Public Works and Government Services Canada

Specification

AAFC Pacific Research Centre - Agassiz

Hazardous Building Materials Abatement - Building 28 & 50

Requisition No. ___EZ899-181581_____

Project No. R.071945.001
December 2016

APPROVED BY:

Regional Manager, AES — Date: 2017-01-25

Construction Safety Coordinator — Date: 23/12/16

TENDER:

Project Manager — Date: 2017-06-28

Real Property Services Branch, Professional and Technical Services, Pacific Region
Room 219 - 800 Burrard Street, Vancouver, B.C. V6Z 0B9

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Part 1 Summary of Work

1.1 RELATED SECTIONS

.1 Section 01 56 00 - Temporary Barriers and Enclosures.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract consists of execution of hazardous building materials abatement within Buildings 28 and 50 at the Pacific Agri-Food Research Centre in Agassiz, BC; and further identified as the Work, and summarized as follows:

.2 Building 28

- .1 Removal and disposal of approximately 40 square feet of asbestos-containing vinyl floor tiles.
- .2 Remove and dispose of asbestos-containing vermiculite insulation.
  - .1 Confirmed to be present throughout the attic space of the Barn area (including under the attic space floor boards), comprising approximately 5,000 square feet with a depth of 4–6 inches or approximately 2,080 cubic feet
    - .1 Significant stored items are present within this attic space. All items are to be considered contaminated and included for removal and disposal.
  - .2 Unknown presence in the ceiling space of the lab area (no openings present), which appears to be an addition—approximately 1,650 square feet.
- .3 Removal and disposal of on mercury-containing thermostat, mercury vapour-containing fluorescent light tubes (approximately 10 fixtures) and HID lights (two on exterior).

.3 Building 50

- .1 Removal and disposal of asbestos-containing vermiculite insulation.
  - .1 Confirmed to be present in 71 large garbage bags, as well as scattered throughout the attic floor as debris, as well as onto various areas on the ground level (through cracks in attic floor).
    - .1 Significant stored items are present within the attic space and on the ground level. All items are to be considered contaminated and included for removal and disposal.

1.3 OCCUPANCY

.1 The overall site where the buildings are located will be occupied and operational during the Work. Building 50 will remain unoccupied during the Work, however, Building 28 will remain occupied.

.2 Co-operate with Departmental Representative in scheduling operations to minimize conflict and to facilitate Pacific Agri-Food Research Centre usage of premises, where applicable.

1.4 CONTRACTOR'S USE OF PREMISES

.1 Contractor will have access to site for full six (6) weeks which has been allowed for completion.

.2 Reasonable space will be provided for Contractor's use (bin storage, parking), to be confirmed with Departmental Representative.

1.5 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows, where applicable:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Change Orders.
- .5 Other Modifications to Contract.
- .6 Field Test Reports.
- .7 Copy of Approved Work Schedule.
- .8 Health and Safety Plan and Other Safety Related Documents.
- .9 Environmental Protection Plan, relevant environmental permits and other environment related documents.
- .10 Other documents as specified.

Part 2 Work Restrictions

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Where security is reduced by work, provide temporary means to maintain security.

.3 Contractor to supply their own sanitary facilities.

.4 Water and power will be available Building 28. Available water is not to be considered potable/drinking water.

- .1 Contractor to supply water and power for work within Building 50.

.5 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

.6 Security Requirements: refer to Section 01 14 10 - Security Requirements.

.7 Hours of work:

- .1 The Work is to be performed during regular work days (Monday to Friday) between the hours of 07:00 to 17:00.

.8 Access into Facility:

- .1 No access will be permitted into unauthorized buildings unless approved by the Departmental Representative.

Part 3 Construction Work Schedule

.1 Commence work immediately upon official notification of acceptance of offer and complete the work within six (6) 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 of essence of this contract.

.3 Submittals:

.1 Refer to Section 01 33 00 Submittal Procedures.

.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 site meetings to be called by the Contractor, 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 Contractor to provide meeting minutes.

.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.

Part 4 Health and Safety

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

Part 5 Environmental Procedures

.1 Specified in Section 01 35 43 – Environmental Procedures

.2 Fires and burning of rubbish on site not permitted.

.3 Do not dispose of waste or volatile materials such as oil, paint thinner or mineral spirits into waterways, storm or sanitary systems.

.4 Under no circumstances dispose of rubbish or waste materials on property or in Pacific Agri-Food Research Centre waste bins.

Part 6 Regulatory Requirements

6.1 REFERENCES AND CODES:

.1 Perform Work in accordance with National Building Code of Canada 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.

Part 7 Quality Control

7.1 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 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.

7.2 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.

Part 8 Temporary Utilities

8.1 TEMPORARY VENTILATION:

.1 Ventilating:

.1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during abatement.

.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.4 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.2 Maintain strict supervision of operation of temporary ventilating equipment to:

.2 Maintain strict supervision of operation of temporary ventilating equipment to:

.1 Conform with applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

8.2 TEMPORARY POWER AND LIGHT

.1 Provide own electrical lines from source, as necessary to complete the work.

.1 Power will be available at Building 28.

.2 Contractor to supply their own power for Building 50.

8.3 TEMPORARY COMMUNICATION FACILITIES

.1 Conform to Section 01 14 10 Security Requirements.

8.4 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

Part 9 Construction Facilities

9.1 LIFTING EQUIPMENT

.1 Where required, provide, operate and maintain lifting equipment and manpower required for moving of heavy products in accordance with applicable standards and regulations.

9.2 SITE STORAGE/LOADING

.1 Confine work and operations of employees to areas specified in Contract Documents. Do not unreasonably encumber premises with products.

9.3 CONSTRUCTION PARKING

.1 Parking will be available where needed at each building, as directed by the Departmental Representative.

9.4 CONTRACTOR'S SITE OFFICE

.1 Provide office as required to accommodate Contractor's operations, if required.

.2 Provide a clearly marked and fully stocked first-aid case in a readily available location in accordance with WorkSafeBC requirements.

9.5 EQUIPMENT AND TOOLS STORAGE

.1 Provide and maintain, in a clean and orderly condition, lockable secure lock box for storage of tools and materials.

9.6 SANITARY FACILITIES

.1 Contractor to supply their own sanitary facilities.

9.7 CONSTRUCTION SIGNS

.1 If signage is requested or required, format, location and quantity of site signs and notices to be approved by Departmental Representative.

.2 Signs and notices for safety or instruction to be in English language, or commonly understood graphic symbols.

.3 Maintain signboards, signs and notices for duration of project.

.4 Remove signs from site at completion of project or as directed by Departmental Representative.

Part 10 Temporary Barriers and Enclosures

10.1 ENCLOSURE OF WORK AREA

.1 Provide temporary dust barriers around work areas where dust or harmful vapours are being generated. Exhaust dust and vapours to exterior.

Part 11 Cleaning

11.1 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 and/or in accordance with applicable transportation and disposal regulations and guidelines.

.3 Provide on-site containers for collection of waste materials and debris.

.4 Provide and use clearly marked separate bins for recycling.

.5 If generated, store volatile waste in covered metal containers, and remove from premises at end of each working day.

.6 Provide adequate ventilation during use of volatile or noxious substances.

.7 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.8 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

11.2 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 Remove waste products from site.

Part 12 Closeout Procedures

12.1 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.

12.2 INSPECTION:

.1 Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.

12.3 COMPLETION:

.1 Submit written certificate that the 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 Work is complete and ready for Final Inspection.

12.4 FINAL INSPECTION:

.1 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 re-inspection, at no additional cost to the Contract.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 56 00 - Temporary Barriers and Enclosures.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract consists of execution of hazardous building materials abatement within Buildings 28 and 50 at the Pacific Agri-Food Research Centre in Agassiz, BC; and further identified as the Work.

1.3 CONTRACT METHOD

.1 Conduct Work under stipulated price (lump sum) contract.

.2 Relations and responsibilities between Contractor and subcontractors are as defined in Conditions of Contract. Assigned Subcontractors must, in addition:

.1 Furnish to Contractor, bonds covering faithful performance of subcontracted work and payment of obligations thereunder when Contractor is required to furnish such bonds to Owner.

.2 Purchase and maintain liability insurance to protect from claims for not less than limits of liability which Contractor is required to provide to Owner.

1.4 WORK BY OTHERS

.1 Other contractors are not expected to be present.

1.5 EXISTING SERVICES

.1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Carry out work at times as directed by governing authorities with minimum disturbance to vehicular traffic.

.3 Provide alternative routes for vehicular traffic, as required.

.4 Temporary services to maintain critical building and tenant systems are not required.

.5 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.6 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

.7 Although power may be provided by the site the Contractor must plan to provide power to be self-sufficient, if necessary.

.8 Contractor must plan to supply potable water to be self-sufficient.

.9 Site will allow for access to the existing sewer but the Contractor must plan for pumping out the system when necessary.

.10 Contractor to supply their own sanitary facilities.

1.6 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Change Orders.
- .5 Other Modifications to Contract.
- .6 Field Test Reports.
- .7 Copy of Approved Work Schedule.
- .8 Health and Safety Plan and Other Safety Related Documents.
- .9 Environmental Protection Plan, relevant environmental permits and other environment related documents.
- .10 Other documents as specified.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 56 00 - Temporary Barriers and Enclosures.

1.2 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.3 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.

.2 Maintain existing services to building as require to facilitate the Work, and provide for personnel and vehicle access.

.3 Where security is reduced by work provide temporary means to maintain security.

.4 Contractor to supply their own sanitary facility. Keep facilities clean.

.5 Closures: protect work temporarily until permanent enclosures are completed.

1.4 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute work with least possible interference or disturbance to site operations, public and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.5 EXISTING SERVICES

.1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Provide for pedestrian and vehicular traffic.

.3 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.6 SPECIAL REQUIREMENTS

.1 Carry out noise generating Work in accordance with applicable Municipal bylaws.

.2 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.3 Keep within limits of work and avenues of ingress and egress.

.4 Deliver materials between 07:00 to 17:00 unless otherwise approved by Departmental Representative.

1.7 SECURITY

.1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.

.2 Security clearances:

.1 Personal security is required for all contractor employees.

.2 A security briefing form is to be completed for each employee.

1.8 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. Smoking is not permitted.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 Purpose

.1 To ensure that the abatement project and the facility operations may proceed without undue disruption or hindrance and that the security of the facility is maintained at all times.

Part 2 Definitions

.1 "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.

.2 "Commercial Vehicle" means any motor vehicle used for the shipment of material, equipment and tools required for the abatement project.

.3 "Departmental Representative" means Public Works and Government Services Canada representative , or Representative of the facility as applicable.

.4 "Abatement employees" means persons working for the general contractor, the sub-contractors, equipment operators, material suppliers, testing and inspection companies and regulatory agencies.

.5 "Abatement limits" means the area, as indicated in the contract documents, that the contractor will be allowed to work". Limits to be confirmed at abatement start-up meeting.

Part 3 Preliminary Proceedings

.1 At abatement 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 facility's particular requirements. AAFC personnel to facilitate personal security.

.2 The contractors' responsibilities:

.1 Ensure that all abatement employees are aware of the security requirements.

.2 Ensure that a copy of the security requirements is always prominently on display at the job site.

.3 Co-operate with facility personnel in ensuring that security requirements are observed by all abatement employees.

Part 4 Contractor Employees

.1 Any person employed on the abatement site will be subject to immediate removal from property if they:

.1 appear to be under the influence of alcohol, drugs or narcotics.

.2 behave in an unusual or disorderly manner.

Part 5 Parking

.1 Parking will be available where needed at each building.

Part 6 Work Hours

.1 In accordance with applicable Municipal bylaws and regulations.

Part 7 Tools and Equipment

.1 Store all tools and equipment in approved secure locations.

.2 Lock all tool boxes when not in use. Keys to remain in the possession of the employees of the contractor.

Part 8 Contraband

.1 Weapons, ammunition, explosives, alcoholic beverages, drugs and narcotics are prohibited on the work site.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

.1 Project meetings will be scheduled and administered throughout the progress of the work at the call of Departmental Representative.

.2 Meeting minutes will be recorded by the Contractor and distributed by Departmental Representative, if required.

.3 Representative of Contractor, Subcontractor and/or suppliers attending meetings will be qualified and authorized to act on behalf of the party each represents.

1.2 PRECONSTRUCTION MEETING

.1 Departmental Representative will schedule a pre-commencement meeting.

.2 Departmental Representatives and Contractor will be in attendance.

.3 Agenda to include:

- .1 Appointment of official representative of participants in the Work.
- .2 Schedule of Work: in accordance with schedule stipulated in Contract Documents.
- .3 Schedule of submission. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .4 Delivery schedule of specified equipment.
- .5 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
- .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
- .7 Monthly progress claims, administrative procedures, photographs, hold backs.
- .8 Insurances, transcript of policies.

1.3 PROGRESS MEETINGS

.1 Progress meetings will be held. Departmental Representative will schedule the meetings and arrange for a meeting location.

.2 Contractor involved in Work and Departmental Representative(s) are to be in attendance.

.3 Departmental Representative will chair the meeting, and distribute meeting minutes. Contractor will record the meeting minutes and provide within 5 business days.

.4 Agenda typically to include the following:

- .1 Review, approval of minutes of previous meeting.
- .2 Review of Work progress since previous meeting.
- .3 Field observations, problems, conflicts.
- .4 Problems which impede construction schedule.

.5 Corrective measures and procedures to regain projected schedule.

.6 Revision to construction schedule.

.7 Progress schedule, during succeeding work period.

.8 Review submittal schedules: expedite as required.

.9 Maintenance of quality standards.

.10 Review proposed changes for effect on construction schedule and on completion date.

.11 Other business.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Reports:

.1 Stantec Report for Project No. 1237-10520 entitled "Hazardous Building Materials Assessments; Buildings of the Pacific Agri-Food Research Centre, Agassiz and Abbotsford (Clearbrook), BC" dated January, 2013 (Available from Departmental Representative). Applicable excerpts from this report are provided in Appendix A of this specification, as follows:

.1 Main Centre, Building 28 – Poultry House and Offices – Findings and Recommendations.

.2 Farm 2, Building 50 – Piggery Storage – Findings and Recommendations

.2 Stantec Report for Project No. 123220266 entitled "Pre-Demolition Hazardous Building Materials Assessment – The Piggery (Farm Structure) - 6947 #7 Highway, Box 1000, Agassiz, BC, V0M 1A0" dated March 31, 2015

.3 Stantec Report for Project No. 123220674 entitled "Hazardous Building Materials Assessment Updates – Buildings 28 and 50 Pacific Agri-Food Research Centre, Agassiz, British Columbia", dated November 4, 2016

1.2 ADMINISTRATIVE

.1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings and product data in SI Metric units.

.1 Where items or information is not produced in SI Metric units converted values are acceptable.

.4 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 considered rejected.

.5 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.6 Verify field measurements and affected adjacent Work.

.7 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

.8 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.

.9 Keep one reviewed copy of each submission on site.

1.3 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work, where required or requested by Departmental Representative.

.2 Allow 5 days for Departmental Representative's review of each submission.

.3 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

.4 After Departmental Representative's review, distribute copies.

.5 Submit electronic copies of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.6 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before installation of Work may proceed.

1.4 PHOTOGRAPHIC DOCUMENTATION

.1 Submit electronic copies of colour digital photography in ".jpg" format, standard resolution as directed by Departmental Representative.

.2 Project identification: name and number of project and date of exposure indicated.

.3 Viewpoints and their location as determined by Departmental Representative.

.4 Frequency of photographic documentation:

.1 Upon completion of Work, and as directed by Departmental Representative.

1.5 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board (WorkSafeBC) status or clearance letter.

.2 Submit transcription of insurance immediately after award of Contract.

Products

1.6 NOT USED

.1 Not Used.

Part 2 Execution

2.1 NOT USED

.1 Not Used.

END OF SECTION

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 Electric 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 Province of British Columbia:

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

.7 Reports (collectively referred to herein as the "Assessment Reports")

- .1 Stantec Report for Project No. 1237-10520 entitled "Hazardous Building Materials Assessments; Buildings of the Pacific Agri-Food Research Centre, Agassiz and Abbotsford (Clearbrook), BC" dated January, 2013 (Available from Departmental Representative). Applicable excerpts from this report are provided in Appendix A of this specification, as follows:
  - .1 Main Centre, Building 28 – Poultry House and Offices – Findings and Recommendations.
  - .2 Farm 2, Building 50 – Piggery Storage – Findings and Recommendations
- .2 Stantec Report for Project No. 123220266 entitled "Pre-Demolition Hazardous Building Materials Assessment – The Piggery (Farm Structure) - 6947 #7 Highway, Box 1000, Agassiz, BC, V0M 1A0" dated March 31, 2015.
- .3 Stantec Report for Project No. 123220674 entitled "Hazardous Building Materials Assessment Updates – Buildings 28 and 50 Pacific Agri-Food Research Centre, Agassiz, British Columbia", dated November 4, 2016.

.8 Canadian Environmental Protection Act,1999 (CEPA 1999)

.9 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).

.10 Department of Justice Canada (Jus)

.1 Transportation of Dangerous Goods Act, 1992 (TDG Act) [1992], (c. 34).

.2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286)

.11 Health Canada / Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS).

.12 National Research Council Canada Institute for Research in Construction (NRC-IRC)

.13 The current version of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88)

.14 The Federal PCB Regulations (SOR/2008-273).

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 35 35 – Fore Safety Requirements

.3 Section 01 35 43 – Environmental Procedures

.4 Section 01 74 11 - Cleaning

.5 Section 02 81 01 – Hazardous Materials

.6 Section 02 82 00.01 – Asbestos Abatement Minimum Precautions

.7 Section 02 82 00.02 – Asbestos Abatement Intermediate Precautions.

.8 Section 02 82 00.03 – Asbestos Abatement Maximum Precautions.

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 33 00.

.2 Work effected by submittal shall not proceed until review is complete.

.3 Submit the following:

.1 Site Specific 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 current 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 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 Site Specific 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, Territorial 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 will:

.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, revising, daily enforcing, and monitoring the Site Specific 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 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.

.2 The Contractor must complete and submit the Preconstruction Assessment Form (PAF), as attached in Appendix B of the specification.

1.10 UTILITY CLEARANCES

.1 The Contractor is solely responsible for all utility detection and clearances prior to starting the work, where ground disturbance is required.

.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[s] related to project before start of work.

1.13 FILING OF NOTICE

.1 The General Contractor is to complete and submit a Notice of Project as required by Provincial authorities.

.2 Provide copies of all notices to the Departmental Representative.

1.14 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.

.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 Site Specific Health and Safety Plan shall not relieve the Contractor of responsibility for errors or omissions in final Site Specific 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 [site staff].

.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 [site staff].

.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.

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:

- .1 Advise Departmental Representative beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS documents as per Section 01 33 00.
- .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 Manufacturers recommendations and Worksafe BC regulations.
- .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 brought 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 and Federal Regulations, Acts, and Guidelines.

.2 Removal and handling of asbestos will be in accordance with applicable Provincial and Federal Regulations, Acts, and Guidelines.

.3 Acceptable guidelines for managing work with Asbestos in a Federal environment have been referenced in the following specifications.

.1 Section 02 82 00.01 – Asbestos Abatement Minimum Precautions.

.2 Section 02 82 00.02 – Asbestos Abatement Intermediate Precautions.

.3 Section 02 82 00.03 – Asbestos Abatement Maximum Precautions.

1.18 PCB REMOVALS

.1 Refer to Section 02 81 01 – Hazardous Materials for requirements.

1.19 REMOVAL OR LEAD-CONTAINING PAINTS

.1 Refer to Section 02 81 01 – Hazardous Materials for requirements.

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 confined spaces in compliance with Provincial Regulations, Acts, and Guidelines.

1.26 POWDER-ACTUATED DEVICES

.1 Not required.

1.27 FIRE SAFETY AND HOT WORK

.1 Refer to Section 01 35 35 – Fire Safety Requirements.

.2 Obtain Departmental Representative's authorization before any welding, cutting or any other hot work operations can be carried out on site.

.3 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 Refer to Section 01 35 35 – Fire Safety Requirements.

.2 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.

.3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

.4 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 Refer to Section 01 35 35 – Fire Safety Requirements.

.2 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.

.3 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.

.4 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.

.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 Department 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 non-compliance 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".

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 FIRE DEPARTMENT BRIEFING

.1 Departmental Representative will co-ordinate arrangements for contractor for briefing on Fire Safety, general site specific "Do's and Don'ts" in accordance with applicable Municipal standards, before work is commenced.

1.2 REPORTING FIRES

.1 Know location of nearest fire alarm box and telephone, including emergency phone number (911).

.2 Immediately report fire incidents to the local Fire Department.

.3 Person calling in the fire alarm box will remain at entrance to direct Fire Department to scene of fire.

.4 When reporting fire by telephone, give location of fire, address or number of building and be prepared to verify location.

1.3 INTERIOR AND EXTERIOR FIRE PROTECTION AND ALARM SYSTEMS

.1 Fire hydrants, standpipes and hose systems will not be used for other than fire-fighting purposes unless authorized by Departmental Representative.

1.4 FIRE EXTINGUISHERS

.1 Supply fire extinguishers necessary to protect work in progress and contractor's physical plant on site.

1.5 BLOCKAGE OF ROADWAYS

.1 Advise Departmental Representative of work that would impede fire apparatus response. This includes erecting of barricades and digging of trenches.

1.6 SMOKING PRECAUTIONS

.1 Observe smoking regulations.

1.7 RUBBISH AND WASTE MATERIALS

.1 Keep rubbish and waste materials at minimum quantities.

.2 Burning of rubbish is prohibited.

.3 Remove rubbish from work site at end of work day or shift or as directed.

.4 Storage:

.1 Store waste in approved receptacles to ensure maximum cleanliness and safety.

.2 Deposit greasy or oily rags and materials subject to spontaneous combustion in approved receptacles and remove specified.

1.8 FLAMMABLE AND COMBUSTIBLE LIQUIDS

.1 Handling, storage and use of flammable and combustible liquids governed by current National Fire Code of Canada.

.2 Keep flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use in quantities not exceeding 45 litres provided they are stored in approved safety cans bearing Underwriters' Laboratory of Canada or Factory Mutual seal of approval. Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires permission of Departmental Representative.

.3 Transfer of flammable and combustible liquids is prohibited within buildings.

.4 Transfer of flammable and combustible liquids will not be carried out in vicinity of open flames or any type of heat-producing devices.

.5 Do not use flammable liquids having flash point below 38 degrees C such as naphtha or gasoline as solvents or cleaning agents.

.6 Store flammable and combustible waste liquids, for disposal, in approved containers located in safe ventilated area. Keep quantities minimum and Agassiz Fire Department is to be notified when disposal is required.

1.9 HAZARDOUS SUBSTANCES

.1 If the Work involves the use of toxic or hazardous materials, chemicals and/or explosives, or otherwise creating hazard to life, safety or health, Work shall be conducted in accordance with National Fire Code of Canada.

