



Parks Canada Basic Impact Analysis Template

Instructions for this form are available (see the [Guidance and Tools section](#) of the Parks Canada Impact Assessment intranet site or request from Parks Canada impact assessment staff).

1. PROJECT TITLE & LOCATION

Hopedale Mission National Historic Site (NHS) Provision Warehouse Recapitalization
Hopedale, Labrador

2. PROPONENT INFORMATION

Parks Canada, Western Newfoundland and Labrador Field Unit

3. PROPOSED PROJECT DATES

Planned commencement: 2018-05-01
Planned completion: 2018-08-31

4. INTERNAL PROJECT FILE

RPA 1131.02 Hopedale Mission NHS Provision House Recap
HMNHS-2018-001

5. PROJECT DESCRIPTION

The primary purpose of this project is to stabilize the Provisions Warehouse's structural degradation issues. This work will include heritage conservation construction services for the planned timber replacements, stabilization of the stone footings through the installation of underground drainage piping, reconstruction of period windows and doors, and cedar shingle roof repairs. Additionally, this work will include contemporary construction services for minor electrical and lighting installations, deck repairs, and painting.



Figure 1 Provisions Warehouse, June 2016





Background

Built in 1817, the Provisions Warehouse is part of the Hopedale Mission NHS. It is a cultural resource of national historic significance and the only building owned by Parks Canada at the Hopedale Mission NHS. The Provisions Warehouse is also a Recognized Federal Heritage Building because of its historical associations and its architectural and environmental value. It was built by Moravian missionaries and local Inuit and is believed to be the oldest surviving building in Labrador.

The building has long had a structural lean. A Structural Investigation was conducted in 2010 by the Heritage Conservation Directorate of Public Works and Government Services Canada (PWGSC) and led to recommendations to stabilize the building. In June 2016 Parks Canada conducted a condition assessment to identify readily apparent deficiencies, update and complement the findings of the 2010 structural investigation, assess options for the preservation and rehabilitation of the building, and establish a general scope of interventions. These two reports were supplemented by geotechnical and archaeological investigations in September 2016.

In Parks Canada's Draft Condition Assessment Report (2017), the following issues were raised:

- (1) Settlement of Foundation & Distortion of Timber Frame
- (2) Decay of Timber Frame
- (3) Alteration of Timber Frame
- (4) Decay and Deficiencies in Building Envelope

To address the most urgent of these issues and ensure the stability of the building in the medium term, the contractor will undertake the following work, as described in the set of drawings and specifications developed by Stantec ("Hopedale Mission NHS Provisions Warehouse Recapitalization Project #1131"):

Foundations:

- Restack the existing stone foundation as required along the west elevation, tight to the existing sill timber.
- Source new supplemental stone from local pit.

Under-Floor Drainage:

- Remove the existing floor boards, reshape the under-floor grade by excavating soil material to slope from the building's east side to the west side.
- Install perforated drainage tile, directed downhill to the west exterior, where it will discharge aboveground to the existing ditch.
- Reinstall the existing floor boards when drainage work is complete.

Doors and Windows:

- Replace all 8 windows and 6 doors that were installed in 2002.
- The replacement windows and doors are to be constructed with period correct joinery and craftsmanship and be detailed and installed in the framed openings so as to be water tight.

Exterior Deck:

- Cut existing deck back 76mm from the building. This will prevent snow from accumulating on the deck against the building and alleviate the associated lateral force.
- Remove and replace damage/decayed boards as required.





Roof Shingles:

- Repair roof in the locations where shingles are missing or damaged.
- Use cedar shingles to match the existing.
- Provide new drainage membrane and asphalt roll roofing and tie into existing.

Timber Frame Joinery:

- Use period-correct joinery to repair the heavy timber sections where timbers have rotted or decayed, as per drawings and specifications.
- Remove and reinstate existing brick nogging (not original) as required in order to make the necessary timber repairs. Where reinstating the nogging, correct errors made in 2002.

Site Drainage:

To improve overall site drainage and reduce surface water ingress in to the building:

- Create a swale approximately 1.2m (4') away from the building along the North end to channel and direct surface water travelling from East to West away from the building. This swale would be constructed by re-shaping the ground surface at this location.
- At the south end of the building, re-grade the ground surface so as to create a low area away from the building, approximately halfway between the building and the foot path, and create a drain from this low area, down the slope to the west.
- Install a crushed stone filled French drain along the west side that will help drain both surface water and water that migrates through the building foundations from the East side.
- Run three east-west pipes under the building to drain water.

