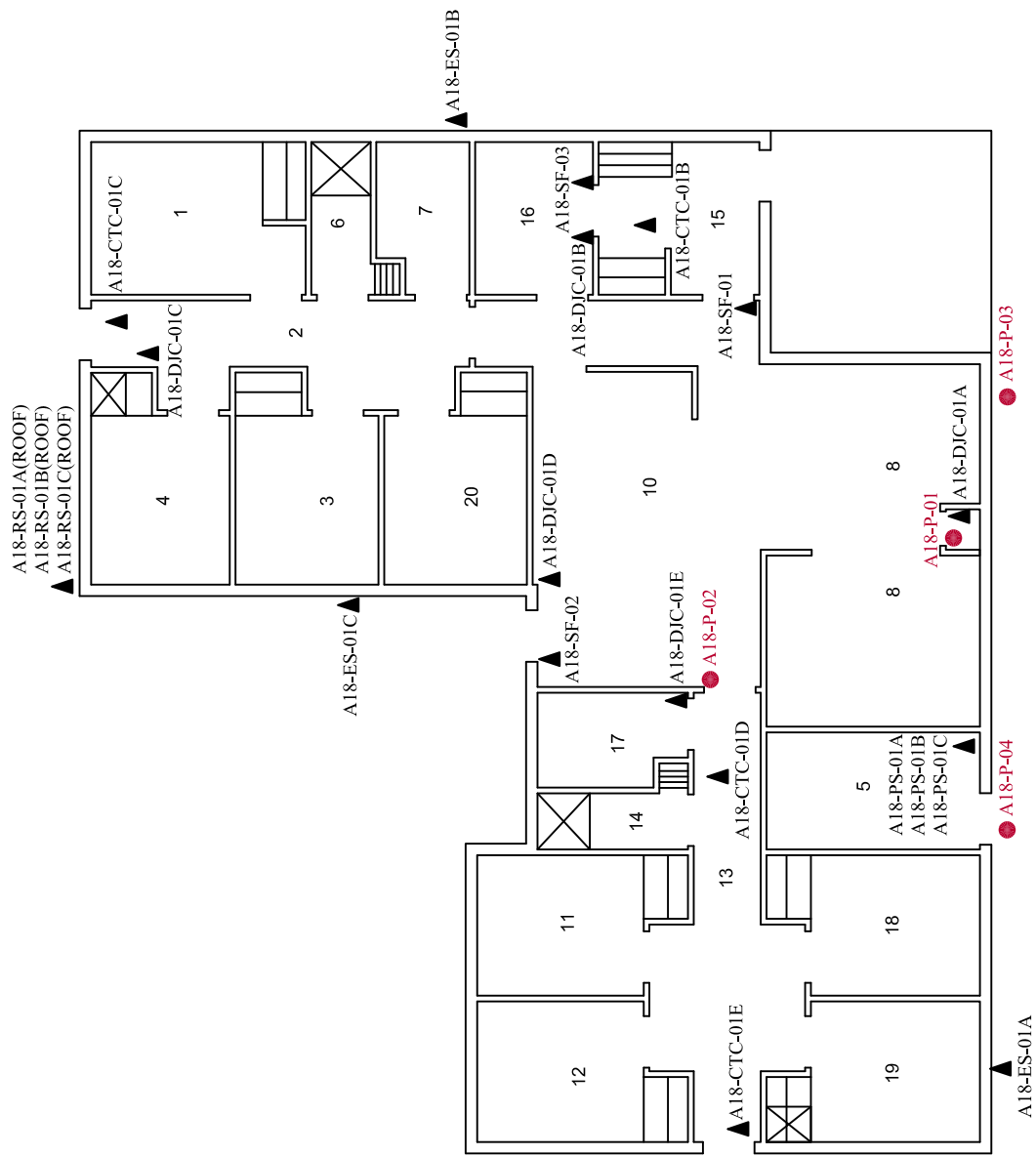
5.49-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.49-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



**FIRST FLOOR
RESIDENCE A18**

LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA		Project No.: 123220822	Dwg. No.:
		Scale: N.T.S.	49.1
Date: 17/04/01	Dwn. By: CD CS		SL2017040063
App'd By: TW			

Unit A18		
East Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	10.8
2	Corridor	11.1
3	Bedroom	8.6
4	Bedroom	8.9
5	Mechanical Room	8.0
6	Shower	3.3
7	Bathroom	4.4
8	Kitchen	11.5
9	Dining Room	12.8
10	Living Room	27.6
11	Bedroom	8.7
12	Bedroom	8.9
13	Corridor	13.5
14	Shower	3.2
15	Vestibule	8.1
16	Laundry	5.9
17	Bathroom	4.4
18	Bedroom	8.6
19	Bedroom	8.9
20	Bedroom	8.6

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC
PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD CS SL2017040064

App'd By: TW

Dwg. No.:

49.2





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 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

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 Stantec Consulting, Ltd.
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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A18

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A18-DJC-01A **Lab Sample ID:** 691700512-0001

Sample Description: Room 8, Kitchen Closet/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A18-DJC-01B **Lab Sample ID:** 691700512-0002

Sample Description: Room 16, Laundry Room/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A18-DJC-01C **Lab Sample ID:** 691700512-0003

Sample Description: Room 2, Corridor, Near Back Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A18-DJC-01D **Lab Sample ID:** 691700512-0004

Sample Description: Room 10, Living Room, Near Back Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A18-DJC-01E **Lab Sample ID:** 691700512-0005

Sample Description: Room 17, Bathroom, Near Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A18-CTC-01B **Lab Sample ID:** 691700512-0007

Sample Description: Room 15, Vestibule/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A18-CTC-01C **Lab Sample ID:** 691700512-0008

Sample Description: Room 2, Corridor/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	



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Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A18-CTC-01D **Lab Sample ID:** 691700512-0009

Sample Description: Room 13, Corridor/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A18-CTC-01E **Lab Sample ID:** 691700512-0010

Sample Description: Room 13, Corridor, Near Back Door/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A18-SF-01 **Lab Sample ID:** 691700512-0011

Sample Description: Room 10, Living Room, Near Vestibule Door/Vinyl Sheet Flooring, Beige Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Beige	0.0%	100%	None Detected	

Client Sample ID: A18-SF-02 **Lab Sample ID:** 691700512-0012

Sample Description: Room 10, Living Room, Near Back Door/Vinyl Sheet Flooring, Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A18-SF-03 **Lab Sample ID:** 691700512-0013

Sample Description: Room 16, Laundry/Vinyl Sheet Flooring, Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A18-PS-01A **Lab Sample ID:** 691700512-0014

Sample Description: Room 5, Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: A18-PS-01B **Lab Sample ID:** 691700512-0015

Sample Description: Room 5, Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	<0.54%	100%	None Detected	

Client Sample ID: A18-PS-01C **Lab Sample ID:** 691700512-0016

Sample Description: Room 5, Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	1%	99%	None Detected	



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Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A18-RS-01A **Lab Sample ID:** 691700512-0017

Sample Description: Roof, Southwest/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.56%	99.4%	None Detected	

Client Sample ID: A18-RS-01B **Lab Sample ID:** 691700512-0018

Sample Description: Roof, Southwest/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.29%	99.7%	None Detected	

Client Sample ID: A18-RS-01C **Lab Sample ID:** 691700512-0019

Sample Description: Roof, Southwest/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.69%	99.3%	None Detected	

Client Sample ID: A18-ES-01A **Lab Sample ID:** 691700512-0020

Sample Description: Exterior East Wall, Below South Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: A18-ES-01B **Lab Sample ID:** 691700512-0021

Sample Description: Exterior North Wall, Below West Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: A18-ES-01C **Lab Sample ID:** 691700512-0022

Sample Description: Exterior South Wall, Below Center Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	



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Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Kathleen Cruz PLM (8)
PLM Grav. Reduction (7)
Nicole Yeo PLM (6)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 06/05/2017 11:12:41 Replaces amended report from: 06/05/2017 11:11:16 Reason Code: Client-Other (see report comment)



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Phone: (604) 412-3004
Fax:
Received: 03/21/17 10:58 AM
Collected:

Project: **CSCMISSION- MINIMUM/123220822 - Living Unit A18**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A18-P-01 Site: Room 8, kitchen closet, interior wall Desc: Cream on drywall	551702877-0001	3/24/2017		<90 ppm
A18-P-02 Site: Room 13, corridor, interior trim on living room door Desc: Beige on metal trim & doors Insufficient sample to reach reporting limit.	551702877-0002	3/24/2017		<180 ppm
A18-P-03 Site: Exterior east wall, below north window Desc: Blue on stucco	551702877-0003	3/24/2017		<90 ppm
A18-P-04 Site: Exterior mechanical room door Desc: Grey on metal door	551702877-0004	3/24/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 08:24:36

**APPENDIX 5.50
FINDINGS AND RECOMMENDATIONS—
BUILDING A19—EAST RESIDENCE
(848-15-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.50 Findings and Recommendations—Building A19—East Residence (848-15-RP)
September 2017

Appendix 5.50 FINDINGS AND RECOMMENDATIONS— BUILDING A19—EAST RESIDENCE (848-15-RP)

Building A19—East Residence (subject building) was reportedly constructed in 1999 and has been assigned Real Property ID #889. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.50-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.50-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.50-1 Suspected ACM Sample Collection and Analysis Summary
Building A19—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A19-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 7, corridor, near living room door	None Detected
A19-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 4, laundry room, near door	None Detected
A19-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 2, washroom, near door	None Detected
A19-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 12, bathroom, near door	None Detected
A19-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 14, corridor, outside of room 16, bedroom	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.50 Findings and Recommendations—Building A19—East Residence (848-15-RP)
September 2017

**Table 5.50-1 Suspected ACM Sample Collection and Analysis Summary
Building A19—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A19-SF-01	Vinyl sheet flooring, dark grey smudged	Room 8, living room, near back door	None Detected
A19-SF-02	Vinyl sheet flooring, light grey smudged	Room 7, corridor, near bathroom door	None Detected
A19-SF-03	Vinyl sheet flooring, light and dark blue	Room 5, vestibule	None Detected
A19-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 12, bathroom	None Detected
A19-SF-05	Vinyl sheet flooring, grey pebble pattern	Room 15, mechanical room	None Detected
A16-PS-01A	Red fire stop sealant, applied to roof	Room 15, mechanical room	None Detected
A16-PS-01B	Red fire stop sealant, applied to roof	Room 15, mechanical room	None Detected
A16-PS-01C	Red fire stop sealant, applied to roof	Room 15, mechanical room	None Detected
A19-RS-01A	Black asphalt roof shingle	Roof, east end	None Detected
A19-RS-01B	Black asphalt roof shingle	Roof, east end	None Detected
A19-RS-01C	Black asphalt roof shingle	Roof, east end	None Detected
A19-ES-01A	Exterior stucco, grey painted blue	Exterior east wall, below south window	None Detected
A19-ES-01B	Exterior stucco, grey painted blue	Exterior south wall, below west window	None Detected
A19-ES-01C	Exterior stucco, grey painted blue	Exterior west wall, below south window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.50-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.50 Findings and Recommendations—Building A19—East Residence (848-15-RP)
September 2017

5.50-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.50-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.50-2 Suspected LCP Sample Collection and Analysis Summary
Building A19—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A19-P-01	Cream on drywall	Room 4, laundry room, interior wall	<90
A19-P-02	Grey on metal trim & doors	Room 4, laundry room	<200
A19-P-03	Grey on metal door	Exterior mechanical room door	<130
A19-P-04	Blue on stucco	Exterior west wall, below north window	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.50-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.50-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.50-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.50 Findings and Recommendations—Building A19—East Residence (848-15-RP)
September 2017

5.50-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

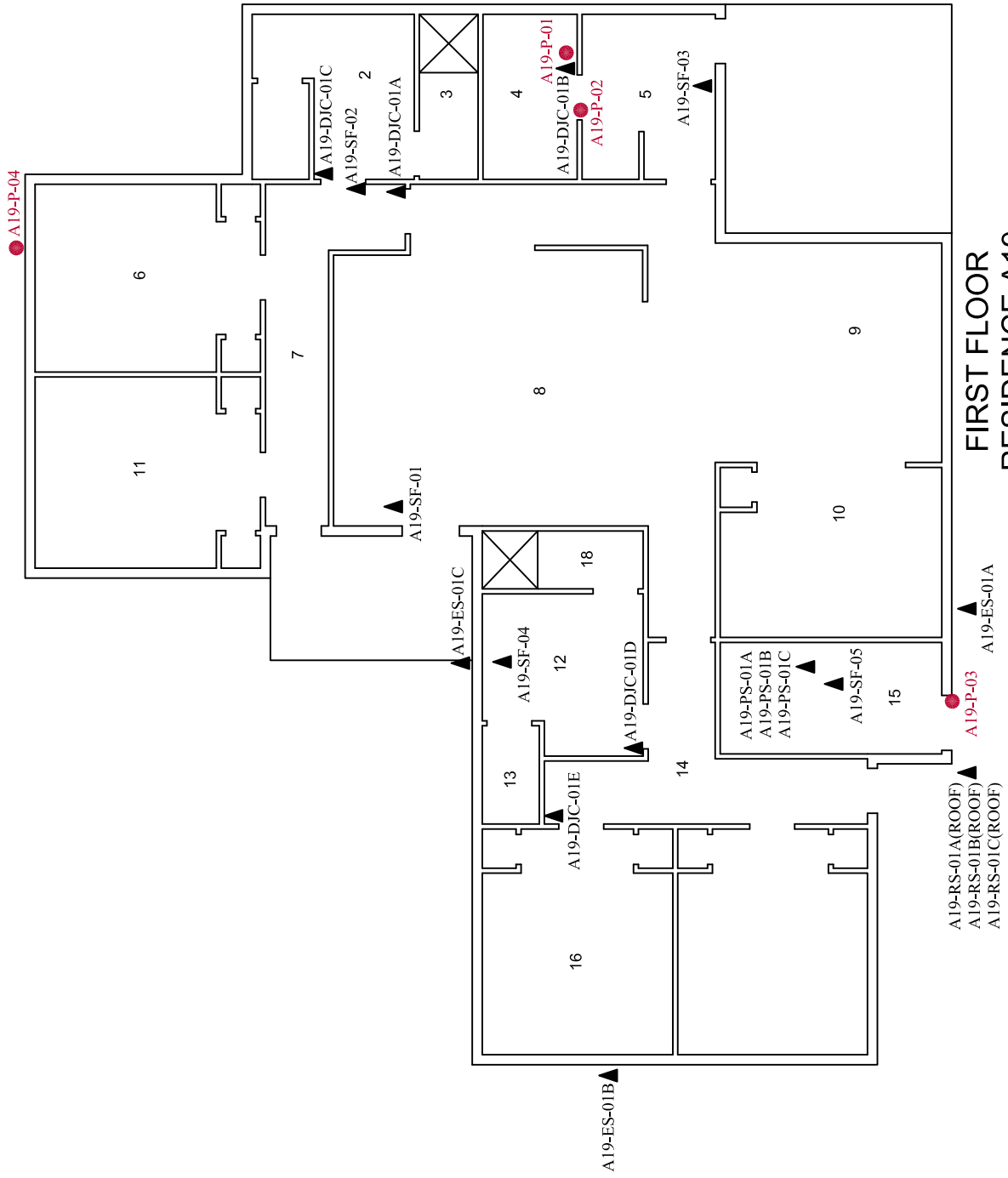
5.50-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.50-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