.2 When Work is carried out in dangerous or hazardous areas involving use of heat, provide fire watchers equipped with sufficient fire extinguishers. Determination of dangerous or hazardous areas along with level of protection necessary for Fire Watch is at discretion of Departmental Representative. Contractors are responsible for providing fire watch service for work on scale established and in conjunction with Departmental Representative (or alternate) at pre-work conference.

.3 Provide ventilation where flammable liquids, such as lacquers or urethanes are used, eliminate sources of ignition.

1.10 QUESTIONS AND/OR CLARIFICATION

.1 Direct questions or clarification on Fire Safety in addition to above requirements to Departmental Representative.

1.11 FIRE INSPECTION

.1 Co-ordinate site inspections through Departmental Representative.

.2 Allow Departmental Representative unrestricted access to work site.

.3 Co-operate with Departmental Representative during routine fire safety inspection of work site.

.4 Immediately remedy unsafe fire situations observed by Departmental Representative (or alternate).

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 – Submittal Procedures.

.2 Section 01 74 11 – Cleaning.

1.2 REFERENCES

.1 Definitions:

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Departmental Representative.

.3 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues to be addressed during construction.

.4 Address topics at level of detail commensurate with environmental issue and required abatement task[s].

.5 Include in Environmental Protection Plan:

.1 Name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan.

.2 Name[s] and qualifications of person[s] responsible for manifesting hazardous waste to be removed from site.

.3 Name[s] and qualifications of person[s] responsible for training site personnel.

.4 Descriptions of environmental protection personnel training program.

.5 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.

.6 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits

of use areas and methods for protection of features to be preserved within authorized work areas.

.7 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.8 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.9 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.

.10 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.11 Waste Water Management Plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

1.4 FIRES

.1 Fires and burning of rubbish on site not permitted.

1.5 DRAINAGE

.1 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.

.2 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.6 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed at the Site.

.2 Control emissions from equipment and plant to local authorities' emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.

.1 Provide temporary enclosures where required.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.7 NOTIFICATION

.1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.

1.7 NOTIFICATION

.1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.

.2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.

.1 Do not take action until after receipt of written approval by Departmental Representative.

.3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.

.4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.2 Waste Management: dispose of waste in accordance with Section 02 81 01 – Hazardous Materials.

.3 Rubbish and waste materials are not to be buried on site

.4 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 02 82 00.01 Asbestos Abatement - Minimum Precautions

.2 Section 02 82 00.02 Asbestos Abatement - Intermediate Precautions

.3 Section 02 82 00.03 Asbestos Abatement - Maximum Precautions

1.2 REFERENCES AND CODES

.1 Perform Work in accordance with National Building Code of Canada (NBC) including 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.

.3 Comply with all approvals and permits that apply to the Work.

.4 Contractor shall ensure compliance on its part and on the part of all its Subcontractors with the British Columbia Occupational Health and Safety Regulation thereunder.

.5 All other British Columbia Laws and Regulations shall apply as appropriate and the Contractor shall comply with the requirements thereof as though they had been specifically named in these specifications.

.6 Codes, Standards and Regulations are specified in other sections of the specifications and the Work shall be done in accordance with those Codes, Standards and Regulations where applicable.

1.3 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: Removal of asbestos-containing material (ACM) is one of the prime purposes of this Contract. Notify Consultant if additional, previously un-identified suspected ACM is identified during the Work.

.2 Lead: Notify Consultant if additional, previously un-identified suspected lead-containing materials are identified and require disturbance/removal during the Work.

.3 Polychlorinated Biphenyl (PCB): Removal of PCBs is one of the prime purposes of this Contract. Notify Consultant if additional, previously un-identified suspected PCBs are identified during the Work.

.4 Ozone-depleting Substances (ODS): Removal of ODSs is one of the prime purposes of this Contract. Notify Consultant if additional, previously un-identified suspected ODSs are identified during the Work.

1.4 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions and Municipal by-laws.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.2 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.3 WATER SUPPLY

.1 Contractor will provide continuous supply of potable water for own use.

.2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.

1.4 TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating, as required during construction period, including attendance, maintenance and fuel.

.2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.

.3 Provide temporary heat and ventilation in enclosed areas as required to:

- .1 Facilitate progress of Work.
- .2 Protect Work and products against dampness and cold.
- .3 Prevent moisture condensation on surfaces.
- .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .5 Provide adequate ventilation to meet health regulations for safe working environment.

.4 Ventilating:

- .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during work.
- .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
- .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
- .4 Ventilate storage spaces containing hazardous or volatile materials.
- .5 Ventilate temporary sanitary facilities.

.6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

1.5 TEMPORARY POWER AND LIGHT

.1 Provide and maintain temporary lighting throughout project, where required and in accordance with applicable Health and Safety standards.

1.6 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, fax, data hook up, lines necessary for own use, if required.

1.7 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on site.

Part 2 Products

2.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 02 82 00.01 Asbestos Abatement - Minimum Precautions

.2 Section 02 82 00.02 Asbestos Abatement - Intermediate Precautions

.3 Section 02 82 00.03 Asbestos Abatement - Maximum Precautions

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.3 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs as necessary

.2 Provide as required by governing authorities.

1.4 DUST TIGHT SCREENS

.1 Provide dust tight screens or partitions to localize dust generating activities, and for protection of workers and public, as required.

.2 Maintain and relocate protection until such work is complete.

1.5 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.6 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.7 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Departmental Representative or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.3 Clear snow and ice from access to buildings, if necessary.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Provide on-site containers for collection of waste materials and debris.

.6 Provide and use marked separate bins for recycling.

.7 Dispose of waste materials and debris off site.

.8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.9 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

1.2 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 all waste products and debris.

.5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.7 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.8 Clean and sweep areaways and sunken wells.

.9 Sweep and wash clean paved areas.

1.3 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 02 81 01 – Hazardous Materials

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

.1 Contractor's Inspection: Contractor to conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.

.2 Request Departmental Representative inspection.

.2 Departmental Representative Inspection:

.1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

.3 Completion Tasks: submit written certificates that tasks have been performed as follows:

.1 Work: completed and inspected for compliance with Contract Documents.

.2 Defects: corrected and deficiencies completed.

.3 Work: complete and ready for final inspection.

.4 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Departmental Representative.

.2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection, at no additional cost to the Contract.

.5 Final Payment:

.1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

1.2 FINAL CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

.2 Waste Management: dispose of waste materials in accordance with Section 02 81 01 – Hazardous Materials

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 35 33 - Health and Safety Requirements

.3 Section 01 35 43 - Environmental Procedures

.4 Section 01 74 11 - Cleaning

.5 Section 02 82 00.01 - Asbestos Abatement - Minimum Precautions

.6 Section 02 82 00.02 - Asbestos Abatement - Intermediate Precautions

.7 Section 02 82 00.03 - Asbestos Abatement - Maximum Precautions

1.2 REFERENCES

.1 Reports (collectively referred to herein as the "Assessment Reports")

.1 Stantec Report for Project No. 1237-10520 entitled "Hazardous Building Materials Assessments; Buildings of the Pacific Agri-Food Research Centre, Agassiz and Abbotsford (Clearbrook), BC" dated January, 2013 (Available from Departmental Representative). Applicable excerpts from this report are provided in Appendix A of this specification, as follows:

.1 Main Centre, Building 28 – Poultry House and Offices – Findings and Recommendations.

.2 Farm 2, Building 50 – Piggery Storage – Findings and Recommendations

.2 Stantec Report for Project No. 123220266 entitled "Pre-Demolition Hazardous Building Materials Assessment – The Piggery (Farm Structure) - 6947 #7 Highway, Box 1000, Agassiz, BC, V0M 1A0" dated March 31, 2015.

.3 Stantec Report for Project No. 123220674 entitled "Hazardous Building Materials Assessment Updates – Buildings 28 and 50 Pacific Agri-Food Research Centre, Agassiz, British Columbia", dated November 4, 2016.

.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.

.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 (Jus)

.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 WorkSafe BC

.1 British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97, including amendments to date of work)

.2 "Lead-Containing Paints and Coatings; Preventing Exposure in the Construction Industry", 2011

.6 The current version of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88)

.7 The Federal Transportation of Dangerous Goods Regulation

.8 The Federal PCB Regulations (SOR/2008-273).

.9 The British Columbia Waste Management Act - Ozone Depleting Substances and Other Halocarbons Regulation (BC Reg. 387/99).

.10 The Federal Halocarbons Regulation, July 2003

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for hazardous materials and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS MSDS in accordance with Sections 01 35 33 - Health and Safety Requirements and 01 35 43 - Environmental Procedures to Departmental Representative for each hazardous material required prior to bringing hazardous material on site.

.3 Submit environmental management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance 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 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 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 and site staff.

.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

2.1 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

3.1 HAZARDOUS MATERIALS ABATEMENT

.1 Scope of Abatement Activities (other than Asbestos – specified elsewhere)

.1 Abatement shall be conducted to remove and dispose of hazardous building materials as identified in the Assessment Reports, in accordance with applicable regulations, guidelines, standards and/or best practices for such work.

.2 The listing below is a summary of the identified hazardous building materials (other than asbestos) and associated considerations and/or removal and disposal requirements including regulations, guidelines and/or standards.

.1 Lead

.1 Lead-containing materials and/or lead-containing paints are not anticipated to be impacted by the work required as part of this contract. Such materials will be addressed for removal and appropriate disposal during a subsequent demolition phase, under separate contract. For reference, information regarding identified lead and lead-containing paints is included in the Assessment Reports.

.2 Polychlorinated Biphenyls (PCBs)

.1 Light fixtures or other potential PCB-containing items are not anticipated to require action as part of this contract.

.3 Mercury

.1 As opposed to what is indicated in the Assessment Reports, mercury-containing items (e.g. fluorescent light tubes and thermostat in Building 28) do not require action as part of this contract.

.4 Ozone-Depleting Substances (ODSs)

.1 Equipment with ODSs is not expected to require action as part of this contract.

.5 Equipment with Radioactive Components

.1 Equipment with radioactive components is not expected to require action as part of this contract.

3.2 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning. 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 74 11 - Cleaning.

.3 Waste Management: dispose of waste materials in accordance with the regulations and guidelines as outlined in this Section.

.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 SUMMARY

.1 Unless otherwise determined through risk assessment conducted by a qualified person, comply with requirements of this Section when performing following Work:

.1 Removal and disposal of asbestos-containingfloor tiles (9"x9" size) in the south office area bathroom of Building 28.

1.2 SECTION INCLUDES

.1 Requirements, applicable procedures and personal protective equipment to be utilized during asbestos abatement activities as outlined herein.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 35 33 - Health and Safety Requirements

.3 Section 02 81 01 – Hazardous Materials

.4 Section 02 82 00.02 – Asbestos Abatement Intermediate Precautions

.5 Section 02 82 00.03 – Asbestos Abatement Maximum Precautions.

1.4 REFERENCES

.1 Department of Justice Canada (Jus)

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.3 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.4 Underwriters' Laboratories of Canada (ULC)

.5 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.205-[94], Sealer for Application of Asbestos Fibre Releasing Materials.

.6 Government of Canada.

.1 Canada Labour Code - Part II

.2 Canada Occupational Health and Safety Regulations.

.7 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" (2012 Edition)

.8 The current version of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88).

1.5 DEFINITIONS

.1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.

.2 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow thorough wetting of fibres.

.3 Asbestos Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight (or vermiculite insulation materials with any asbestos) and are identified under Existing Conditions including fallen materials and settled dust.

.4 Asbestos Work Area: area where work takes place which will, or may, disturb ACMs.

.5 Authorized Visitors: Consultant or Departmental Representative and representatives of regulatory agencies.

.6 Competent worker: in relation to specific work, means a worker who:

.1 Is qualified because of knowledge, training and experience to perform the work.

.2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.

.3 Has knowledge of all potential or actual danger to health or safety in the work.

.7 Friable material: means material that:

.1 When dry, can be crumbled, pulverized or powdered by hand pressure, or

.2 is crumbled, pulverized or powdered.

.8 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.9 Occupied Area: any area of the building or work site that is outside Asbestos Work Area.

.10 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.

.11 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for work.

1.6 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of asbestos-containing waste in accordance with requirements of authority having jurisdiction.

.3 Submit Provincial and/or local requirements for Notice of Project Form.

.4 Submit proof of Contractor's Asbestos Liability Insurance.

.5 Submit to Departmental Representative necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed.

.6 Submit proof that all asbestos workers and/or supervisor have received appropriate training from a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing. Instruction and training related to respirators includes, at minimum:

.1 Fitting of equipment.

.2 Inspection and maintenance of equipment.

.3 Disinfecting of equipment.

.4 Limitations of equipment.

.7 Submit proof satisfactory to Departmental Representative that employees have respirator fitting and testing. Workers must be fit tested respirator that is personally issued.

1.7 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications, more stringent requirement applies. Comply with regulations in effect at time Work is performed.

.2 Health and Safety:

.1 Perform construction occupational health and safety in accordance with Section 01 35 33 - Health and Safety Requirements.

.2 Safety Requirements: worker protection.

.1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:

.1 Air purifying half-mask respirator with N-100, R-100 or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean

and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.

.2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing shall consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing to include suitable footwear, and to be repaired or replaced if torn.

.2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.3 Before leaving Asbestos Work Area, the worker can decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the work area frequently and at regular intervals.

.4 Facilities for washing hands and face shall be provided within or close to the Asbestos Work Area.

.5 Ensure workers wash hands and face when leaving Asbestos Work Area. Facilities for washing are to be supplied by the Contractor.

.6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 02 81 01 – Hazardous Materials.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal packaging material in appropriate on-site bins for recycling.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.6 Fold up metal banding, flatten and place in designated area for recycling.

.7 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial and Municipal regulations. Dispose of asbestos waste in sealed double

thickness 6 mil bags or leak proof drums. Label containers with appropriate warning labels.

.8 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.9 EXISTING CONDITIONS

.1 Reports and information pertaining to ACMS to be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification in **Appendix A**, and/or are available from the Departmental Representative.

.2 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 Departmental Representative.

1.10 SCHEDULING

.1 Hours of Work: perform work during normal working hours as indicated in Contract Documents.

Part 2 Products

2.1 MATERIALS

.1 Drop Sheets:

.1 Polyethylene: 0.15 mm thick.

.2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.

.2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in a concentration to provide thorough wetting of asbestos-containing material.

.3 Waste Containers: contain waste in two separate containers.

.1 Inner container: 0.15 mm thick sealable polyethylene waste bag.

.2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.

.3 Labelling requirements: affix pre-printed cautionary asbestos warning in both official languages that is visible when ready for removal to disposal site.

.4 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.

.5 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.

Part 3 Execution

3.1 PROCEDURES

.1 Do construction occupational health and safety in accordance Section 01 35 33 - Health and Safety Requirements.

.2 Before beginning Work, isolate Asbestos Work Area using, minimum, preprinted cautionary asbestos warning signs in both official languages that are visible at access routes to Asbestos Work Area.

.1 Remove visible dust from surfaces in the work area where dust is likely to be disturbed during course of work.

.2 Use HEPA vacuum or damp cloths where damp cleaning does not create a hazard and is otherwise appropriate.

.3 Do not use compressed air to clean up or remove dust from any surface.

.3 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.

.1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in Asbestos Work Area where dust and contamination cannot otherwise be safely contained. Drop sheets are not to be reused.

.4 Wet materials containing asbestos to be cut, ground, abraded, scraped, drilled, or otherwise disturbed unless wetting creates hazard or causes damage.

.1 Use garden reservoir type low - velocity fine - mist sprayer.

.2 Perform Work to reduce dust creation to lowest levels practicable.

.3 Work will be subject to visual inspection and air monitoring.

.4 Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.

.5 Frequently and at regular intervals during Work and immediately on completion of work:

.1 Dust and waste to be cleaned up and removed using a vacuum equipped with a HEPA filter, or by damp mopping or wet sweeping, and placed in a waste container, and

.2 Drop sheets to be wetted and placed in a waste container as soon as practicable.

.6 Cleanup:

.1 Place dust and asbestos containing waste in sealed dust-tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste; wet and fold these items to contain dust, and then place in plastic bags.

.2 Clean exterior of each waste-filled bag using damp cloths or HEPA vacuum and place in second clean waste bag immediately prior to removal from Asbestos Work Area.

.3 Seal waste bags and remove from site. Dispose of in accordance with requirements of Provincial and Federal Authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that the appropriate guidelines and regulations for asbestos disposal are followed.

.4 Perform final thorough clean-up of Work areas and adjacent areas affected by Work using HEPA vacuum.

3.2 AIR MONITORING

.1 From beginning of Work until completion of cleaning operations, Departmental Representative will take air samples inside and outside of Asbestos Work Areas in accordance with the recommendations set forth in BC Reg. 296/97 and the current version of the WorkSafeBC Manual entitled "Safe Work Practices for Handling Asbestos".

.1 Air samples will be collected and analyzed in accordance with NIOSH method 7400.

.2 Air sample results will be provided to the Contractor within 24-hours of sample collection.

.3 Analysis will be conducted by qualified persons or laboratories that take part in a documented QA/QC program for such analysis.

.2 Contractor will be notified to stop Work when airborne fibre measurements exceed 0.05 fiber/cubic centimetre (f/cc), when PPE and protection factors are considered, and to correct procedures.

.1 Additional monitoring will be conducted, where possible, to verify procedural corrections were effective.

.3 If air monitoring shows that areas outside Asbestos Work Area are contaminated as determined by the Departmental Representative, Contractor will be notified to maintain and clean these areas in same manner as that applicable to Asbestos Work Area, at no additional cost to the Contract.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Unless otherwise determined through risk assessment conducted by a qualified person, comply with requirements of this Section when performing following Work:

- .1 Removal of asbestos-containing vermiculite insulation from the attic space of Building 28, when a vacuum truck is used.
- .2 Removal and/or decontamination of asbestos-contaminated stored items within the attic space of Building 28.
- .3 Removal of asbestos-containing vermiculite in (approximately) 70 garbage bags within the attic space of Building 50.
- .4 Clean-up of asbestos-containing vermiculite debris from surfaces within the attic and the main floor of Building 50.
- .5 Removal and/or decontamination of asbestos-contaminated stored items within the attic space and main floor of Building 50.

1.2 SECTION INCLUDES

.1 Requirements, applicable procedures and personal protective equipment to be utilized during asbestos abatement activities as outlined herein.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 35 33 - Health and Safety Requirements

.3 Section 02 81 01 - Hazardous Materials

.4 Section 02 82 00.01 - Asbestos Abatement Minimum Precautions

.5 Section 02 82 00.03 - Asbestos Abatement Maximum Precautions

1.4 REFERENCES

.1 Department of Justice Canada (Jus)

- .1 *Canadian Environmental Protection Act*, 1999 (CEPA).

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

- .1 Material Safety Data Sheets (MSDS).

.3 Transport Canada (TC)

- .1 *Transportation of Dangerous Goods Act*, 1992 (TDGA).

.4 Underwriters' Laboratories of Canada (ULC)

.5 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.205-[94], Sealer for Application of Asbestos Fibre Releasing Materials.

.6 Government of Canada

.1 Canada Labour Code - Part II.

.2 Canada Occupational Health and Safety Regulations.

.7 WorkSafeBC

.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" (2012 Edition).

.8 The current version of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88).

1.5 DEFINITIONS

.1 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.

.2 Asbestos Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight (or vermiculite insulation materials with any asbestos) and are identified under Existing Conditions including fallen materials and settled dust.

.3 Asbestos Work Area: area where work takes place which will, or may disturb ACMs.

.4 Authorized Visitors: Departmental Representative, and representatives of regulatory agencies.

.5 Competent worker: in relation to specific work, means a worker who:

.1 Is qualified because of knowledge, training and experience to perform the work.

.2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.

.3 Has knowledge of all potential or actual danger to health or safety in the work.

.6 Friable Materials: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.7 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any dimension at 99.97% efficiency.

.8 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.9 Occupied Area: any area of building or work site that is outside Asbestos Work Area.

.10 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.

.11 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope of work.

1.6 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of asbestos containing waste in accordance with requirements of authority having jurisdiction.

.3 Submit Provincial and/or local requirements for Notice of Project Form.

.4 Submit proof of Contractor's Asbestos Liability Insurance.

.5 Submit to Departmental Representative necessary permits for transportation and disposal of asbestos containing waste and proof that asbestos containing waste has been received and properly disposed.

.6 Submit proof that all asbestos workers and/or supervisor have received appropriate training from a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing. Instruction and training related to respirators includes, at minimum:

- .1 Fitting of equipment.
- .2 Inspection and maintenance of equipment.
- .3 Disinfecting of equipment.
- .4 Limitations of equipment.

.7 Submit proof that supervisory personnel have attended asbestos abatement course, of not less than two days duration.

.8 Submit Worker's Compensation Board status and transcription of insurance.

.9 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:

- .1 Encapsulants.
- .2 Amended water.
- .3 Slow drying sealer.

.10 Submit proof satisfactory to Departmental Representative that employees have respirator fitting and testing. Workers must be fit tested with respirator that is personally issued.

1.7 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at the time work is performed.

.2 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 33 - Health and Safety Requirements.

.2 Safety Requirements: worker and visitor protection.

.1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:

.1 Full-facepiece powered, air purifying respirator with N-100, R-100 or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.

.2 Disposable type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing to consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing. It includes suitable footwear, and it to be repaired or replaced if torn.

.3 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.4 Before leaving Asbestos Work Area, the worker can decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the work area frequently and at regular intervals.

.5 Ensure workers wash hands and face when leaving Asbestos Work Area.

.6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

.7 Visitor Protection:

.1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.

.3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 02 81 01 - Hazardous Materials.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal packaging material in appropriate on-site bins for recycling.

.4 Separate for reuse and recycling and place in designated containers steel, metal, and/or plastic waste.

.5 Place materials defined as hazardous or toxic in designated containers.

.6 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.7 Fold up metal banding, flatten and place in designated area for recycling.

.8 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6 mil bags or leak proof drums. Label containers with appropriate warning labels.

.9 Provide manifests describing and listing waste created. Transport containers by approved means to licenced landfill for burial.

1.9 EXISTING CONDITIONS

.1 Reports and information pertaining to ACMS to be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification in **Appendix A**, and/or are available from the Departmental Representative.

.2 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 Departmental Representative.

1.10 SCHEDULING

.1 Hours of Work: perform work during normal working hours as indicated in Contract Documents.

Part 2 Products

2.1 MATERIALS

.1 Drop and Enclosure Sheets:

.1 Polyethylene: 0.15 mm thick.

.2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.

.2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.

.3 Waste Containers: contain waste in two separate containers.

.1 Inner container: 0.15 mm thick sealable polyethylene bag.

.2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.

.3 Labelling requirements: affix preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site.

.4 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.

.5 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.

.1 Sealer: flame spread and smoke developed rating less than 50.

.6 Encapsulant: penetrating type conforming to CAN/CGSB-1.205.

Part 3 Execution

3.1 PREPARATION

.1 Do construction occupational health and safety in accordance with Section 01 35 33 - Health and Safety Requirements.

.2 Work Areas:

.1 Shut off and isolate air handling and ventilation systems to prevent fibre dispersal to other building areas during work phase. Conduct smoke tests to ensure that duct work is airtight. Seal and caulk joints and seams of active return air ducts within Asbestos Work Area.