Electrical:

- Provide new wiring and fixtures to accommodate new LED lighting on levels 1 and 2 of the building.

Fence:

- Remove existing 4-segment fence perpendicular to warehouse.
- Replace with new fence that matches the existing, but straightened.

6. VALUED COMPONENTS LIKELY TO BE AFFECTED

Use the Effects Identification Matrix (*Appendix 1*), as required, to identify potential interactions between the project and the surrounding environment.

Natural Resources:

Because this project involves maintenance of an existing building there will be limited potential for effects on natural resources. Regardless, resources in the natural environment surrounding the building which could be affected by this project include the following:

- Surface water (fresh and marine waters): Hopedale Mission is situated next to the harbour in Hopedale, a few tens of meters north from the high tide line. The site slopes to the west from the warehouse, where it drains into the estuary of a small stream. As such any surface and groundwater runoff from the site drains relatively directly into the ocean, rather than into any upstream bodies of fresh water. There are no permanent surface water bodies around the warehouse, though water may pool around bedrock outcroppings on the east side of the building.





- **Soils and Landforms:** Hopedale Mission is situated on a grassy rise along the shore of the harbour. It is surrounded by modern houses to the east, west and north, and the ocean to the south. The area around the warehouse slopes down towards the west and there is a large bedrock outcropping on the east sloping towards the building. Overburden materials generally consist either of veneers of organic soils overlying exposed volcanic and sedimentary bedrock, or sequences of till and granular deposits overlying bedrock; soils uncovered in test pits consisted of intermixed sand and gravel with trace to some organics overlying loose to compact, brown, poorly graded sand with silt to a silty sand. Soils ranged from 0.08 m to > 1 m deep. Soils on much of the site may have been disturbed as a result of long term human occupation, for example through activities such as cultivation and (historical) construction.
- **Vegetation:** The area around the mission has been disturbed by approximately two centuries of human occupation, and supports a groundcover of low herbaceous vegetation, primarily grass.
- **Species at risk:** None known in area and no critical habitat in project area.

Visitor Experience:

The visitor experience offer at Hopedale Mission NHS is provided by Agvutuk Historical Society. The visitor season mostly coincides with the shipping season, more specifically the cruise ship season. Visitation fluctuates based on the number of cruise ships that stop in Hopedale, but is in the vicinity of 400-500 people each year. The story of the Provisions Warehouse is presented via exhibits that are housed in the interpretation centre and by the Agvutuk guides, rather than in the warehouse itself.

Cultural Resources:

From a built heritage perspective, the character-defining elements of the Provisions Warehouse include the following:

- its two-storey, timber frame structure with rectangular massing and steeply pitched gable roof;
- its functional, utilitarian, vernacular construction in the Newfoundland outport style;
- its proportions and harmony with the design of other buildings in the Mission complex;
- the addition on the south elevation housing the main entrance and stairs;
- the bridge to the bedrock outcrop;
- its wood frame with brick infill and clapboard cladding, and wooden shingles on the roof;
- its post and timber construction with mortise and tenon joint assembly;
- the sparse use of small windows;
- the low ceiling on both floors;
- the stone foundation and brick nogging in the southern half of the ground floor;
- its hand-hewn timber with carpenters marks.

There are also archaeological resources both within the footprint of the building and within the Hopedale Mission NHS complex surrounding it. Among these are:

- archaeological features, contexts, and artifacts below the Provisions Warehouse floor;
- archaeological features, contexts, and artifacts in the property surrounding the Provisions Warehouse;
- remains of brick pathway that connected the buildings (west and south of the Provisions Warehouse);
- parts of old fence lines.

Finally, there are also cultural landscape features in the areas adjacent to the Provisions Warehouse:





- the yard landscape of brick pathways and uncultivated land between the buildings is valued as a feature of the physical organization of the Mission complex;
- the bedrock outcrop is valued because it was incorporated in the operation of the Provisions Warehouse;
- the fences that formerly enclosed the outer perimeter of most of the Mission complex are valued as an indication of the contrasting values between the Moravians and the Inuit in the definition, control and use of space and property.

It is important to note that only the Provisions Warehouse and cultural resources within its footprint fall under the jurisdiction of Parks Canada. The remainder of the Hopedale Mission NHS complex falls under the jurisdiction of the Nunatsiavut Government (NG).