**FIRST FLOOR
RESIDENCE A19**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD., REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA		Project No.: 123220822	Dwg. No.: 50.1	
		Scale: N.T.S.	Date: 17/04/01	
Client:		Dwn. By: CD CS	App'd By: TW	

Unit A19		
East Residence - First Floor		
Rm. #	Name	Area m ²
1	Washroom Stall	1.9
2	Washroom	6.4
3	Shower	2.9
4	Laundry Room	4.6
5	Vestibule	6.8
6	Bedroom	12.8
7	Corridor	7.9
8	Living Room	34.6
9	Dining Room	14.5
10	Kitchen	10.8
11	Bedroom	12.9
12	Bathroom	7.1
13	Bathroom Stall	2.0
14	Corridor	10.5
15	Mechanical Room	7.5
16	Bedroom	12.8
17	Bedroom	12.8
18	Shower	2.9

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD CS SL2017040066

App'd By: TW

Dwg. No.:

50.2





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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700519
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A19

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID:	A19-DJC-01A					Lab Sample ID:	691700519-0001
Sample Description:	Room 7, Corridor, Near Living Room Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	3/28/2017	White	Fibrous 0%	Non-Fibrous 100%	None Detected		
Client Sample ID:	A19-DJC-01B					Lab Sample ID:	691700519-0002
Sample Description:	Room 4, Laundry Room, Near Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	3/28/2017	White	Fibrous 0%	Non-Fibrous 100%	None Detected		
Client Sample ID:	A19-DJC-01C					Lab Sample ID:	691700519-0003
Sample Description:	Room 2, Washroom, Near Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	3/28/2017	White	Fibrous 0%	Non-Fibrous 100%	None Detected		
Client Sample ID:	A19-DJC-01D					Lab Sample ID:	691700519-0004
Sample Description:	Room 12, Bathroom, Near Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	3/28/2017	White	Fibrous 0%	Non-Fibrous 100%	None Detected		
Client Sample ID:	A19-DJC-01E					Lab Sample ID:	691700519-0005
Sample Description:	Room 14, Corridor, Outside of Room 16, Bedroom/Drywall Joint Compound Applied to Walls & Ceilings Throughout						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM	3/28/2017	White	Fibrous 0%	Non-Fibrous 100%	None Detected		
Client Sample ID:	A19-SF-01					Lab Sample ID:	691700519-0006
Sample Description:	Room 8, Living Room, Near Back Door/Vinyl Sheet Flooring, Dark Grey Smudged						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM Grav. Reduction	3/28/2017	Gray	Fibrous 0.0%	Non-Fibrous 100%	None Detected		
Client Sample ID:	A19-SF-02					Lab Sample ID:	691700519-0007
Sample Description:	Room 7, Corridor, Near Bathroom Door/Vinyl Sheet Flooring, Light Grey Smudged						
TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment	
PLM Grav. Reduction	3/28/2017	Gray	Fibrous 0.0%	Non-Fibrous 100%	None Detected		



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EMSL Canada Order 691700519
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A19-SF-03 **Lab Sample ID:** 691700519-0008
Sample Description: Room 5, Vestibule/Vinyl Sheet Flooring, Light & Dark Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A19-SF-04 **Lab Sample ID:** 691700519-0009
Sample Description: Room 12, Bathroom/Vinyl Sheet Flooring, Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A19-SF-05 **Lab Sample ID:** 691700519-0010
Sample Description: Room 15, Mechanical Room/Vinyl Sheet Flooring, Grey Pebble Pattern

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A19-PS-01A **Lab Sample ID:** 691700519-0011
Sample Description: Room 15, Mechanical Room/Red Fire Stop Sealant, Applied to Roof

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A19-PS-01B **Lab Sample ID:** 691700519-0012
Sample Description: Room 15, Mechanical Room/Red Fire Stop Sealant, Applied to Roof

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A19-PS-01C **Lab Sample ID:** 691700519-0013
Sample Description: Room 15, Mechanical Room/Red Fire Stop Sealant, Applied to Roof

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A19-RS-01A **Lab Sample ID:** 691700519-0014
Sample Description: Roof, East End/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A19-RS-01B **Lab Sample ID:** 691700519-0015
Sample Description: Roof, East End/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700519
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A19-RS-01C **Lab Sample ID:** 691700519-0016
Sample Description: Roof, East End/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A19-ES-01A **Lab Sample ID:** 691700519-0017
Sample Description: Exterior East Wall, Below South Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A19-ES-01B **Lab Sample ID:** 691700519-0018
Sample Description: Exterior South Wall, Below West Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A19-ES-01C **Lab Sample ID:** 691700519-0019
Sample Description: Exterior West Wall, Below South Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Analyst(s):

Kathleen Cruz PLM (3)
PLM Grav. Reduction (2)
Nicole Yeo PLM (5)
PLM Grav. Reduction (9)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Report amended: 08/28/2017 14:17:35 Replaces initial report from: 03/28/2017 18:48:50 Reason Code: Client-Other (see report comment)



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EMSL Canada Or	551702878
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822 - Living Unit A19

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A19-P-01 Site: Room 4, laundry room, interior wall Desc: Cream on drywall	551702878-0001	3/24/2017		<90 ppm
A19-P-02 Site: Room 4, laundry room Desc: Grey on metal trim & doors Insufficient sample to reach reporting limit.	551702878-0002	3/24/2017		<200 ppm
A19-P-03 Site: Exterior mechanical room door Desc: Grey on metal door Insufficient sample to reach reporting limit.	551702878-0003	3/24/2017		<130 ppm
A19-P-04 Site: Exterior west wall, below north window Desc: Blue on stucco	551702878-0004	3/24/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 08:22:40

**APPENDIX 5.51
FINDINGS AND RECOMMENDATIONS—
BUILDING A20—EAST RESIDENCE
(848-12-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.51 Findings and Recommendations—Building A20—East Residence (848-12-RP)
September 2017

Appendix 5.51 FINDINGS AND RECOMMENDATIONS— BUILDING A20—EAST RESIDENCE (848-12-RP)

Building A20—East Residence (subject building) was reportedly constructed in 2001 and has been assigned Real Property ID #890. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.51-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.51-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.51-1 Suspected ACM Sample Collection and Analysis Summary
Building A20—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A20-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 4, laundry room, wall adjacent to vestibule	None Detected
A20-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 14, corridor, north wall	None Detected
A20-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 10, kitchen, closet wall	None Detected
A20-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 2, washroom, washroom stall partition wall	None Detected
A20-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 7, corridor, east wall	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.51 Findings and Recommendations—Building A20—East Residence (848-12-RP)
September 2017

**Table 5.51-1 Suspected ACM Sample Collection and Analysis Summary
Building A20—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A20-SF-01	Vinyl sheet flooring, dark grey smudged	Room 8, living room, near back door	None Detected
A20-SF-02	Vinyl sheet flooring, light grey smudged	Room 8, living room, near vestibule door	None Detected
A20-SF-03	Vinyl sheet flooring, light and dark blue	Room 9, dining room, near east window	None Detected
A20-SF-04	Vinyl sheet flooring, grey pebble pattern with blue	Room 4, laundry room	None Detected
A20-PS-01A	Penetration sealant applied to ceiling, red	Room 15, mechanical room	None Detected
A20-PS-01B	Penetration sealant applied to ceiling, red	Room 15, mechanical room	None Detected
A20-PS-01C	Penetration sealant applied to ceiling, red	Room 15, mechanical room	None Detected
A20-FM-01A	Foundation mastic, black	Exterior southeast corner	None Detected
A20-FM-01B	Foundation mastic, black	Exterior southeast corner	None Detected
A20-FM-01C	Foundation mastic, black	Exterior southeast corner	None Detected
A20-RS-01A	Black asphalt roof shingle	Exterior northeast corner	None Detected
A20-RS-01B	Black asphalt roof shingle	Exterior northeast corner	None Detected
A20-RS-01C	Black asphalt roof shingle	Exterior northeast corner	None Detected
A20-ES-01A	Exterior stucco, grey painted blue	Exterior east wall, below south window	None Detected
A20-ES-01B	Exterior stucco, grey painted blue	Exterior east wall, below north window	None Detected
A20-ES-01C	Exterior stucco, grey painted blue	Exterior north wall, below east window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.51-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.51 Findings and Recommendations—Building A20—East Residence (848-12-RP)
September 2017

found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.51-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.51-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.51-2 Suspected LCP Sample Collection and Analysis Summary
Building A20—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A20-P-01	Cream on drywall	Room 8, living room, ceiling to corridor 14	<90
A20-P-02	Grey on metal trim	Room 8, living room, interior trim, door to corridor 7	<90
A20-P-03	Grey on metal trim	Exterior trim, mechanical room (room 15)	<120
A20-P-04	Blue on stucco	Exterior north wall, below east window	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.51-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.51-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.


HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.51 Findings and Recommendations—Building A20—East Residence (848-12-RP)
September 2017

5.51-5 MOULD

Observations pertaining to mould and/or moisture impacted building materials are summarized in the following table.

**Table 5.51-3 Mould/Moisture Observations Summary—March 22, 2017
Building A20—East Residence**

Building Area	Observation	Suspected Source of Moisture	Photo
Crawl space area below room 15, mechanical room	Approximately 10'x10' patch of moisture staining on concrete and adjacent cardboard column sonotube.	Pipe leaks	

5.51-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.51-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.51-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.51 Findings and Recommendations—Building A20—East Residence (848-12-RP)
September 2017

continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

Additional building specific recommendations are provided in the following sub-sections.

5.51-8.5 Mould

Documents published by Health Canada, Ontario Ministry of Health, American Industrial Hygiene Association (AIHA), American Conference of Governmental Industrial Hygienists (ACGIH) and others, provide guidance for interpreting the results of mold investigations. The Health Canada Guide states that:

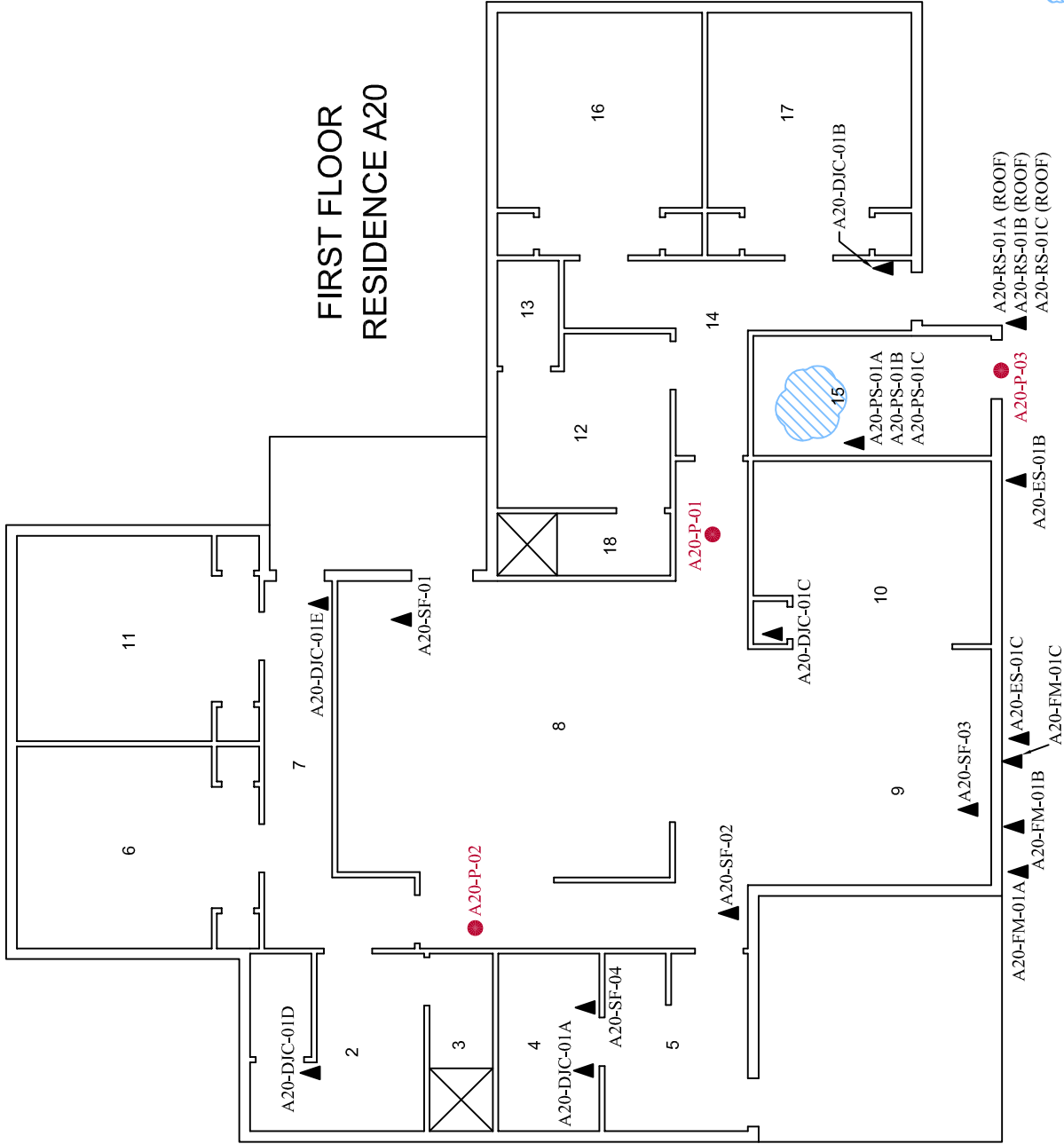
“...current knowledge supports the need to prevent damp conditions and mold growth and to remediate any fungal contamination in buildings.”