.2 Clean proposed work areas using, where practicable, HEPA vacuum cleaning equipment. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum equipment.

.3 The spread of dust from the work area to be prevented by:

.1 Using enclosures of polyethylene or other suitable material that is impervious to asbestos (including, if the enclosure material is opaque, one or more transparent window areas to allow observation of the entire work area from outside the enclosure), if the work area is not enclosed by walls.

.2 Using curtains of polyethylene sheeting or other suitable material that is impervious to asbestos, fitted on each side of each entrance or exit from the work area.

.4 Put negative pressure system in operation and operate continuously from time first polyethylene is installed to seal openings until final completion of work including final cleanup. The system to maintain a negative air pressure, relative to the area outside the enclosed area. The system to be inspected and maintained by a competent person prior each use to ensure that there is no air leakage, and if the filter is found to be damaged or defective, it to be replaced before the ventilation system is used.

.1 Negative air units are to be dioctyl phthalate (DOP) tested on-site, prior to installation/use, with test results provided to Departmental Representative for review.

.5 Seal off openings such as corridors, doorways, windows, skylights, ducts, grilles, and diffusers, with polyethylene sheeting sealed with tape.

.6 Cover floor and wall surfaces with polyethylene sheeting sealed with tape. Cover floors first so that polyethylene extends at least 300 mm up walls then cover walls to overlap floor sheeting.

.7 Build airlocks at entrances to and exits from work areas so that work areas are always closed off by one curtained doorway when workers enter or exit.

.8 At each access to work areas install warning signs in both official languages in upper case "Helvetica Medium" letters reading as follows where number in parentheses indicates font size to be used: "CAUTION ASBESTOS HAZARD AREA (25 mm) NO UNAUTHORIZED ENTRY (19 mm) WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)".

.9 Maintain emergency and fire exits from work areas, or establish alternative exits satisfactory to Fire Commissioner of Canada and Provincial Fire Marshall Authority having jurisdiction.

.10 Where application of water is required for wetting asbestos containing materials, shut off electrical power, provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.

.11 After preparation of work areas and Decontamination Enclosure Systems, for the removal of all other asbestos containing materials, remove within work area and dispose of as contaminated waste in specified containers. Spray asbestos debris and immediate work area with amended water to reduce dust, as work progresses.

.3 Construction of Decontamination Enclosures:

.1 Build suitable framing for enclosures or use existing rooms where convenient, and line with polyethylene sheeting sealed with tape.

.2 Build curtained doorways between enclosures so that when people move through or when waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.

.4 Maintenance of Enclosures:

.1 Maintain enclosures in tidy condition.

.2 Ensure that barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

.3 Visually inspect enclosures at beginning of each working period.

.4 Use smoke methods to test effectiveness of barriers when directed by Consultant.

.5 Do not begin Asbestos Abatement work until:

.1 Arrangements have been made for disposal of waste.

.2 For wet stripping techniques, arrangements have been made for containing, filtering, and disposal of waste water.

.3 Work area[s] and decontamination enclosures are effectively segregated.

.4 Tools, equipment, and materials waste containers are on hand.

.5 Arrangements have been made for building security.

.6 Warning signs are displayed where access to contaminated areas is possible.

.7 Notifications have been completed and other preparatory steps have been taken.

3.2 SUPERVISION

.1 Minimum of one Supervisor for every ten workers is required.

.2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos-containing materials.

3.3 PROCEDURES

.1 Before removing asbestos:

.1 Prepare site.

.2 Spray asbestos material with water containing specified wetting agent, using airless spray equipment capable of providing "mist" application to prevent release of fibres. Saturate asbestos material sufficiently to wet it to substrate without causing excess dripping. Spray asbestos material repeatedly during work process to maintain saturation and to minimize asbestos fibre dispersion.

.2 Remove saturated asbestos material in small amounts. Do not allow saturated asbestos to dry out. As it is being removed pack material in sealable plastic bags 0.15 mm minimum thick and place in labelled containers for transport.

.3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination area, and store in a holding area pending removal to Unloading Room and outside. Ensure that containers are removed from holding area by workers who have entered from uncontaminated areas dressed in clean coveralls.

.4 After completion of removal work, wire brush, HEPA vacuum and/or wet-sponge surfaces from which asbestos has been removed to remove visible material.

.5 Where Departmental Representative decides complete removal of asbestos containing material is impossible due to obstructions such as structural members or major service elements, and provides written direction, encapsulate material as follows:

.1 Apply penetrating type sealer to penetrate existing sprayed asbestos surfaces uniformly to substrate.

.6 After removal of visible asbestos, and after encapsulating asbestos containing material impossible to remove, wet clean entire work area including Equipment and Access Room, and equipment used in process. After 24 hour period to allow for dust settling, wet clean these areas and objects again. During this settling period no entry, activity, or ventilation will be permitted. After second 24 hour period under same conditions, clean these areas and objects again using HEPA vacuum followed by wet cleaning. After inspection by Consultant apply continuous coat of slow drying sealer to surfaces of work area. Allow at least 16 hours with no entry, activity, ventilation, or disturbance other than operation of negative pressure units during this period.

.7 Work is subject to visual inspection and air monitoring. Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.

.8 Cleanup:

.1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.

.2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.

.3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.

.4 Seal and remove double bagged waste from site. Dispose of in accordance with requirements of Provincial and Federal authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.

.5 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.

3.4 AIR MONITORING

.1 From beginning of Work until completion of cleaning operations, Departmental Representative will take air samples inside and outside of Asbestos Work Areas in accordance with the recommendations set forth in BC Reg. 296/97 and the current version of the WorkSafeBC Manual entitled "Safe Work Practices for Handling Asbestos".

.1 Air samples will be collected and analyzed in accordance with NIOSH method 7400.

.2 Air sample results will be provided to the Contractor within 24-hours of sample collection.

.3 Analysis will be conducted by qualified persons or laboratories that take part in a documented QA/QC program for such analysis.

.2 Contractor will be notified to stop Work when airborne fibre measurements exceed 0.05 fiber/cubic centimetre (f/cc), when PPE and protection factors are considered, and to correct procedures.

.1 Additional monitoring will be conducted, where possible, to verify procedural corrections were effective.

.3 If air monitoring shows that areas outside Asbestos Work Area are contaminated as determined by the Departmental Representative, Contractor will be notified to maintain and clean these areas in same manner as that applicable to Asbestos Work Area, at no additional cost to the Contract.

.4 In instances where enclosures are used, post-abatement testing will be completed by the Departmental Representative.

.1 After Asbestos Work Area has passed visual inspection by Departmental Representative and acceptable coat of lock-down agent has been applied to surfaces within enclosure by the Contractor, and appropriate setting period has passed, Departmental Representative will perform air monitoring within Asbestos Work Area.

.1 Final air monitoring results must show fibre levels of less than 0.01 f/cc.

.2 If air monitoring results show fibre levels in excess of 0.01 f/cc, Contractor will re-clean work area and apply another acceptable coat of lock-down agent to surfaces, at no additional cost to Contract.

.3 Repeat as necessary until fibre levels are less than 0.01 f/cc, at no additional cost to Contract.

.2 Contractor will be provided with authorization to remove enclosure structures upon receipt of acceptable air sample results.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Unless otherwise determined through risk assessment conducted by a qualified person, comply with requirements of this Section when performing following Work:

.1 Removal of asbestos-containing vermiculite insulation from the attic space of Building 28, when hand removal methods are used.

1.2 SECTION INCLUDES

.1 Requirements, applicable procedures and personal protective equipment to be utilized during asbestos abatement activities as outlined herein.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 35 33 - Health and Safety Requirements

.3 Section 02 81 01 - Hazardous Materials

.4 Section 02 82 00.01 - Asbestos Abatement Minimum Precautions

.5 Section 02 82 00.02 - Asbestos Abatement Intermediate Precautions

1.4 REFERENCES

.1 Department of Justice Canada (Jus)

.1 *Canadian Environmental Protection Act*, 1999 (CEPA).

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.3 Transport Canada (TC)

.1 *Transportation of Dangerous Goods Act*, 1992 (TDGA).

.4 Underwriters' Laboratories of Canada (ULC)

.5 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.205-[94], Sealer for Application of Asbestos Fibre Releasing Materials.

.6 Government of Canada.

.1 Canada Labour Code - Part II.

.2 Canada Occupational Health and Safety Regulations.

.7 WorkSafeBC

.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" (2012 Edition)

.8 The current version of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88).

1.5 DEFINITIONS

.1 Airlock: system for permitting ingress or egress without permitting air movement between contaminated area and uncontaminated area, typically consisting of two curtained doorways at least 2 m apart.

.2 Amended Water: water with a non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.

.3 Asbestos Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight (or vermiculite insulation materials with any asbestos) and are identified under Existing Conditions including fallen materials and settled dust.

.4 Asbestos Work Areas: area where work takes place which will, or may disturb ACMs.

.5 Authorized Visitors: Departmental Representative, Consultant, and representatives of regulatory agencies.

.6 Competent worker: in relation to specific work, means a worker who:

.1 Is qualified because of knowledge, training and experience to perform the work.

.2 Is familiar with the Provincial and Federal laws and with the provisions of the regulations that apply to the work.

.3 Has knowledge of all potential or actual danger to health or safety in the work.

.7 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed as follows:

.1 Place two overlapping sheets of polyethylene over existing or temporarily framed doorway, secure each along top of doorway, secure vertical edge of one sheet along one vertical side of doorway, and secure vertical edge of other sheet along opposite vertical side of doorway.

.2 Reinforce free edges of polyethylene with duct tape and weight bottom edge to ensure proper closing.

.3 Overlap each polyethylene sheet at openings not less than 1.5 m on each side.

.8 DOP Test: testing method used to determine integrity of Negative Pressure unit using dioctyl phthalate (DOP) HEPA-filter leak test.

.9 Friable Materials: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.10 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.

.11 Negative pressure: system that extracts air directly from work area, filters such extracted air through High Efficiency Particulate Air filtering system, and discharges this air directly outside work area to exterior of building.

.1 System to maintain minimum pressure differential of 5 Pa relative to adjacent areas outside of work areas, be equipped with alarm to warn of system breakdown, and be equipped with instrument to continuously monitor and automatically record pressure differences.

.12 Non-Friable Materials: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.13 Occupied Areas: any area of building or work site that is outside Asbestos Work Area.

.14 Polyethylene sheeting sealed with tape: polyethylene sheeting of type and thickness specified sealed with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide continuous polyethylene membrane to protect underlying surfaces from water damage or damage by sealants, and to prevent escape of asbestos fibres through sheeting into clean area.

.15 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.

1.6 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Before beginning work:

.1 Obtain from appropriate agency and submit to Departmental Representative necessary permits for transportation and disposal of asbestos waste. Ensure that dump operator is fully aware of hazardous nature of material being dumped, and proper methods of disposal. Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to receive and properly dispose of asbestos waste.

.2 Submit proof satisfactory to Departmental Representative that employees have respirator fitting and testing. Workers must be fit tested with respirator that is personally issued. Submit proof that all asbestos workers and/or supervisor have received appropriate training from a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing. Instruction and training related to respirators includes, at minimum:

.1 Fitting of equipment.

.2 Inspection and maintenance of equipment.

.3 Disinfecting of equipment.

.4 Limitations of equipment.

.3 Ensure supervisory personnel have attended asbestos abatement course, of not less than two days duration. Submit proof of attendance in form of certificate.

.4 Submit layout of proposed enclosures and decontamination facilities to Departmental Representative for review.

.5 Submit Provincial and/or local requirements for Notice of Project form.

.6 Submit proof of Contractor's Asbestos Liability Insurance.

.7 Submit Worker's Compensation Board status and transcription of insurance.

.8 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including but not limited to following:

.1 Encapsulants.

.2 Amended water.

.3 Slow drying sealer.

1.7 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to asbestos, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 33 - Health and Safety Requirements.

.2 Safety Requirements: worker and visitor protection.

.1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area includes:

.1 Full-facepiece powered air purifying respirator (PAPR) with N-100, R-100 or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.

.2 Disposable type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing to consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing. It includes suitable footwear, and it to be repaired or replaced if torn. Requirements for each worker:

.1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters that have been tested as satisfactory, clean coveralls and head covers before entering Equipment and Access Rooms or Asbestos Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.

.2 Remove gross contamination from clothing before leaving work area then proceed to Equipment and Access Room and remove clothing except respirators. Place contaminated work suits in receptacles for disposal with other asbestos - contaminated materials. Leave reusable items except respirator in Equipment and Access Room. Still wearing the respirator proceed naked to showers. Using soap and water wash body and hair thoroughly. Clean outside of respirator with soap and water while showering; remove respirator; remove filters and wet them and dispose of filters in container provided for purpose; and wash and rinse inside of respirator. When not in use in work area, store work footwear in Equipment and Access Room. Upon completion of asbestos abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from work area or from Equipment and Access Room.

.3 After showering and drying off, proceed to clean change room and dress in street clothes at end of each day's work, or in clean coveralls before eating, smoking, or drinking. If re-entering work area, follow procedures outlined in paragraphs above.

.4 Enter unloading room from outside dressed in clean coveralls to remove waste containers and equipment from Holding Room of Container and Equipment Decontamination Enclosure system. Workers must not use this system as means to leave or enter work area.

.2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.3 Ensure workers are fully protected with respirators and protective clothing during preparation of system of enclosures prior to commencing actual asbestos abatement.

.4 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this Section, in both official languages.

.5 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

.6 Visitor Protection:

.1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.

.3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance Section 02 81 01 - Hazardous Materials.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal packaging material in appropriate on-site bins for recycling.

.4 Separate for reuse and recycling and place in designated containers steel, metal, and plastic waste.

.5 Place materials defined as hazardous or toxic in designated containers.

.6 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.7 Fold up metal banding, flatten and place in designated area for recycling.

.8 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6mil bags or leak proof drums. Label containers with appropriate warning labels.

.9 Provide manifests describing and listing waste created. Transport containers by approved means to licenced landfill for burial.

1.9 EXISTING CONDITIONS

.1 Reports and information pertaining to ACMS to be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification in **Appendix A**, and/or are available from the Departmental Representative.

.2 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 Departmental Representative.

1.10 SCHEDULING

.1 Hours of Work: perform work during normal working hours as indicated in Contract Documents.

Part 2 Products

2.1 MATERIALS

.1 Polyethylene: minimum 0.15 mm thick unless otherwise specified; in sheet size to minimize joints.

.2 FR polyethylene: minimum 0.15 mm thick, woven fibre reinforced fabric bonded both sides with polyethylene.

.3 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.

.4 Wetting agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether, or other material approved by Departmental Representative, mixed with water in concentration to provide adequate penetration and wetting of asbestos containing material.

.5 Waste Containers: contain waste in two separate containers.

.1 Inner container: 0.15 mm thick sealable polyethylene bag.

.2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.

.3 Labelling requirements: affix preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site. Label containers in accordance with Asbestos Regulations 29 CFR 1910.1001. Label in both official languages.

.6 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.

.7 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.

.8 Sealer: flame spread and smoke developed rating less than 50.

.9 Encapsulants: Type 1 penetrating type Class A water based conforming to CAN/CGSB-1.205 and approved by the Fire Commissioner of Canada having following characteristics:

.10 Sprayed fireproofing: ULC labelled and listed asbestos-free to provide degree of fire or thermal protection required.

Part 3 Execution

3.1 PREPARATION

.1 Do construction occupational health and safety in accordance with Section 01 35 33 - Health and Safety Requirements.

.2 SPEC NOTE: If decontamination systems enclosures and barrier systems are not indicated on drawings, Contractor to provide a proposed layout under the Submittals paragraph of this Section.

.3 Work Areas:

.1 Shut off and isolate air handling and ventilation systems to prevent fibre dispersal to other building areas during work phase. Conduct smoke tests to ensure that duct work is airtight. Seal and caulk joints and seams of active return air ducts within Asbestos Work Area.

.2 Clean proposed work areas using, where practicable, HEPA vacuum cleaning equipment. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum equipment.

.3 The spread of dust from the work area to be prevented by:

.1 Using enclosures of polyethylene or other suitable material that is impervious to asbestos (including, if the enclosure material is opaque, one or more transparent window areas to allow observation of the entire work area from outside the enclosure), if the work area is not enclosed by walls.

.2 Using curtains of polyethylene sheeting or other suitable material that is impervious to asbestos, fitted on each side of each entrance or exit from the work area.

.4 Put negative pressure system in operation and operate continuously from time first polyethylene is installed to seal openings until final completion of work including final cleanup. The system to maintain a negative air pressure, relative to the area outside the enclosed area. The system to be inspected and maintained by a competent person prior each use to ensure that there is no air leakage, and if the filter is found to be damaged or defective, it to be replaced before the ventilation system is used.

.1 Negative air units are to be dioctyl phthalate (DOP) tested on-site, prior to installation/use, with test results provided to Departmental Representative for review.

.5 Seal off openings such as corridors, doorways, windows, skylights, ducts, grilles, and diffusers, with polyethylene sheeting sealed with tape.

.6 Cover floor and wall surfaces with polyethylene sheeting sealed with tape. Cover floors first so that polyethylene extends at least 300 mm up walls then cover walls to overlap floor sheeting.

.7 Build airlocks at entrances to and exits from work areas so that work areas are always closed off by one curtained doorway when workers enter or exit.

.8 At each access to work areas install warning signs in both official languages in upper case "Helvetica Medium" letters reading as follows where number in parentheses indicates font size to be used: "CAUTION ASBESTOS HAZARD AREA (25 mm) NO UNAUTHORIZED ENTRY (19 mm) WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)".

.9 Maintain emergency and fire exits from work areas, or establish alternative exits satisfactory to Fire Commissioner of Canada and Provincial Fire Marshall Authority having jurisdiction.

.10 Where application of water is required for wetting asbestos containing materials, shut off electrical power, provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.

.11 After preparation of work areas and Decontamination Enclosure Systems, for the removal of all other asbestos containing materials, remove within work area and dispose of as contaminated waste in specified containers. Spray asbestos debris and immediate work area with amended water to reduce dust, as work progresses.

.4 Worker Decontamination Enclosure System:

.1 Worker Decontamination Enclosure System includes Equipment and Access Room, Shower Room, and Clean Room, as follows:

.1 Equipment and Access Room: build Equipment and Access Room between Shower Room and work area[s], with two curtained doorways, one to Shower Room and one to work area[s]. Install waste receptor, and storage facilities for workers' shoes and protective clothing to be reworn in work area[s]. Build Equipment and Access Room large enough to accommodate specified facilities, other equipment needed, and at least one worker allowing him /her sufficient space to undress comfortably.

.2 Shower Room: build Shower Room between Clean Room and Equipment and Access Room, with two curtained doorways, one to Clean Room and one to Equipment and Access Room. Provide one shower for every five workers. Provide constant supply of hot and cold or warm water. Provide piping and connect to water sources and drains. Pump waste water through 5 micrometre filter system before directing into drains. Provide soap, clean towels, and appropriate containers for disposal of used respirator filters.

.3 Clean Room: build Clean Room between Shower Room and clean areas outside of enclosures, with two curtained doorways, one to outside of enclosures and one to Shower Room. Provide lockers or hangers and hooks for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.

.5 Container and Equipment Decontamination Enclosure System:

.1 Container and Equipment Decontamination Enclosure System consists of Staging Area within work area, Washroom, Holding Room, and Unloading Room. Purpose of system is to provide means to decontaminate waste containers, scaffolding, waste and material containers, vacuum and spray equipment, and other tools and equipment for which Worker Decontamination Enclosure System is not suitable.

.1 Staging Area: designate Staging Area in work area for gross removal of dust and debris from waste containers and equipment, labelling and sealing of waste containers, and temporary storage pending removal to Washroom. Equip Staging Area with curtained doorway to Washroom.

.2 Washroom: build Washroom between Staging Area and Holding Room with two curtained doorways, one to Staging Area and one to Holding Room. Provide high - pressure low - volume sprays for washing of waste containers and equipment. Pump waste water through 5 micrometre filter system before directing into drains. Provide piping and connect to water sources and drains.

.3 Holding Room: build Holding Room between Washroom and Unloading Room, with two curtained doorways, one to Washroom and one to Unloading Room. Build Holding Room sized to accommodate at least two waste containers and largest item of equipment used.

.4 Unloading Room: build Unloading Room between Holding Room and outside, with two curtained doorways, one to Holding Room and one to outside.

.6 Construction of Decontamination Enclosures:

.1 Build suitable framing for enclosures or use existing rooms where convenient, and line with polyethylene sheeting sealed with tape.

.2 Build curtained doorways between enclosures so that when people move through or when waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.

.7 Maintenance of Enclosures:

.1 Maintain enclosures in tidy condition.

.2 Ensure that barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

.3 Visually inspect enclosures at beginning of each working period.

.4 Use smoke methods to test effectiveness of barriers when directed by Consultant.

.8 Do not begin Asbestos Abatement work until:

.1 Arrangements have been made for disposal of waste.

.2 For wet stripping techniques, arrangements have been made for containing, filtering, and disposal of waste water.

.3 Work area[s] and decontamination enclosures are effectively segregated.

.4 Tools, equipment, and materials waste containers are on hand.

.5 Arrangements have been made for building security.

.6 Warning signs are displayed where access to contaminated areas is possible.

.7 Notifications have been completed and other preparatory steps have been taken.

3.2 SUPERVISION

.1 Minimum of one Supervisor for every ten workers is required.

.2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos containing materials.

3.3 ASBESTOS REMOVAL

.1 Before removing asbestos:

.1 Prepare site.

.2 Spray asbestos material with water containing specified wetting agent, using airless spray equipment capable of providing "mist" application to prevent release of fibres. Saturate asbestos material sufficiently to wet it to substrate without causing excess dripping. Spray asbestos material repeatedly during work process to maintain saturation and to minimize asbestos fibre dispersion.

.2 Remove saturated asbestos material in small sections. Do not allow saturated asbestos to dry out. As it is being removed pack material in sealable plastic bags 0.15 mm minimum thick and place in labelled containers for transport.

.3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom, and store in Holding Room pending removal to Unloading Room and outside. Ensure that containers are removed from Holding Room by workers who have entered from uncontaminated areas dressed in clean coveralls.

.4 After completion of removal work, wire brush, HEPA vacuum and/or wet-sponge surfaces from which asbestos has been removed to remove visible material.

.5 Where Departmental Representative decides complete removal of asbestos containing material is impossible due to obstructions such as structural members or major service elements, and provides written direction, encapsulate material as follows:

.1 Apply penetrating type sealer to penetrate existing sprayed asbestos surfaces uniformly to substrate.

.6 After removal of visible asbestos, and after encapsulating asbestos containing material impossible to remove, wet clean entire work area including Equipment and Access Room, and equipment used in process. After 24 hour period to allow for dust settling, wet clean these areas and objects again. During this settling period no entry, activity, or ventilation will be permitted. After second 24 hour period under same conditions, clean these areas and objects again using HEPA vacuum followed by wet cleaning. After inspection by Consultant apply continuous coat of slow drying sealer to surfaces of work area. Allow at least 16 hours with no entry, activity, ventilation, or disturbance other than operation of negative pressure units during this period.