The Provisions Warehouse project impacts many of these cultural resources.

7. EFFECTS ANALYSIS

Effects analysis considers possible interactions between the project infrastructure components and activities and the Valued Components, within the project area. Interactions may be direct or indirect and may cause a positive or negative effect. Potential effects of on the key indicators are identified by comparing the existing conditions to those which are expected to result from the introduction of the project. Note that these effects do not consider the adoption of planned mitigation measures identified in the next section, which will largely control/minimize any possible adverse effects identified here.

Natural Resources:

- Surface water (fresh and marine waters):
 - Contaminants from fuel spills or leaks from machinery, equipment and construction materials could impact water quality in surface runoff or the near shore marine environment.
 - Wind may blow construction debris into the surrounding environment (e.g. the harbour).
 - Vegetation will be removed and soils will be disturbed and exposed due to construction activities. This could create the risk of sediment runoff that could impact water quality the estuary and near shore marine environment.
- Soils and Landforms:
 - Stripping of soils and vegetation during construction and installation may negatively affect vegetation recovery and consequently impact soil stability after the project is complete.
 - Removal of vegetation and excavation could destabilise soils, increasing the risk of erosion.
 - Construction activities can lead to unnatural ground surfaces contours (e.g. rutting).
 - Contaminant spills and leaks can impact soils.
- Vegetation:
 - Vegetation will be removed in order to re-contour landforms and install water management structures to improve site drainage.
 - Toxic spills could contaminate soils and groundwater, with adverse consequences for vegetation.





- Soil disturbance may create habitat conducive to the establishment of invasive plant species that would displace or compete with native vegetation and change the character of the site.

Visitor Experience:

There are no specific exhibits set up within the Provisions Warehouse that would become off-limits as a result of this work. Indeed, as has been the case elsewhere, it is likely that visitors will actually be interested in hearing about the restoration work being done through this project, so the work could enhance their visitor experience.

Cultural Resources:

A Cultural Resource Impact Analysis (CRIA) has been undertaken to assess the project's impact on cultural resources. As part of this process, a built heritage condition assessment was undertaken in June 2016, as well as archaeological investigations in September 2016. The project could adversely affect cultural resources including the foundation, archaeological resources within the footprint (particularly the Moravian oven), archaeological resources outside the building (particularly the remnants of the brick pathway and the old fence line), as well as the quality of the building's workmanship.

8. MITIGATION MEASURES

Natural Resources

1. Prior to arrival on site equipment must be properly tuned, clean and free of contaminants, in good operating order, free of leaks (e.g., fuel, hydraulic fluid, coolant, oil or grease), and fitted with standard air emission control devices and spark arrestors.
2. Equipment will be inspected daily for fuel, hydraulic fluid, and other leaks, and for structural integrity. Detected leaks will be addressed immediately.
3. Fueling of small engines (e.g. generators, chainsaws) will not be permitted within 30 m of open water and portable containment pads must be used to prevent ground contact by accidental fuel spills.
4. Any hazardous materials or toxic products (fuels, lubricants, paint, sealants, etc.) must be securely stored and handled as per applicable federal legislation/regulations. Fuels, gases, or other deleterious substances will be contained within the appropriate and approved containers, and tanks, hoses and connections will be inspected prior to use. The contractor must have all relevant and current Material Safety Data Sheets available onsite.
5. If toxic liquids are being used (e.g., gasoline), secondary containment and spill kits must be available on site during all periods of work. These must be able to handle 110% of the largest potential spill, and workers must be trained in their use and aware of their location.
6. Spills will be responded to immediately, including immediate containment, cleanup, mitigation, and reporting to Parks Canada. Any absorbent materials used in the clean-up or soils contaminated by the spill will be disposed of in the appropriate facilities and transported in accordance with the federal Transportation of Dangerous Goods Regulations.
7. Hazardous materials and other construction waste shall not be disposed of on the national historic site.





