

Lower Fort Garry Lead Paint Removal Southwest Bastion October 2023

**Lead Paint Abatement from Historic Masonry Walls
Southwest Bastion
Lower Fort Garry National Historic Site**

October 26, 2023

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1. Introduction

- a) The Southwest Bastion is a cultural resource and is the only bastion at Lower Fort Garry with a Federal Heritage Building Review Organization designation. Repairs are necessary to the historic limestone walls of this building. To facilitate and prepare for this work, testing was conducted in 2021 on the paint on the interior historic limestone walls and they were found to contain lead (Pb). Please see *Appendix A* for the Certificate of Analysis from ALS Environmental. Parks Canada requires all paint to be removed from the main floor of the building on the interior limestone masonry and 2 pieces of wood in walls by non abrasive brushing and vacuuming with HEPA vacuums and by soda blasting. **There are some highly decorative corner stones that the contractor will not be removing paint from due to concerns of fragility. Please consult *Appendix G* for locations and photographs of these decorative corner stones.**
- b) **ALL paint is to be removed, and disposed of according to all current and most stringent federal and/or provincial codes to ensure the health and safety of visitors and staff.** Contractor is responsible to ensure lead does not migrate to other areas of the building or outside of the building.
- c) **Please note Parks Canada is currently conducting Asbestos testing on the paint and these results will be posted as an amendment as soon as they become available.**
- d) **Work to be completed by January 6, 2024**

Departmental Representatives for the project

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2. Objective

- a) The objective of this work is to remove all paint from the main floor of the building which includes all interior limestone walls and 2 pieces of wood in walls. This paint contains lead. (see *Appendix H* for images of the 2 pieces of wood). Some areas of paint are currently friable and could easily be removed by use of non abrasive brushes and

vacuums with HEPA filtration. Other areas of the walls will require removal by non carcinogenic soda blasting. **There are some highly decorative corner stones that the contractor will not be removing paint from due to concerns of fragility. Please consult *Appendix G* for locations and photographs of these stones.**

- b) Soda blasting has been chosen in an effort to minimize additional surface damage to the historic masonry walls.
- c) The walls are original from the 1840's and are made of limestone. Preservation of these original stones is important to the overall preservation of the building.
- d) This work will include the supply and delivery of all tools and equipment necessary for the removal of the paint and its safe remediation necessary for abatement and disposal of paint, lead containing paint, blasting materials associated with the removal of the paint, and any other materials, products or equipment used in the removal of the paint.
- e) **Please note a separate Request for Quote for an Industrial Hygienist to conduct lead surface and air quality testing before, during and after this abatement contract has gone out to ensure lead dust is not migrating outside the work area. It is expected that this Industrial hygienist contractor will be onsite during the abatement and will provide independent review to Parks Canada for the duration of the abatement contract. The Lead Paint Removal Contractor is the Prime contractor for this project and therefore all health and safety requirements laid out by the Prime Contractor must be followed by ALL who access the site. The Statement of Work for the Industrial Hygienist is available in the Appendices of this contract.**

3. Background

- a) As a FHBRO classified building, the heritage character of the Southwest Bastion resides in its form, its overall proportions, its construction materials, architectural details, interior layout, and its relationship to the site and setting. The bastion is a circular two-storey structure with a medium-pitched conical roof. It has two gabled dormers and three chimneys. In keeping with its role as part of the fort defense system, the building has stocky proportions and a scale that is dictated by the fort's wall height. The roof profile, footprint, massing, and materials are characteristic of the design of defensive bastions at the fort.
- b) The rough limestone of the walls and the wood of the shingle roof and dormer siding are the main materials. The simple rectangular wood door and the window openings relate to the defensive purpose underlying the design. The multi-paned sash windows and the wood slab doors are consistent with the original design. The circular plan is divided into two spaces. The wooden floor has been replaced and is in keeping with the character of the building.

- c) During the 1960's extensive restoration was conducted on this building and at that time lead containing paint was applied to the walls. It has since been found that this paint is trapping moisture in the masonry and causing deterioration to the building. As a result, Parks Canada requires the paint to be removed so repairs to the masonry can proceed.

4. Qualifications

- a) The Contractor must have conducted 3 lead paint removal and abatement projects on historic masonry(50 years or older) over the past 10 years via soda blasting.

5. Lead Details

- a) Parks Canada took samples of the wall paint and they were sent to ALS Environmental to conduct lead testing in September 2021. Please consult *Appendix A* for details of that testing

6. Scope of Work

- a) The Contractor is required to remove **all paint on the interior main floor limestone wall surfaces** of the Southwest Bastion. Paint contains lead and therefore must be abated and disposed of according to all municipal, provincial, and federal regulations. ALL wall paint is to be removed whether it contains lead or not. **There are some areas of decorative fluted stone that are to be masked off and the paint is to not be removed due to concerns of fragility of the surface. Please see *Appendix G* for more information on these specific areas.** There are 2 pieces of wood that will require paint removal also please see *Appendix H*. Please see ALL *Appendices* for detailed photographs and drawings. **ALL QUANTITIES TO BE CONFIRMED BY BIDDERS DURING SITE VISIT.**
- b) Paint to be removed by use of non abrasive brushes and HEPA vacuums, as well as soda blasting may be used where necessary.
- c) Due to the historic nature of this building, maintaining the original limestone walls in the best condition possible is required and therefore **chemical peels and products not specified in this statement of work will NOT be used.**

Paint Removal and Abatement Work includes:

- a) Submission of plan to Departmental Representative which will include materials, equipment and methods to be used during paint removal and abatement **for review prior to commencement.** This would include suggestions of air pressure to use for soda blasting. A separate Industrial Hygienist contractor has been hired by Parks Canada and will review these prior to work commencing. All materials and methods to be used will be reviewed by Parks Canada's Heritage Building team of experts to ensure process and materials will not be damaging to the building. **Work will not commence**

until written approval has been given by the Departmental Representative. If any issues arise during the removal and abatement process, Parks Canada built heritage experts are available onsite to answer questions and work towards positive solutions and outcomes.