.7 Work is subject to visual inspection and air monitoring. Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.

.8 Cleanup:

.1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.

.2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.

.3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.

.4 Seal and remove double bagged waste from site. Dispose of in accordance with requirements of Provincial and Federal authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.

.5 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.

3.4 FINAL CLEANUP

.1 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible asbestos containing particles observed during cleanup, immediately, using HEPA vacuum equipment.

.2 Place polyethylene seals, tape, cleaning material, clothing, and other contaminated waste in plastic bags and sealed labelled waste containers for transport.

.3 Include in clean-up Work areas, Equipment and Access Room, Washroom, Shower Room, and other contaminated enclosures.

.4 Include in clean-up sealed waste containers and equipment used in Work and remove from work areas, via Container and Equipment Decontamination Enclosure System, at appropriate time in cleaning sequence.

.5 Conduct final check to ensure that no dust or debris remains on surfaces as result of dismantling operations and carry out air monitoring again to ensure that asbestos levels in building do not exceed 0.01 fibres/cc. Repeat cleaning using HEPA vacuum equipment, or wet cleaning methods where feasible, in conjunction with sampling until levels meet this criteria.

.6 As work progresses, and to prevent exceeding available storage capacity on site, remove sealed and labelled containers containing asbestos waste and dispose of to authorized disposal area in accordance with requirements of disposal authority. Ensure that each shipment of containers transported to dump is accompanied by Contractor's representative to ensure that dumping is done in accordance with governing regulations.

3.5 AIR MONITORING

.1 From beginning of Work until completion of cleaning operations, Departmental Representative will take air samples inside and outside of Asbestos Work Areas in accordance with the recommendations set forth in BC Reg. 296/97 and the current version of the WorkSafeBC Manual entitled "Safe Work Practices for Handling Asbestos".

.1 Air samples will be collected and analyzed in accordance with NIOSH method 7400.

.2 Air sample results will be provided to the Contractor within 24-hours of sample collection.

.3 Analysis will be conducted by qualified persons or laboratories that take part in a documented QA/QC program for such analysis.

.2 Contractor will be notified to stop Work when airborne fibre measurements exceed 0.05 fiber/cubic centimetre (f/cc), when PPE and protection factors are considered, and to correct procedures.

.1 Additional monitoring will be conducted, where possible, to verify procedural corrections were effective.

.3 If air monitoring shows that areas outside Asbestos Work Area are contaminated as determined by the Departmental Representative, Contractor will be notified to maintain and clean these areas in same manner as that applicable to Asbestos Work Area, at no additional cost to the Contract.

.4 In instances where enclosures are used, post-abatement testing will be completed by the Departmental Representative.

.1 After Asbestos Work Area has passed visual inspection by Departmental Representative and acceptable coat of lock-down agent has been applied to surfaces within enclosure by the Contractor, and appropriate setting period has passed, Departmental Representative will perform air monitoring within Asbestos Work Area.

.1 Final air monitoring results must show fibre levels of less than 0.01 f/cc.

.2 If air monitoring results show fibre levels in excess of 0.01 f/cc, Contractor will re-clean work area and apply another acceptable coat of lock-down agent to surfaces, at no additional cost to Contract.

.3 Repeat as necessary until fibre levels are less than 0.01 f/cc, at no additional cost to Contract.

.2 Contractor will be provided with authorization to remove enclosure structures upon receipt of acceptable air sample results.

3.6 INSPECTION

.1 Perform inspection of Asbestos Work Area to confirm compliance with specification and governing authority requirements. Deviation[s] from these requirements that have not been approved in writing by Departmental Representative may result in Work stoppage, at no cost to Owner.

.2 Consultant will inspect Work for:

.1 Adherence to specific procedures and materials.

.2 Final cleanliness and completion.

.3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

.3 When asbestos leakage from Asbestos Work Area has occurred or is likely to occur Departmental Representative may order Work shutdown.

.1 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

END OF SECTION

Appendix 1

MAIN CENTER

Building 28 – Poultry House and Offices

One Team. Infinite Solutions.

Stantec

5.0 FINDINGS – BUILDING 28 POULTRY HOUSE AND OFFICES

Building 28 Poultry House and Offices was reportedly constructed in 1950.

Stantec understands that the plan for Building 28 Poultry House and Offices is continued operations and maintenance in accordance with applicable regulations.

The results of the assessment for each of the considered hazardous materials within Building 28 Poultry House and Offices are provided in the following sub-sections.

Floor plan drawings for Building 28 Poultry House and Offices, 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 Asbestos

Stantec identified and sampled various suspected ACMs, including the following:

- Acoustic ceiling tiles
- Drywall joint compound
- Vinyl floor tile
- Floor tile mastic
- Building paper
- Vermiculite insulation.

26 samples of the above-noted suspected ACMs were collected and submitted to EMSL and Wes-Har for analysis of asbestos content and nature. A summary of the sample types, locations and analytical results is presented in Table 28-5.1.1, below. Copies of the certificates of analysis provided by EMSL and Wes-Har for the suspected ACM samples submitted are attached at the end of this Appendix.

It should be noted that several bulk samples of floor tile were further separated into layers during laboratory analysis.

Table 28-5.1.1: Suspected ACM Sample Collection and Analysis Summary
Building 28 Poultry House and Offices
Pacific Agri-Food Research Centre (Main Centre)

Sample Number	Material Description	Sample Location	PLM Result (% and Type of Asbestos)
A-28-DJC-01A	Drywall joint compound	South office area	None Detected
A-28-DJC-01B	Drywall joint compound	South office area	None Detected
A-28-DJC-01C	Drywall joint compound	South office area	None Detected
A-28-DJC-01D	Drywall joint compound	South office area	None Detected

Sample Number	Material Description	Sample Location	PLM Result (% and Type of Asbestos)
A-28-DJC-01E	Drywall joint compound	South office area	None Detected
A-28-FT-01A-Floor Tile	**Floor tile 9"x9" tan**	**South office area washroom**	**8% Chrysotile**
A-28-FT-01A-Mastic	Floor tile mastic	South office area washroom	None Detected
A-28-FT-01B-Floor Tile	**Floor tile 9"x9" tan**	**South office area washroom**	**Stop Positive**
A-28-FT-01B-Mastic	Floor tile mastic	South office area washroom	None Detected
A-28-FT-01C-Floor Tile	**Floor tile 9"x9" tan**	**South office area washroom**	**Stop Positive**
A-28-FT-01C-Mastic	Floor tile mastic	South office area	None Detected
A-28-CT-01A	Ceiling tile Small fissure and pinhole	South office area	None Detected
A-28-CT-01B	Ceiling tile Small fissure and pinhole	South office area	None Detected
A-28-CT-01C	Ceiling tile Small fissure and pinhole	South office area	None Detected
A-28-CT-02A	Ceiling tile Large fissure and pinhole	South office area	None Detected
A-28-CT-02B	Ceiling tile Large fissure and pinhole	South office area	None Detected
A-28-CT-02C	Ceiling tile Large fissure and pinhole	South office area	None Detected
A-28-BP-01A	Building Paper Black	South office area	None Detected
A-28-BP-01B	Building Paper Black	South office area	None Detected
A-28-BP-01C	Building Paper Black	South office area	None Detected
A-28-VERM-01A	**Vermiculite insulation**	**North attic space**	**Asbestiform Amphibole Present**
A-28-VERM-01B	**Vermiculite insulation**	**North attic space**	**Stop Positive (Not Analyzed)**
A-28-VERM-01C	**Vermiculite insulation**	**South attic space**	**Stop Positive (Not Analyzed)**

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 28-5.1.2, below were identified as ACMs.

Table 28-5.1.2: Summary of Identified ACMs
Building 28 Poultry House and Offices
Pacific Agri-Food Research Centre (Main Centre)

Identified ACM Description and Condition Information		Photo
9"x9" tan floor tile – present in the South office area washroom		
Friability	Non-Friable	
Condition	Good	
Access	A	
Vermiculite insulation – present in the attic space		
Friability	Friable	
Condition	Good	
Access	Attic – C	

5.2 Lead

Lead is expected to be present in the following materials:

- Solder used on copper domestic pipes
- Caulking on bell fittings for cast iron drainage pipes
- Electrical equipment (i.e. batteries for emergency lighting/signage).

With respect to paint, 5 paint chip samples were obtained, where suspected LCPs were observed. A summary of the sample types, locations and analytical results is presented in Table 28-5.2.1, below.

A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

Table 28-5.2.1: Suspected LCP Sample Collection and Analysis Summary
Building 28 Poultry House and Offices
Pacific Agri-Food Research Centre (Main Centre)

Sample No.	Sample Location	Sample Colour	Lab Result (ppm)	Lead Containing (Yes/No)
P-28-01	**Exterior walls**	**White**	**610**	**Yes**
P-28-02	**Walls and ceiling of S office area**	**Beige**	**2,600**	**Yes**
P-28-03	Floors of E wing	Grey	<270	No
P-28-04	**Walls and ceilings of barn area**	**White**	**2,200**	**Yes**
P-28-05	Walls in new addition	White	<90	No

Based on our observations and on our interpretations of suspected LCP sample analytical results, the materials presented in Table 28-5.2.2, below were identified as LCPs.

Table 28-5.2.2: Summary of Identified LCPs
Building 28 Poultry House and Offices
Pacific Agri-Food Research Centre (Main Centre)

Identified LCP Description	Photo
White paint on exterior walls. This paint was observed to be in good condition (minimal bubbling, flaking or peeling).	

Identified LCP Description	Photo
Beige paint on the walls and ceilings of the South office area. This paint was observed to be in good condition (minimal bubbling, flaking or peeling).	
White paint on the walls and ceilings of the barn area. This paint was observed to be in good condition (minimal bubbling, flaking or peeling).	

5.3 Polychlorinated Biphenyls

Approximately 24 fluorescent light fixtures were observed. Based on the reported construction era of the building, the ballasts within the fixtures may be PCB-containing.

5.4 Mercury

Seven (7) mercury-containing wall-mounted thermostats were observed.

In addition to the above, mercury vapour may be present within fluorescent light tubes throughout and high intensity discharge lights on the exterior.

5.5 Equipment with Radioactive Components

Heat/smoke detection devices suspected to contain radioactive components were observed.

5.6 Mould

No suspect mould was observed.

6.0 RECOMMENDATIONS TO ADDRESS IDENTIFIED ISSUES – BUILDING 28 POULTRY HOUSE AND OFFICES

The recommendations pertaining to those hazardous building materials identified to be in non-compliant condition within Building 28 Poultry House and Offices are provided in the following sub-sections. General recommendations pertaining to managing identified hazardous building materials in good condition are provided in the main body of this report.

6.1 Asbestos

Identified ACMs were observed to be in good condition and can be managed in place. No specific recommendations have been developed.

6.2 Lead

Identified lead-containing materials and LCPs were observed to be in good condition. No specific recommendations have been developed.

6.3 Polychlorinated Biphenyls

Although fluorescent lamp ballasts may contain PCBs, no further action is currently required until such time that renovation or demolition activities are to be conducted, or until 2025, when PCB-containing items will require removal and disposal.

6.4 Mercury

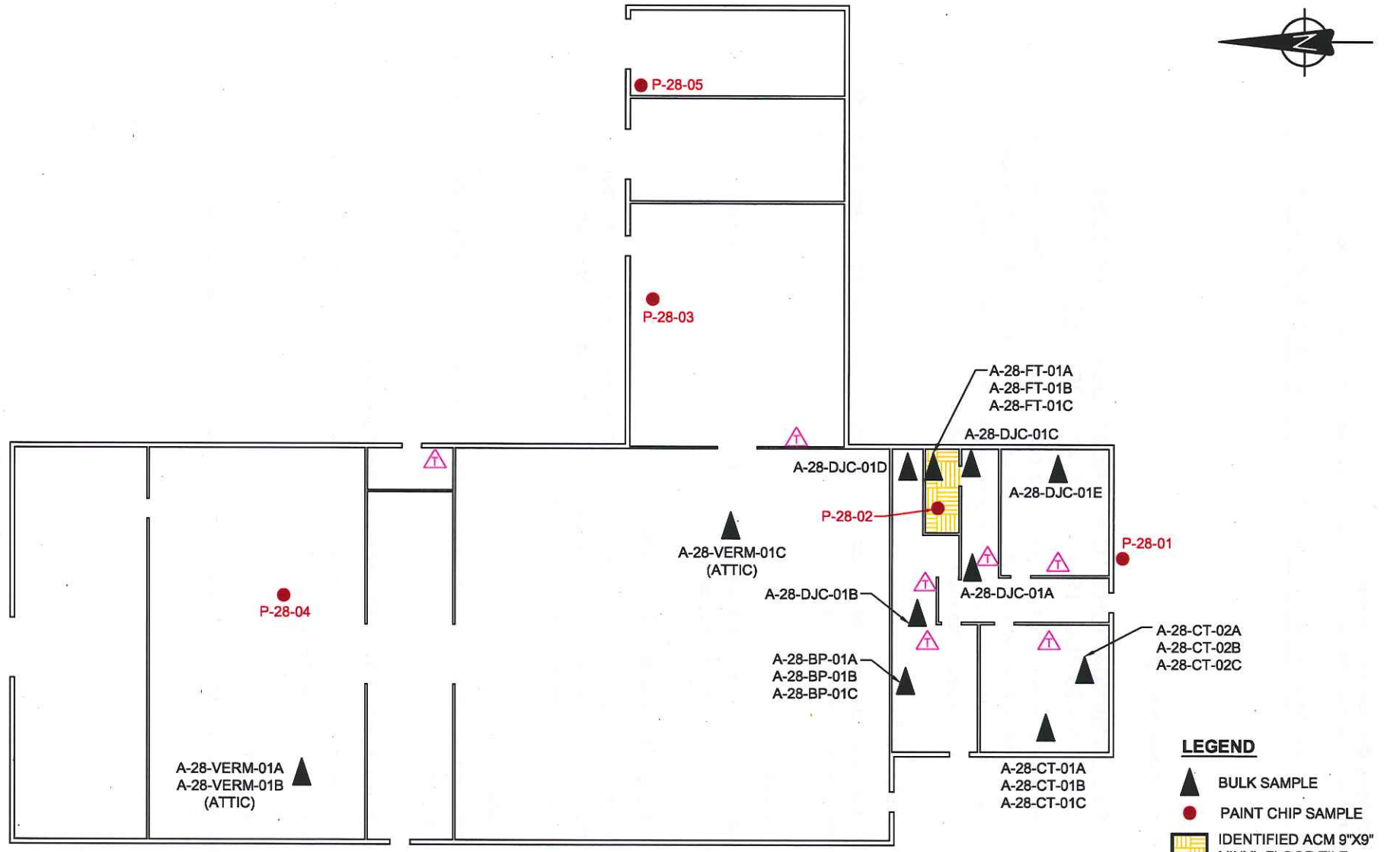
Mercury-containing items that would require action were not observed. No specific recommendations have been developed.

6.5 Equipment with Radioactive Components

Equipment suspected to contain radioactive components can be managed in place. No specific recommendations have been developed.

6.6 Mould

No suspect mould was observed. No specific recommendations have been developed.



NOTES: 1. **IDENTIFIED ACM VERMICULITE INSULATION IS PRESENT IN THE ATTIC SPACE.**
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 MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 28 POULTRY HOUSE AND OFFICES

PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/11/23
Dwn. By:	CD CS SL2012110322
App'd By:	SB

Dwg. No.: 1

Stantec

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CustomerID:	55JACQ30L
CustomerPO:	123710520
ProjectID:	

Attn: **Zack Kranjec**
Stantec Consulting, Ltd.
1100- 111 Dunsmuir Street
Vancouver, BC V6B 6A3

Phone: (604) 696-8272
Fax:
Received: 10/09/12 11:11 AM
Analysis Date: 10/11/2012
Collected:

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-28-DJC-01A *551204592-0148*	South office area - drywall joint compound	Gray/White Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	**None Detected**
A-28-DJC-01B *551204592-0149*	South office area - drywall joint compound	Gray/White Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (other)	**None Detected**
A-28-DJC-01C *551204592-0150*	South office area - drywall joint compound	Gray/White Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	**None Detected**
A-28-DJC-01D *551204592-0151*	South office area - drywall joint compound	Gray/White Fibrous Heterogeneous	3% Cellulose	97% Non-fibrous (other)	**None Detected**
A-28-DJC-01E *551204592-0152*	South office area - drywall joint compound	White Non-Fibrous Homogeneous	<1% Cellulose <1% Glass	100% Non-fibrous (other)	**None Detected**
A-28-FT-01A-Floor Tile *551204592-0153*	South office area - floor tile 9x tan	Tan Fibrous Homogeneous		92% Non-fibrous (other)	**8% Chrysotile**
A-28-FT-01A-Mastic *551204592-0153A*	South office area - floor tile 9x tan	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
A-28-FT-01B-Floor Tile *551204592-0154*	South office area - floor tile 9x tan				**Stop Positive (Not Analyzed)**

Analyst(s)
Orlando J. Ivey II (12)
Ryan Shannon (6)

Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Ann Arbor, MI

Initial report from 10/16/2012 14:02:10

EMSL Canada Inc.
10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
Phone/Fax: 289-997-4602 / (289) 997-4607
http://www.emsl.com torontolab@emsl.com

EMSL Canada Or	551204592
CustomerID:	55JACQ30L
CustomerPO:	123710520
ProjectID:	

Attn: **Zack Kranjec**
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1100- 111 Dunsmuir Street
Vancouver, BC V6B 6A3

Phone: (604) 696-8272
Fax:
Received: 10/09/12 11:11 AM
Analysis Date: 10/11/2012
Collected:

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**		**% Type**
A-28-FT-01B-Mastic *551204592-0154A*	South office area - floor tile 9x tan	Black Fibrous Homogeneous	2%	Cellulose	98%	Non-fibrous (other)	**None Detected**
A-28-FT-01C-Floor Tile *551204592-0155*	South office area - floor tile 9x tan						**Stop Positive (Not Analyzed)**
A-28-FT-01C-Mastic *551204592-0155A*	South office area - floor tile 9x tan	Black Non-Fibrous Homogeneous	<1%	Cellulose	100%	Non-fibrous (other)	**None Detected**
A-28-CT-01A *551204592-0156*	South office area - ceiling tile small fissure and pinhole	Gray/White Fibrous Homogeneous	15% 45%	Cellulose Min. Wool	40%	Non-fibrous (other)	**None Detected**
A-28-CT-01B *551204592-0157*	South office area - ceiling tile small fissure and pinhole	Gray/White Fibrous Homogeneous	10% 45%	Cellulose Min. Wool	45%	Non-fibrous (other)	**None Detected**
A-28-CT-01C *551204592-0158*	South office area - ceiling tile small fissure and pinhole	Gray Fibrous Homogeneous	50% 30%	Cellulose Min. Wool	20%	Non-fibrous (other)	**None Detected**
A-28-CT-02A *551204592-0159*	South office area - ceiling tile large fissure and pinhole	Gray/Beige Fibrous Homogeneous	10% 45% 7%	Cellulose Min. Wool Wollastonite	38%	Non-fibrous (other)	**None Detected**

Analyst(s)

Orlando J. Ivey II (12)
Ryan Shannon (6)

Kevin Pang
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Ann Arbor, MI

Initial report from 10/16/2012 14:02:10

EMSL Canada Inc.
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Phone: (604) 696-8272
Fax:
Received: 10/09/12 11:11 AM
Analysis Date: 10/11/2012
Collected:

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos			Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
A-28-CT-02B *551204592-0160*	South office area - ceiling tile large fissure and pinhole	Gray/White Fibrous Homogeneous	5% Cellulose 50% Min. Wool 4% Wollastonite		41% Non-fibrous (other)	**None Detected**
A-28-CT-02C *551204592-0161*	South office area - ceiling tile large fissure and pinhole	Gray/Red Fibrous Homogeneous	15% Cellulose 60% Min. Wool 3% Wollastonite		22% Non-fibrous (other)	**None Detected**
A-28-BP-01A *551204592-0162*	South office area - building paper black	Brown/Black/Pink Fibrous Homogeneous	15% Glass 55% Cellulose		30% Non-fibrous (other)	**None Detected**
A-28-BP-01B *551204592-0163*	South office area - building paper black	Brown/Black/Pink Fibrous Homogeneous	70% Cellulose 15% Glass		15% Non-fibrous (other)	**None Detected**
A-28-BP-01C *551204592-0164*	South office area - building paper black	Brown/Black/Pink Fibrous Heterogeneous	90% Cellulose 3% Glass		7% Non-fibrous (other)	**None Detected**

Analyst(s)
Orlando J. Ivey II (12)
Ryan Shannon (6)

Kevin Pang
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Ann Arbor, MI

Initial report from 10/16/2012 14:02:10

Wes-Har Asbestos Analysis & Consulting Ltd.

Bulk Asbestos in Vermiculite Report

For Stantec Consulting Ltd. [Vancouver]
#1100 - 111 Dunsmuir S
Vancouver, BC Canada V6B 6A3

Location : 1237-10520

Project : 1237-10520

12188	10520	Sample Location / Description	Result(s)	Analyzed	Analyst	ACM
5	A2801A	Vermiculite, Building 28, North Attic	DNQ Asbestiform Amphibole DNQ Vermiculite DNQ Non-fibrous	Oct 10 2012	GN	.T.