To this end, Stantec recommends the following course of action within the subject building:

- Moisture-stained cardboard sonotube should be removed from the column before mould begins to grow on this material.
- An assessment to determine the likely source(s) of water staining/moisture intrusion should be undertaken. Issues leading to moisture impacts should be identified and addressed.



FIRST FLOOR RESIDENCE A20



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE
- ⊘ MOISTURE-STAINING ON CONCRETE FLOOR IN CRAWLSPACE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/08/22

Dwn. By: CD SL2017080216
CS/DM

App'd By: TW

Dwg. No.:

51.1



Unit A20		
East Residence - First Floor		
Rm. #	Name	Area m ²
1	Washroom Stall	1.9
2	Washroom	6.4
3	Shower	2.9
4	Laundry Room	4.6
5	Vestibule	6.8
6	Bedroom	12.8
7	Corridor	7.9
8	Living Room	34.6
9	Dining Room	14.5
10	Kitchen	10.8
11	Bedroom	12.9
12	Bathroom	7.1
13	Bathroom Stall	2.0
14	Corridor	10.5
15	Mechanical Room	7.5
16	Bedroom	12.8
17	Bedroom	12.8
18	Shower	2.9

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD CS SL2017040068

App'd By: TW

Dwg. No.:

51.2





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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700515
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A20

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A20-DJC-01A **Lab Sample ID:** 691700515-0001

Sample Description: Room 4, Laundry Room, Wall Adjacent to Vestibule/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A20-DJC-01B **Lab Sample ID:** 691700515-0002

Sample Description: Room 14, Corridor, North Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A20-DJC-01C **Lab Sample ID:** 691700515-0003

Sample Description: Room 10, Kitchen, Closet Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A20-DJC-01D **Lab Sample ID:** 691700515-0004

Sample Description: Room 2, Washroom, Washroom Stall Partition Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A20-DJC-01E **Lab Sample ID:** 691700515-0005

Sample Description: Room 7, Corridor, East Wall/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A20-SF-01 **Lab Sample ID:** 691700515-0006

Sample Description: Room 8, Living Room, Near Back Door/Vinyl Sheet Flooring, Dark Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A20-SF-02 **Lab Sample ID:** 691700515-0007

Sample Description: Room 8, Living Room, Near Vestibule Door/Vinyl Sheet Flooring, Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	



EMSL Canada Inc.

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Phone/Fax: 604-757-3158 / (604) 757-4731
<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700515
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A20-SF-03 **Lab Sample ID:** 691700515-0008
Sample Description: Room 9, Dining Room, Near East Window/Vinyl Sheet Flooring, Light & Dark Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Blue	0.0%	100%	None Detected	

Client Sample ID: A20-SF-04 **Lab Sample ID:** 691700515-0009
Sample Description: Room 4, Laundry Room/Vinyl Sheet Flooring, Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A20-PS-01A **Lab Sample ID:** 691700515-0010
Sample Description: Room 15, Mechanical Room/Penetration Sealant Applied to Ceiling, Red

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A20-PS-01B **Lab Sample ID:** 691700515-0011
Sample Description: Room 15, Mechanical Room/Penetration Sealant Applied to Ceiling, Red

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A20-PS-01C **Lab Sample ID:** 691700515-0012
Sample Description: Room 15, Mechanical Room/Penetration Sealant Applied to Ceiling, Red

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A20-FM-01A **Lab Sample ID:** 691700515-0013
Sample Description: Exterior Southeast Corner/Foundation Mastic, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A20-FM-01B **Lab Sample ID:** 691700515-0014
Sample Description: Exterior Southeast Corner/Foundation Mastic, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A20-FM-01C **Lab Sample ID:** 691700515-0015
Sample Description: Exterior Southeast Corner/Foundation Mastic, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700515
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A20-RS-01A **Lab Sample ID:** 691700515-0016
Sample Description: Exterior Northeast Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	4.9%	95.1%	None Detected	

Client Sample ID: A20-RS-01B **Lab Sample ID:** 691700515-0017
Sample Description: Exterior Northeast Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	5.2%	94.8%	None Detected	

Client Sample ID: A20-RS-01C **Lab Sample ID:** 691700515-0018
Sample Description: Exterior Northeast Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	2.9%	97.1%	None Detected	

Client Sample ID: A20-ES-01A **Lab Sample ID:** 691700515-0019
Sample Description: Exterior East Wall, Below South Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: A20-ES-01B **Lab Sample ID:** 691700515-0020
Sample Description: Exterior East Wall, Below North Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: A20-ES-01C **Lab Sample ID:** 691700515-0021
Sample Description: Exterior North Wall, Below East Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	



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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700515
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Kathleen Cruz PLM (3)
PLM Grav. Reduction (3)
Nicole Yeo PLM (5)
PLM Grav. Reduction (10)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 10:18



EMSL Canada Inc.

2756 Slough Street, Mississauga, ON L9T 5N4

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

<http://www.EMSL.com>

torontolab@emsl.com

EMSL Canada Or	551702879
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822 - Living Unit A20

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A20-P-01 Site: Room 8, living room, ceiling to corridor 14 Desc: Cream on drywall	551702879-0001	3/24/2017		<90 ppm
A20-P-02 Site: Room 8, living room, interior trim, door to corridor 7 Desc: Grey on metal trim	551702879-0002	3/24/2017		<90 ppm
A20-P-03 Site: Exterior trim, mechanical room Desc: Grey on metal trim Insufficient sample to reach reporting limit.	551702879-0003	3/24/2017		<120 ppm
A20-P-04 Site: Exterior north wall, below east window Desc: Blue on stucco	551702879-0004	3/24/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 08:20:50

**APPENDIX 5.52
FINDINGS AND RECOMMENDATIONS—
BUILDING A21—EAST RESIDENCE
(848-13-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.52 Findings and Recommendations—Building A21—East Residence (848-13-RP)
September 2017

Appendix 5.52 FINDINGS AND RECOMMENDATIONS— BUILDING A21—EAST RESIDENCE (848-13-RP)

Building A21—East Residence (subject building) was reportedly constructed in 2001 and has been assigned Real Property ID #891. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall and texture coat ceilings; drywall walls; and, vinyl floor tile and vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.52-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.52-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.52-1 Suspected ACM Sample Collection and Analysis Summary
Building A21—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A21-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 10, living room, central	None Detected
A21-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 10, living room, near kitchen	None Detected
A21-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 20, corridor, outside of bedroom 15	None Detected
A21-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 6, corridor, near back door	None Detected
A21-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 5, vestibule	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.52 Findings and Recommendations—Building A21—East Residence (848-13-RP)
September 2017

**Table 5.52-1 Suspected ACM Sample Collection and Analysis Summary
Building A21—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A21-CTC-01A	Texture coat applied to drywall ceilings	Room 5, vestibule	None Detected
A21-CTC-01B	Texture coat applied to drywall ceilings	Room 10, living room	None Detected
A21-CTC-01C	Texture coat applied to drywall ceilings	Room 20, corridor	None Detected
A21-CTC-01D	Texture coat applied to drywall ceilings	Room 6, corridor, near back door	None Detected
A21-CTC-01E	Texture coat applied to drywall ceilings	Room 6, corridor, near living room	None Detected
A21-SF-01	Vinyl sheet flooring, beige streaks	Room 5, vestibule	None Detected
A21-SF-02	Vinyl sheet flooring, grey pebble pattern with blue	Room 4, laundry room	None Detected
A21-SF-03	Vinyl sheet flooring, dark grey smudged	Room 20, corridor, near back door	None Detected
A21-SF-04-floor tile	Vinyl sheet flooring, beige streaks	Room 9, bedroom	None Detected
A21-SF-04-mastic	Mastic applied to vinyl sheet flooring	Room 9, bedroom	None Detected
A21-PS-01A	Brown pipe sealant applied to sprinkler lines	Room 13, mechanical room	None Detected
A21-PS-01B	Brown pipe sealant applied to sprinkler lines	Room 13, mechanical room	None Detected
A21-PS-01C	Brown pipe sealant applied to sprinkler lines	Room 13, mechanical room	None Detected
A21-PS-02A	Penetration sealant applied to ceiling, red	Room 13, mechanical room	None Detected
A21-PS-02B	Penetration sealant applied to ceiling, red	Room 13, mechanical room	None Detected
A21-PS-02C	Penetration sealant applied to ceiling, red	Room 13, mechanical room	None Detected
A21-RS-01A	Black asphalt roof shingle	Exterior east, outside of bedroom 17	None Detected
A21-RS-01B	Black asphalt roof shingle	Exterior east, outside of bedroom 17	None Detected
A21-RS-01C	Black asphalt roof shingle	Exterior east, outside of bedroom 17	None Detected
A21-RF-01A	Roof felt, black	Exterior east, outside of bedroom 17	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.52 Findings and Recommendations—Building A21—East Residence (848-13-RP)
September 2017

**Table 5.52-1 Suspected ACM Sample Collection and Analysis Summary
Building A21—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A21-RF-01B	Roof felt, black	Exterior east, outside of bedroom 17	None Detected
A21-RF-01C	Roof felt, black	Exterior east, outside of bedroom 17	None Detected
A21-ES-01A	Exterior stucco, grey painted blue	Exterior west wall, below north window	None Detected
A21-ES-01B	Exterior stucco, grey painted blue	Exterior west wall, below central window	None Detected
A21-ES-01C	Exterior stucco, grey painted blue	Exterior west wall, below south window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.52-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.52-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.52-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.52 Findings and Recommendations—Building A21—East Residence (848-13-RP)
September 2017

**Table ZZ-2 Suspected LCP Sample Collection and Analysis Summary
Building A21—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A21-P-01	Cream on drywall	Room 20, corridor, interior wall near shower room	<90
A21-P-02	Beige on metal trim	Room 10, living room, interior trim outside of laundry room	<90
A21-P-03	Grey on metal door	Room 13, mechanical room	<90
A21-P-04	Blue on stucco	Exterior west wall, below central window	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.52-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.52-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.52-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.52-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.52-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

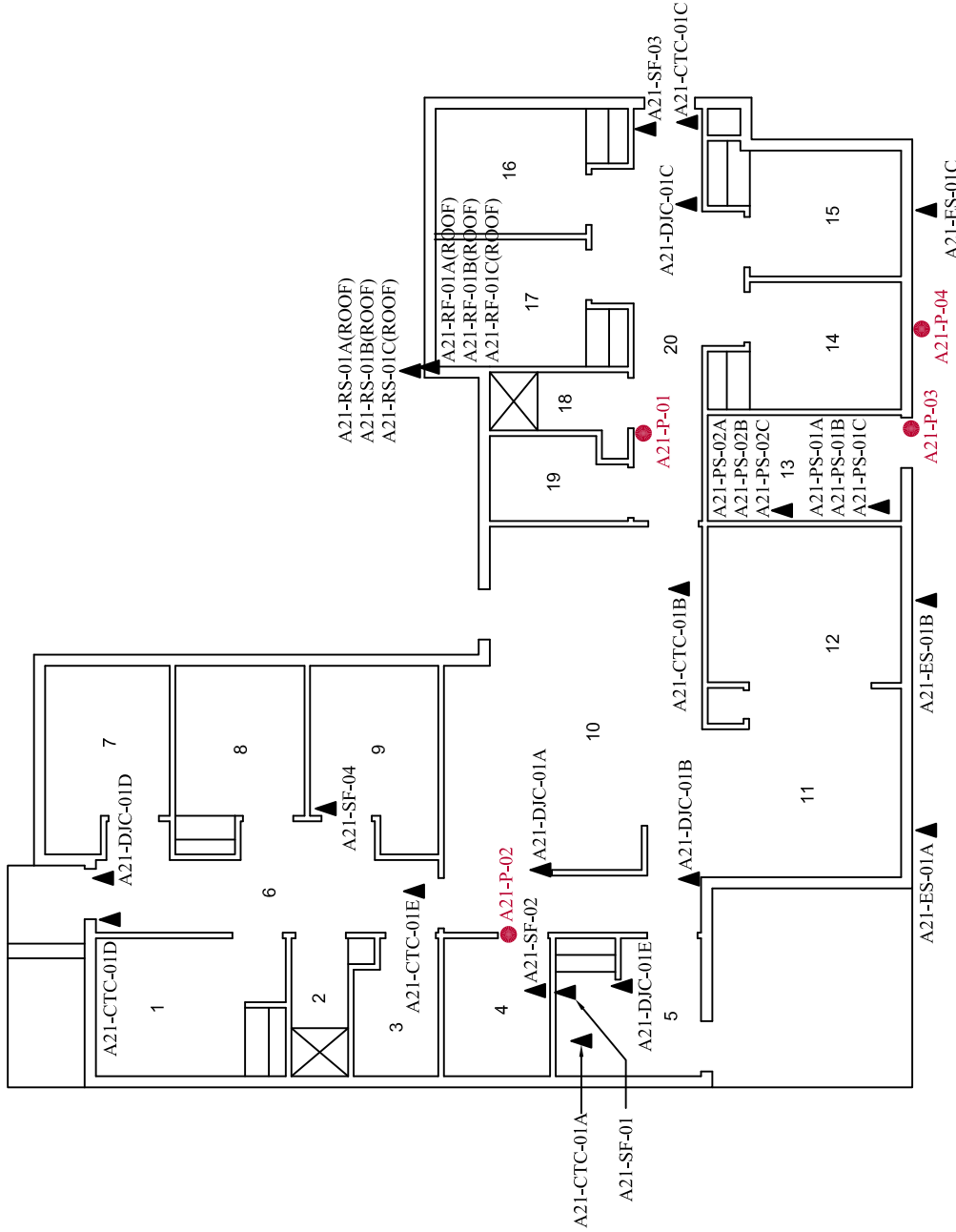
- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.52 Findings and Recommendations—Building A21—East Residence (848-13-RP)
September 2017