- b) Supply and installation of negative pressure containment with powered HEPA filtered dust collector. Please note: There is minimal electricity in the building, regular 110 floor plugs.
- c) Isolation of work area from adjoining areas. Masking and protection of areas indicated in *Appendix G* and masking and protection to prevent dust migration to the exterior of the building and to prevent dust migration to other areas of the building, specifically the attic. This could include shrouding, barriers, masking and other methods. **Due to the historic nature of this building and the requirement to protect its original form, pre approval must be given by the Departmental Representative before containment shrouding can be attached to the building. ie. screws, nails, adhesive and other fastening systems.**
- d) Removal of all paint material by non abrasive brushing and HEPA vacuum or by blast cleaning using non carcinogenic soda as the blast media.
- e) Collection, testing and disposal of spent blast media in accordance with regulations.
- f) Cleaning of the entire work area after removal work has occurred. This includes using HEPA vacuums to vacuum all interior main floor surfaces including walls, floors, ceilings, windows, doors and casework. All floors, ceilings, doors, windows and casework are to be washed down after vacuuming with warm water and soap and rinsed. Masonry walls are NOT TO BE WASHED. **If during abatement it is found that the shrouding or containment systems have failed and lead has migrated out of the Work Site, it is the Lead Abatement contractor's responsibility to clean those other areas at their expense and to the satisfaction of the Departmental Representative.**
- g) Clearance wipe sampling of containment materials before disassembly and turnover of site from prime contractor back to the Crown.
- h) Contractor to supply labour, material, and equipment to safely remove lead containing paint from all walls in the Southwest Bastion, and disposal according to all current provincial and federal regulations. Contractor to supply labour, material and equipment to clean the Work Site upon the completion of the work.
- i) Parks Canada will have an independent third-party conduct surface testing and air sample testing to confirm lead paint has been removed according to regulations and that lead dust has not migrated to the exterior of the building or to other interior areas of the building, specifically the attic. This testing will happen, before, during and after abatement has occurred.
- j) Please consult *Appendices* to view all areas of work and for more information.

7. Soda Blasting

- a) Paint removal is to be conducted via non-abrasive brush and HEPA vacuum where possible and **soda blasting** where necessary. All precautions must be taken to prevent damage to the original stone surface of the building. **Consultation with onsite Parks Canada Built Heritage Team is possible should any issues arise for the duration of this contract.**
- b) Guard to be used on blasting guns to prevent damage to stone walls.
- c) Air pressure to be such that it removes paint, but does not cause further damage to stone walls. It is the Paint Removal and Lead Abatement Contractors responsibility to make suggestions to the Departmental Representative with respect to air pressure required to remove the paint but NOT further damage the limestone walls. **Mock ups are to be conducted by the Paint Removal and Lead Abatement Contractor and prior to work commencement the methods of removal (air pressure etc) must be approved by the Departmental Representative. Expectation is to not cause further damage to the stone walls, only remove the paint. Please note a test was conducted in 2021 and 90 PSI successfully removed the paint without damaging the limestone on a sample piece of stone. This test was only on one piece of stone and does not mean that the rest of the surfaces requiring paint removal will respond to this. Contractor is required to confirm onsite using the least amount of air pressure necessary to remove paint, while still preserving the stone surface and preventing further damage.**
- d) All blasting media is to be non carcinogenic soda, and the least abrasive materials and techniques are to be employed to prevent damage to the limestone surface the paint is being removed from.
- e) Soda blasting product Safety Data Sheets to be used are to be reviewed and approved by the Departmental Representative prior to work commencement.

8. Start-up Meeting

- a) Upon contract award, a meeting with the Parks Canada Departmental Representative will be required prior to the start of any work. The purpose of this meeting is to:
 - i. discuss contract expectations,
 - ii. project timelines,
 - iii. the contractor's work plan
 - iv. revisions/clarifications,
 - v. share additional information (if required),
 - vi. identify and address any questions and finalize project schedules and deliverables.
 - vii. **Industrial hygienist hired by Parks Canada will attend this meeting.**

9. Reference Standards

- i. Standards and Guidelines for the Conservation of Historic Buildings, HistoricPlaces.ca - [The Standards & Guidelines for the Conservation of Historic Places in Canada](#), with particular emphasis on section 4.5.3 Masonry.
- ii. Department of Justice Canada Canadian Environmental Protection Act, 1999 (CEPA).
- iii. Health Canada Workplace Hazardous Materials Information System (WHMIS), Safety Data Sheets (SDS).
- iv. Human Resources and Social Development Canada (HRSDC)
- v. Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.
- vi. Transport Canada (TC)Transportation of Dangerous Goods Act, 1992 (TDGA).
- vii. U.S. Environmental Protection Agency (EPA)
- viii. EPA 747-R-95-007-[1995] , Sampling House Dust for Lead.
- ix. U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (NIOSH)
- x. NIOSH Manual of Analytical Methods (NMAM), 5th Edition.
- xi. 1.5.8. U.S. Department of Labour - Occupational Safety and Health Administration (OSHA) - Toxic and Hazardous Substances
- xii. Lead Exposure In Construction Regulation - 29 CFR 1926.62-[1993].
- xiii. Underwriters' Laboratories of Canada (ULC)
- xiv. Parks Canada Agency - Hazardous Prevention Standard 2013;
- xv. EACC (Environmental Abatement Council of Canada) Lead Guideline For Construction, Renovation, Maintenance or Repair October 2014;
- xvi. LEAD EXPOSURE MEDICAL SCREENING GUIDELINE FOR WORKERS Manitoba Department of Growth Enterprise and Trade Workplace Safety and Health Prepared by the Chief Occupational Medical Officer Dr. Denise Koh March 2019 ;
- xvii. All Standards, Guidelines and Regulations as set by the Workers Compensation Board of Manitoba; Manitoba Occupational Health and Safety; Work Safe Manitoba

10. Health and Safety

This Work Site will have an Industrial Hygienist contractor hired by Parks Canada to conduct air quality and surface testing regularly before, during, and after the lead paint removal contractor has completed their work. As a result the lead paint removal contractor shall be the prime responsible for the safety of other contractors or persons accessing, or traveling through the site to get to other worksites with the various buildings onsite. Anyone accessing the site shall receive a full safety orientation and follow the lead paint removal contractor's safety program, plan and procedures.