Comments

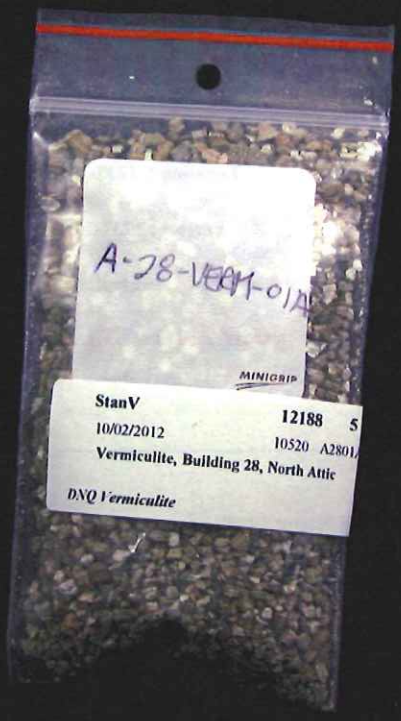
Fibrous / Mineral Components Analyzed In Accordance With The NIOSH ASBESTOS (bulk) by PLM Method 9002 [15 August 1994]
Research Method for Sampling and Analysis of Fibrous Amphibole in Vermiculite Attic Insulation EPA/600/R-04/004 January 2004
Detection Limit for Asbestiform Amphibole 'Rapid Screening' is less than 0.01 % (by weight) , Dependant on Original Sample Size
ACM Means - Asbestos Containing Material; T - Present
LP Means - Precent : Layer or Phase of Whole Sample.
DNQ Means - Detected Not Quantitated
< Means - Less Than
Samples Submitted Will Be Retained For 30 Days After Receipt And Will Be Disposed Of Thereafter Unless Otherwise Notified In Writing
Sample Submitted By Stantec Consulting Ltd. [Vancouver]

October 10, 2012 [Facsimile]

G. Nawrocki
Analyst

G. Nawrocki
Reviewed By

123710520 Vermiculite Insulation
A-28-VERM-01A North Attic
Building 28
wh12188 . 5

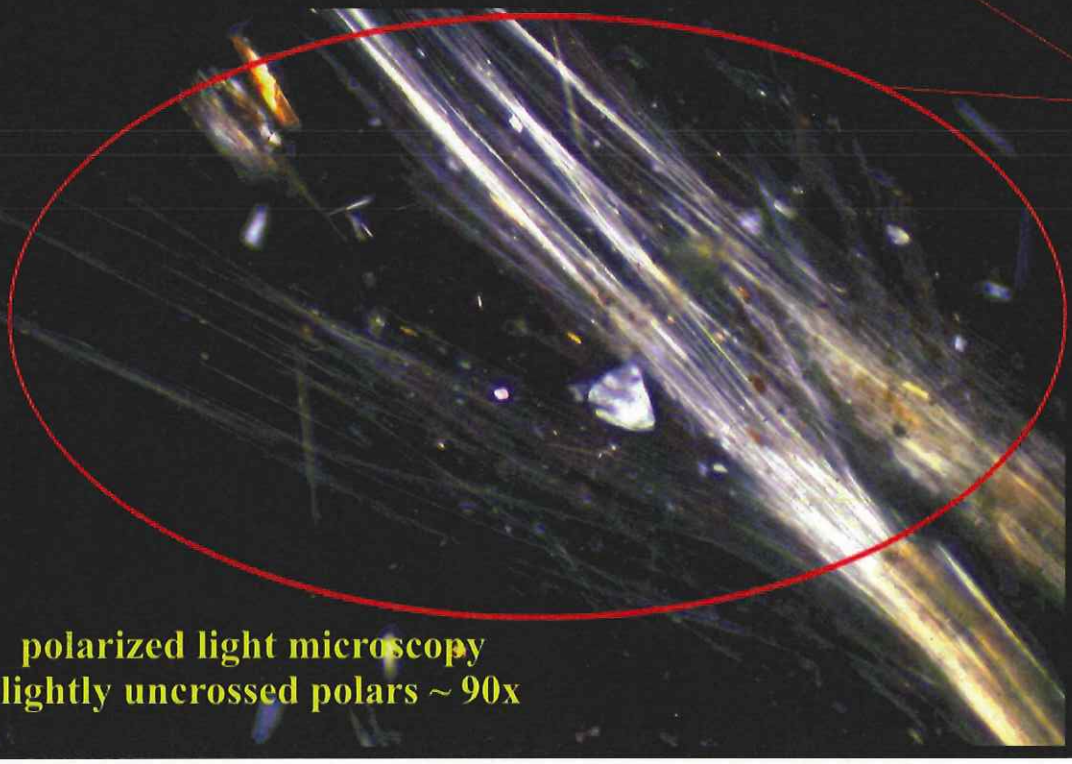


submitted sample

stereo binocular microscopy ~ 15x

washed & sieved

asbestos fibres
[asbestiform amphiboles]



polarized light microscopy
slightly uncrossed polars ~ 90x

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EMSL Canada Or	551204520
CustomerID:	55JACQ30L
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Phone: (604) 696-8272
Fax:
Received: 10/02/12 11:21 AM
Collected:

Project: **123710520**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
P-28-01	*0017*		10/3/2012	610 ppm
	Site: EXTERIOR WALLS Desc: WHITE COLOUR PAINT			
P-28-02	*0018*		10/3/2012	2600 ppm
	Site: WALLS & CEILING Desc: RED COLOUR PAINT			
P-28-03	*0019*		10/3/2012	<270 ppm
	Site: FLOORS Desc: GREY COLOUR PAINT INSUFFICIENT SAMPLE TO REACH REPORTING LIMIT.			
P-28-04	*0020*		10/3/2012	2200 ppm
	Site: WALLS & CEILINGS Desc: WHITE YELLOW COLOUR PAINT			
P-28-05	*0021*		10/3/2012	<90 ppm
	Site: WALLS IN NEW ADDITION Desc: WHITE BROWN COLOUR PAINT			

Kevin Pang
or other approved signatory

Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. * slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.
Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 10/12/2012 14:13:07

Appendix 2

FARM 2

Building 50 – Piggery Storage

One Team. Infinite Solutions.

Stantec

5.0 FINDINGS – BUILDING 50 PIGGERY STORAGE

Building 50 Piggery Storage was reportedly constructed in 1915 and is comprised of two structures – a Manure Storage structure and a Barn.

Stantec understands that the plan for Building 50 Piggery Storage is continued operations and maintenance in accordance with applicable regulations.

The results of the assessment for each of the considered hazardous materials within Building 50 Piggery Storage are provided in the following sub-sections.

Floor plan drawings for Building 50 Piggery Storage, 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 Asbestos

No suspected ACMs were observed, therefore no bulk samples were collected for analysis.

5.2 Lead

Lead is expected to be present in the following materials within Building 50 Piggery Storage:

- Solder used on copper domestic pipes
- Caulking on bell fittings for cast iron drainage pipes
- Electrical equipment (i.e. batteries for emergency lighting/signage).

With respect to paint, 1 paint chip sample was obtained, where a suspected LCP was observed. A summary of the sample type, location and analytical result is presented in Table 50-5.2.1, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP sample submitted is attached to this Appendix.

Table 50-5.2.1: Suspected LCP Sample Collection and Analysis Summary
Building 50 Piggery Storage
Pacific Agri-Food Research Centre (Farm 2)

Sample No.	Sample Location	Sample Colour	Lab Result (ppm)	Lead Containing (Yes/No)
P-50-01	Exterior walls	White	47,000	Yes

Based on our observations and on our interpretations of suspected LCP sample analytical results, the materials presented in Table 50-5.2.2, below were identified as LCPs.

Table 50-5.2.2: Summary of Identified LCPs
Building 50 Piggery Storage
Pacific Agri-Food Research Centre (Farm 2)

Identified LCP Description	Photo
White paint on exterior walls. This paint was observed to be in good condition (no bubbling, flaking or peeling).	

5.3 Polychlorinated Biphenyls

No fluorescent light fixtures were observed.

5.4 Mercury

No suspected mercury-containing equipment was observed.

5.5 Equipment with Radioactive Components

No equipment suspected of containing radioactive components was observed.

5.6 Mould

No suspect mould was observed.

6.0 RECOMMENDATIONS TO ADDRESS IDENTIFIED ISSUES – 50 PIGGERY STORAGE

The recommendations pertaining to those hazardous building materials identified to be in non-compliant condition within Building 50 Piggery Storage are provided in the following sub-sections. General recommendations pertaining to managing identified hazardous building materials in good condition are provided in the main body of this report.

6.1 Asbestos

No suspected ACMs were observed. No specific recommendations have been developed.

6.2 Lead

Identified lead-containing materials and LCPs were observed to be in good condition. No specific recommendations have been developed.

6.3 Polychlorinated Biphenyls

PCB-containing equipment was not identified. No specific recommendations have been developed.

6.4 Mercury

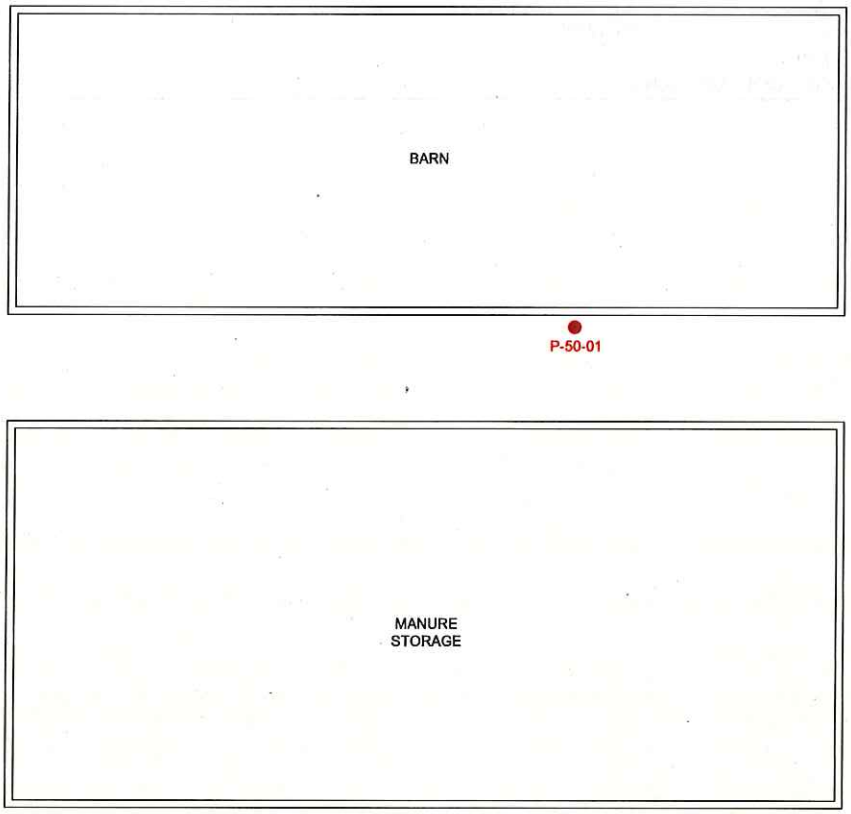
Mercury-containing items that would require action were not observed. No specific recommendations have been developed.

6.5 Equipment with Radioactive Components

Equipment suspected to contain radioactive components was not observed. No specific recommendations have been developed.

6.6 Mould

No suspect mould was observed. No specific recommendations have been developed.



LEGEND

● PAINT CHIP 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 MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 50 PIGGERY STORAGE

PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/11/23
Dwn. By:	CD CS SL2012110327
App'd By:	SB

Dwg. No.: 1

Stantec

EMSL Canada Inc.
10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
Phone/Fax: 289-997-4602 / (289) 997-4607
http://www.emsl.com torontolab@emsl.com

EMSL Canada Or	551204451
CustomerID:	55JACQ30L
CustomerPO:	123710520
ProjectID:	

Attn: **Zack Kranjec**
Stantec Consulting, Ltd.
1100- 111 Dunsmuir Street
Vancouver, BC V6B 6A3

Phone: (604) 696-8272
Fax:
Received: 10/01/12 11:49 AM
Collected:

Project: **123710520**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
P-50-01	*0018*		10/2/2012	47000 ppm
	Site: EXTERIOR			
	Desc: WHITE COLOUR PAINT			

Kevin Pang
or other approved signatory

Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. * slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.

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

Initial report from 10/12/2012 11:40:31

Appendix 3

PRE-DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT

The Piggery (Farm Structure)
6947 #7 Highway
Box 1000
Agassiz, BC, V0M 1A0

Stantec

Prepared for:
Pacific Agri-food Research Centre
6947 #7 Highway
Box 1000
Agassiz, BC, V0M 1A0

Prepared by:
Stantec Consulting Ltd.
500 - 4730 Kingsway
Burnaby, BC V5H 0C6
Tel: (604) 436-3014
Fax: (604) 436-3752

Project No.: 123220266

March 31, 2015

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Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by Pacific Agri-food Research Centre (PARC) to conduct a pre-demolition hazardous building materials assessment of the Piggery (farm structure) located at 6947 #7 Highway, Agassiz, BC (subject building)

The purpose of the project was to assess for the presence (or absence) and estimated extent of hazardous building materials within the subject building 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), prior to its proposed demolition.

The hazardous building materials considered during this assessment included asbestos-containing materials (ACMs), lead, including lead-containing paints (LCPs), polychlorinated biphenyls (PCBs) in equipment/items, mould affected building materials, mercury, ozone depleting substances (ODSs), and silica.

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

A summary of our findings and recommendations is presented below. Recommendations pertaining to the handling, removal, transportation and disposal of identified hazardous materials are provided in Section 6 of this report.

It should be noted that this summary is subject to the same restrictions and limitations as presented in Section 4 (Assessment Limitations) and Section 7 (Closure). The information provided is to be read in conjunction with the remainder of this report.

Summary of Findings
Asbestos • Vermiculite insulation present in the attic in approximately 70 garbage bags as well as scattered throughout the attic floor, through cracks and onto various areas on the ground level, is asbestos-containing.

Summary of Findings
Lead Lead containing paints (LCPs) were identified in the following locations: • White paint on exterior walls. • Green paint on exterior trim and window frames. • Blue paint on exterior trim, window frames and soffits. Leachable lead content: • Testing indicates that wastes associated with painted exterior wood materials that are generated during demolition will contain lead in dispersible form such that the leachate contains greater than 5.0 mg/L lead. Such wastes will require special disposal.
Polychlorinated Biphenyls (PCBs) • No PCB-containing equipment was observed during assessment.
Mould • The building is an outdoor structure comprised of wood, concrete and metal roof. As the structure is exposed to regular rainwater, moss and fungal growth are present on wood elements, which is typical. • It should be noted that rodent droppings, which may be contaminated with mould and other microbial organisms with adverse health effects, were present throughout subject building.
Mercury • No suspect mercury-containing equipment was observed during assessment.
Ozone-Depleting Substances (ODSs) • No equipment suspected to contain ODSs was observed during assessment.
Silica • Silica is presumed be present in the concrete foundation.

1 INTRODUCTION

Stantec Consulting Ltd. (Stantec) was retained by Pacific Agri-food Research Centre (PARC) to conduct a pre-demolition hazardous building materials assessment of a farm structure (Piggery) located at 6947 #7 Highway, Agassiz, BC (subject building)

The purpose of the project was to assess for the presence (or absence) and estimated extent of hazardous building materials within the subject building 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), prior to its proposed demolition.

The hazardous building materials considered during this assessment included asbestos-containing materials (ACMs), lead, including lead-containing paints (LCPs), polychlorinated biphenyls (PCBs) in equipment/items, mould affected building materials, mercury, ozone depleting substances (ODSs), and silica.

Site work was completed within the subject building on March 25, 2015.

2 BACKGROUND

The subject building was reportedly constructed in the early 1900's. The reported date of construction is consistent with those dates when hazardous building materials were commonly used and/or may be present including, but not limited to ACMs, LCPs, PCBs, mould, mercury, ODSs, and silica.

Stantec understands that demolition of the subject building may be proposed in the future. As a measure of diligence in maintaining compliance with federal provincial regulations pertaining to the identification of other hazardous materials within the subject building prior to demolition activities, PARC commissioned this assessment.

3 SCOPE AND METHODOLOGY

Mr. Steve Chou and Ms. Kim Wiese of Stantec conducted a visual assessment within the subject building on March 25, 2015. 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 building were visually examined to determine the suspected presence of ACMs, lead including LCPs, PCBs, mould, mercury, ODSs, and silica. Where building materials were suspected but not confirmed to contain asbestos or

lead, 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.

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, attic 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 building, 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.

Based on these criteria, multiple samples were collected from each "homogenous application" of an observed suspected ACM (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 Mississauga, Ontario for analysis of asbestos content using Polarized Light Microscopy (PLM) with dispersion staining, in accordance with the US Environmental Protection Agency (EPA) 600/R-93/116 Method "Method for the Determination of Asbestos in Bulk Building Materials". The number of samples to be 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*" (2012), along with 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 percent 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 0.5 percent in one of the samples within a set that was collected to represent a "homogenous application" of that material (or in any concentration, for vermiculite). 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 analysed.

3.1.2 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 and assessing attic spaces, floor cavities and masonry block or brick walls, which are typical areas where vermiculite is found. Where masonry or brick walls were observed, destructive assessment (drilling) was NOT conducted to assess the cavity for the presence of vermiculite.

Where vermiculite was identified, samples were and submitted to Wes-Har Asbestos Analysis and Consulting Ltd. of Richmond, British Columbia (Wes-Har) for analysis of asbestos content (presence/absence only) in accordance with the following:

- National Institute for Occupational Safety and Health (NIOSH) Analytical Method 9002 "Asbestos (bulk) by PLM" for fibrous/mineral components.
- United States Environmental Protection Agency (USEPA) method 600/R-04/004 (January 2004) "Research Method for Sampling and Analysis of Fibrous Amphibole in Vermiculite Attic Insulation".

Wes-Har is accredited through the American Industrial Hygiene Association's Bulk Asbestos Proficiency Analytical Testing (BAPAT) and Industrial Hygiene Proficiency Analytical Testing (IHPAT) programs.

3.1.3 Asbestos Sampling Quality Assurance/Quality Control

Sampling activities pertaining to asbestos were conducted in accordance with Stantec's Safe Work Practices (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.

The presence of lead-containing materials (other than paint) was assessed through visual means.

With respect to paint, the lead content of interior paint was limited to 0.5 percent by weight (equivalent to 5,000 mg/kg or ppm) in 1976 under the Federal *Hazardous Products Act*, which governs the import, export and distribution of hazardous products in Canada. In 2005, the *Hazardous Products Act* had reduced the criteria for surface coatings (including paint) to 600 mg/kg (600 ppm) to define them as "lead-containing". This criterion has since (2010) been reduced to 90 ppm.

However, with respect to potential lead exposures associated with disturbance to surfaces coated with lead-containing products, WorkSafeBC has compiled a manual titled "Lead-Containing Paint and Coatings: Preventing Exposure in the Construction Industry", (Lead Guideline) which defines a "lead-containing surface coating material" and indicates that "*...the improper removal of lead paint containing 600 mg/kg lead results in airborne lead concentrations that exceed half of the exposure limit*". As such, Stantec will reference this value (600 ppm) in defining paints as "lead-containing".

Samples of suspected LCPs were collected from major paint applications, and were collected to substrate, where possible, in sufficient quantity to conduct analyses for total lead content. Samples collected were placed into separate, sealed, and labeled polyethylene bags, and submitted to EMSL 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.

3.2.1 Building Materials – Leachable Lead Content

According to the British Columbia Hazardous Waste Regulation (BC Reg. 63/88), lead waste may be considered a toxic leachate (and require special disposal) if lead is in a dispersible form and its leachate contains greater than 5.0 milligrams per litre (mg/L) lead.

Based on the above, samples of painted building materials that were expected to be disposed of via landfill were collected in a form presumed to be representative of waste generated during demolition, each sample containing over 50 grams in weight. A sample was submitted to EMSL Analytical Inc. of Cinnaminson, NJ, USA.

Upon receipt and review of paint chip sample analytical results for total lead content (as well as the information from the North West Assessment), leachate analysis of building materials coated with identified LCPs was requested. Leachate analysis was conducted by EMSL through Toxicity Characteristic Leaching Procedure (TCLP), using US EPA Method SW846, 1311/7420.

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.

The presence of PCB-containing equipment was assessed through visual means.

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. The visible labels of ballasts in several fixtures were inspected for comparison 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 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 means and sampling. 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.

3.4.1 Mould Reference Guidelines

With respect to mould and/or moisture, the visual assessment procedures utilized and abatement scope of work developed 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: Heath 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).

3.5 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.

The presence of mercury and mercury-containing equipment was assessed through visual means.

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).

The presence of ODSs and equipment containing these materials was assessed through visual means.

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.

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.

The presence of silica was assessed through visual means.

4 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 accessible and accessed areas 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 report has been prepared for the exclusive use of the PARC for the purpose of assessing general conditions in the subject building. Any use that a third party makes 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.

The limitations of this assessment pertaining to each of the considered hazardous materials are outlined in the following sub-sections.

4.1 ASBESTOS

Due to the limitations of sampling techniques, the asbestos content of some materials within the subject building could neither be confirmed nor denied. Suspected ACMs that were not sampled include, but are not limited to, the following:

- Sub-grade materials

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 building only. The presence of lead or lead-containing materials in inaccessible areas not assessed included, but was not limited to: ceiling spaces, wall cavities and buried materials.

With respect to paint, samples of suspected LCPs were collected within the subject building 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.

Sampling for analysis of lead leachate was conducted such that materials were collected in a form presumed to be representative of waste generated during demolition. The lead leachate samples are meant to represent the general waste that would be created when painted surfaces are demolished, without having paint removed.

4.3 POLYCHLORINATED BIPHENYLS

Conclusions and recommendations regarding the presence of PCBs within the subject building 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 building.

4.4 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 building 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 building 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 building or within the impacted area(s).

This assessment does not constitute a building envelope/building systems assessment, 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.

4.5 MERCURY

Visual assessment for the presence of mercury-containing equipment within the subject building was conducted in accessible areas only. The presence of mercury or mercury-containing equipment in inaccessible areas includes, but is not limited to: ceiling spaces and wall cavities.

4.6 OZONE-DEPLETING SUBSTANCES

Visual assessment for the presence of ODSs within the subject building was conducted in accessible areas only. The presence of ODS-containing equipment in inaccessible areas including, but not limited to, ceiling spaces and wall cavities, was not assessed. 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 building was conducted in accessible areas only. The presence of potential silica-containing materials in inaccessible areas including, but not limited to, ceiling spaces and wall cavities were not assessed.

5 RESULTS

Floor plans showing bulk sample locations and locations of identified hazardous materials (where practical) are provided in **Appendix A**.

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

5.1 ASBESTOS

Stantec observed and sampled the following suspected ACMs:

- Exterior black building paper
- Exterior grey window mastic
- Stack insulation

- Vermiculite in attic
- Insulation material found in detached metal chimney stack

15 samples of the above-noted suspected ACMs were collected within the subject building and submitted to EMSL for analysis of asbestos content and nature. A summary of the sample types, locations and analytical results is presented in in **Appendix B**. Copies of the certificates of analysis provided by EMSL for the suspected ACM samples submitted are included in **Appendix C**.

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of the results of suspected ACM samples collected during this assessment, the material presented in Tables 5-1, below was identified as an ACM within the subject building.

Table 5-1: Summary of Identified ACMs, Farm Structure (Piggery), PARC, Agassiz, BC

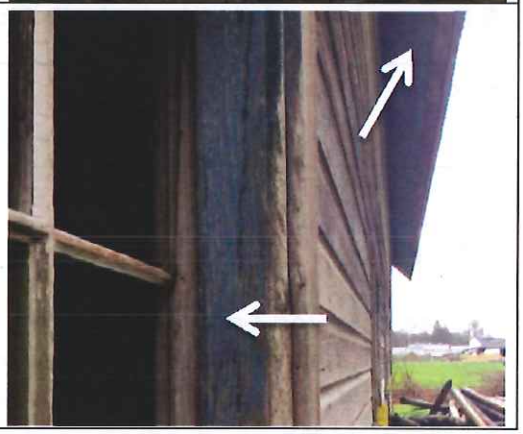
Identified ACM Description and Condition Information		Photo
Vermiculite insulation present in the attic in approximately 70 garbage bags as well as scattered throughout the attic floor, through cracks and onto various areas on the ground level		
Condition	Poor throughout. Garbage bags not sufficient packaging and dust/debris present on exterior of bags. Vermiculite debris also observed throughout attic and ground level where bags have been opened.	
% Type	Amphibole Asbestos (detected, not quantified)	
Friability	Friable	

5.2 LEAD

Stantec collected 4 paint chip samples of suspected LCPs within the subject building and submitted the samples to EMSL for analysis of lead content. A summary of the sample types, locations and analytical results is presented in **Appendix D**.A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is included in **Appendix E**.