5.52-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



LEGEND

- ▲ ASBESTOS BULK SAMPLE
- LEAD PAINT SAMPLE

**FIRST FLOOR
RESIDENCE A21**

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
AND BULK SAMPLE LOCATIONS**
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822	Dwg. No.: 52.1
Scale: N.T.S.	
Date: 17/04/01	
Dwn. By: CD CS	
App'd By: TW	



Unit A21		
East Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	10.8
2	Shower	3.6
3	Washroom	4.5
4	Laundry Room	6.0
5	Vestibule	8.3
6	Corridor	12.7
7	Bedroom	9.2
8	Bedroom	8.7
9	Bedroom	8.7
10	Living Room	37.0
11	Dining Room	14.6
12	Kitchen	11.7
13	Mechanical Room	8.2
14	Bedroom	8.7
15	Bedroom	9.2
16	Bedroom	9.1
17	Bedroom	8.8
18	Shower	3.3
19	Washroom	4.9
20	Corridor	16.1

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD CS SL2017040070

App'd By: TW

Dwg. No.:

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EMSL Canada Order 691700508
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A21

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A21-DJC-01A **Lab Sample ID:** 691700508-0001

Sample Description: Drywall joint compound applied to walls and ceilings throughout/Room 10, living room, central

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A21-DJC-01B **Lab Sample ID:** 691700508-0002

Sample Description: Drywall joint compound applied to walls and ceilings throughout/Room 10, living room, near kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A21-DJC-01C **Lab Sample ID:** 691700508-0003

Sample Description: Drywall joint compound applied to walls and ceilings throughout/Room 20, corridor, outside of bedroom 15

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A21-DJC-01D **Lab Sample ID:** 691700508-0004

Sample Description: Drywall joint compound applied to walls and ceilings throughout/Room 6, corridor, near back door

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A21-DJC-01E **Lab Sample ID:** 691700508-0005

Sample Description: Drywall joint compound applied to walls and ceilings throughout/Room 5, vestibule

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A21-CTC-01A **Lab Sample ID:** 691700508-0006

Sample Description: Texture coat applied to drywall ceilings/Room 5, vestibule

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	5%	95%	None Detected	

Client Sample ID: A21-CTC-01B **Lab Sample ID:** 691700508-0007

Sample Description: Texture coat applied to drywall ceilings/Room 10, living room

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	5%	95%	None Detected	



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EMSL Canada Order 691700508
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A21-CTC-01C **Lab Sample ID:** 691700508-0008
Sample Description: Texture coat applied to drywall ceilings/Room 20, corridor

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	5%	95%	None Detected	

Client Sample ID: A21-CTC-01D **Lab Sample ID:** 691700508-0009
Sample Description: Texture coat applied to drywall ceilings/Room 6, corridor, near back door

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	5%	95%	None Detected	

Client Sample ID: A21-CTC-01E **Lab Sample ID:** 691700508-0010
Sample Description: Texture coat applied to drywall ceilings/Room 6, corridor, near living room

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A21-SF-01 **Lab Sample ID:** 691700508-0011
Sample Description: Vinyl sheet flooring, beige streaks/Room 5, vestibule

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Beige	0.0%	100%	None Detected	

Client Sample ID: A21-SF-02 **Lab Sample ID:** 691700508-0012
Sample Description: Vinyl sheet flooring, grey pebble pattern with blue/Room 4, laundry room

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray/Blue	0.0%	100%	None Detected	

Client Sample ID: A21-SF-03 **Lab Sample ID:** 691700508-0013
Sample Description: Vinyl sheet flooring, dark grey smudged/Room 20, corridor, near back door

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A21-SF-04-Sheet Flooring **Lab Sample ID:** 691700508-0014
Sample Description: Vinyl sheet flooring, beige streaks/Room 9, bedroom

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray/Beige	0.0%	100%	None Detected	

Client Sample ID: A21-SF-04-Mastic **Lab Sample ID:** 691700508-0014A
Sample Description: Vinyl sheet flooring, beige streaks/Room 9, bedroom

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Tan	0.0%	100%	None Detected	



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EMSL Canada Order 691700508
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A21-PS-01A **Lab Sample ID:** 691700508-0015

Sample Description: Brown pipe sealant applied to sprinkler lines/Room 13, mechanical room

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	Recommend TEM.

Client Sample ID: A21-PS-01B **Lab Sample ID:** 691700508-0016

Sample Description: Brown pipe sealant applied to sprinkler lines/Room 13, mechanical room - sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Brown	0.0%	100%	None Detected	Recommend TEM.

Client Sample ID: A21-PS-01C **Lab Sample ID:** 691700508-0017

Sample Description: Brown pipe sealant applied to sprinkler lines/Room 13, mechanical room

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: A21-PS-02A **Lab Sample ID:** 691700508-0018

Sample Description: Penetration sealant applied to ceiling, red/Room 13, mechanical room - sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A21-PS-02B **Lab Sample ID:** 691700508-0019

Sample Description: Penetration sealant applied to ceiling, red/Room 13, mechanical room - sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A21-PS-02C **Lab Sample ID:** 691700508-0020

Sample Description: Penetration sealant applied to ceiling, red/Room 13, mechanical room - sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A21-RS-01A **Lab Sample ID:** 691700508-0021

Sample Description: Black asphalt roof shingle/Exterior east, outside of bedroom 17

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	9.2%	90.8%	None Detected	

Client Sample ID: A21-RS-01B **Lab Sample ID:** 691700508-0022

Sample Description: Black asphalt roof shingle/Exterior east, outside of bedroom 17

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	6.4%	93.6%	None Detected	



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EMSL Canada Order 691700508
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A21-RS-01C **Lab Sample ID:** 691700508-0023

Sample Description: Black asphalt roof shingle/Exterior east, outside of bedroom 17

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	8.4%	91.6%	None Detected	

Client Sample ID: A21-RF-01A **Lab Sample ID:** 691700508-0024

Sample Description: Roof felt, black/Exterior east, outside of bedroom 17

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A21-RF-01B **Lab Sample ID:** 691700508-0025

Sample Description: Roof felt, black/Exterior east, outside of bedroom 17

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A21-RF-01C **Lab Sample ID:** 691700508-0026

Sample Description: Roof felt, black/Exterior east, outside of bedroom 17

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A21-ES-01A **Lab Sample ID:** 691700508-0027

Sample Description: Exterior stucco, grey painted blue/Exterior west wall, below north window

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A21-ES-01B **Lab Sample ID:** 691700508-0028

Sample Description: Exterior stucco, grey painted blue/Exterior west wall, below central window

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	

Client Sample ID: A21-ES-01C **Lab Sample ID:** 691700508-0029

Sample Description: Exterior stucco, grey painted blue/Exterior west wall, below south window

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray/Blue	0%	100%	None Detected	



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Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Analyst(s):

Benjamin Verghese PLM (6)
PLM Grav. Reduction (5)
Keishla Vazquez Caraballo PLM (9)
PLM Grav. Reduction (10)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036

Report amended: 08/28/2017 14:21:03 Replaces amended report from: 06/08/2017 17:14:23 Reason Code: Client-Other (see report comment)



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Attn: **Steve Chou**
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500 - 4730 Kingsway
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Phone: (604) 412-3004
Fax:
Received: 03/21/17 10:58 AM
Collected:

Project: **CSCMISSION- MINIMUM/123220822 - Living Unit A21**

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A21-P-01 Site: Room 20, corridor, interior wall near shower room Desc: Cream on drywall	551702895-0001	3/24/2017		<90 ppm
A21-P-02 Site: Room 10, living room, interior trim outside of laundry room Desc: Beige on metal trim	551702895-0002	3/24/2017		<90 ppm
A21-P-03 Site: Room 13, mechanical room Desc: Grey on metal door	551702895-0003	3/24/2017		<90 ppm
A21-P-04 Site: Exterior west wall, below central window Desc: Blue on stucco	551702895-0004	3/24/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 08:16:55

**APPENDIX 5.53
FINDINGS AND RECOMMENDATIONS—
BUILDING A22—EAST RESIDENCE
(848-29-RP)**



Appendix 5.53 FINDINGS AND RECOMMENDATIONS— BUILDING A22—EAST RESIDENCE (848-29-RP)

Building A22—East Residence (subject building) was reportedly constructed in 2001 and has been assigned Real Property ID #892. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall and texture coat ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.53-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.53-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.53-1 Suspected ACM Sample Collection and Analysis Summary
Building A22—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A22-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 12, kitchen closet	None Detected
A22-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 4, laundry room	None Detected
A22-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 20, corridor, near back door	None Detected
A22-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 2, shower	None Detected
A22-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 5, vestibule	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.53 Findings and Recommendations—Building A22—East Residence (848-29-RP)
September 2017

**Table 5.53-1 Suspected ACM Sample Collection and Analysis Summary
Building A22—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A22-CTC-01A	Texture coat applied to drywall ceilings	Room 10, living room	None Detected
A22-CTC-01B	Texture coat applied to drywall ceilings	Room 20, corridor	None Detected
A22-CTC-01C	Texture coat applied to drywall ceilings	Room 5, vestibule	None Detected
A22-CTC-01D	Texture coat applied to drywall ceilings	Room 6, corridor, near back door	None Detected
A22-CTC-01E	Texture coat applied to drywall ceilings	Room 6, corridor, near living room	None Detected
A22-SF-01	Vinyl sheet flooring, dark grey smudged	Room 6, corridor, near living room	None Detected
A22-SF-02	Vinyl sheet flooring, light grey smudged	Room 10, living room, near vestibule	None Detected
A22-SF-03	Vinyl sheet flooring, grey pebble pattern with blue	Room 4, laundry	None Detected
A22-PS-01A	Brown pipe sealant applied to sprinkler lines	Room 13, mechanical room	None Detected
A22-PS-01B	Brown pipe sealant applied to sprinkler lines	Room 13, mechanical room	None Detected
A22-PS-01C	Brown pipe sealant applied to sprinkler lines	Room 13, mechanical room	None Detected
A22-PS-02A	Penetration sealant applied to ceiling, red	Room 13, mechanical room	None Detected
A22-PS-02B	Penetration sealant applied to ceiling, red	Room 13, mechanical room	None Detected
A22-PS-02C	Penetration sealant applied to ceiling, red	Room 13, mechanical room	None Detected
A22-RS-01A	Black asphalt roof shingle	Exterior southeast corner	None Detected
A22-RS-01B	Black asphalt roof shingle	Exterior southeast corner	None Detected
A22-RS-01C	Black asphalt roof shingle	Exterior southeast corner	None Detected
A22-RF-01A	Roof felt, black	Exterior southeast corner	None Detected
A22-RF-01B	Roof felt, black	Exterior southeast corner	None Detected
A22-RF-01C	Roof felt, black	Exterior southeast corner	None Detected
A22-ES-01A	Exterior stucco, grey painted blue	Exterior west wall, below north window	None Detected
A22-ES-01B	Exterior stucco, grey painted blue	Exterior north wall, below west window	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.53 Findings and Recommendations—Building A22—East Residence (848-29-RP)
September 2017

**Table 5.53-1 Suspected ACM Sample Collection and Analysis Summary
Building A22—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A22-ES-01C	Exterior stucco, grey painted blue	Exterior west wall, below south window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.53-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.53-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.53-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.53-2 Suspected LCP Sample Collection and Analysis Summary
Building A22—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A22-P-01	Cream on drywall	Room 4, laundry, wall adjacent to living room	<140
A22-P-02	Beige on metal trim	Room 5, vestibule	<94
A22-P-03	Grey on metal door	Room 13, mechanical room	<90

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.53 Findings and Recommendations—Building A22—East Residence (848-29-RP)
September 2017

**Table 5.53-2 Suspected LCP Sample Collection and Analysis Summary
Building A22—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A22-P-04	Blue on stucco	Exterior south wall, below west window	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.53-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.


5.53-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.53-5 MOULD

Observations pertaining to mould and/or moisture impacted building materials are summarized in the following table.

**Table 5.53-3 Mould/Moisture Observations Summary—March 23, 2017
Building A22—East Residence**

Building Area	Observation	Suspected Source of Moisture	Photo
Room 18, shower room	Moisture staining and suspect mould on edging strip at the top of the shower stall	Shower	

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.53 Findings and Recommendations—Building A22—East Residence (848-29-RP)
September 2017

5.53-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.53-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

5.53-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.