8. Burning of any vegetation, construction debris, or other worksite materials is prohibited on the national historic site.
9. Measures must be taken to contain construction materials and debris, especially lightweight materials that might blow away, to prevent them from leaving the project area or entering the stream or marine environment.
10. Erosion and sedimentation controls must be installed prior to earthworks activities commencing to prevent runoff silts from exposed soils from entering the estuary or marine environment. Regularly inspect and maintain erosion and sediment control structures and modify or enhance measures as necessary.
11. To reduce erosion and sediment runoff, vegetation removal and earthworks should be carried out under dry conditions (i.e. no surface runoff) whenever possible.
12. Vegetation clearing and soil grubbing and removal should be limited to the minimum necessary for the completion of the project.
13. Wherever possible and appropriate, steps should be taken to restore the existing vegetation and prevent soil erosion on disturbed sites. Grass sod and topsoil that is stripped during earthworks should be stockpiled for use during rehabilitation, and then after the work is complete (a) the salvaged topsoil should be spread in areas lacking sufficient soil, and (b) salvaged grass sod should be returned to the soil surface. Topsoil and sod should be spread evenly and contoured to match the local terrain. Where sod is not being replaced mulch or biodegradable erosion control mats should be considered as an alternative means to stabilise soils until revegetation occurs naturally.

Visitor Experience

14. The project area should be maintained in as tidy a condition as is practical for the duration of work.
15. Where construction activities could present a hazard to visitors the area must be clearly marked with warning signage and barricaded from public access.
16. Efforts should be made to keep guides from the Agvituk Historical Society informed about the work so that they can provide accurate responses to questions from visitors about the conservation work.

Cultural Resources:

Heritage Structure and Craftsmanship:

17. Use spruce timber from Labrador when repairing timber frame in order to replace original materials in kind.
18. Provide photographic evidence demonstrating that the historic craftsmanship techniques detailed in the specs have been followed when conducting advance work related to the historic glazing, new wood doors and frames, new wood window sashes and frames, forged hardware and painting for woodwork.
19. Parks Canada's Built Heritage Restoration Services Coordinator will be hosting a Workshop onsite during the first week of construction. The primary focus of the Workshop will be to provide guidance and assistance in the proper execution of the work methods to be used in the project.





20. The Workshop will be centered on the project specific conditions of heavy timber joinery, historic window and door fabrication and installation, and cedar roofing repair and installation. Timber materials will be provided on site which, prior to the actual shoring and repairs to the building frame, will be used to practice the specific joinery methods that will be used in the structural repair of the Provisions Warehouse.
21. All craftsmen who will be involved in this rehabilitation project are required to attend the Workshop.
22. Floorboards to be removed and reinstalled in accordance with the provided Floor Removal Protocol (Appendix 2).

Archaeology:

23. Any work undertaken outside the footprint must comply with requirements specified by NG archaeologists. This will include but may not be limited to archaeological mitigation of the trenching work required adjacent to the building's exterior west and north walls; the exterior drainage trench; fence construction; and any excavation outside the building for the seawall and all topsoil stripping activities. The level of archaeological intervention (excavation, monitoring, etc.) outside the building must be determined by the NG archaeologist.
24. Any work within the footprint of the building must comply with requirements specified by Parks Canada archaeologists.
25. Archaeologists will manually excavate the drainage pipes.
26. Placement of east-west pipe in southern half of building is to be determined by archaeological requirements.
27. Apply Accidental Finds Protocol: If significant features (i.e., previously unknown structural remains and/or high artifact concentrations) or human remains are encountered, work must cease in the immediate area, the work area in relation to the findings photo documented and geo-referenced, and the Parks Canada project manager informed. The project manager must then contact Parks Canada's Terrestrial Archaeology section for advice and assessment of significance that will in turn determine what will be required to mitigate the chance find.
28. Any changes to the proposed plans must be submitted to Terrestrial Archaeology for review.

Concealment of wiring:

29. All wiring to be in EMT conduit that is concealed behind ceiling joists and beams such that it is not visible from door openings. Conduit to be painted matte black and run on surface of joists and beams. Cutting and/or drilling of joists and beams is not permitted.
30. Mount lighting fixtures to ceiling joists as close as possible to middle beam so that fixture is not visible from door openings. Mounting details will be developed on site with care to minimize the impact to the heritage fabric.

9. OTHER Considerations

Check all that apply

- ☐ Public/stakeholder engagement
- ☐ Aboriginal engagement or consultation





☒ **Surveillance:** PCA Archaeology will supervise interior archaeological interventions and will assist/advise the Nunatsiavut Government archaeologists, as requested, on exterior interventions. PCA Project Manager and Built Heritage Restoration Services Coordinator will supervise the start-up and final completion phases of construction. PCA will employ a permanent resident on site who will act as a Liaison between the Contractor and Parks Canada for the general construction period. The Liaison will provide construction updates as requested by the Project Manager. The Contractor will supply work schedules and photographs as requested by the PCA Project Manager

☒ **Follow-up monitoring,** required to evaluate effectiveness of mitigation measures and/or assess restoration success. PCA will develop an internal monitoring plan based on the recommendations in PWGSC's 2010 Moravian Mission Structural Investigation in order to monitor the structural lean.