Based on our observations and on our interpretations of suspected LCP sample analytical results, the materials presented in Table 5.2, below were identified as LCPs.

Table 5-2 Summary of Identified LCPs
Farm Structure (Piggery), PARC, Agassiz, BC

LCP Description		Photo
Paint colour	White	
Substrate	Wood	
Location/approx. extent	Exterior walls throughout	
Lead content	89,000 ppm	
Condition	Poor (bubbling, flaking and peeling)	
Paint colour	Green	
Substrate	Wood	
Location/approx. extent	Exterior trim and window frames	
Lead content	37,000 ppm	
Condition	Poor (bubbling, flaking and peeling)	
Paint colour	Blue	
Substrate	Wood	
Location/approx. extent	Exterior trim, window frame and soffits	
Lead content	28,000	
Condition	Poor (bubbling, flaking and peeling)	

5.2.1 Building Materials – Leachable Lead Content

A sample of a bulk building material that was expected to be disposed of via landfill and was coated with the major identified LCP (wood siding with white paint) was collected in a form presumed to be representative of waste generated during demolition, and was submitted to EMSL for analysis of leachable lead content. A summary of the sample type, location and analytical result is presented in Table 5-2.1, below. A copy of the certificate of analysis provided by EMSL for the suspected lead leachate sample submitted is included in **Appendix F**.

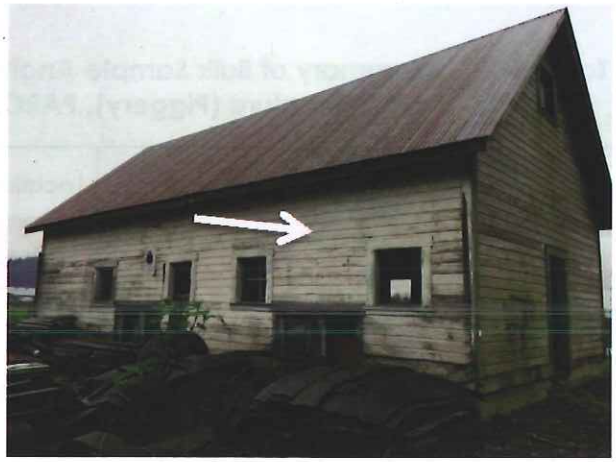
Table 5-2.1 Summary of Bulk Sample Analysed for Leachable Lead Content Farm Structure (Piggery), PARC, Agassiz, BC

Sample Number	Paint/Substrate Description	Location	Result (mg/L)
L-01	**White paint on exterior wood paneling**	**Wood paneling around entire building**	**42**

NOTE: Highlighting and bolding indicate an identified lead leachate toxic material.

As indicated above, the analytical results indicate that demolition waste from the material indicated in Table 5-2.2, below will contain lead in a dispersible form such that its leachate contains greater than 5.0 mg/L lead.

Table 5-2.2: Summary of Identified Building Materials/Paint with Leachable Lead, Farm Structure, PARC, Agassiz, BC

Identified Building Material/Paint with Leachable Lead	Photo
White colour paint on exterior wood paneling Given that the lead concentrations in other exterior paints tested are of a similar magnitude (green trim: 37,000 ppm ; blue trim: 28,000 ppm) and that the substrate is similar to that tested with the white paint (wood), and given that the wood trim materials painted with green and blue paints represent only a small portion of the overall painted wood, it should be assumed all painted exterior wood from the building will contain lead in a dispersible form that its leachate contains greater than 5.0 mg/L.	

5.3 POLYCHLORINATED BIPHENYLS

No suspected PCB-containing equipment was observed during assessment.

5.4 MOULD

The subject building is an outdoor structure comprised of wood, concrete and metal roof. As the structure is exposed to regular rainwater, moss and fungal growth are present on wood elements, which is typical.

It should be noted that rodent droppings, which may be contaminated with mould and other microbial organisms with adverse health effects, were present throughout subject building.

5.5 MERCURY

No suspected mercury-containing equipment was observed within the subject building.

5.6 OZONE-DEPLETING SUBSTANCES

No equipment suspected to contain ODSs was observed within the subject building.

5.7 SILICA

Silica is presumed to be present in the concrete foundation of the subject building.

6 RECOMMENDATIONS

The recommendations pertaining to the requirements for each of the hazardous materials included in this assessment are presented in the sub-sections below.

6.1 ASBESTOS

Identified ACMs must be removed and disposed of in accordance with the procedures outlined in the current version of the WorkSafeBC document entitled "Safe Work Practices for Handling Asbestos", by a qualified asbestos abatement contractor, prior to the onset of demolition activities that may disturb them.

If materials that are visually similar to identified ACMs are discovered within the subject building in locations not outlined in this report, these materials should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

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. Asbestos-containing cement pipe may be present below ground – caution should be used if 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

For LCPs and lead-containing materials that are to be disturbed and/or removed during demolition activities, including paint chip debris that is created during the demolition process, ensure compliance with the following:

- The occupational exposure control requirements of the Canada Labour Code and BC OH&S Reg., including the provisions of the Lead Guideline
- The disposal requirements of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88)
- The 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 BC Reg. 296/97 8-hour Occupational Exposure Limit (OEL) of 0.05 milligram per cubic metre (mg/m^3) 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.

6.2.1 Building Materials – Leachable Lead Content

It is expected that all painted exterior wood materials that are generated during demolition will contain lead in dispersible form such that the leachate contains greater than 5.0 mg/L lead. Such waste materials are considered hazardous, and must be disposed of in an appropriate landfill that will accept the waste.

All waste materials destined for landfill should be transported and disposed of in accordance with the following:

- BC Reg. 63/88
- The transportation requirements of the Federal *Transportation of Dangerous Goods Regulation*

If additional materials that are coated with LCPs are to be disposed of via landfill and were not tested as part of this assessment, additional leachate testing may be required to determine disposal options.

6.3 POLYCHLORINATED BIPHENYLS

As no PCB-containing items were identified within the subject building, no recommendations have been developed.

6.4 MOULD

When demolition within the subject building proceeds, due to the potential presence of mould and rodent droppings on building materials, and if impacted materials are to be removed by hand, demolition workers should be notified of the potential presence of mould and be provided with respiratory protection and/or other personal protective equipment (PPE) as deemed necessary for the work that they will be conducting.

Disposable protective clothing (e.g., Tyvek™ suits), respiratory protection (e.g., disposable N95 respirators or half-face air purifying respirators with HEPA or P100 cartridges) and appropriate decontamination procedures would be recommended to control exposure to particles generated by disturbance of mould-contaminated surfaces or rodent droppings, if such materials are to be disturbed by hand.

6.5 MERCURY

As no mercury-containing equipment was identified within the subject building, no recommendations have been developed.

6.6 OZONE-DEPLETING SUBSTANCES

As no ODS-containing equipment was identified within the subject building, no recommendations have been developed.

6.7 SILICA

When silica-containing materials are to be removed during demolition activities, 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/m^3). 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 CLOSURE

This report has been prepared by Stantec for the sole benefit of the Pacific Agri-food Research Centre. 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 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 conclusions presented represent the best judgment of the assessor based on current environmental, health and safety standards and the site conditions observed on the date 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 cannot warrant against undiscovered environmental liabilities. It is possible that additional, concealed hazardous materials may become evident during renovation and/or demolition activities within the subject building.

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.

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.

Steve Chou, BA, Dipl. T.
Environmental Technologist

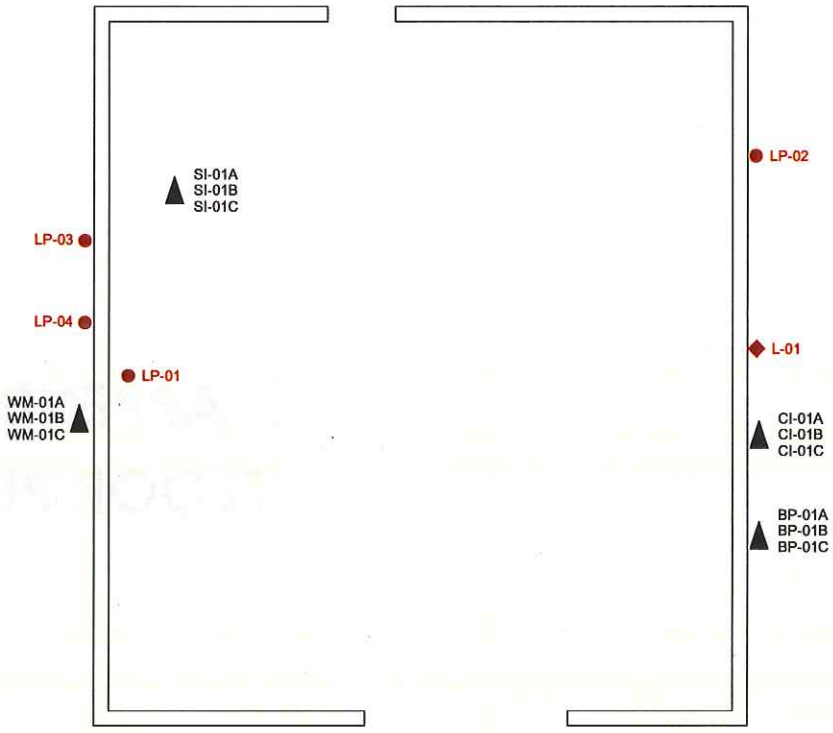
Reviewed by:

Sean Brigden, B.Sc., P.B.Dipl., CRSP
Senior Reviewer

SC/SB/nlb

\\cd1183-f04\workgroup\1231\active\ie\123220266\report\rpt_123220266_parc_hazmat_20150331.docx

APPENDIX A
FLOOR PLANS



PIGGERY BARN
MAIN FLOOR

LEGEND

- BULK SAMPLE FOR ASBESTOS
- PAINT CHIP SAMPLE FOR LEAD
- LEAD LEACHATE SAMPLE

NOTES : 1. VERMICULITE INSULATION DEBRIS 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

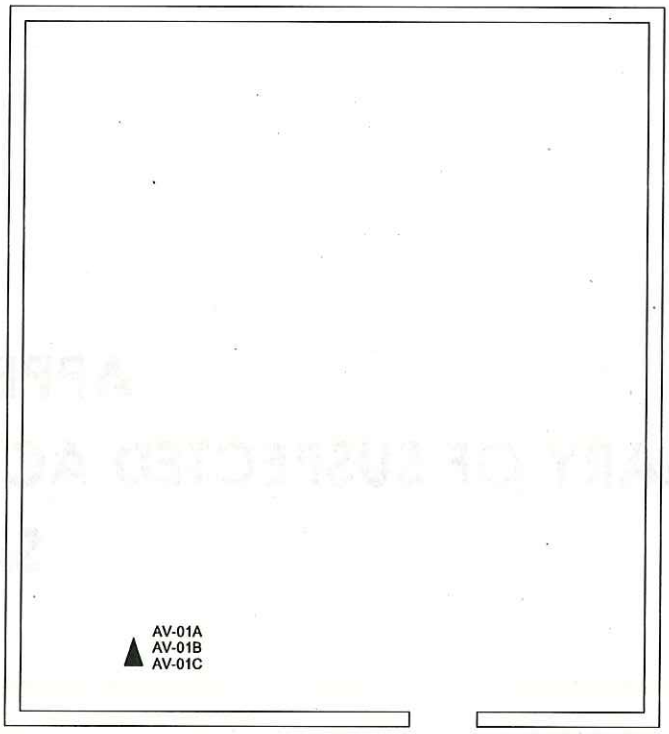
PACIFIC AGRI-FOODS RESEARCH CENTRE-AGASSIZ, BC

Client:	PACIFIC AGRI-FOODS RESEARCH CENTRE

Project No.:	123220266
Scale:	N.T.S.
Date:	15/03/31
Dwn. By:	CD VM/DM SL2015030434
App'd By:	TW

Dwg. 1

Stantec



PIGGERY BARN
ATTIC

LEGEND

▲ BULK SAMPLE FOR ASBESTOS

NOTES : 1. VERMICULITE INSULATION IN BAGS AND AS DEBRIS 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

PACIFIC AGRI-FOODS RESEARCH CENTRE-AGASSIZ, BC

Client: PACIFIC AGRI-FOODS RESEARCH CENTRE

Project No.:	123220266
Scale:	N.T.S.
Date:	15/03/31
Dwn. By:	CD SL2015030352 VM/DM
App'd By:	TW

Dwg. 2

Stantec

APPENDIX B
SUMMARY OF SUSPECTED ACM BULK SAMPLES

PRE-DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT

Appendix B: Summary of Suspected ACM Bulk Samples
March 30, 2015

Sample Number	Material Description	Sample Location	Results (Types/% Asbestos)
SI-01A	Stack insulation	East exterior wall, inside chimney penetration	None Detected
SI-01B	Stack insulation	East exterior wall, inside chimney penetration	None Detected
SI-01C	Stack insulation	East exterior wall, inside chimney penetration	None Detected
BP-01A	Black building paper	West exterior wall underneath wood panelling	None Detected
BP-01B	Black building paper	West exterior wall underneath wood panelling	None Detected
BP-01C	Black building paper	West exterior wall underneath wood panelling	None Detected
WM-01A	Grey window mastic	Around perimeter of east window frame	None Detected
WM-01B	Grey window mastic	Around perimeter of east window frame	None Detected
WM-01C	Grey window mastic	Around perimeter of east window frame	None Detected
CI-01A	Chimney insulation	Inside metal stack	None Detected
CI-01B	Chimney insulation	Inside metal stack	None Detected
CI-01C	Chimney insulation	Inside metal stack	None Detected
AV-01A	**Vermiculite**	**Black garbage bag in attic**	**Amphibole Asbestos (not quantified)**
AV-01B	**Vermiculite**	**Black garbage bag in attic**	**Amphibole Asbestos (not quantified)**
AV-01C	**Vermiculite**	**Black garbage bag in attic**	**Amphibole Asbestos (not quantified)**

APPENDIX C
CERTIFICATE OF ANALYSIS
SUSPECTED ACM SAMPLES

EMSL Canada Inc.
2756 Slough Street Mississauga, ON L4T 1G3
Phone/Fax: 289-997-4602 / (289) 997-4607
http://www.EMSL.com / torontolab@emsl.com

EMSL Canada Order 551502998
Customer ID: 55JACQ30L
Customer PO: TBA
Project ID:

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

Phone: (604) 412-3004
Fax:
Collected:
Received: 3/26/2015
Analyzed: 3/26/2015

Proj: TBA

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: SI-01A ***Lab Sample ID:*** **551502998-0001**
Sample Description: STACK INSULATION

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/26/2015	Gray	40%	60%	None Detected	

Client Sample ID: SI-01B ***Lab Sample ID:*** **551502998-0002**
Sample Description: STACK INSULATION

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/26/2015	Gray	40%	60%	None Detected	

Client Sample ID: SI-01C ***Lab Sample ID:*** **551502998-0003**
Sample Description: STACK INSULATION

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/26/2015	Gray	40%	60%	None Detected	

Client Sample ID: BP-01A ***Lab Sample ID:*** **551502998-0004**
Sample Description: EXTERIOR- BLACK BUILDING PAPER

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	3/26/2015	Brown	0.0%	100%	None Detected	

Client Sample ID: BP-01B ***Lab Sample ID:*** **551502998-0005**
Sample Description: EXTERIOR- BLACK BUILDING PAPER

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	3/26/2015	Brown	0.0%	100%	None Detected	

Client Sample ID: BP-01C ***Lab Sample ID:*** **551502998-0006**
Sample Description: EXTERIOR- BLACK BUILDING PAPER

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	3/26/2015	Brown	0.0%	100%	None Detected	

Client Sample ID: WM-01A ***Lab Sample ID:*** **551502998-0007**
Sample Description: EXTERIOR GREY WINDOW MASTIC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	3/26/2015	Tan/White	0.0%	100%	None Detected	

EMSL Canada Inc.
2756 Slough Street Mississauga, ON L4T 1G3
Phone/Fax: 289-997-4602 / (289) 997-4607
http://www.EMSL.com / torontolab@emsl.com

EMSL Canada Order 551502998
Customer ID: 55JACQ30L
Customer PO: TBA
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: WM-01B **Lab Sample ID:** 551502998-0008
Sample Description: EXTERIOR GREY WINDOW MASTIC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	3/26/2015	Tan/White	0.0%	100%	None Detected	

Client Sample ID: WM-01C **Lab Sample ID:** 551502998-0009
Sample Description: EXTERIOR GREY WINDOW MASTIC

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM Grav. Reduction	3/26/2015	Tan/White	0.0%	100%	None Detected	

Client Sample ID: CI-01A **Lab Sample ID:** 551502998-0010
Sample Description: CHIMNEY INSULATION

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/26/2015	Gray	70%	30%	None Detected	

Client Sample ID: CI-01B **Lab Sample ID:** 551502998-0011
Sample Description: CHIMNEY INSULATION

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/26/2015	Gray	70%	30%	None Detected	

Client Sample ID: CI-01C **Lab Sample ID:** 551502998-0012
Sample Description: CHIMNEY INSULATION

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	3/26/2015	Brown/Gray	70%	30%	None Detected	

Analyst(s):

Jon Delos Santos — PLM (2); PLM Grav. Reduction (2)
Nicole Dimou — PLM (4); PLM Grav. Reduction (4)

Reviewed and approved by:

Matthew Davis
or Other Approved Signatory

None Detected = <0.5%. 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. Mississauga, ON NVLAP Lab Code 200877-0

Initial report from: 03/26/201522:25:33

Wes-Har Asbestos Analysis & Consulting Ltd.

Bulk Asbestos in Vermiculite Report

For Stantec [Burnaby]
500 - 4730 Kingsway,
Burnaby, BC, V5H 0C6

Location : 6947 #7 Highway, Box 1000, Agassiz, BC

Project : TBA

14136	TBA	Sample Location / Description	Result(s)	Analyzed	Analyst	ACM
1	AV-01A	Attic Vermiculite, Barn Attic	DNQ Asbestiform Amphibole DNQ Vermiculite DNQ Non-fibrous	Mar 27 2015	GN	.T.
2	AV-01B	Attic Vermiculite, Barn Attic	DNQ Asbestiform Amphibole DNQ Vermiculite DNQ Non-fibrous	Mar 27 2015	GN	.T.
3	AV-01C	Attic Vermiculite, Barn Attic	DNQ Asbestiform Amphibole DNQ Vermiculite DNQ Non-fibrous	Mar 27 2015	GN	.T.

Comments

Fibrous / Mineral Components Analyzed In Accordance With The NIOSH ASBESTOS (bulk) by PLM Method 9002 [15 August 1994]
Research Method for Sampling and Analysis of Fibrous Amphibole in Vermiculite Attic Insulation EPA/600/R-04/004 January 2004
Detection Limit for Asbestiform Amphibole 'Rapid Screening' is less than 0.01 % (by weight) , Dependant on Original Sample Size
ACM Means - Asbestos Containing Material; T - Present
LP Means - Precent : Layer or Phase of Whole Sample.
DNQ Means - Detected Not Quantitated
< Means - Less Than
Samples Submitted Will Be Retained For 30 Days After Receipt And Will Be Disposed Of Thereafter Unless Otherwise Notified In Writing
Sample Submitted By Stantec [Burnaby]

March 27, 2015 [Facsimile]

G. Nawrocki
Analyst

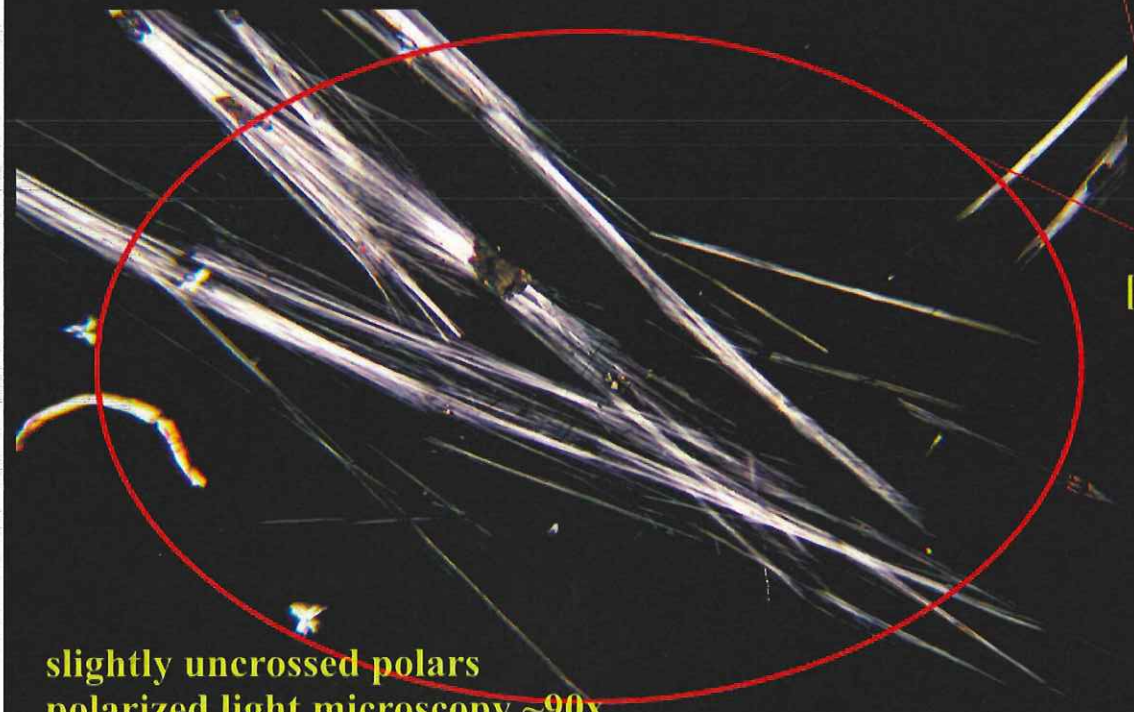
H. McKnight
Reviewed By

AV-01A 6947 #7 Highway, Box 1000
Agassiz, BC, V0M 1A0
Barn Attic, Vermiculite
14136 . 1

submitted sample

stereo binocular microscopy ~ 25x

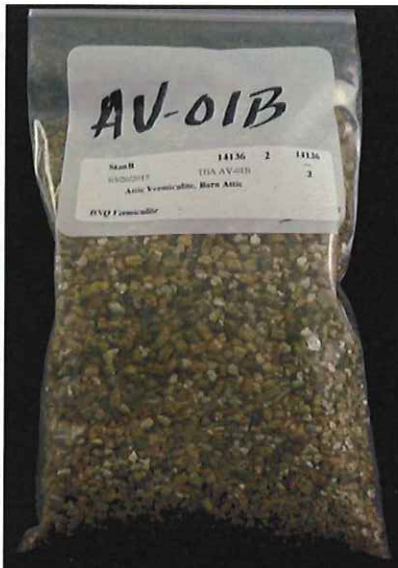
washed & sieved



asbestos fibres
[asbestiform amphiboles]

slightly uncrossed polars
polarized light microscopy ~90x

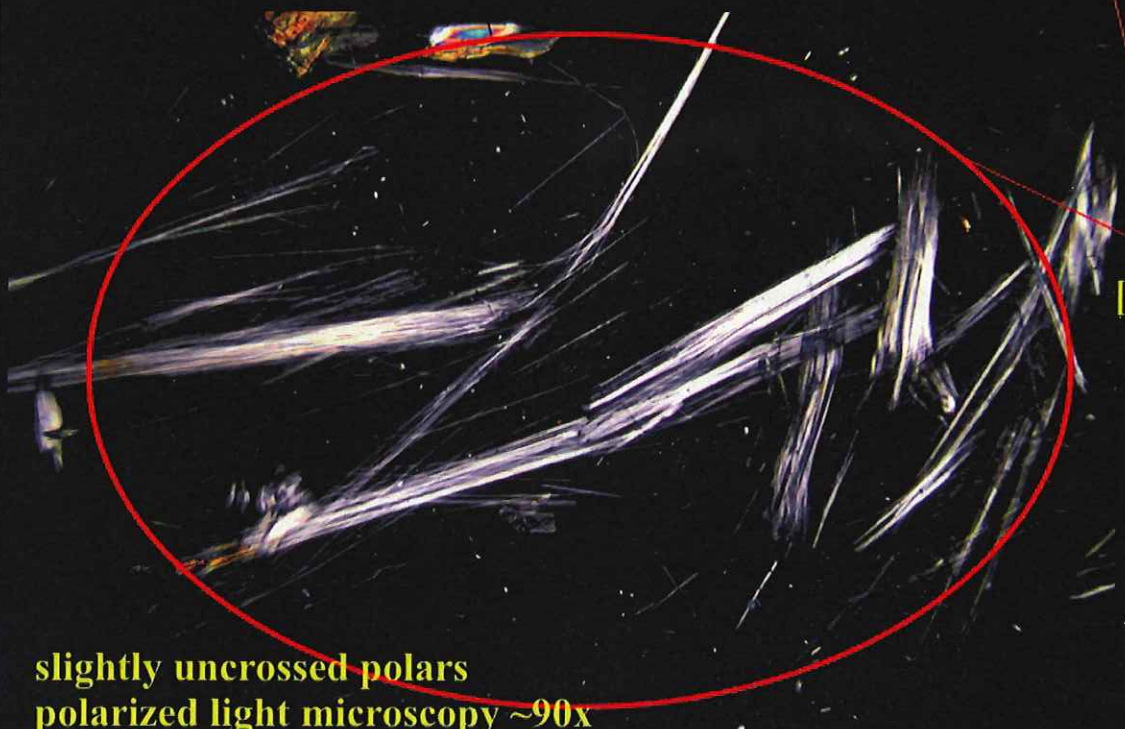
AV-01B 6947 #7 Highway, Box 1000
Agassiz, BC, V0M 1A0
Barn Attic, Vermiculite
14136 . 2



submitted sample

stereo binocular microscopy ~ 25x

washed & sieved



asbestos fibres
[asbestiform amphiboles]