Additional building specific recommendations are provided in the following sub-sections.

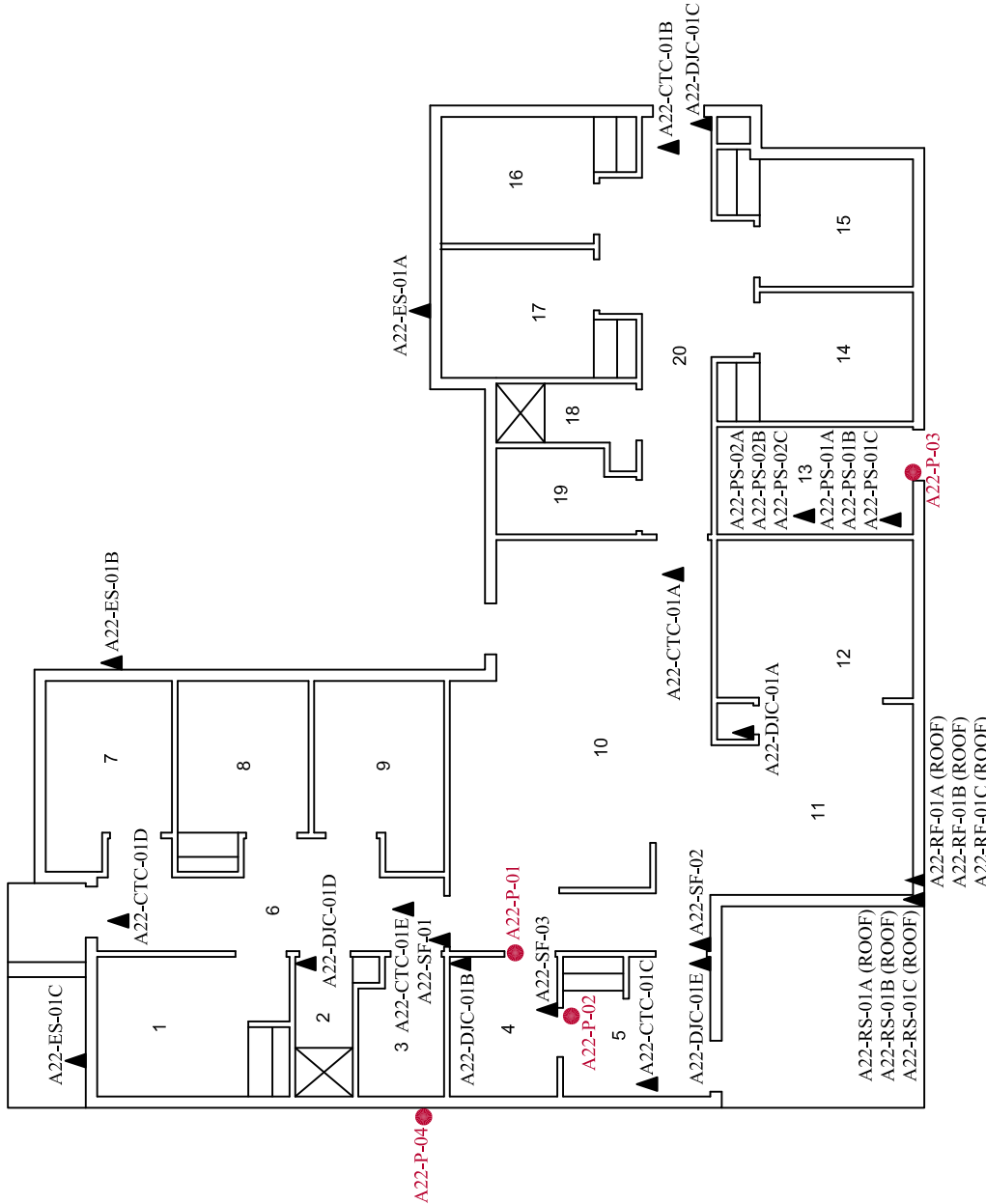
5.53-8.2 Mould

Documents published by Health Canada, Ontario Ministry of Health, American Industrial Hygiene Association (AIHA), American Conference of Governmental Industrial Hygienists (ACGIH) and others, provide guidance for interpreting the results of mold investigations. The Health Canada Guide states that:

“...current knowledge supports the need to prevent damp conditions and mold growth and to remediate any fungal contamination in buildings.”

To this end, Stantec recommends the following course of action within the subject building:

- Remove and dispose of the moisture-stained/suspect mould impacted edging strip at the top of the shower stall in room 18. Consider replacement with a shower application appropriate material (e.g., acrylic).
 - This work should be conducted by competent personnel, who are knowledgeable of potential hazards of mould exposure, using personal protective equipment and procedures in accordance with industry accepted practices for mould abatement (e.g., CCA 82).



**FIRST FLOOR
RESIDENCE A22**

LEGEND
 ▲ ASBESTOS BULK SAMPLE
 ● LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
AND BULK SAMPLE LOCATIONS**
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822	Dwg. No.: 53.1	
Scale: N.T.S.	Date: 17/04/01	
Dwn. By: CD_pk	SL2017040071	
App'd By: TW		

Unit A22		
East Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	10.8
2	Shower	3.6
3	Washroom	4.5
4	Laundry Room	6.0
5	Vestibule	8.3
6	Corridor	12.7
7	Bedroom	9.2
8	Bedroom	8.7
9	Bedroom	8.7
10	Living Room	37.0
11	Dining Room	14.6
12	Kitchen	11.7
13	Mechanical Room	8.2
14	Bedroom	8.7
15	Bedroom	9.2
16	Bedroom	9.1
17	Bedroom	8.8
18	Shower	3.3
19	Washroom	4.9
20	Corridor	16.1

FIRST FLOOR

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GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD PK SL2017040072

App'd By: TW

Dwg. No.:

53.2





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 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Attn: Steve Chou
 Stantec Consulting, Ltd.
 500 - 4730 Kingsway
 Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017

Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A22

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A22-DJC-01A **Lab Sample ID:** 691700507-0001

Sample Description: Room 12, Kitchen Closet/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A22-DJC-01B **Lab Sample ID:** 691700507-0002

Sample Description: Room 4, Laundry Room/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A22-DJC-01C **Lab Sample ID:** 691700507-0003

Sample Description: Room 20, Corridor, Near Back Door/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A22-DJC-01D **Lab Sample ID:** 691700507-0004

Sample Description: Room 2, Shower/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A22-DJC-01E **Lab Sample ID:** 691700507-0005

Sample Description: Room 5, Vestibule/Drywall Joint Compound Applied to Walls & Ceilings Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A22-CTC-01A **Lab Sample ID:** 691700507-0006

Sample Description: Room 10, Living Room/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A22-CTC-01B **Lab Sample ID:** 691700507-0007

Sample Description: Room 20, Corridor/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	



EMSL Canada Inc.

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EMSL Canada Order 691700507
 Customer ID: 55JACQ30L
 Customer PO: 123220822
 Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A22-CTC-01C **Lab Sample ID:** 691700507-0008
Sample Description: Room 5, Vestibule/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A22-CTC-01D **Lab Sample ID:** 691700507-0009
Sample Description: Room 6, Corridor, Near Back Door/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A22-CTC-01E **Lab Sample ID:** 691700507-0010
Sample Description: Room 6, Corridor, Near Living Room/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A22-SF-01 **Lab Sample ID:** 691700507-0011
Sample Description: Room 6, Corridor, Near Living Room/Vinyl Sheet Flooring, Dark Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A22-SF-02 **Lab Sample ID:** 691700507-0012
Sample Description: Room 10, Living Room, Near Vestibule/Vinyl Sheet Flooring, Light Grey Smudged

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A22-SF-03 **Lab Sample ID:** 691700507-0013
Sample Description: Room 4, Laundry/Vinyl Sheet Flooring, Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A22-PS-01A **Lab Sample ID:** 691700507-0014
Sample Description: Room 13, Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Brown	3.6%	96.4%	None Detected	

Client Sample ID: A22-PS-01B **Lab Sample ID:** 691700507-0015
Sample Description: Room 13, Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Brown	0.87%	99.1%	None Detected	



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EMSL Canada Order 691700507
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A22-PS-01C **Lab Sample ID:** 691700507-0016

Sample Description: Room 13, Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Brown	2.1%	97.9%	None Detected	

Client Sample ID: A22-PS-02A **Lab Sample ID:** 691700507-0017

Sample Description: Room 13, Mechanical Room/Penetration Sealant Applied to Ceiling, Red

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A22-PS-02B **Lab Sample ID:** 691700507-0018

Sample Description: Room 13, Mechanical Room/Penetration Sealant Applied to Ceiling, Red

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A22-PS-02C **Lab Sample ID:** 691700507-0019

Sample Description: Room 13, Mechanical Room/Penetration Sealant Applied to Ceiling, Red

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A22-RS-01A **Lab Sample ID:** 691700507-0020

Sample Description: Exterior Southeast Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	4.1%	95.9%	None Detected	

Client Sample ID: A22-RS-01B **Lab Sample ID:** 691700507-0021

Sample Description: Exterior Southeast Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	8.4%	91.6%	None Detected	

Client Sample ID: A22-RS-01C **Lab Sample ID:** 691700507-0022

Sample Description: Exterior Southeast Corner/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	7.5%	92.5%	None Detected	

Client Sample ID: A22-RF-01A **Lab Sample ID:** 691700507-0023

Sample Description: Exterior Southeast Corner/Roof Felt, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	



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EMSL Canada Order 691700507
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A22-RF-01B **Lab Sample ID:** 691700507-0024
Sample Description: Exterior Southeast Corner/Roof Felt, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A22-RF-01C **Lab Sample ID:** 691700507-0025
Sample Description: Exterior Southeast Corner/Roof Felt, Black

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A22-ES-01A **Lab Sample ID:** 691700507-0026
Sample Description: Exterior West Wall, Below North Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: A22-ES-01B **Lab Sample ID:** 691700507-0027
Sample Description: Exterior North Wall, Below West Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: A22-ES-01C **Lab Sample ID:** 691700507-0028
Sample Description: Exterior West Wall, Below South Window/Exterior Stucco, Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Analyst(s):

Daniel Fricker PLM (10)
PLM Grav. Reduction (11)
Seri Smith PLM (3)
PLM Grav. Reduction (4)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial report from: 03/28/2017 10:03:31



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EMSL Canada Or	551702896
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822 - Living Unit A22

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A22-P-01 Site: Room 4, laundry, wall adjacent to living room Desc: Cream on drywall Insufficient sample to reach reporting limit.	551702896-0001	3/24/2017		<140 ppm
A22-P-02 Site: Room 5, vestibule Desc: Beige on metal trim Insufficient sample to reach reporting limit.	551702896-0002	3/24/2017		<94 ppm
A22-P-03 Site: Room 13, mechanical room Desc: Grey on metal door	551702896-0003	3/24/2017		<90 ppm
A22-P-04 Site: Exterior south wall, below west window Desc: Blue on stucco	551702896-0004	3/24/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:01:11

**APPENDIX 5.54
FINDINGS AND RECOMMENDATIONS—
BUILDING A23—EAST RESIDENCE
(848-30-RP)**



Appendix 5.54 FINDINGS AND RECOMMENDATIONS— BUILDING A23—EAST RESIDENCE (848-30-RP)

Building A23—East Residence (subject building) was reportedly constructed in 2001 and has been assigned Real Property ID #893. The typical structural components and finishes associated with this building consist of vinyl and stucco exterior walls; drywall and texture coat ceilings; drywall walls; and, vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.54-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.54-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.54-1 Suspected ACM Sample Collection and Analysis Summary
Building A23—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A23-DJC-01A	Drywall joint compound applied to walls and ceilings throughout	Room 12, kitchen closet	None Detected
A23-DJC-01B	Drywall joint compound applied to walls and ceilings throughout	Room 19, washroom, near door	None Detected
A23-DJC-01C	Drywall joint compound applied to walls and ceilings throughout	Room 2, shower	None Detected
A23-DJC-01D	Drywall joint compound applied to walls and ceilings throughout	Room 6, corridor, near back door	None Detected
A23-DJC-01E	Drywall joint compound applied to walls and ceilings throughout	Room 4, laundry room	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.54 Findings and Recommendations—Building A23—East Residence (848-30-RP)
September 2017

**Table 5.54-1 Suspected ACM Sample Collection and Analysis Summary
Building A23—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A23-CTC-01A	Texture coat applied to drywall ceilings	Room 10, living room	None Detected
A23-CTC-01B	Texture coat applied to drywall ceilings	Room 20, corridor	None Detected
A23-CTC-01C	Texture coat applied to drywall ceilings	Room 5, vestibule	None Detected
A23-CTC-01D	Texture coat applied to drywall ceilings	Room 6, corridor, near living room door	None Detected
A23-CTC-01E	Texture coat applied to drywall ceilings	Room 6, corridor, near back door	None Detected
A23-SF-01	Vinyl sheet flooring, dark grey smudged	Room 20, corridor, near living room door	None Detected
A23-SF-02	Vinyl sheet flooring, light grey with blue and pink smudges	Room 12, kitchen closet	None Detected
A23-SF-03	Vinyl sheet flooring, grey pebble pattern with blue	Room 4, laundry room	None Detected
A23-PS-01A	Brown pipe sealant applied to sprinkler lines	Room 13, mechanical room	None Detected
A23-PS-01B	Brown pipe sealant applied to sprinkler lines	Room 13, mechanical room	None Detected
A23-PS-01C	Brown pipe sealant applied to sprinkler lines	Room 13, mechanical room	None Detected
A23-PS-02A	Penetration sealant applied to ceiling, red	Room 13, mechanical room	None Detected
A23-PS-02B	Penetration sealant applied to ceiling, red	Room 13, mechanical room	None Detected
A23-PS-02C	Penetration sealant applied to ceiling, red	Room 13, mechanical room	None Detected
A23-RS-01A	Black asphalt roof shingle	Exterior east, outside of bedroom 17	None Detected
A23-RS-01B	Black asphalt roof shingle	Exterior east, outside of bedroom 17	None Detected
A23-RS-01C	Black asphalt roof shingle	Exterior east, outside of bedroom 17	None Detected
A23-ES-01A	Exterior stucco, grey painted blue	Exterior east wall, below south window	None Detected
A23-ES-01B	Exterior stucco, grey painted blue	Exterior south wall, below east window	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.54 Findings and Recommendations—Building A23—East Residence (848-30-RP)
September 2017

**Table 5.54-1 Suspected ACM Sample Collection and Analysis Summary
Building A23—East Residence**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
A23-ES-01C	Exterior stucco, grey painted blue	Exterior east wall, below north window	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.54-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.54-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Older electrical wiring materials and sheathing
- Solder used in bell fittings of cast iron pipes, and in electrical equipment
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.54-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.54-2 Suspected LCP Sample Collection and Analysis Summary
Building A23—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A23-P-01	Cream on drywall	Room 5, vestibule, interior wall near laundry room	<90
A23-P-02	Beige on metal trim	Room 4, laundry room, interior trim on door to living room	<170
A23-P-03	Grey on metal door	Room 13, mechanical room	<90

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.54 Findings and Recommendations—Building A23—East Residence (848-30-RP)
September 2017

**Table 5.54-2 Suspected LCP Sample Collection and Analysis Summary
Building A23—East Residence**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
A23-P-04	Blue on stucco	Exterior north wall, below west window	<90

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.54-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.