The lead paint removal contractor shall adhere to the following requirements:

- a) Contractor is to comply with the Provincial and Federal Occupational Health and Safety Act. In cases of discrepancy the more stringent requirement is to be followed.
- b) Contractor is to comply with the Canada Labour Code, Workers Compensation Board, Building Code and all Municipal, Provincial and Federal Laws and Ordinances.
- c) The Contractor is to maintain Workers Compensation Coverage in good standing for the duration of the contract and to provide proof of clearance through submission of the letter in good standing.
- d) The Contractor is responsible for the health and safety of persons on site, safety of property on site and for the protection of persons and environment adjacent to the site to the extent that they may be affected by the conduct of this work.
- e) The Contractor is to comply with and enforce compliance by all workers, sub-contractors and other persons granted access to the Work Site with safety requirements of the contract documents, and all application federal, provincial, and local by-laws, regulations and ordinances and their health and safety plan.
- f) The Contractor has the ability to control the Work and entry points to the Work Site and approve and grant access only to workers and authorized persons and immediately stop and remove non-authorized persons if there are health and safety concerns.
- g) The Departmental Representative will provide names of the people authorized by the Departmental Representative to enter on the Work Site and will ensure that such authorized persons have the required knowledge and training on Health and Safety pertinent to their reason for being at the site, however the contractor remains responsible for the health and safety of the authorized persons while at the Work Site. Visitors are required to follow all health and safety instructions as laid out by the contractor. Contractor to provide approved fit tested respirators, protective suits, gloves, booties and proper orientation and safety training to Authorized Visitors to work areas. Regular Authorized Visitors could include the following:
 1. Two Project managers
 2. Built Heritage Manager
 3. Cultural Resource Manager
 4. Heritage Mason

5. Industrial Hygienist Contractor

- h) Contractor will provide protective equipment and clothing to be worn by workers and visitors in Work Area that includes but is not limited to:
 - i. Respirator that is NIOSH approved and equipped with filter cartridges suitable for type of lead and level of lead dust exposure in Work Area.
 - ii. Disposable type protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.
- i) Contractor responsible to conduct fit testing by a certified person to ensure proper fit and proper filtration for workers and visitors to the project.
- j) Instruct Authorized Visitors procedures to be followed in entering and exiting work area including the use of protective clothing, and respirators
- d) Provide sufficient filters so workers can install new filters following disposal of used filters and before re-entering contaminated areas.
- e) Contractor's Workers conducting activities related to lead and its removal, abatement and disposal are required to wear a respirator suitable for lead abatement as required by all federal, provincial, municipal laws and requirements.
- f) Eating, drinking, chewing, and smoking are not permitted in the work area.
- g) Contractor to construct, establish and maintain clean, hot and dirty work zones. They are to be operated as a place for high-risk activity.
- h) Ensure workers wash hands and face when leaving the work area. Contractor to provide facilities for washing.
- g) If any workers come in direct contact with potentially contaminated dust, screening and monitoring of the workers' health will be done according to all federal, provincial, and municipal requirements at the contractor's expense.
- h) If any non-compliance issues are identified by the contractor's health and safety representative or by the Departmental Representative the contractor is to provide the Departmental Representative with a written report of action taken to correct non-compliance of health and safety issues identified.
- i) Departmental Representatives will instruct contractor to stop Work if non-compliance of health and safety regulations is not corrected in a timely manner.
- j) If there are any incidents, the contractor must investigate and report incidents to the Departmental Representative immediately. These could include: Incidents requiring notification to Provincial Department of Occupational Safety and Health, Workers Compensation Board, or to other regulatory Agency, medical aid injuries, property damage or loss.

- k) Contractor is to employ a health and safety site representative responsible for daily supervision of health and safety of the Work, this person may be the Superintendent of the Work or other person designated by the Contractors and shall be assigned the responsibility and authority to:
- (i) Implement, monitor and enforce daily compliance with health and safety requirements of the Work.
 - (ii) Monitor and enforce Contractor's site-specific Health and Safety Plan.
 - (iii) Conduct site safety orientation sessions to persons granted access to the Work Site.
 - (iv) Ensure that persons allowed site access are knowledgeable and trained in health and safety pertinent to their activities at the site or are escorted by a competent person while on the Work Site.
 - (v) Stop the Work as deemed necessary for reasons of health and safety.

Health & Safety Site Representative must:

- (i) Be qualified and competent in occupational health and safety.
- (ii) Have site-related working experience specific to activities of the Work.
- (iii) Be on Work Site at all times during execution of the Work.

11. Health and Safety Plan

Within 5 days after the date of Notice to Proceed and prior to commencement of Work:

- a) Prior to conducting field work, the Contractor must prepare a Health and Safety plan that is in accordance with all applicable codes and regulations. Health and Safety plan shall ensure the health and safety of the Contractor's employees, subcontractors, and others at the site. The Contractor is responsible for making all employees, subcontractors, and others at the site aware of the potential contamination hazards and for ensuring the health and safety of all personnel at the site. The Contractor shall ensure the plan is always available on site. This plan will outline potential hazards, the applicable codes and regulations, rules of behaviour, protective equipment and clothing requirements, security features to be established, responsible individuals, and all related matters.
- b) The Contractor must also confirm with the Departmental Representative if there are any existing site health and safety rules that need to be incorporated into the Health and Safety Plan.
- c) The Contractor will assume liability for any accident or damage caused by its employees, subcontractors, or equipment and will make good on any such damage.
- d) The Health and Safety Plan shall be submitted to the Departmental Representative and shall include the following :
 - i. List of health risks and safety hazards identified by hazard assessment.