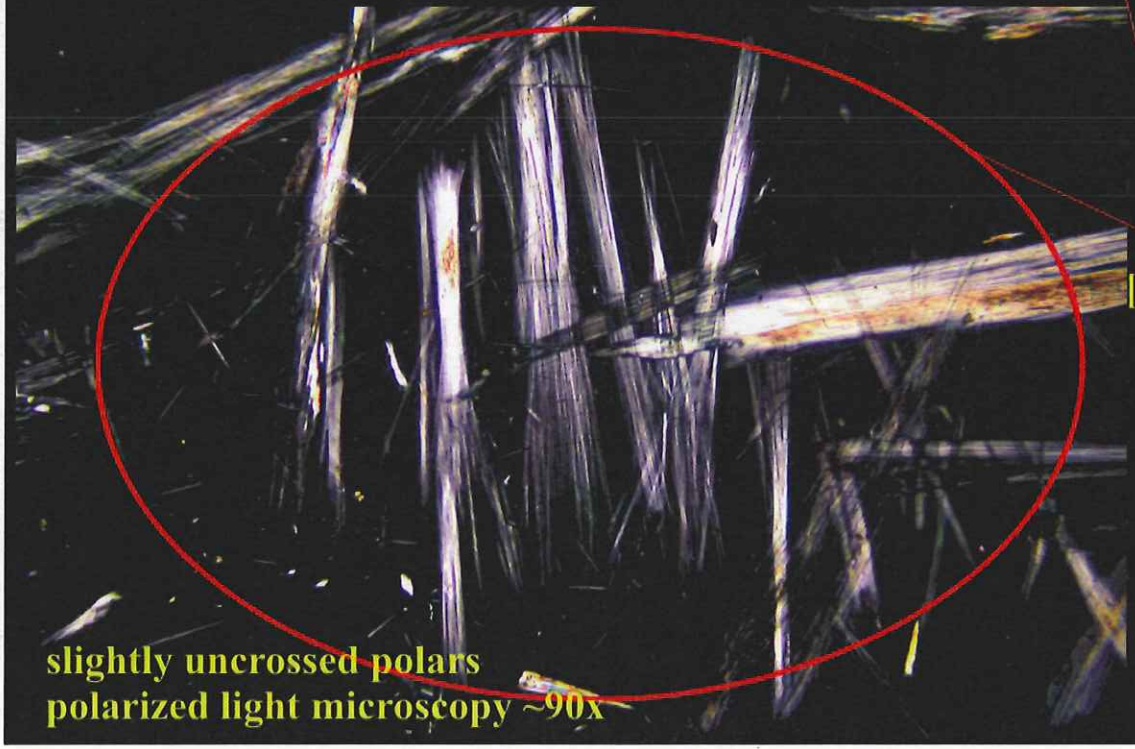
slightly uncrossed polars
polarized light microscopy ~90x

AV-01C 6947 #7 Highway, Box 1000
Agassiz, BC, V0M 1A0
Barn Attic, Vermiculite
14136 . 3

submitted sample

stereo binocular microscopy ~ 25x

washed & sieved



asbestos fibres
[asbestiform amphiboles]

slightly uncrossed polars
polarized light microscopy ~90x

APPENDIX E
CERTIFICATE OF ANALYSIS
SUSPECTED LCP SAMPLES

EMSL Canada Inc.
2756 Slough Street, Mississauga, ON L4T 1G3
Phone/Fax: 289-997-4602 / (289) 997-4607
http://www.EMSL.com torontolab@emsl.com

EMSL Canada Or	551503006
CustomerID:	55JACQ30L
CustomerPO:	123220266
ProjectID:	

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

Phone: (604) 412-3004
Fax:
Received: 03/26/15 9:37 AM
Collected:

Project: **123220266**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
LP-01	*551503006-0001*		3/26/2015	150 ppm
	Site: INTERIOR WHITE PAINT			
LP-02	*551503006-0002*		3/26/2015	89000 ppm
	Site: EXTERIOR WHITE PAINT			
LP-03	*551503006-0003*		3/26/2015	37000 ppm
	Site: EXTERIOR GREEN TRIM PAINT			
LP-04	*551503006-0004*		3/26/2015	28000 ppm
	Site: EXTERIOR BLUE TRIM PAINT			

Lisa Podzyhun
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 established by the AIHA-LAP, unless specifically indicated otherwise.

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

Initial report from 03/26/2015 18:20:46

APPENDIX F
CERTIFICATE OF ANALYSIS
LEAD LEACHATE SAMPLES

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (856) 303-2500 / (856) 786-5974
http://www.EMSL.com cinnaminsonleadlab@emsl.com

EMSL Order:	201503487
CustomerID:	JACQ30N
CustomerPO:	
ProjectID:	

Attn: **Stantec Consulting, LTD**
4370 Dominion Street
5th Floor
Burnaby, BC V5G 4L7

Phone:	(604) 436-3014
Fax:	(604) 436-3752
Received:	03/26/15 10:25 AM
Collected:	3/25/2015

Test Report: Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
L-01	*201503487-0001*	3/25/2015	3/28/2015	42 mg/L
	Site: White Exterior on Wood			

Julie Smith - Laboratory Director
NJ-NELAP Accredited:03036
or other approved signatory

The test results contained within this report meet the requirements of NELAC unless otherwise noted. This report relates only to those items tested. Samples received in good condition unless otherwise noted. Quality Control Data associated with this sample set is within acceptable limits, unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367

Initial report from 03/30/2015 12:00:23

Appendix 4

Stantec Consulting Ltd.
500 – 4720 Kingsway
Burnaby BC V5H 0C6
Tel: (604) 436-3014
Fax: (604) 436-3752

November 4, 2016
Project No.: 123220674

Attention: Amy Moizumi
Environmental Services, Pacific Region
219 – 800 Burrard Street
Vancouver, BC V6Z 0B9

VIA EMAIL: Amy.Moizumi@pwgsc-tpsgc.gc.ca

Dear Ms. Moizumi,

Reference: Hazardous Building Materials Assessment Updates – Buildings 28 and 50
Pacific Agri-Food Research Centre, Agassiz, British Columbia

Stantec Consulting Ltd. (Stantec) was retained by Public Works and Government Services Canada (PWGSC) on behalf of Agriculture and Agri-food Canada (AAFC) to update and summarize information pertaining to hazardous building materials within the following buildings (subject buildings) at the Pacific Agri-Food Research Centre in Agassiz, BC:

- Building 28 – Poultry House and Offices
- Building 50 – Piggery Storage

The intent of the project was to conduct the additional assessment and sampling necessary to appropriately update and summarize information pertaining to hazardous building materials within the subject buildings in support of initiating a project to abate (remove) identified hazardous building materials in advance of the proposed demolition of the buildings (demolition to be conducted as a separate project).

Site work associated with this supplemental report was completed within the subject buildings on September 20, 2016.

1.0 Background

Hazardous building materials were previously identified within the subject buildings as indicated in the following reports (Previous Reports):

- Stantec Report for Project No. 1237-10520 entitled *Hazardous Building Materials Assessments; Buildings of the Pacific Agri-Food Research Centre, Agassiz and Abbotsford (Clearbrook), BC* dated January, 2013 (Initial Assessment)

Reference: Hazardous Building Materials Assessment Updates – Buildings 28 and 50
Pacific Agri-Food Research Centre, Agassiz, British Columbia

- Stantec Report for Project No. 123220266 entitled *Pre-Demolition Hazardous Building Materials Assessment – The Piggery (Farm Structure) - 6947 #7 Highway, Box 1000, Agassiz, BC, V0M 1A0* dated March 31, 2015 (Building 50 Assessment)

According to the above-noted reports, the following hazardous building materials were identified:

- Building 28
  - Asbestos-containing materials (ACMs)
    - Vinyl floor tiles (9"x9" tan) in the South office area washroom
    - Vermiculite insulation present in the attic space
  - Lead, including lead-containing paints (LCPs)
    - White paint on exterior walls
    - Beige paint on the walls and ceilings of the South office area
    - White paint on the walls and ceilings of the barn area
    - Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment
  - PCBs
    - Approximately twenty-four (24) fluorescent lamp ballasts may contain PCBs.
  - Mercury
    - Seven (7) mercury-containing thermostats were observed
    - Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior
  - Equipment with Radioactive Components
    - Heat/smoke detection devices suspected to contain radioactive components were observed
- Building 50
  - ACMs
    - Vermiculite insulation present in the attic in approximately 70 garbage bags as well as scattered throughout the attic floor, through cracks and onto various areas on the ground level
  - Lead, including lead-containing paints (LCPs)
    - White paint on exterior walls
    - Green paint on exterior trim and window frames
    - Blue paint on exterior trim, window frames and soffits
  - Leachable lead content:
    - Testing indicates that wastes associated with painted exterior wood materials (siding and trim, per above) that are generated during demolition will contain lead in dispersible form such that the leachate contains greater than 5.0 mg/L lead. Such wastes will require special disposal

- PCBs
  - None identified.
- Mercury
  - None identified.
- Equipment with Radioactive Components
  - None identified.
- Silica
  - Silica may be present in the concrete foundation

As various aspects of the Previous Reports were preliminary in nature, and as conditions pertaining to contamination of materials may have changed since their production, PWGSC requested that Stantec return to the site to gather additional information such that a comprehensive project tender package could be developed that would provide sufficient detail to contractors interested in bidding on the required hazardous building materials abatement.

2.0 Scope of Work

Stantec conducted the following scope of work to provide additional information pertaining to hazardous building materials within the subject buildings:

- Visual assessment of the subject buildings for concealed materials that could not be assessed/sampled during the Previous Assessments, due to occupancy issues (where applicable)
- Collection of bulk samples of additional suspected ACMs observed, for submission to an independent laboratory for analysis of the amount and type of asbestos present (if any)
- Collection of bulk samples of building materials painted with previously identified LCPs for submission to an independent laboratory for analysis to evaluate leachability for lead, for materials that had not previously been sampled
- Visual assessment of identified hazardous building materials within the subject buildings to confirm or better delineate extent, including contamination of stored items/materials
- Evaluation and interpretation of results and observations to provide an updated summary of identified hazardous building materials requiring abatement prior to building demolition

3.0 Methodology

The site work and assessment activities associated with this supplemental report were conducted to be consistent with those conducted for the Previous Assessments, while considering the provisions of the following:

- *Canada Labour Code Part II–Canada Occupational Health and Safety Regulations* (Canada Labour Code)
- British Columbia's *Occupational Health and Safety Regulation* (BC Reg. 296/97)
- Stantec's Safe Work Practices.

3.1 ADDITIONAL SUSPECTED ACM SAMPLING AND ANALYSIS

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.

Based on these criteria, a visual assessment of accessible areas was undertaken in order to check for the presence of materials suspected to contain asbestos – specifically for materials that had not been sampled previously. 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, BC 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 number of samples to be collected for each homogenous application of a suspected ACM was based on the recommendations provided in the Asbestos Guide along with 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).

3.2 LEACHATE SAMPLING AND ANALYSIS

According to the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88), lead waste may be considered a toxic leachate (and require special disposal) if lead is in a dispersible form and its leachate contains greater than 5.0 milligrams per litre (mg/L) lead.

Reference: Hazardous Building Materials Assessment Updates – Buildings 28 and 50
Pacific Agri-Food Research Centre, Agassiz, British Columbia

Based on the above, bulk samples of materials coated with identified LCPs were collected from the painted materials in Building 28, each containing over 50 grams in weight. Samples were placed into separate labeled plastic bags that were sealed and submitted to EMSL Analytical Inc., (EMSL Analytical) in Cinnaminson, New Jersey. Leachate analysis was conducted by EMSL Analytical through Toxicity Characteristic Leaching Procedure (TCLP), using US EPA Method SW846, 1311/7420.

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

4.0 Limitations

Limitations associated with this supplemental report are generally the same as those indicated in the Previous Assessments. Additional information regarding limitations is included below.

4.1 SUSPECTED ACM SAMPLING AND ANALYSIS

This report describes the observations made within accessible and accessed areas of the subject buildings, and the results of analyses performed on the specific materials sampled during the additional assessment activities indicated herein, which are to be considered supplemental to the activities outlined in the Previous Assessments. Analytical results detail the ACM content of the sampled materials at the specific sample locations, as stated herein.

4.2 LEAD LEACHATE SAMPLING AND ANALYSIS

Leachate sampling and analysis was conducted only pertaining to LCPs that were previously identified through the Initial Assessment in Building 28, and as indicated in this report.

Sampling for analysis of lead leachate was conducted such that building material samples were collected in a form presumed to be representative of waste generated during demolition. The lead leachate samples are meant to represent the general waste that would be created when painted surfaces are demolished, without having paint removed. Although attempts were made to collect samples representative of demolition waste, actual demolition processes may yield different results if supplemental testing was conducted at the time of demolition.

5.0 Findings

5.1 ADDITIONAL SUSPECTED ACM SAMPLING AND ANALYSIS

During the supplemental assessment, suspected asbestos-containing pipe sealant materials were observed within Building 28. No additional suspected ACMs were observed within Building 50.

Three (3) samples of the above-noted suspected ACM were collected and submitted to EMSL for analysis of asbestos content and composition. A summary of the sample types, locations and analytical results is presented in Table 5.1, below. A copy of the certificates of analysis provided by EMSL for the sample submitted is provided in Appendix A. Floor plan drawings showing bulk sample locations and the location of previously identified ACMs are provided in Appendix D.

Table 5.1: Additional Suspected ACM Sample Collection and Analysis Summary Building 28

Sample Number	Material Description	Sample Location	Result (% Asbestos)
PS-01A	Pipe sealant, cream colour, applied to sprinkler system fittings	Building 28 Barn Area	None Detected
PS-01B	Pipe sealant, cream colour, applied to sprinkler system fittings	Building 28 Barn Area	None Detected
PC-01C	Pipe sealant, cream colour, applied to sprinkler system fittings	Building 28 Barn Area	None Detected

As indicated in the summary table above, no additional ACMs were identified.

5.2 LEACHATE SAMPLING AND ANALYSIS

Two samples of materials coated with previously identified LCPs were collected from Building 28 and submitted to EMSL Analytical for analysis of leachable lead content. A summary of the sample types, locations and analytical results is presented in Table 5.2, below. A copy of the certificate of analysis provided by EMSL Analytical for the samples submitted is included in Appendix B. Floor plan drawings showing leachate sample locations are provided in Appendix D.

**Table 5.2: Leachate Sample Collection and Analysis Summary
Building 28**

Sample Number	Material Description	Paint Colour	Result (mg/L Leachable Lead)	Potential Lead Leachable Waste?
28-LS-01	Building 28 Barn Area – Interior walls and Ceiling	White	0.82	No
28-LS-02	Building 28 Office Area – Interior walls	Beige	<0.40	No

As indicated in the summary table above, the materials (paint and substrate, in a form deemed representative of waste to be generated during demolition) from Building 28 are not identified to contain lead in dispersible form such that the leachate generated would contain greater than 5.0 milligrams per litre (mg/L) lead. As such, there are would be no special disposal or transportation requirements for the waste, if landfilled.

5.3 GENERAL OBSERVATIONS AND UPDATED SUMMARY OF IDENTIFIED HAZARDOUS BUILDING MATERIALS

General site photographs and some site condition supporting photographs are included in Appendix C.

Pertinent supplemental information gathered pertaining to confirm or better delineate extent of hazardous building materials, including contamination of stored items/materials within each of the subject buildings is summarized in the following sections.

5.3.1 Building 28

- Asbestos-containing vinyl floor tiles:
  - Area comprises approximately 40 square feet, with minimal fixtures (one toilet, one small hot water tank)
- Asbestos-containing vermiculite insulation:
  - Confirmed to be present throughout the attic space of the Barn area (including under the attic space floor boards), comprising approximately 5,000 square feet with a depth of 4–6 inches or approximately 2,080 cubic feet
    - Significant stored items are present within this attic space. PWGSC/PARC have indicated that all items are to be considered contaminated and included for removal and disposal as part of the hazardous materials abatement project. Photographs of the various stored items have been included in Appendix C, for reference
  - Confirmed to be absent from the attic space of the office area

  - Unknown presence in the ceiling space of the lab area (no openings present), which appears to be an addition—approximately 1,650 square feet
- Lead-containing items, including LCPs, would not require specific removal during the hazardous materials abatement phase. Such items can be addressed as part of the demolition project, by the chosen demolition contractor, using appropriate methods to protect workers from lead exposure during demolition. Lead-containing wastes would not require special disposal
- Fluorescent lamp fixtures were visually assessed and appear to have high-efficiency light tubes, indicating that PCB-containing ballasts would not likely be present
- Mercury-containing thermostats (one was observed during this assessment, the other six were observed to be non-mercury), fluorescent light tubes (approximately 10 fixtures) and HID lights (two on exterior) will require appropriate removal/disposal
- Heat/smoke detectors were assessed, and items with radioactive components were not observed
- No building-related equipment suspected to contain ozone-depleting substances (ODSs) was observed (not included in Initial Assessment). Refrigerators (kitchen size and smaller) are anticipated to be remain the property of PARC, and will not be included in specifications for abatement

5.3.2 Building 50

- Asbestos-containing vermiculite insulation:
  - Confirmed to be present in 71 large garbage bags, as well as scattered throughout the attic floor, through cracks and onto various areas on the ground level.
    - Significant stored items are present within the attic space and on the ground level. PWGSC/PARC have indicated that all items are to be considered contaminated and included for removal and disposal as part of the hazardous materials abatement project. Photographs of the various stored items have been included in Appendix C, for reference.
- Lead-containing items, including LCPs, would not require specific removal during the hazardous materials abatement phase. Such items can be addressed as part of the demolition project, by the chosen demolition contractor, using appropriate methods to protect workers from lead exposure during demolition. Waste associated with exterior wood materials (painted siding and trim) will require removal and segregation for special disposal
- Equipment containing PCBs, suspected mercury-containing items, equipment with radioactive components or equipment with ODSs were not observed

Reference: Hazardous Building Materials Assessment Updates – Buildings 28 and 50
Pacific Agri-Food Research Centre, Agassiz, British Columbia

6.0 Closure

This report has been prepared by Stantec Consulting Ltd. for the sole benefit of Public Works and Government Services Canada and Agriculture and Agri-Food Canada. This report may not be relied upon by any other person or entity without the express written consent of Stantec Consulting Ltd. and Public Works and Government Services Canada and Agriculture and Agri-Food Canada.

Any uses that a third party makes of this report, or any reliance on decisions to be made based on it, are 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 conclusions presented represent the best judgment of the assessor based on current environmental standards and the site conditions observed on the date 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 liabilities. It is possible that additional, concealed hazardous materials may become evident during demolition activities within the subject building.

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.

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.

Regards,

STANTEC CONSULTING LTD.