5.54-4 MERCURY

Mercury vapour is present in the light tubes within the approximately seven fluorescent light fixtures observed.

5.54-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.54-6 OZONE-DEPLETING SUBSTANCES

No building-related refrigeration or air conditioning equipment with suspected ODS-containing refrigerants was observed.

5.54-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Concrete foundation and walkways
- Gypsum and associated wall/ceiling finish materials
- Stucco
- Asphalt roof shingles

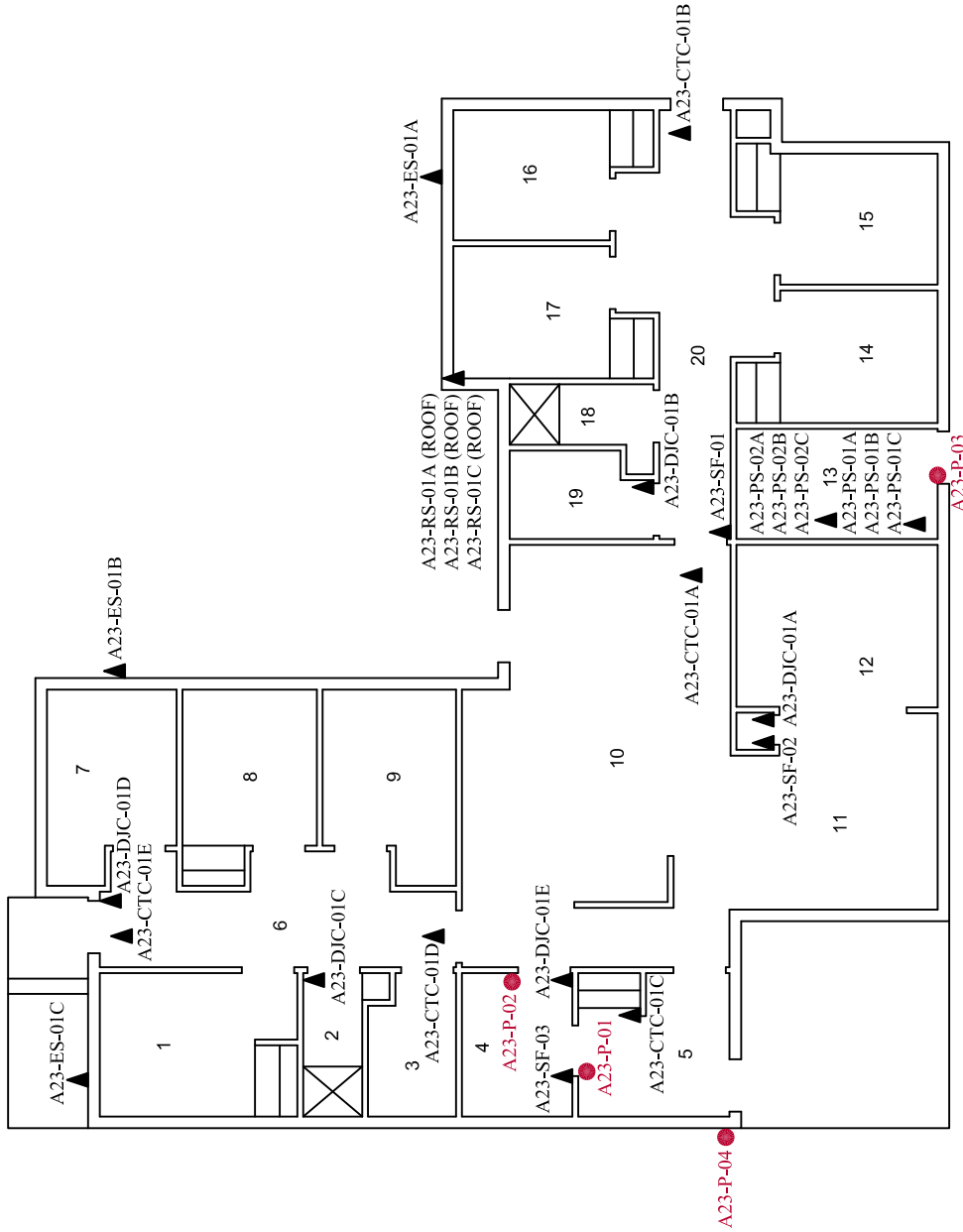
5.54-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.54 Findings and Recommendations—Building A23—East Residence (848-30-RP)
September 2017

continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



**FIRST FLOOR
RESIDENCE A23**

LEGEND
 ▲ ASBESTOS BULK SAMPLE
 ● LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
AND BULK SAMPLE LOCATIONS**
 CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822	Dwg. No.: 54.1
Scale: N.T.S.	
Date: 17/04/01	
Dwn. By: CD PK	
App'd By: TW	



Unit A23		
East Residence - First Floor		
Rm. #	Name	Area m ²
1	Bedroom	10.8
2	Shower	3.6
3	Washroom	4.5
4	Laundry Room	6.0
5	Vestibule	8.3
6	Corridor	12.7
7	Bedroom	9.2
8	Bedroom	8.7
9	Bedroom	8.7
10	Living Room	37.0
11	Dining Room	14.6
12	Kitchen	11.7
13	Mechanical Room	8.2
14	Bedroom	8.7
15	Bedroom	9.2
16	Bedroom	9.1
17	Bedroom	8.8
18	Shower	3.3
19	Washroom	4.9
20	Corridor	16.1

FIRST FLOOR

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION
 33737 DEWDNEY TRUNK ROAD, MISSION, BC
 PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD PK SL2017040074

App'd By: TW

Dwg. No.:

54.2





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<http://www.EMSL.com> / vancouverlab@EMSL.com

EMSL Canada Order 691700506
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Attn: Steve Chou
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500 - 4730 Kingsway
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Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017
Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT A23

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A23-DJC-01A **Lab Sample ID:** 691700506-0001

Sample Description: Room 12 Kitchen Closet/Drywall Joint Compound Applied to Walls and Ceiling Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A23-DJC-01B **Lab Sample ID:** 691700506-0002

Sample Description: Room 19 Washroom Near Door/Drywall Joint Compound Applied to Walls and Ceiling Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A23-DJC-01C **Lab Sample ID:** 691700506-0003

Sample Description: Room 2 Shower/Drywall Joint Compound Applied to Walls and Ceiling Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A23-DJC-01D **Lab Sample ID:** 691700506-0004

Sample Description: Room 6 Corridor Near Back Door/Drywall Joint Compound Applied to Walls and Ceiling Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A23-DJC-01E **Lab Sample ID:** 691700506-0005

Sample Description: Room 4 Laundry Room/Drywall Joint Compound Applied to Walls and Ceiling Throughout

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A23-CTC-01A **Lab Sample ID:** 691700506-0006

Sample Description: Room 10 Living Room/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A23-CTC-01B **Lab Sample ID:** 691700506-0007

Sample Description: Room 20 Corridor/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	



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EMSL Canada Order 691700506
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A23-CTC-01C **Lab Sample ID:** 691700506-0008
Sample Description: Room 5 Vestibule/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A23-CTC-01D **Lab Sample ID:** 691700506-0009
Sample Description: Room 6 Corridor Near Living Room Door/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A23-CTC-01E **Lab Sample ID:** 691700506-0010
Sample Description: Room 6 Corridor Near Back Door/Texture Coat Applied to Drywall Ceilings

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	White	0%	100%	None Detected	

Client Sample ID: A23-SF-01 **Lab Sample ID:** 691700506-0011
Sample Description: Room 20 Corridor Near Living Room Door/Vinyl Sheet Flooring Dark Grey Smudge

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A23-SF-02 **Lab Sample ID:** 691700506-0012
Sample Description: Room 12 Kitchen Closet/Vinyl Sheet Flooring Light Grey W/Blue and Pink Smudges

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A23-SF-03 **Lab Sample ID:** 691700506-0013
Sample Description: Room 4 Laundry Room/Vinyl Sheet Flooring Grey Pebble Pattern w/Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Gray	0.0%	100%	None Detected	

Client Sample ID: A23-PS-01A **Lab Sample ID:** 691700506-0014
Sample Description: Room 13 Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines - sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Brown	0.0%	100%	None Detected	

Client Sample ID: A23-PS-01B **Lab Sample ID:** 691700506-0015
Sample Description: Room 13 Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines - sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Brown	0.0%	100%	None Detected	



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EMSL Canada Order 691700506
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A23-PS-01C **Lab Sample ID:** 691700506-0016

Sample Description: Room 13 Mechanical Room/Brown Pipe Sealant Applied to Sprinkler Lines - sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Brown	0.0%	100%	None Detected	

Client Sample ID: A23-PS-02A **Lab Sample ID:** 691700506-0017

Sample Description: Room 13 Mechanical Room/Penetration Sealant Applied to Ceiling Red - sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A23-PS-02B **Lab Sample ID:** 691700506-0018

Sample Description: Room 13 Mechanical Room/Penetration Sealant Applied to Ceiling Red - sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A23-PS-02C **Lab Sample ID:** 691700506-0019

Sample Description: Room 13 Mechanical Room/Penetration Sealant Applied to Ceiling Red - sealant

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Red	0.0%	100%	None Detected	

Client Sample ID: A23-RS-01A **Lab Sample ID:** 691700506-0020

Sample Description: Exterior East Outside of Bedroom 17/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	8.3%	91.7%	None Detected	

Client Sample ID: A23-RS-01B **Lab Sample ID:** 691700506-0021

Sample Description: Exterior East Outside of Bedroom 17/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	0.0%	100%	None Detected	

Client Sample ID: A23-RS-01C **Lab Sample ID:** 691700506-0022

Sample Description: Exterior East Outside of Bedroom 17/Black Asphalt Roof Shingle

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM Grav. Reduction	3/28/2017	Black	7.1%	92.9%	None Detected	

Client Sample ID: A23-ES-01A **Lab Sample ID:** 691700506-0023

Sample Description: Exterior East Wall Below South Window/Exterior Stucco Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	



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EMSL Canada Order 691700506
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A23-ES-01B **Lab Sample ID:** 691700506-0024

Sample Description: Exterior South Wall Below East Window/Exterior Stucco Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Client Sample ID: A23-ES-01C **Lab Sample ID:** 691700506-0025

Sample Description: Exterior East Wall Below North Window/Exterior Stucco Grey Painted Blue

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Blue	0%	100%	None Detected	

Analyst(s):

Amy Johnson	PLM (5) PLM Grav. Reduction (4)
Keishla Vazquez Caraballo	PLM (8) PLM Grav. Reduction (8)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial report from: 03/28/2017 10:01:28



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torontolab@emsl.com

EMSL Canada Or	551702897
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822 - Living Unit A23

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
A23-P-01 Site: Room 5, vestibule, interior wall near laundry room Desc: Cream on drywall	551702897-0001	3/24/2017		<90 ppm
A23-P-02 Site: Room 4, laundry room, interior trim on door to living room Desc: Beige on metal trim Insufficient sample to reach reporting limit.	551702897-0002	3/24/2017		<170 ppm
A23-P-03 Site: Room 13, mechanical room Desc: Grey on metal door	551702897-0003	3/24/2017		<90 ppm
A23-P-04 Site: Exterior north wall, below west window Desc: Blue on stucco	551702897-0004	3/24/2017		<90 ppm

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/28/2017 09:04:07

**APPENDIX 5.55
FINDINGS AND RECOMMENDATIONS—
BUILDING LU24—50 BED LIVING UNIT
(848 52-RP)**



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.55 Findings and Recommendations—Building LU24—50 Bed Living Unit (848-52-RP)
September 2017

Appendix 5.55 FINDINGS AND RECOMMENDATIONS— BUILDING LU24—50 BED LIVING UNIT (848-52-RP)

Building LU24—50 Bed Living Unit (subject building) was reportedly constructed in 2014 and has been assigned Real Property ID #2289. The typical structural components and finishes associated with this building consist of brick, corrugated sheet metal, and cement panel exterior walls; suspended ceiling tiles and drywall ceilings; concrete, masonry, and drywall walls; and, concrete and vinyl sheet flooring.

The results of the assessment for each of the considered hazardous materials within the subject building are provided in the following sub-sections.