☐ **Follow-up monitoring,** required by legislation or policy (indicate basis of requirement e.g. required by the *Species at Risk Act*)

☐ **SARA Notification**

For any of the boxes checked above, briefly describe what was done, how the results were incorporated into the BIA and/or outline plans for what is needed.

10. SIGNIFICANCE OF RESIDUAL ADVERSE EFFECTS

Natural Resources: Given the magnitude of effects, the phasing of project activities, and application of mitigation measures, the project is unlikely to result in significant residual adverse effects to natural resources.

Visitor Experience: Given the magnitude of effects, the fact that the site will remain open to the public during the normal operating season, and application of mitigation measures, the project is unlikely to result in significant residual adverse effects to visitor experience.

Cultural Resources: Given the magnitude of effects and application of mitigation measures, the project is unlikely to result in significant residual adverse effects to cultural resources.

11. EXPERTS CONSULTED

Include Parks Canada experts. Add as many entries as necessary for the project.

Department/Agency/Institution: Parks Canada	Date of Request: April 2016 and ongoing
Ève Wertheimer Indigenous Affairs and Cultural Heritage Directorate 105 McGill, suite 630, Montréal, Qc. H2Y 2E7 eve.wertheimer@pc.gc.ca Telephone: 438-401-0887	Senior Advisor, Built Heritage Conservation
Expertise Requested: Built heritage condition assessment and advice.	
Response: Built heritage advice and mitigation measures have been provided.	
Department/Agency/Institution: Parks Canada	Date of Request: May 2016 and ongoing





Jordan Davignon Asset and Environmental Management 30 Victoria Street, 5-78, PC-05-K Gatineau QC J8X 0B3 jordan.davignon@pc.gc.ca / Tel.: 819-420-9633 / Cel.: 819-743-0329	Manager, Architectural and Engineering Services
Expertise Requested: Heritage engineering condition assessment and advice.	
Response: Built heritage advice and mitigation measures have been provided.	
Department/Agency/Institution: Parks Canada	Date of Request: May 2016 and ongoing
Kym Terry Restoration Workshop, Built Heritage Indigenous Affairs and Cultural Heritage Directorate P.O. Box 183 Selkirk, MB R1A 2B2 kym.terry@pc.gc.ca / Tel: 204-785-6073 / Cell: 204-791-1565 / Fax: 204-482-4297	Restoration Services Coordinator
Expertise Requested: Built heritage condition assessment and advice.	
Response: Built heritage advice and mitigation measures have been provided. Will hold restoration workshop on site at the beginning of the construction period.	
Department/Agency/Institution: Parks Canada	Date of Request: February 2016 and ongoing
Martin Perron Archaeology and History Branch Indigenous Affairs and Cultural Heritage Directorate 30, rue Victoria, Gatineau (QC), J8X 0B3 Martin.Perron@pc.gc.ca Telephone: 819-420-9558 Cellular Phone: 819-639-5623	Archaeologist
Expertise Requested: Archaeological assessment and advice.	
Response: Archaeological advice and mitigation measures have been provided.	
Department/Agency/Institution: Parks Canada	Date of Request: 2016 and ongoing
Charles Burke Archaeologist Archaeology and History Branch Indigenous Affairs and Cultural Heritage Directorate 50 Neptune Crescent Dartmouth, NS. B2Y 0B6 Telephone: 902-402-8065 Facsimile: 902-426-2728	Archaeologist
Expertise Requested: Archaeological assessment and advice. Archaeological investigation and monitoring.	
Response: Archaeological advice and mitigation measures have been provided.	





12. DECISION

Taking into account implementation of mitigation measures outlined in the analysis, the project is:

- ☐ not likely to cause significant adverse environmental effects.
☐ likely to cause significant adverse environmental effects.

NOTE: If the project is identified as likely to cause significant adverse effects, CEAA 2012 prohibits approval of the project unless the Governor in Council (Cabinet) determines that the effects are justified in the circumstances. A finding of significant effects therefore means the project CANNOT go ahead as proposed.