- ii. Control measures used to mitigate risks and hazards identified.
- iii. Operational procedures, evacuation measures and communication process to be implemented in the event of an emergency, evacuation plan including site and floor plans layouts showing escape routes, and muster points, fire fighting equipment and other related data.
- iv. Emergency Contacts name and telephone numbers
- v. On site communications plan
- vi. Name of contractors designated health and safety site representative and information showing proof of their competence and reporting relations in Contractor's company.

12. Air Quality

- b) Contractor to supply and install a negative pressure containment system with HEPA filtered dust collector to ensure containment of lead dust from paint removal. Contractor is to supply and install all materials necessary to ensure that they have isolated the work area from adjoining areas, specifically the attic and the exterior of the building and required items are masked and protected. **Migration of dust, lead, materials from the Work Area is not to occur.**
- c) Collection, testing and disposal of spent blast media to be in accordance with regulations. Clearance wipe sampling of containment materials and area with lead containing paint to be carried out before disassembly and completion and workers to wear the required PPE to prevent any ingestion or inhalation of lead. Results of clearance wipe sampling to be submitted to the Departmental Representative for approval. **End expectation is for all paint to be removed and for migration of dust, lead, and materials related to this removal NOT to have migrated to other areas of the building or to the exterior of the building.**
- d) Contractor is to ensure that emissions from ANY machinery they have used including but not limited to HEPA vacuum, soda blasting equipment, air filtration equipment, are monitored to ensure all health and safety regulations are adhered to. Parks Canada will contract an Industrial Hygienist to conduct air quality and surface testing throughout the project to determine if lead is migrating from the work area.

13. Lead Waste Materials and Non-Hazardous Material Management

- a) All aspects of the life cycle shall be managed according to the most stringent applicable occupational health and safety requirements (federal, provincial, territorial and/or municipal). The transportation of dangerous goods requires a valid TDG certification. Transportation must be by a provincially licensed carrier and disposal at a provincially licensed recycling, treatment, or final disposal facility.
- b) Separate waste materials for recycling or non-hazardous waste streams in accordance with

with CEPA, TDGA, Regional and Municipal regulations.

- c) Disposal of lead waste generated by removal activities must comply with most stringent Federal, Provincial, Territorial and Municipal regulations. AT MINIMUM -Dispose of lead waste in sealed double thickness 6 mil bags or leak proof drums. Label containers with appropriate warning labels.
- d) Contractor to provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

14. Preparation

- a) Protect and wrap items and areas to prevent dust dispersal into other building areas (namely the attic) and to the exterior of the building.
- b) Ensure decorative fluted stones as identified in *Appendix G* have been masked off to protect from blasting.
- c) Pre-clean fixed casework and equipment within the work area, using HEPA vacuum and cover and seal with polyethylene sheeting and tape.
- d) Seal off openings with polyethylene sheeting and seal with tape.
- e) Protect ceiling and floor surfaces covered from wall to wall with polyethylene sheets.
- f) Maintain emergency fire exits.
- g) Where water application is required for wetting lead containing materials this must be approved with Departmental Representative prior to use. **Water is not to be applied to the masonry walls.**

Do not start work until Contractor has:

- i. Made arrangements for disposal of waste.
- ii. Tools, equipment, and materials waste containers are on site.
- iii. Made arrangements for building security.
- iv. Notified Departmental Representative and preparatory steps have been taken.

15. Containment of Paint and Abrasive Debris

- a) Contractor to ensure total containment of the leaded paint and abrasive debris is a requirement as stated in the Environmental Protection Act. Please consult ALL *Appendices* for further information on scope of work.

- b) Please note all *Appendices* and in particular *Appendix E Additional Information* for further information highlighting areas where there are penetrations to the exterior or other areas of the building. **There are several gunports to the exterior that contractor will need to temporarily seal up to prevent lead dust and blasting media migration to the exterior. In addition to this, there are gaps between the top of the center partition wall and the attic floor joists that the contractor will have to seal off to prevent dust migration. Please consult with Departmental Representative prior to installing any blocking or barriers to ensure no permanent damage occurs to the historic building.**
- c) Lower Fort Garry is a public site and the public do access the site daily **but not this building**. Health and safety of our staff and the public is paramount. There is no public access to this building for the duration of the contract. Only designated staff (i.e. project managers, restoration workshop manager, Industrial Hygienist Contractor) would be allowed in this building.
- d) Machines must be monitored by the contractor and operated so that no visible dust or release of air occurs outside the shroud or containment system.
- e) Contractor must keep the work area closed off from the rest of the building and site and to supply and use any containment devices necessary to prevent lead and paint from migrating out of the work area. **Please consult with the Departmental Representative prior to installing any blocking or barriers to ensure no permanent damage occurs to the historic building.**

These could include but are not limited:

 - i) screens,
 - ii) scaffolds,
 - iii) supports
 - iv) shrouds or free-hanging enclosures.
 - v) drop sheets or tarps
 - vi) total structure enclosures
 - vii) ground covers
- f) Containment system must be used to enclose the entire work area or paint removal equipment to minimize and prevent any generated debris from entering the environment, and to facilitate the controlled collection of the debris for disposal according to provincial and federal requirements at the expense of the contractor.
- g) Contractor to ensure that all personnel, tools, and all other items exiting the work area are free of dust and debris prior to exiting the work area.
- h) Contractor to vacuum with HEPA and wipe down, as necessary, all tools and other items exiting the work area.
- i) Contractor to supply and use negative pressure containment to prevent lead particles from migrating outside the work area.