Floor plan drawings, which include locations of the samples collected during this assessment and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.55-1 ASBESTOS

Based on the construction date of the subject building, ACMs are unlikely to be present. However, as a measure of diligence, Stantec collected samples from various materials that were present and may still contain asbestos. The samples collected were submitted to EMSL for analysis of asbestos content and nature.

A summary of the sampled materials, sample locations and analytical results is presented in Table 5.55-1, below. A copy of the certificate of analysis provided by EMSL for the suspected ACM samples submitted is attached at the end of this Appendix.

**Table 5.55-1 Suspected ACM Sample Collection and Analysis Summary
Building LU24—50 Bed Living Unit**

Sample Number	Material Description	Sample Location	Result (%/type asbestos)
LU24-DM-01A	Grey mastic applied to the seams of HVAC ducting	First floor, room E111	None Detected
LU24-DM-01B	Grey mastic applied to the seams of HVAC ducting	First floor, room E111	None Detected
LU24-DM-01C	Grey mastic applied to the seams of HVAC ducting	First floor, room E111	None Detected
LU24-CP-01	Cement panel	Exterior, south east	None Detected

HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.55 Findings and Recommendations—Building LU24—50 Bed Living Unit (848-52-RP)
September 2017

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, no ACMs were identified.

5.55-1.1 Potential Asbestos-Containing Vermiculite Insulation

As part of the assessment, Stantec assessed the subject building for areas where vermiculite insulation, a potential ACM, would likely be present. This included making note of attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. No vermiculite or locations that may potentially contain vermiculite (that could not otherwise be assessed) were observed.

5.55-2 LEAD

Lead is expected to be present in the following:

- Lead-acid batteries used in emergency lighting
- Solder used in bell fittings of cast iron pipes
- Vent and pipe flashings

With respect to paint, chip samples were obtained from the predominant suspected LCP applications within the subject building. A summary of the sample types, locations and analytical results is presented in Table 5.55-2, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

**Table 5.55-2 Suspected LCP Sample Collection and Analysis Summary
Building LU24—50 Bed Living Unit**

Sample No.	Sample Colour/Substrate	Sample Location	Lab Result (ppm)
LU24-P-01	White on drywall	Second floor, room 225	<90
LU24-P-02	Grey on metal trim	Second floor, room 225	<90
LU24-P-03	Blue on metal trim	Exterior, roof	<90
LU24-P-04	Beige on metal trim	Exterior, west	<100

Based on our observations and on our interpretations of suspected LCP sample analytical results, no LCPs were identified.

5.55-3 POLYCHLORINATED BIPHENYLS

Based on the construction date of the subject building, PCBs are not anticipated to be present.



HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix 5.55 Findings and Recommendations—Building LU24—50 Bed Living Unit (848-52-RP)
September 2017

5.55-4 MERCURY

Mercury vapour is present in the light tubes within the approximately 110 fluorescent light fixtures observed.

5.55-5 MOULD

Suspect mould or moisture-impacted building materials were not observed at the time of the assessment.

5.55-6 OZONE-DEPLETING SUBSTANCES

Building-related refrigeration and/or air conditioning equipment observed was confirmed (by label information) to be charged with refrigerants that are not considered ODSs.

5.55-7 SILICA

Silica is expected to be present in the following, which were observed in various locations throughout:

- Cement products such as:
 - Concrete—foundations, floors, walls, blocks
 - Brick/masonry units and associated grout and mortar
 - Exterior Cement Panels
- Gypsum and associated wall/ceiling finish materials
- Suspended ceiling tiles
- Asphalt and asphalt products containing rock or stone (e.g. roof felt)

5.55-8 RECOMMENDATIONS

In general, identified hazardous building materials were observed to be in good condition and do not appear to require specific action to maintain compliance with applicable regulations for continued operations and maintenance. Refer to Section 5.0 of the main body of this report for applicable material-by-material general recommendations.



**LOWER FLOOR
50 BED LIVING UNIT**

LEGEND

● LEAD PAINT SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Project No.: 123220822		Dwg. No.:
Scale: N.T.S.	55.1	
Date: 17/08/19		
Dwn. By: CD PK		
App'd By: TW		
FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS AND BULK SAMPLE LOCATIONS CSC MISSION MINIMUM INSTITUTION 33737 DEWDNEY TRUNK ROAD, MISSION, BC PUBLIC SERVICES AND PROCUREMENT CANADA		
		Client:



Unit LU24		
50 Bed Living Unit - Lower Floor		
Rm. #	Name	Area m ²
001	Storage	182.6
002	Storage	171.7
003	Storage	181.3
004	B.F. W/C	6.2
005	Stair No. 2	20.2
006	Mechanical Room	30.0
007	Stair No. 3	19.7
008	Corridor	136.3
009	Comm. Room	18.0
010	Admin. Storage	105.4
011	Elevator Machine Room	10.2
012	Storage Room	51.5
013	Storage Room	23.8
014	Storage Room	25.8
015	Stair No. 1	19.3
016	Electrical Room	25.4
017	Janitor Closet	6.0
018	Water Entry Room	10.8
019	Security Room	17.7
020	Storage Room	18.2
021	B.F. W/C	6.5
022	B.F. W/C	6.5

LOWER FLOOR

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GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

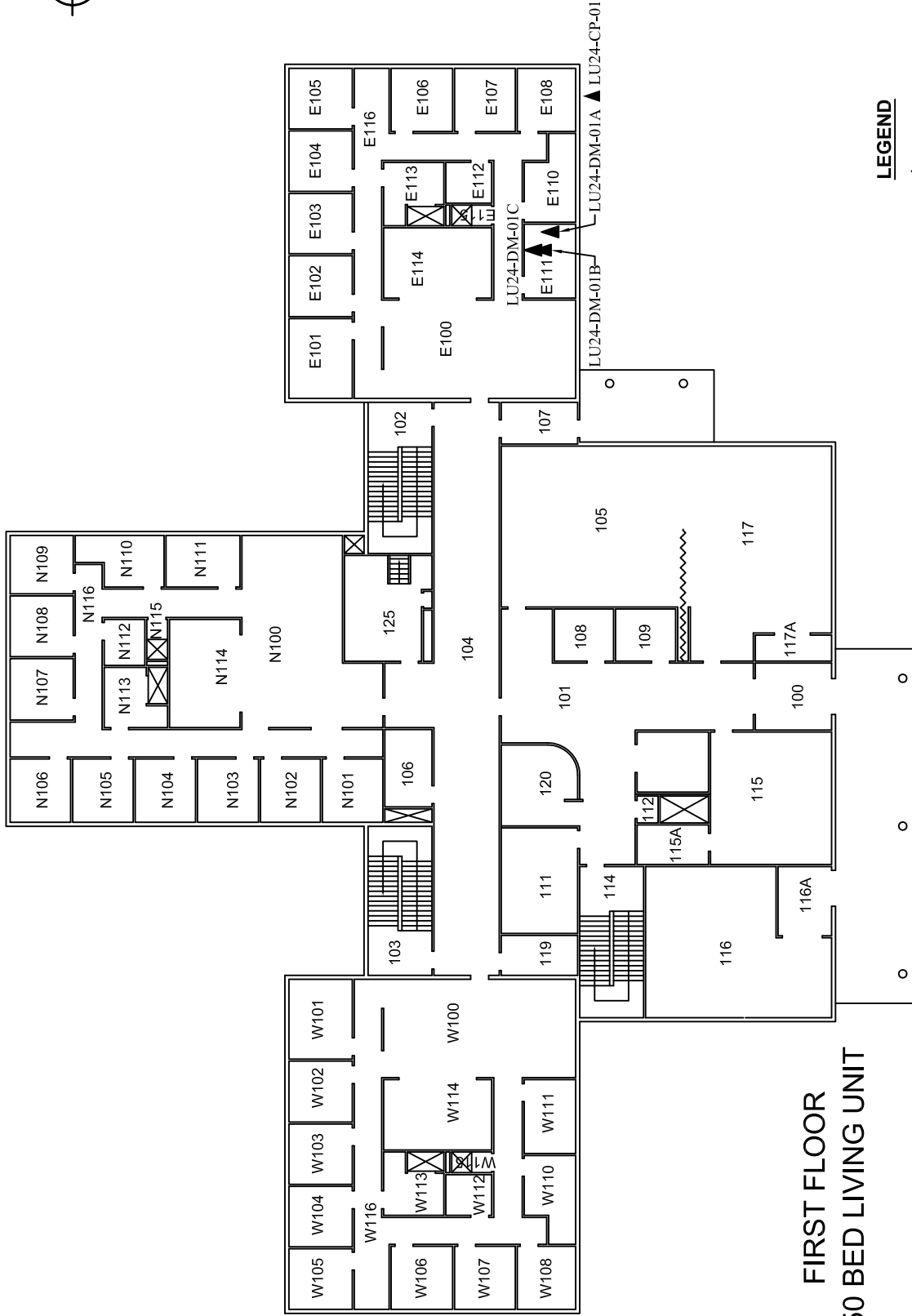
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55.2





**FIRST FLOOR
50 BED LIVING UNIT**

LEGEND

▲ ASBESTOS BULK SAMPLE

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**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
AND BULK SAMPLE LOCATIONS**

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC
PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

Dwn. By: CD PK SL2017040077

App'd By: TW

Dwg. No.:

55.3



Unit LU24 (North Wing)		
50 Bed Living Unit - First Floor		
Rm. #	Name	Area m ²
N100	Living / Dining Room	43.5
N101-9	Bedrooms	73.4
N110	Mechanical / Electrical Room	8.6
N111	Laundry Room	8.2
N112	W/C	3.8
N113	B.F. W/C	7.5
N114	Kitchen	14.9
N115	Shower	2.1
N116	Corridor	40.0

Unit LU24 (East Wing)		
50 Bed Living Unit - First Floor		
Rm. #	Name	Area m ²
E100	Living / Dining Room	38.6
E101	B.F. Bedroom	11.2
E102-8	Bedrooms	57.3
E110	Mechanical / Electrical Room	8.6
E111	Laundry Room	8.2
E112	W/C	3.8
E113	B.F. W/C	7.5
E114	Kitchen	14.9
E115	Shower	2.1
E116	Corridor	37.7

Unit LU24 (West Wing)		
50 Bed Living Unit - First Floor		
Rm. #	Name	Area m ²
W100	Living / Dining Room	38.1
W101	B.F. Bedroom	11.1
W102-8	Bedrooms	57.3
W110	Mechanical / Electrical Room	8.6
W111	Laundry Room	8.2
W112	W/C	3.8
W113	B.F. W/C	7.5
W114	Kitchen	14.9
W115	Shower	2.1
W116	Corridor	37.7

Unit LU24		
50 Bed Living Unit - First Floor		
Rm. #	Name	Area m ²
100	Entrance	10.5
101	Common Area	67.1
102	Stair No. 2	20.2
103	Stair No. 3	20.5
104	Corridor	79.2
105	Meeting Room 1	57.3
106	Janitor Closet	8.9
107	Resident Entrance	6.9
108	B.F. Washroom	6.1
109	B.F. Washroom	6.1
111	Interview Room	16.2
112	Janitor Closet	1.1
114	Stair No. 1	19.2
115	Program Room	31.3
115a	Storage Room	5.7
116	Canteen	48.0
116a	Canteen Vestibule	7.8
117	Meeting Room 2	60.0
117a	Storage Room	4.1
119	Storage Room	6.4
120	Reception	12.6
125	Storage	19.6

FIRST FLOOR

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GENERAL ROOM INFORMATION

CSC MISSION MINIMUM INSTITUTION

33737 DEWDNEY TRUNK ROAD, MISSION, BC

Client: PUBLIC SERVICES AND PROCUREMENT CANADA

Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

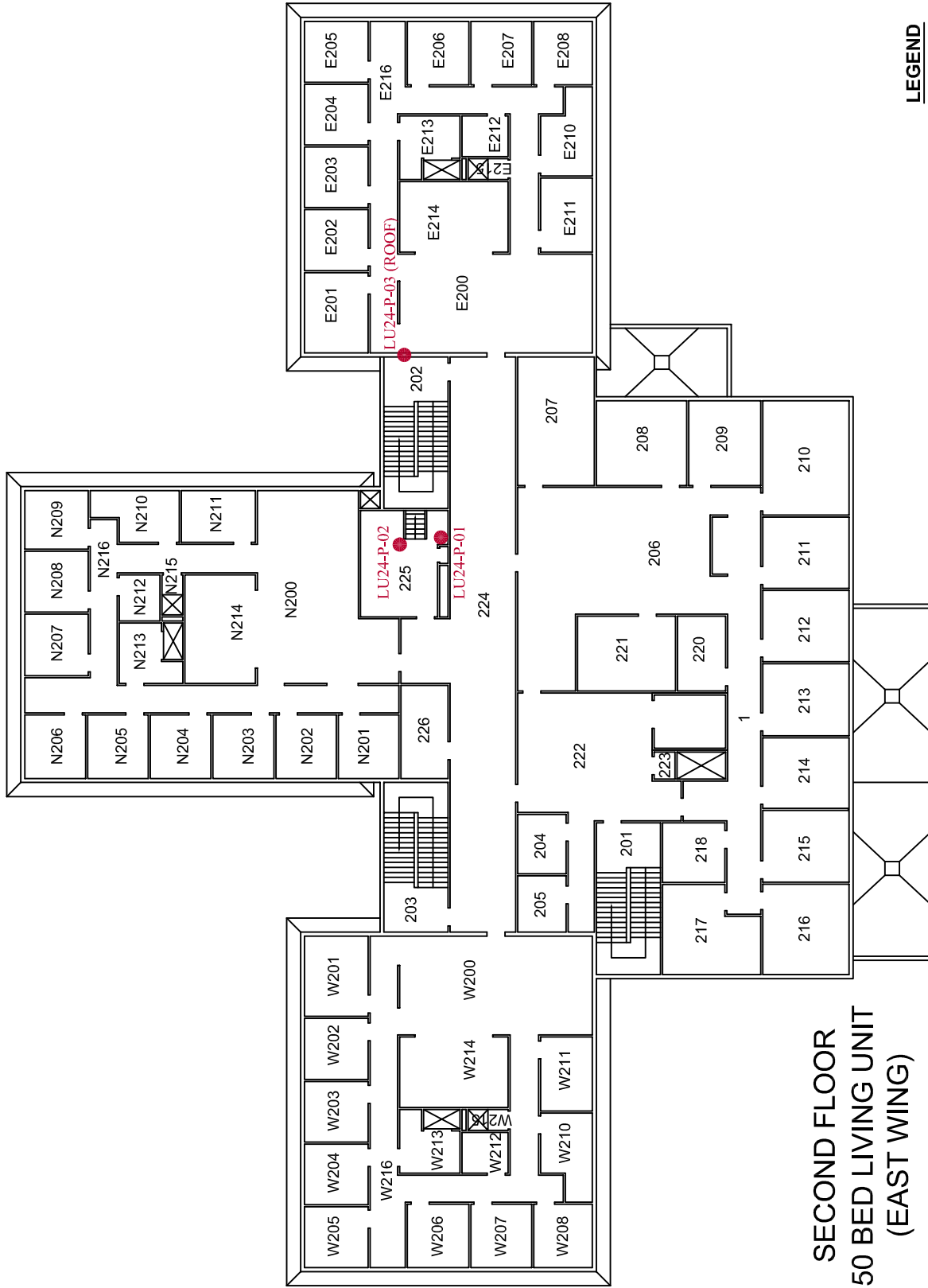
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55.4