Amanda Bell, B.Sc., EPt
Report Author
Amanda.Bell@stantec.com

Reviewed by:

Sean Brigden, B.Sc., P.B.Dipl., CRSP
Senior Associate
Sean.Bridgen@stantec.com

Appendix A: Certificates of Analysis—Suspected ACM Bulk Samples
Appendix B: Certificates of Analysis—Lead Leachate Samples
Appendix C: Site Photographs
Appendix D: Floor Plan Drawings

Appendix A Certificates of Analysis—Suspected ACM Bulk Samples

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 691601165
Customer ID: 55JACQ30L
Customer PO: 123220674
Project ID:

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

Phone: (604) 412-3004
Fax:
Collected:
Received: 9/20/2016
Analyzed: 9/27/2016

Proj: 123220674

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: PS-01A ***Lab Sample ID:*** **691601165-0001**

Sample Description: BARN AREA/CREAM PIPE SEALANT APPLIED TO SPRINKLER SYSTEM FITTINGS

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/27/2016	Gray	5%	95%	None Detected	

Client Sample ID: PS-01B ***Lab Sample ID:*** **691601165-0002**

Sample Description: BARN AREA/CREAM PIPE SEALANT APPLIED TO SPRINKLER SYSTEM FITTINGS

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/27/2016	Gray	10%	90%	None Detected	

Client Sample ID: PS-01C ***Lab Sample ID:*** **691601165-0003**

Sample Description: BARN AREA/CREAM PIPE SEALANT APPLIED TO SPRINKLER SYSTEM FITTINGS

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/27/2016	Gray	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: 09/27/201613:29:50

Appendix B Certificates of Analysis—Lead Leachate Samples

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (856) 303-2500 / (856) 786-5974
http://www.EMSL.com cinnaminsonleadlab@emsl.com

EMSL Order:	201610217
CustomerID:	JACQ30L
CustomerPO:	12322065
ProjectID:	

Attn: **Keith Irwin**
Stantec Consulting, LTD
500 - 4730 Kingsway
Burnaby, BC V5H 0C6

Phone: (604) 412-3004
Fax:
Received: 09/21/16 10:30 AM
Collected:

Project: **123220674**

Test Report: Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
28-L-01	*201610217-0001*		9/24/2016	0.82 mg/L
	Site: White Interior Walls and Ceiling of the Barn Area			
28-L-02	*201610217-0002*		9/24/2016	<0.40 mg/L
	Site: Beige Interior Walls of the Office Area			

Phillip Worby, Lead Laboratory Manager
or other approved signatory

The test results contained within this report meet the requirements of NELAC unless otherwise noted. This report relates only to those items tested. Samples received in good condition unless otherwise noted. Quality Control Data associated with this sample set is within acceptable limits, unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367

Initial report from 09/28/2016 13:30:39

Appendix C Site Photographs

Appendix C: Photographs

Photo Set 1 Building 28 – Poultry House and Offices Exterior

Photo Set 2 Building 28 - Asbestos containing 9"x9" tan vinyl floor tiles within the office area washroom

Appendix C: Photographs

Photo Set 3 Building 28 – Asbestos-containing vermiculite attic insulation

Photo Set 4 Building 28 – View of attic space and contents

Photo Set 5 Building 50 – The Piggery (Farm Structure) Exterior

Photo Set 6 Building 50 – Main Floor: asbestos-containing vermiculite insulation present in various locations and on content from cracks and voids in the ceiling

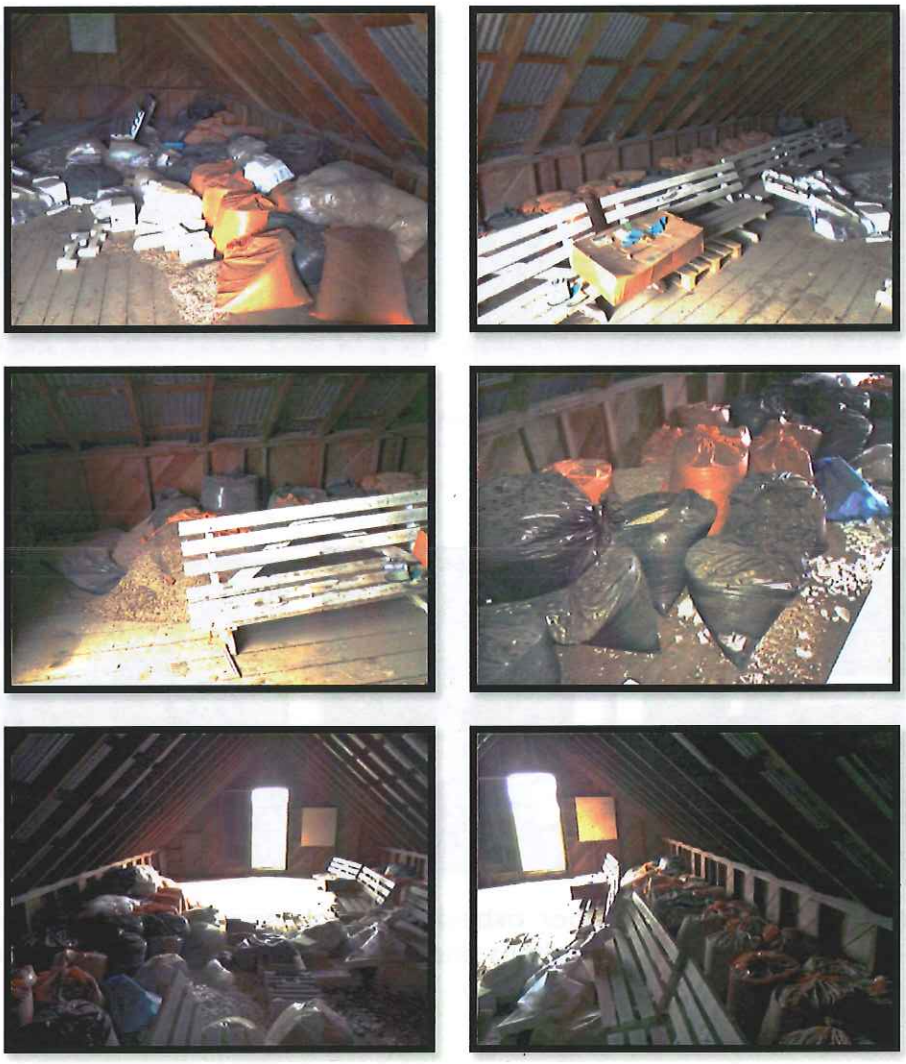
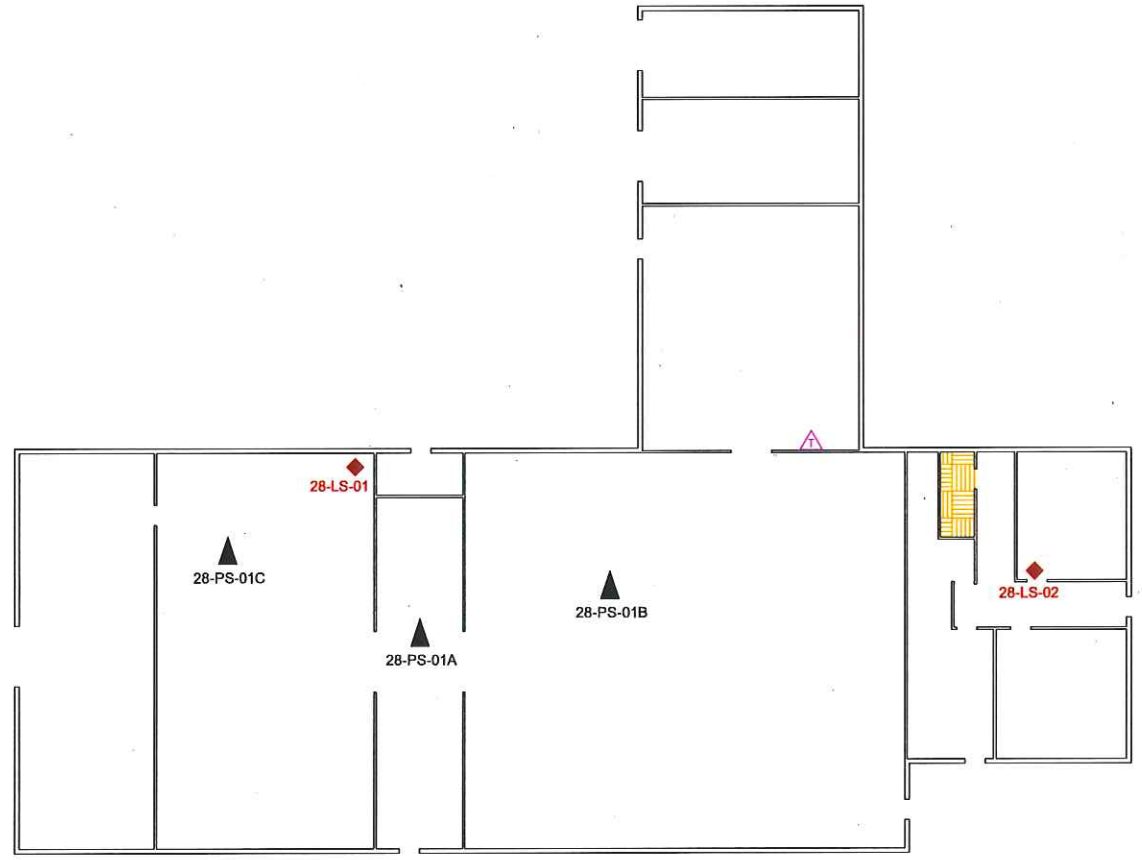


Photo Set 7 **Building 50 – Attic space: asbestos-containing vermiculite insulation present in approximately 70 garbage bags as well as scattered throughout the attic – on the floor and on stored items**

Appendix D Floor Plan Drawings

\\server01\Production\Stantec_CN\2016\NOVEMBER\SL2016110094\Upload\123220674_BUILDING 28_161104_01.dwg PRINTED: Nov 04, 2016



BUILDING 28 GROUND LEVEL

LEGEND

- BULK SAMPLE
- LEAD LEACHATE SAMPLE
- IDENTIFIED ACM 9"X9" VINYL FLOOR TILE
- 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 MATERIALS AND BULK SAMPLE LOCATIONS

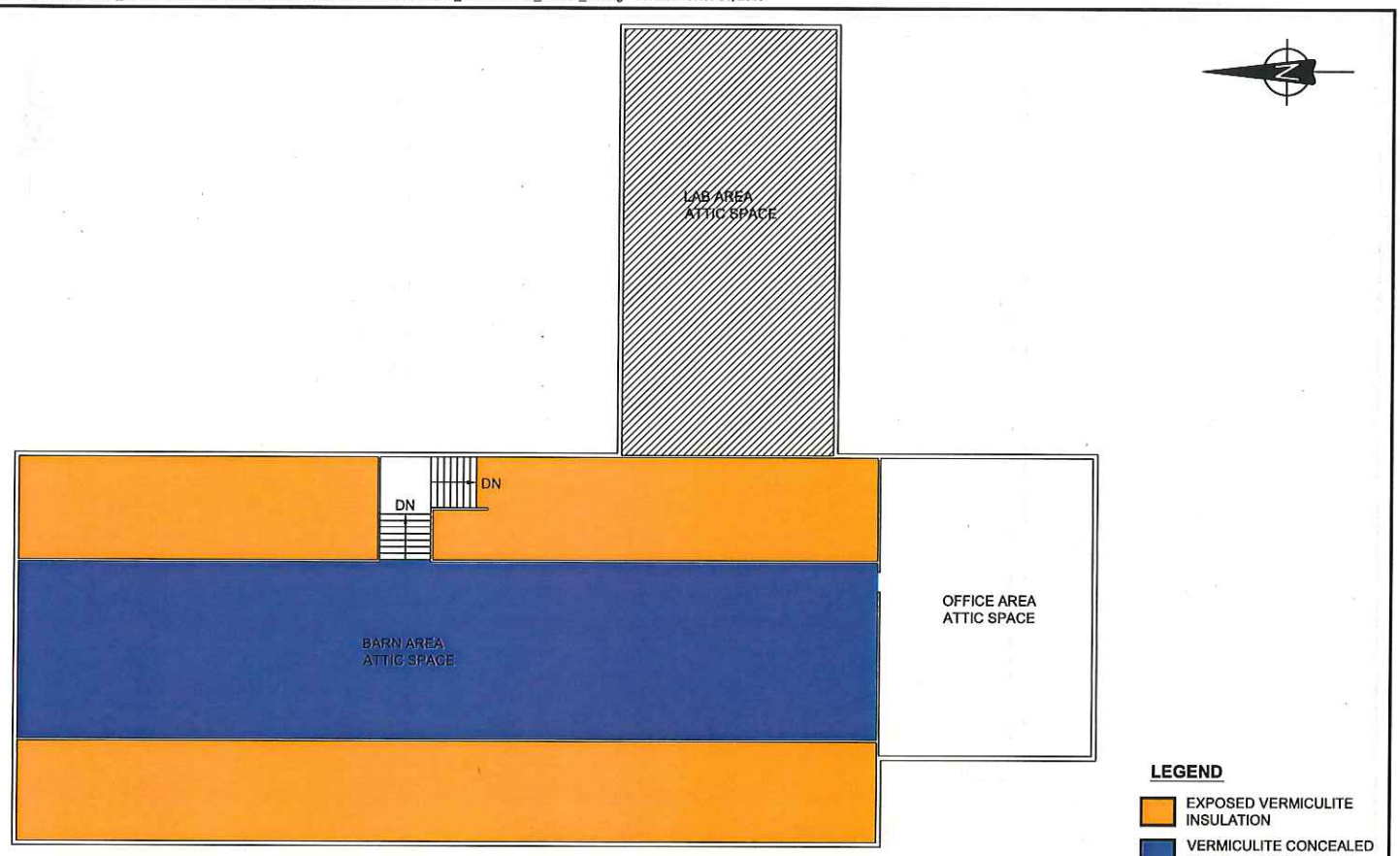
PACIFIC AGRI-FOOD RESEARCH CENTRE, AGASSIZ, BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123220674
Scale:	N.T.S.
Date:	16/11/04
Dwn. By:	CD CS/VM SL2016110094
App'd By:	TW

Dwg. No.: 1

Stantec



BUILDING 28 ATTIC

NOTES: **1. ALL ITEMS STORED IN THE ATTIC SPACE ARE CONSIDERED TO BE CONTAMINATED.**
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 MATERIALS AND BULK SAMPLE LOCATIONS

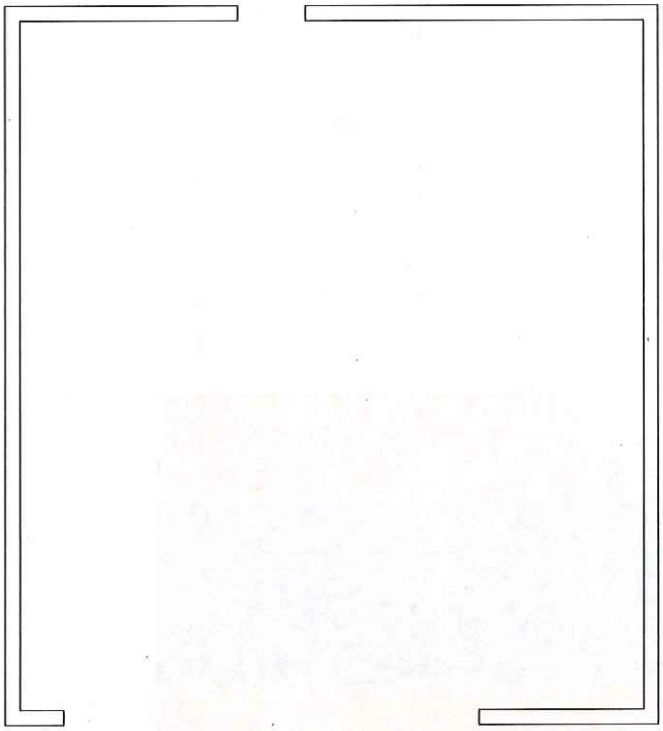
PACIFIC AGRI-FOOD RESEARCH CENTRE, AGASSIZ, BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123220674
Scale:	N.T.S.
Date:	16/11/04
Dwn. By:	CD VM SL2016110095
App'd By:	TW

Dwg. No.: 2

Stantec



BUILDING 50 GROUND LEVEL

NOTES : 1. VERMICULITE DEBRIS THROUGHOUT IS ASBESTOS-CONTAINING.
2. ALL STORED ITEMS ON THE GROUND LEVEL ARE CONSIDERED TO BE CONTAMINATED.
3. 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

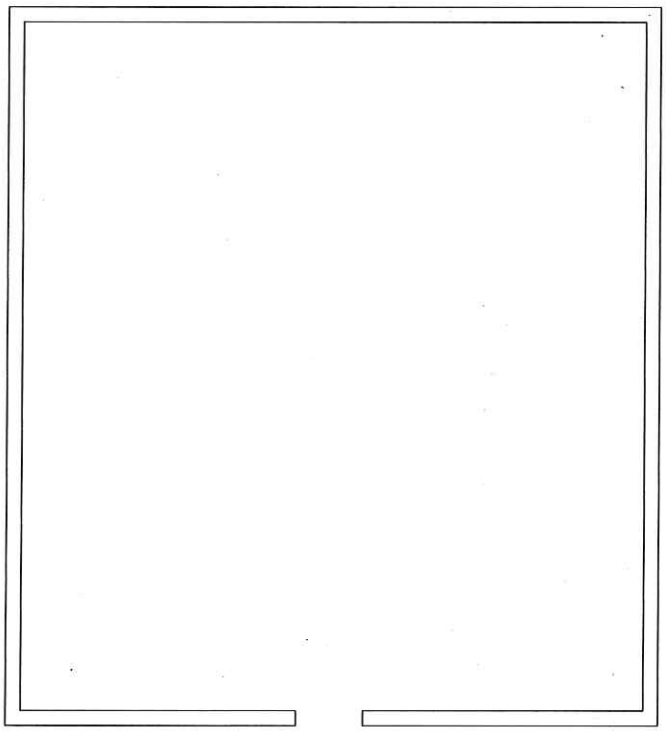
PACIFIC AGRI-FOODS RESEARCH CENTRE, AGASSIZ, BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123220674
Scale:	N.T.S.
Date:	16/11/04
Dwn. By:	CD SL2016110096 DM/VM
App'd By:	TW

Dwg. 3

Stantec



BUILDING 50 ATTIC

NOTES : 1. VERMICULITE INSULATION IN BAGS AND VERMICULITE DEBRIS THROUGHOUT IS ASBESTOS-CONTAINING.
2. ALL STORED ITEMS IN THE ATTIC ARE CONSIDERED TO BE CONTAMINATED.
3. 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

PACIFIC AGRI-FOODS RESEARCH CENTRE, AGASSIZ, BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123220674
Scale:	N.T.S.
Date:	16/11/04
Dwn. By:	CD SL2016110097 DM/VM
App'd By:	TW

Dwg. 4

Stantec

Appendix 5

Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

AAFC- PAC RESEARCH CENTRE PRELIMINARY HAZARD ASSESSMENT FORM

Project Number:	**R.071945.001**
Location:	**AAFC Pacific Research Centre, Agassiz, B.C.**
Date:	**2016-12-15**
Name of Departmental Representative:	
Name of Client:	
Name of Client Project Co-ordinator	PH: ( )- -

Site Specific Orientation Provided at Project Location ☐ Yes

Notice of Project Required ☐ Yes

NOTE:
PWGSC REQUIRES A Notice of Project FOR ALL CONSTRUCTION WORK RELATED ACTIVITIES

NOTE:
OHS law is made up of many municipal, provincial, and federal acts, regulations, bylaws and codes. There are also many other pieces of legislation in British Columbia that impose OHS obligations.

Important Notice: This hazard assessment has been prepared by PSPC for its own project planning process, and to inform the service provider of actual and potential hazards that may be encountered in performance of the work. PSPC does not warrant the completeness or adequacy of this hazard assessment for the project and the paramount responsibility for project hazard assessment rests with the service provider.

TYPES OF HAZARDS TO CONSIDER	Potential Risk for:				COMMENTS
Examples: Chemical, Biological, Natural, Physical, and Ergonomic Listed below are common construction related hazards. Your project may include pre-existing hazards that are not listed. Contact the Regional Construction Safety Coordinator for assistance should this issue arise.	**PWGSC, OGD's, or tenants**		**General Public or other contractors**		Note: When thinking about this pre-construction hazard assessment, remember a **hazard** is anything that may cause harm, such as chemicals, electricity, working from heights, etc; the **risk** is the chance, high or low, that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be.
	Yes	**No**	**Yes**	**No**	

Typical Construction Hazards					
Concealed/Buried Services (electrical, gas, water, sewer etc)	yes				
Slip Hazards or Unsound Footing	yes				
Working at Heights	yes				
Working Over or Around Water		no			
Heavy overhead lifting operations, mobile cranes etc.		no			

Canada

Marine and/or Vehicular Traffic (site vehicles, public vehicles, etc.	yes				
Fire and Explosion Hazards		no			
High Noise Levels	yes				
Excavations	yes				
Blasting		no			
Construction Equipment	yes				
Pedestrian Traffic (site personnel, tenants, visitors, public)	yes				
Multiple Employer Worksite	yes				Contractor working in an occupied federal employee site.

Electrical Hazards					**Comments**
Contact With Overhead Wires		no			
Live Electrical Systems or Equipment	yes				
Other:					
Physical Hazards					
Equipment Slippage Due To Slopes/Ground Conditions	yes				Snow and ice
Earthquake	yes				
Tsunami		no			
Avalanche		no			
Forest Fires		no			
Fire and Explosion Hazards	yes				
Working in Isolation	yes				
Working Alone		no			
Violence in the Workplace	yes				
High Noise Levels	yes				
Inclement weather	yes				
High Pressure Systems		no			
Other:					
Hazardous Work Environments					
Confined Spaces / Restricted Spaces PSPC employees do not enter confined space.					If available, provide the contractor with the existing confined space assessment(s) for information only. Contractor must perform their own confined space assessment as per provincial regulations.
Suspended / Mobile Work Platforms					
Other:					
Biological Hazards					
Mould Proliferations		no			
Accumulation of Bird or Bat Guano		no			
Bacteria / Legionella in Cooling Towers / Process Water		no			
Rodent / Insect Infestation		no			
Poisonous Plants		no			
Sharp or Potentially Infectious Objects in Wastes	yes				

Wildlife	yes				
Chemical Hazards					
Asbestos Materials on Site	yes				If "yes" a pre-project asbestos survey report is required. Provide Contractor with ELF Form 16 "Contractor Notification and Acknowledgement"
Designated Substance Present	yes				If "yes" a pre-project designated substance survey report is required.
Chemicals Used in work	yes				
Lead in paint	yes				If "yes" a pre-project lead survey report is required.
Mercury in Thermostats or Switches	yes				If "yes" a pre-project mercury survey report is required.
Application of Chemicals or Pesticides		no			
PCB Liquids in Electrical Equipment		no			
Radioactive Materials in Equipment		no			
Other:					
Contaminated Sites Hazards					
Hazardous Waste		no			
Hydrocarbons		no			
Metals		no			
Other:					

Security Hazards					**Comments**
Risk of Assault	yes				
Other:					
Other Hazards					

Other Compliance and Permit Requirements[1]	**YES**	**NO**	**Notes / Comments[2]**
Is a Building Permit required?			
Is an Electrical permit required?			
Is a Plumbing Permit required?			
Is a Sewage Permit required?			
Is a Dumping Permit required?			
Is a Hot Work Permit required?	**yes**		
Is a Permit to Work required?			Mandatory for ALL alternative form of delivery managed work sites.
Is a Confined Space Entry Permit required?			Mandatory
Is a Confined Space Entry Log required			Mandatory for all Confined Spaces
Discharge Approval for treated water required			

Notes:

(1) Does not relieve Service Provider from complying with all applicable federal, provincial, and municipal laws and regulations.

(2) TBD means To Be Determined by Service Provider.

Service Provider Acknowledgement: We confirm receipt and review of this Pre-Project Hazard Assessment and acknowledge our responsibility for conducting our own assessment of project hazards, and taking all necessary protective measures (which may exceed those cited herein) for performance of the work.			
Service Provider Name			
Signatory for Service Provider		**Date Signed**	
RETURN EXECUTED DOCUMENT TO PSPC DEPARTMENTAL REPRESENTATIVE PRIOR TO ANY WORK COMMENCING			