16. Recovery of Blasting Medium and Paint Debris

- a) Collection of paint residues must be undertaken frequently to prevent dispersal by wind or by soda blasting operations.
- b) Collection containers must not allow soda blasting wastes to spill or leak into the environment. The contractor is responsible to ensure proper management and security of these collection containers for their life cycle. This will include preventing access by unauthorized personnel and/ or release into the environment.
- c) Lead waste transported to a recycling, treatment, disposal, or management facility must be properly classified, packaged, labelled and manifested, as required by provincial and federal regulations.

17. Procedures

- a) Remove lead-based paint in small sections and pack as it is being removed in double thickness (minimum) sealable 6 mil bags and place in labelled containers for transport.
- b) Seal filled containers. Clean external surfaces of the containers thoroughly by wet sponging. Remove from immediate working area to staging area. Clean external surfaces of containers thoroughly again by wet sponging. Wash containers thoroughly pending removal to outside. Ensure containers are removed by workers who have entered from uncontaminated areas dressed in clean coveralls.
- c) Clean any fabric materials such as cloths with clean water and buckets, rinsed once and then repeated. Water to be replaced after cleaning. Water to be disposed of according to all federal, provincial, municipal requirements for lead contaminated water.
- d) Remove paint with non abrasive brushes, HEPA vacuums and soda blasting, using equipment with HEPA filter.
- e) After removal of paint, thoroughly vacuum ALL interior main floor surfaces (walls, windows, doors, casework, ceilings and floors) area using a HEPA Vacuum to remove blasting material; and debris. Wash all ceilings, floors, windows, casings, doors with warm water soap and rinse.

18. Inspection and Testing

- a) Contractor to perform inspections to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by Departmental Representative will result in work stoppage, at no cost to Parks Canada.
- b) Departmental Representative will inspect work for:
 - i) Adherence to procedures laid out in this SOW and *Appendices*.
 - ii) Final cleanliness and completion.

- c) No additional costs will be allowed by the Contractor for additional labour or materials required to provide specified performance level. **Namely removal of all paint from main floor interior Masonry walls, and 2 pieces of wood as seen in Appendix H. All federal, municipal and provincial regulations to be followed during the abatement, cleaning and disposal process.**
- d) Pre commencement, Mid abatement and a final lead surface and air quality sampling to be conducted by a third party independent of this contract at the expense of Parks Canada. Please see *Appendix I- SOW for Industrial Hygienist* to view the schedule and more information for this process.

19. Quality Assurance and Quality Control

- a) The Contractors shall identify and adhere to acceptable quality assurance and quality control (QA/QC) procedures throughout the project. QA/QC measures must be explicitly identified in the work plan and project report. Provide Departmental Representative necessary permits for transportation and disposal of lead-based paint waste and proof that lead based paint waste has been received and properly disposed.
- b) Provide proof satisfactory to the Departmental Representative that employees have had instruction on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures.
- c) Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to lead paint, provided that **in case of conflict among those requirements or with these specifications more stringent requirements apply.** Comply with regulations in effect at time work is performed.

20. Abatement and Remediation Action Plan

- a) The paint removal and abatement contractor will provide an Abatement and Remediation Action Plan based on findings from initial start up meeting, and sampling information provided by Industrial Hygienist to complete lead paint remediation from the interior stone walls and 2 pieces of wood. (Parks Canada to provide Abatement contractor with test results from Industrial Hygienist)
- b) This plan will include but is not limited to detailed work description and methods and products to be used, including full product ingredient and information, blasting pressure recommendations, on-site health and safety specifications (PPE, exposure control plans, engineering and administrative controls), supervision plans, and plan for disposal of Lead Containing Paint.
- c) Abatement and removal is to include all required legal safety requirements and take into consideration the age and condition of the historic stone walls.

d) It is expected that the removal process should be minimally disruptive to the stone finish on the walls. Only the paint is to be removed.

e) This plan is to adhere to all Federal and Provincial regulations.

f) Soda Blasting Mock ups/ Tests are to be conducted and reviewed by the Departmental Representative and this plan will be reviewed and approved by Parks Canada **prior** to proceeding with abatement.

21. Action, Informational Documentation and Submittals

Contractor to provide the following documentation/ reports:

- a) Prior to work commencement a schedule must be submitted detailing key milestones and the dates they will be reached.
- b) Prior to work commencement submit an Abatement and Remediation Action Plan for lead paint removal from the interior of the Southwest Bastion Site Remediation including but not limited to:
 - i. all site diagrams,
 - ii. details on all site remediation activities,
 - iii. photographs of the sites and structures,
 - iv. quantify the area to be remediated,
 - v. identify any risks or potential challenges,
 - vi. give a description of site conditions prior to remediation work,
 - vii. removal techniques including suggested air pressure for soda blasting and identification of process to be used
 - viii. Identify where hazardous waste will be disposed.
 - ix. Health and Safety Plan
 - x. Materials Inventory Table (includes details on all material disposal, hauling company, destination,
 - xi. WHMIS Material Safety Data Sheets
 - xii. Provide proof satisfactory to the Departmental Representative that suitable arrangements have been made to dispose of lead-based paint waste in accordance with requirements of authority having jurisdiction.
 - xiii. Provide proof of Contractor's General Insurance.

Work will not commence until this plan has been received and reviewed by the Departmental Representative. The Industrial Hygienist Contractor will also review this plan and provide recommendations to the Departmental Representative.

- c) Upon completion of work a Final Report on Abatement and Remedial Action to be submitted. The report must include but not limited to:
 - i. all site diagrams,
 - ii. details on all site remediation activities,
 - iii. photographs of the sites and structures,
 - iv. quantify the area to be remediated,

- v. identify any risks or potential challenges,
- vi. give a description of site conditions prior to remediation work,
- vii. total area remediated,
- viii. removal techniques and identification of products that were used during the process,
- ix. Identify how and where hazardous waste was disposed.
- x. Health and Safety Plan
- xi. Materials Inventory Table (includes details on all material disposal, hauling company, destination, dates removed, amounts/tonnage, and comments)
- xii. WHMIS Material Safety Data Sheets
- xiii. Provide proof satisfactory to the Departmental Representative that suitable arrangements have been made to dispose of lead-based paint waste in accordance with requirements of authority having jurisdiction.