**SECOND FLOOR
50 BED LIVING UNIT
(EAST WING)**

LEGEND
● LEAD PAINT SAMPLE

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**FLOOR PLAN SHOWING HAZARDOUS BUILDING MATERIALS
AND BULK SAMPLE LOCATIONS**

CSC MISSION MINIMUM INSTITUTION
33737 DEWDNEY TRUNK ROAD, MISSION, BC

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Project No.: 123220822

Scale: N.T.S.

Date: 17/04/01

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App'd By: TW

Dwg. No.:

55.5



Unit LU24 (North Wing)		
50 Bed Living Unit - Second Floor		
Rm. #	Name	Area m ²
N200	Living / Dining Room	43.5
N201-9	Bedrooms	73.4
N210	Mechanical / Electrical Room	8.6
N211	Laundry Room	8.2
N212	W/C	3.8
N213	B.F. W/C	7.5
N214	Kitchen	14.9
N215	Shower	2.1
N216	Corridor	40.0

Unit LU24 (East Wing)		
50 Bed Living Unit - Second Floor		
Rm. #	Name	Area m ²
E200	Living / Dining Room	38.3
E201-8	Bedrooms	68.5
E210	Mechanical / Electrical Room	8.6
E211	Laundry Room	8.2
E212	W/C	3.8
E213	B.F. W/C	7.5
E214	Kitchen	14.9
E215	Shower	2.1
E216	Corridor	37.7

Unit LU24 (West Wing)		
50 Bed Living Unit - Second Floor		
Rm. #	Name	Area m ²
W200	Living / Dining Room	38.3
W201-8	Bedrooms	68.5
W210	Mechanical / Electrical Room	8.6
W211	Laundry Room	8.2
W212	W/C	3.8
W213	B.F. W/C	7.5
W214	Kitchen	14.9
W215	Shower	2.1
W216	Corridor	37.7

Unit LU24			213	214	215	216	217	218	219	220	221	222	223	224	225	225
50 Bed Living Unit - Second Floor			Office	Office	Office	Office	Office	Storage	Corridor	Fax / Copy Room	Secure File Room	Common Area	Janitor Room	Corridor	Storage	Janitor Closet
Rm. #	Name	Area m ²														
201	Stair No. 1	6.6														
202	Stair No. 3	7.4														
203	Stair No. 2	7.4														
204	B.F. Women's Washroom	5.5														
205	B.F. Men's Washroom	5.5														
206	Open Office Area	68.5														
207	Meeting Room	19.6														
208	Resident Entrance	15.8														
209	Office	12.5														
210	Office	20.8														
211	Office	12.5														
212	Office	12.5														

SECOND FLOOR

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55.6





EMSL Canada Inc.

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EMSL Canada Order 691700540
Customer ID: 55JACQ30L
Customer PO: 123220822
Project ID:

Attn: Steve Chou
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6
Phone: (604) 412-3004
Fax:
Collected:
Received: 3/21/2017
Analyzed: 3/28/2017
Proj: CSC MISSION-MINIMUM / 123220822 / LIVING UNIT 24

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: LU24-DM-01A **Lab Sample ID:** 691700540-0001

Sample Description: FIRST FLOOR, ROOM E111/GREY MASTIC APPLIED TO THE SEAMS OF HVAC DUCTING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: LU24-DM-01B **Lab Sample ID:** 691700540-0002

Sample Description: FIRST FLOOR, ROOM E111/GREY MASTIC APPLIED TO THE SEAMS OF HVAC DUCTING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: LU24-DM-01C **Lab Sample ID:** 691700540-0003

Sample Description: FIRST FLOOR, ROOM E111/GREY MASTIC APPLIED TO THE SEAMS OF HVAC DUCTING

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	0%	100%	None Detected	

Client Sample ID: LU24-CP-01 **Lab Sample ID:** 691700540-0004

Sample Description: EXTERIOR, SOUTH EAST/CEMENT PANEL

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	3/28/2017	Gray	15%	85%	None Detected	

Analyst(s):

- Kathleen Cruz PLM (3)
- Nicole Yeo PLM (1)

Reviewed and approved by:

Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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

Samples analyzed by EMSL Canada Inc. Burnaby, BC

Initial report from: 03/28/2017 18:44:35

**EMSL Canada Inc.**

2756 Slough Street, Mississauga, ON L9T 5N4

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

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

EMSL Canada Or	551702846
CustomerID:	55JACQ30L
CustomerPO:	123220822
ProjectID:	

Attn: **Steve Chou**
Stantec Consulting, Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
 Fax:
 Received: 03/21/17 10:58 AM
 Collected:

Project: CSCMISSION- MINIMUM/123220822/Living Unit 24

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

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
LU24-P-01 Site: Second floor, room 225 Desc: White on drywall	551702846-0001	3/23/2017		<90 ppm
LU24-P-02 Site: Second floor, room 225 Desc: Grey on metal trim	551702846-0002	3/23/2017		<90 ppm
LU24-P-03 Site: Exterior, roof Desc: Blue on metal trim	551702846-0003	3/23/2017		<90 ppm
LU24-P-04 Site: Exterior, west Desc: Beige on metal trim Insufficient sample to reach reporting limit.	551702846-0004	3/23/2017		<100 ppm

Rowena Fanto, Lead Supervisor
 or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 03/27/2017 17:01:57

FIRE ALARM SYSTEM REPLACEMENT

Mission BC

Mission Minimum Institution

Project No. R.082592.001

APPENDIX B

Project-Specific Asbestos Assessment – Site Review Report

5 pages including cover page



PROJECT-SPECIFIC ASBESTOS ASSESSMENT – SITE REVIEW REPORT

Project:	ACM Sampling – Attic in Building 18, Recycle Storage, Mission Minimum Institution		
Client:	PUBLIC SERVICES AND PROCUREMENT CANADA (PSPC)	Contract #:	N/A
Stantec Site Assessors:	Keith Irwin Dipl. Tech. Steve Chou B.A. Dipl. Tech.	Date of Site Visit:	October 12, 2017
Location:	33737 Dewdney Trunk Road, Mission BC	Issue Date	October 26, 2017
		Stantec Project #:	123220989.200

BACKGROUND

Stantec was retained by Public Services and Procurement Canada (PSPC) to provide project-specific assessment for asbestos-containing materials (ACMs) pertaining to a fire alarm system replacement project planned for multiple buildings, including Building 18, Recycle Storage (subject building), at Mission Minimum Institution (subject facility), located in Mission BC.

The purpose of the site review was to check for vermiculite and other potential ACMs in the attic of the subject building that may require special handling and/or disposal practices in accordance with the requirements of the Canada Labour Code Part II (Canada Labour Code) and the current version of British Columbia's Occupational Health & Safety Regulation (BC Reg. 296/97), during the fire alarm replacement project.

The information provided herein is to be considered supplemental to the following report, for which no access was available to the attic of the subject building:

- Stantec report for Project No. 123220822 entitled "Hazardous Building Materials Assessment; 55 Buildings/Structures at CSC Mission Minimum; 33737 Dewdney Trunk Road, Mission, BC" dated September 14, 2017

STANDARDS, SCOPE AND METHODOLOGY

The presence of asbestos in federal workplaces, and pertaining to federally regulated workers is governed by the Canada Labour Code. The presence of asbestos in the workplace in British Columbia pertaining to provincially regulated workers is governed by BC Reg. 296/97. As primarily provincially regulated workers (e.g., contractors) are expected to carry out work activities associated with the fire alarm replacement project, and as the provincial regulations are generally more prescriptive pertaining to asbestos (and generally include the requirements noted in the Canada Labour Code), this assessment was conducted to meet the requirements of BC Reg. 296/97.

According to the current version of BC Reg. 296/97, asbestos-containing material (ACM) means any material containing at least 0.5% asbestos, or vermiculite insulation with any asbestos.

The attic and building materials that were expected to require alteration during the fire alarm replacement project were visually assessed for the presence of suspected ACMs.



Project number: 123220989.200
Inspection date: October 12, 2017
Contract Number: N/A

Where observed, samples were collected from each "homogenous application" of suspected ACMs (materials suspected to contain asbestos that are uniform in material type, colour, texture application and estimated installation date) and submitted to EMSL Canada Inc. (EMSL) in Burnaby, British Columbia for analysis of asbestos content using polarized light microscopy (PLM) with dispersion staining, in accordance with the United States Environmental Protection Agency (EPA) 600/R-93/116 analytical method "Asbestos (bulk) by PLM." EMSL's analytical laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

The number of samples collected for each homogenous application of a suspected ACM was based on the recommendations provided in the WorkSafeBC publication *Safe Work Practices for Handling Asbestos, 2017* (BC Asbestos Guide) along with the assessor's experience and understanding of the consistency of the observed building material applications.

SITE REVIEW RESULTS

The table below summarizes the findings of the assessment and sampling activities undertaken at the subject building.

Location	Hazardous Building Material Observations	Photo	Samples Collected	Analytical Results
Attic	Suspected ACM white ceiling tile stored in 2 piles in the centre of the attic	no photo available.	18-CT-01A 18-CT-01B 18-CT-01C	No Asbestos Detected
	Fiberglass insulation was present in the attic space; no vermiculite was observed throughout	no photo available.	N/A	N/A

The certificates of analysis for the samples submitted as part of this project, as provided by EMSL, are attached to this document, for reference.

RECOMMENDATIONS

No ACMs were identified through this assessment. If encountered during renovation activities, any suspected ACMs not accessible during this assessment should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

This report should be added to the Hazardous Building Materials Management Plan for the subject facility.



Project number: 123220989.200
Inspection date: October 12, 2017
Contract Number: N/A

LIMITATIONS

In preparation of this report, Stantec used professional judgment based on experience. The work was conducted in accordance with generally accepted professional standards. Stantec relied on information gathered during the site investigation and laboratory analytical reports.

This report reflects the observations made within accessible and accessed portions of the subject building, and the results of analyses performed on the specific material sampled during the assessment. Analytical results reflect the sampled material at the specific sample locations.

This assessment was conducted pertaining only to the attic of the subject building, and building materials expected to be disturbed by the fire alarm replacement project. This assessment does not constitute a comprehensive hazardous building materials assessment for the subject building.

This report has been prepared for the exclusive use of PSPC for the purpose of assessing general conditions of attic materials at the subject building. Any use that a third party makes of this report, or reliance on, or decisions to be made on it, are the responsibility of such third parties. Stantec accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

CLOSING

If any conditions become apparent that differ significantly from our understanding of conditions as presented in this document, we request that we be notified immediately to reassess the information provided herein.

We trust that the document meets your current requirements. Should you have any questions or concerns regarding the above, please do not hesitate to contact the undersigned.

STANTEC CONSULTING LTD.

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Senior Associate
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Attachments: Suspected ACM Bulk Sample Analytical Record (EMSL) – 1 page



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EMSL Canada Order 691702479
Customer ID: 55JACQ30L
Customer PO: 123220989
Project ID:

Attn: Steve Chou
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500 - 4730 Kingsway
Burnaby, BC V5H 0C6
Phone: (604) 412-3004
Fax:
Collected: 10/12/2017
Received: 10/17/2017
Analyzed: 10/24/2017
Proj: MISSION MIN.BLG18 ATTIC - 123220989

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 18-CT-01A **Lab Sample ID:** 691702479-0001
Sample Description: WHITE CEILING TILE / ATTIC

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	10/23/2017	Gray	80%	20%	None Detected	

Client Sample ID: 18-CT-01B **Lab Sample ID:** 691702479-0002
Sample Description: WHITE CEILING TILE / ATTIC

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	10/23/2017	Gray	80%	20%	None Detected	

Client Sample ID: 18-CT-01C **Lab Sample ID:** 691702479-0003
Sample Description: WHITE CEILING TILE / ATTIC

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	10/24/2017	Gray	80%	20%	None Detected	

Analyst(s):
Kathleen Cruz PLM (2)
Nicole Yeo PLM (1)

Reviewed and approved by: 
Nicole Yeo, Laboratory Manager
or Other Approved Signatory

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