- d) Produce and submit a final closure report to summarize the activities completed during the remediation project. Include photos from before, during and after the remediation has occurred, all materials used, and description of the work undertaken.

Within 5 days after the date of Notice to Proceed and prior to commencement of Work the following to be submitted to the Departmental Representative. These documents will be reviewed by the Departmental Representative and must be approved prior to any work on site commencing.

- i) Health and Safety Plan,
- ii) ERP (Emergency Response Plan i.e. evacuation procedures etc.),
- iii) Hot work safety procedures
- iv) Environmental Protection Plan/ Spill Response Plan.

In the event of any spill, regardless of the quantity, containment and cleanup are at the full cost and the responsibility of the Contractor. The Departmental Representative is to be notified immediately. Spills to be dealt with immediately in accordance with the spill response plan, including reporting. Environmental Protection Plan/ Spill Response Plan must at minimum, but not limited to include the following:

- i. How fueling will be done?
- ii. Type of fuel to be used?
- iii. Size of storage tank?
- iv. Approximate frequency of refuelling.
- v. If the fuelling system is automated or manual?
- vi. Where shutdowns are located?
- vii. Safeguards in place in the event of an emergency.
- viii. Contact names and numbers for equipment owners in the event of an emergency.

22. Fuel Containment and Spills

- a) The Contractor is responsible for spill prevention and containment throughout the contract. If any spills, leaks, or environmental contamination occurs, it is the Contractor's responsibility to clean up according to federal, provincial, and territorial standards.
- b) All costs due to direct or indirect impact on the site are the contractor's sole responsibility.
- c) Parks Canada reserves the right to review the full scope of site restoration.

The following measures will be followed, but are not limited to these requirements below to ensure spill prevention and equipment maintenance:

- i) Maintain and operate equipment and machinery to minimize losses of coolant, hydraulic fluids, lubricants, and fuels.
- ii) All equipment brought to the site to be inspected for leaks and worn hoses daily.
- iii) Fueling to be undertaken in the designated fueling area only and by trained personnel. Fueling area to be located at least 30 m from the nearest down gradient watercourse. Fueling location to be approved by the Departmental Representative and Environmental Manager prior to use.
- iv) Equipment with fuel leaks, or excessive oil or grease will not be permitted to enter the site.
- v) Drip trays or absorbent sheeting to be placed beneath equipment when stationary trays to be placed beneath the oil and hydraulic fluid reservoirs.
- vi) Generators to have secondary containment.
- vii) Work to be immediately stopped if equipment is leaking fluid.
- viii) All equipment leaks to be repaired prior to re-commencing work.
- ix) Maintenance of equipment to be conducted in the fueling area.
- x) Fuel cans and pumps to be stored in secondary containment and taken off site or secured onsite at the end of each workday.
- xi) Damaged equipment that is leaking fuel to remain contained in the fueling area until leak is repaired, and the Departmental Representative has inspected and approved its removal from site.
- xii) Contractor to provide appropriate spill kits for all work areas, vehicles, machinery, and mobile equipment on site.
- xiii) Any fuel operated heating systems such as diesel, gas, oil, must have a spill containment system included that is able to accommodate the full amount of fuel the tank will hold to prevent ground penetration and pollution.
- xiv) In the event of any spill, regardless of the quantity, containment and cleanup are at the full cost and the responsibility of the contractor. The Departmental Representative is to be notified immediately. Spills to be dealt with in accordance with all federal, provincial and municipal requirements and at the expense of the contractor.

23. Personnel Training

- a) Provide Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of lead exposure, in personal hygiene, in aspects of work procedures, and in use, cleaning, and disposal of respirators.
- b) Contractor to provide instruction and training related to respirators includes, at minimum ensure:

- i) Proper fitting of equipment.
 - ii) Inspection and maintenance of equipment.
 - iii) Disinfecting of equipment.
 - iv) Limitations of equipment.
- c) Instruction and training must be provided by a competent, qualified person.
- d) Provide proof that supervisory personnel have attended a lead abatement course, of not less than two days duration, approved by the Departmental Representative.

24. Requirements for workers

- a) Remove street clothes in a clean change room and put on a respirator with new filters or reusable filters, clean coveralls and head covers before entering Equipment and Access Rooms or Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in a clean change room. Contractor to provide all facilities for their workers as well as any health exams or testing required by OHS regulations.
- b) Remove gross contamination from clothing before leaving the work area. Place contaminated work suits in receptacles for disposal with other lead - contaminated materials. Leave reusable items except respirator in Equipment and Access Room. When not in use in the Work Area, store work footwear in the Equipment and Access Room. Upon completion of lead abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from the Work Area or from the Equipment and Access Room.
- c) Enter the unloading room from outside dressed in clean coveralls to remove waste containers and equipment from the Holding Room of Container and Equipment Decontamination Enclosure system. Workers not to use this system as means to leave or enter the work area.
- d) Eating, drinking, chewing, and smoking are not permitted in the Work Area.
- e) Smoking is only permitted in designated areas outside the historic grounds to be discussed at start up meeting. Contractor to provide and maintain receptacles.
- f) Ensure workers are fully protected with respirators and protective clothing during preparation of the system of enclosures prior to commencing actual lead abatement.
- g) Ensure workers wash hands and face when leaving the Work Area.
- h) Provide and post in the Clean Change Room and in the Equipment and Access Room the procedures.
- i) Ensure no person required to enter the Work Area has facial hair that affects the seal between respirator and face.

Visitor Protection:

- j) Provide protective clothing and approved respirators to Authorized Visitors to Work Areas. List of Approved Visitors to be provided by Departmental Representative at start up meeting. At minimum: 2 Project managers, Asset manager, Restoration Workshop Manager, Cultural Resource Manager.
- k) Instruct Authorized Visitors in use of protective clothing, respirators, and procedures. to be followed in entering and exiting from the Work Area.

25. Waste Management and Disposal

- a) Separate waste materials for recycling or non-hazardous waste streams in accordance with all federal, provincial, and municipal regulations.
- b) For disposal of the lead waste, representative samples of dispersible lead-based paint waste, and disposable PPE must be collected for Toxicity Characteristic Leaching Procedure analysis to determine the final waste disposal criteria.
- c) Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.
- d) Disposal of lead waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of lead waste in sealed double thickness 6 mil bags or leak proof drums. Label containers with appropriate warning labels.
- e) Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.
- f) Label containers with pre-printed bilingual cautionary **Warning Lead** clearly visible when ready for removal to disposal site.

26. Supervision

- a) Minimum of one Supervisor for every ten workers is required.
- b) Supervisor must remain within the work area during disturbance, removal, or handling of lead-based paints.

27. Scheduling of Deliverables

- a) The Contractor must maintain the project schedule agreed upon with the Departmental Representative.

- b) **All work to be completed by January 6, 2024.**

28. Budget and Schedule Control

- a) If additional work is necessary due to a change in requirements, the Contractor will notify the Departmental Representative immediately by telephone/ in person AND in writing. **No work shall be undertaken which is additional or supplemental to or in substitution of the work and budget specified in the Contractors approved work plan, unless approved in advance by the Contracting Authority.**
- b) The Contractor will provide regular updates to the Departmental Representative advising of the project status and any factors that may influence the planned schedule, budget or deliverables.
- c) The Contractor must also provide weekly updates either via email or phone during the field activities. **Throughout the project, the Contractor must notify the Departmental Representative immediately if there are any changes to the agreed schedule.**

29. Meetings

- a) Meetings and communication will be required regularly as part of this contract. At minimum there will be a Start-up Meeting, to be called by the contractor within one (1) week following the bid award. Regular communication shall occur between the contractor and Departmental Representative via phone, email or in person with project status updates.

Departmental Representatives

**Project Manager:
Heather Beerling
Heather.beerling@pc.gc.ca
204-904-7153**

**Project Manager:
Hamid Belmezouar
Hamid.belmezouar@pc.gc.ca
204-891-7467**

30. Security and Copyright

- a) Information, data, photos, drawings, etc. gathered as part of this project must not be shared and should be made available only to the Departmental Representative.
- b) The use of any data, reports, photographs or site plans submitted by Parks Canada to the Contractor (hard copy or digital) for reference purposes are considered to be the property of Parks Canada and will not be used, shared, or sold to any group for any other project other than that defined herein.
- c) Refer any queries regarding this project from the public, news media or others to the Departmental Representative. All materials produced, including intellectual material, is the property of the Crown.
- d) Reports created by the Lead Abatement Contractor as part of this project will be reviewed by the Industrial Hygienist Contractor.
- e) Test results and reports from the Industrial Hygienist Contractor will be shared with the Lead Abatement Contractor.

31. Contractor's responsibilities

- a) Remove all paint from the main floor of the building which includes all interior limestone walls and 2 pieces of wood in walls. This paint contains lead. (see *Appendix H* for images of the 2 pieces of wood). Some areas of paint are currently friable and could easily be removed by use of non abrasive brushes and vacuums with HEPA filtration. Other areas of the walls will require removal by non carcinogenic soda blasting. **There are some highly decorative corner stones that the contractor will not be removing paint from due to concerns of fragility. Please consult *Appendix G* for locations and photographs of these stones.**
- b) The health and safety of all persons on and adjacent to the site.
- c) The safety of all property on site, and the environment to the extent that they may be affected by conduct of Work.
- d) Ensuring that all workers wear appropriate safety equipment in accordance with Canadian Labour Code and that all workers are covered by the Workers Compensation Board of Manitoba.
- e) The Contractor must comply with, and enforce compliance by employees, with the health and safety requirements set out in the Contract Documents, and applicable federal, provincial, territorial, and local statutes, regulations, and ordinances.
- f) The Contractor must provide Parks Canada a copy of their Health and Safety protocols that will be followed by the Contractors workers.

- g) The Contractor must follow current Provincial/ Federal Public Health requirements. The contractor will complete required tasks from the work description, deliver reports, and follow the schedule.
- h) The contractor shall assume responsibility for any accident or damage caused by its employees or equipment to Parks Canada Agency property or personnel. The contractor shall repair any damage at their expense to the satisfaction of the Departmental Representative.
- i) The contractor shall assume responsibility for the security of its equipment and materials during and after working hours. Parks Canada Agency shall not be liable for any vandalism, theft or loss.
- j) The contractor shall ensure all work is performed in accordance with the regulations set out in the National Parks Act, and all Provincial and Federal regulations relating to this project.
- k) The contractor shall ensure appropriate health and safety procedures are followed while carrying out work.
- l) Attendance at all meetings including the project start-up meeting. Preparation of a Health and Safety Plan, Environmental Protection Plan, Spill Response plan to be submitted to Departmental Representative and approved prior to commencement of work.
- m) Produce a final closure report detailing all the site remediation activities.
- n) The contractor will provide bathrooms, change rooms, receptacles for smoking and washing facilities for their staff.
- o) The contractor will provide fencing for their laydown area if a laydown area is required. Parks Canada currently has the building fenced off with construction fencing that will remain for the duration of the project. If the contractor damages Parks Canada's construction fencing the contractor shall repair or replace at their cost.
- p) **The building is not heated. The contractor will supply and maintain heating if they determine it is necessary for the project.**

32. Parks Canada's Responsibilities

Employ at their expense an Industrial Hygienist contractor to do the following :

- a) *Conduct air quality and surface testing before, during and after the lead abatement work to advise the Departmental Representative if lead migration has occurred outside the Work Area during the removal and abatement and ensure safe process and procedures are being followed.*

Prior to abatement -Industrial Hygienist contract commencement

- Meet onsite to discuss the project.
- Review proposed methods and materials and requirements. **This will include a review of the Statement of Work and Appendices for the Abatement Contractor to provide any recommendations or flag areas of concern to the Departmental Representative.**
- Review methods and procedures
- Verify project requirements,
- Verify substrate conditions.
- Advise of existing conditions that may require notification to the Project Authority before proceeding.
- Review of Abatement and Remediation Action Plan, abatement procedures, equipment and tools, submitted by Lead Paint contractor to ensure adherence to provincial and federal standards. Provide comments and recommendations to Parks Canada.
- Review of any hoarding or containment units/ systems the abatement contractor has installed to prevent the escape of lead dust to other areas of the building or to the exterior of the building. Provide comments and recommendations to the Departmental Representative for Parks Canada.
- Submission of all materials and methods that will be used for lead testing for review by the Departmental Representative.
- Submission of Safety Data Sheets for any products being used.
- Methods and products will be reviewed by the Departmental Representative to ensure safety for use on historic limestone.
- Industrial hygienist contractor will NOT proceed until the Departmental Representative has approved methods and materials.
- Conduct 3 indoor lead air quality tests– 1 in each area of the building (attic, main floor east, main floor west) to establish a lead level baseline prior to abatement activities.
- Conduct 1 outdoor lead air quality test to establish a lead level baseline prior to abatement activities.
- Conduct 7 surface tests – 3 on each side of building -main floor east and main floor west walls, 1 in vestibule to establish a **lead** level baseline prior to abatement activities.
- Conduct 7 surface tests – 3 on each side of building -main floor east and main floor west walls, 1 in vestibule to establish if **Asbestos** exists in the paint or mortar. **If the Asbestos test comes back as positive, then this statement of work will include monitoring of Asbestos and Lead levels throughout the project.**
- Prior to abatement starting, once the Abatement contractor has installed containment and abatement equipment, conduct a pre inspection of containment equipment and containment activities to ensure abatement contractor has followed all applicable health and safety requirements and that pollutants will not escape the areas being abated.

- *Results of all testing to be provided to the Departmental Representative after each test.*
- *Attend paint removal and abatement contract start up meeting with hired abatement contractor in case of any questions.*
- *Attend health and safety training meeting run by the abatement contractor.*

Twice During Abatement contract (items below x 2):

- *Conduct 1 outdoor lead air quality test to determine if lead is escaping shrouding or containment activities are not sufficient.*
- *Inspection of containment equipment and containment activities to ensure abatement contractor has followed all applicable health and safety requirements and that pollutants will not escape the areas being abated; this includes confirming seal on the attic door remains intact so that the attic does not become contaminated during abatement.*
- *Results of all testing to be provided to the Departmental Representative after each test.*
- *Provide any comments or concerns to Departmental Representative*

End of Abatement Contract

- *Conduct 3 indoor lead air quality tests – 1 in each area of the building (attic, main floor east, main floor west) to determine if lead levels are the same or lower than prior to abatement. **Attic test to be conducted once main floor test results are received and it is confirmed that levels are acceptable.***
- *Conduct 1 outdoor lead air quality test to determine if lead levels are the same or lower than prior to abatement commencement.*
- *Conduct 7 surface tests – 3 on each side of building -main floor east and main floor west walls, 1 in vestibule to determine if lead levels are the same or lower than prior to abatement commencement. Inform Parks Canada if existing lead levels exceed provincial or federal regulations.*
- *Results of all testing to be provided to the Departmental Representative after each test.*
- *Creation and submission of a final report at the end of the project containing all tests conducted, diagrams noting where locations of all tests, safety data sheets, testing methods and equipment used, results of testing, comments, copies of certification of laboratories who did the testing that they adhere to all necessary requirements such as appropriate certification from the Canadian Association for Laboratory Accreditation (CALA) or the equivalent.*

- b) *The Industrial hygienist will provide reference to where samples have been taken this could include, photographs, georeferencing or diagrams with measurements of all sample locations for the duration of the contract (e.g., GPS, maps, or land survey).*

33. Final Cleanup

At completion of paint removal activities proceed with final cleanup.

- a) Vacuum visible lead containing particles observed during cleanup, immediately. Thoroughly vacuum ALL interior main floor surfaces (walls, windows, doors, casework, ceilings and floors) area using a HEPA Vacuum to remove blasting material; and debris.
- b) Wash all ceilings, floors, windows, casings, doors with warm water soap and rinse.
- c) Place any polyethylene sheets, tape, cleaning material, clothing, and contaminated waste in plastic bags and sealed labelled waste containers for transport to appropriate disposal facility.
- d) Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations. If more dust or debris remains, repeat cleaning with HEPA vacuums and washing floors, ceilings and woodwork, doors, casework.
- e) Repair or replace to the satisfaction of the Department Representative any damages to Parks Canada managed equipment, building or landscape as a result of the work.

34. Invoicing

- a) The Contractor is required to submit, to the Project Authority, on or after completion of the work, for each payment a signed invoice showing the following:
 - i) Contract number,
 - ii) Contractor's name, address, and GST number
 - iii) Period covered by the invoice
 - iv) Proof of Workers Compensation Board of Manitoba coverage
 - v) Progress payment form.

35. Pricing

- a) Contractor shall provide a quote for all work to be completed.
- b) No PST is to be charged, as Parks Canada is exempt.
- c) GST is to be shown separately.

36. Appendices

Appendix A – ALS Environmental Lead Testing Results for Southwest Bastion

Appendix B – Site Map

Appendix C-South West Bastion Drawings

Appendix D- Building Photographs

Appendix E- Additional Information

Appendix F- Lead Containing Materials

Appendix G- Fluted Stones

Appendix H-Non Masonry Areas that Require Paint Removal

Appendix I- SOW for Industrial Hygienist