FOR SARA REQUIREMENTS:




- ☐ There are no residual adverse effects to species at risk and therefore the SARA-Compliant Authorization Decision Tool was not required

OR, the SARA-Compliant Authorization Decision Tool (Appendix 2) was used and determined:

- ☐ There is no contravention of SARA prohibitions
☐ Project activities contravene a SARA prohibition and CAN be authorized under SARA
☐ Project activities contravene a SARA prohibition and CANNOT be authorized

13. RECOMMENDATION AND APPROVAL

(Add additional blocks as required)

Prepared by:  Darroch Whitaker, Ecosystem Scientist and Lisa Forbes, Cultural Resource Management Policy Advisor	Date: February 19, 2018
Recommended by:  Trevor Rendell, Resource Conservation Manager	Date: Feb. 20 TH , 2018
Approval signature:  A/FUS Geoffrey Hancock, Field Unit Superintendent Western Newfoundland and Labrador	Date: Feb. 20 TH , 2018

14. ATTACHMENTS

Appendix 1: Effects Identification Matrix

Appendix 2: Floor Removal Protocol – Provisions Warehouse, Hopedale Mission NHSC

Appendix 3: Hopedale Mission Site Images

15. NATIONAL IMPACT ASSESSMENT TRACKING SYSTEM

- ☐ Project registered in [tracking system](#)
☐ Not yet registered (CEAA 2012 requires PCA submit a report to Parliament annually. EIAs must be entered in the tracking system **by the end of April** to enable reporting.





Ensure that all required mitigation measures and conditions (e.g. follow-up monitoring requirements) are included in project permits and authorizations

Appendix 1: Effects Identification Matrix

Section A focuses on direct effects of the project and Section B on indirect effects that are caused by changes to the environment.

A. Direct Effects									
			Valued components potentially directly affected by the proposed project						
			Natural Resources					Cultural Resources	
			Air	Soil & landforms	Water (surface, ground, crossings, etc.)	Flora (specify, including SAR)	Fauna (specify, including SAR)	Archaeological Resources	Built Heritage
Phase	Examples of Associated Activities								
Project Components	Preparation / Construction / Operation / Decommissioning	Supply and storage of materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Burning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Clearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Demolition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Disposal of waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Blasting/ Drilling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Dredging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Drainage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Excavation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Grading	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Backfilling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Use of machinery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Transport of materials/ equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Building of fire breaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use of Chemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Set up of temporary facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





		Building conservation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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A. Direct effects continued									
			Valued components potentially affected by the proposed project						
			Natural Resources				Cultural Resources		
			Air	Soil & landforms	Water (surface, ground, crossings, etc.)	Flora (specify, including SAR)	Fauna (specify, including SAR)	Archaeological Resources	Built Heritage
Phase	Examples of Associated Activities								
Project Components	Preparation / Construction / Operation / Decommissioning	Waste disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Wastewater disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use/Removal of temporary facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use of Chemicals	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Active fire stage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Prescribed burn cleanup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Planting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Culling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Vehicle Traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Other...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





- **Section B** of the matrix should be used to identify potential indirect effects that may result from impacts of the project to components of the environment you have identified on the preceding pages (see Section A - direct effects to natural resources). Consideration of indirect effects is required under CEAA 2012 Sections 5(1)(c) and 5(2)(b), and by the PCA mandate.

B. Indirect Effects (all phases)							
		Impacts as a result of changes to the environment					
		With respect to non-Aboriginal peoples:	With respect to Aboriginal peoples:		With respect to visitor experience		
		Health and socio-economic conditions	Health & socio-economic conditions	Current use of lands and resources for traditional purposes	Access & services	Recreation & accommod'n opportunities	Safety
Phase	Natural resource components affected by the project						
Preparation /construction operation/implementation/decommissioning	Could impacts to <u>air</u> lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Could impacts to <u>soils and landforms</u> lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Could impacts to <u>water</u> (e.g. surface, ground water and water crossings) lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Could impacts to <u>flora</u> (including SAR) lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Could impacts to <u>fauna</u> (including SAR) lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Could impacts to <u>archaeological resources</u> lead to adverse effects on...	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Could impacts to the <u>built heritage</u> lead to adverse effects on...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>





Appendix 2: Floor Removal Protocol – Provisions Warehouse, Hopedale Mission NHSC

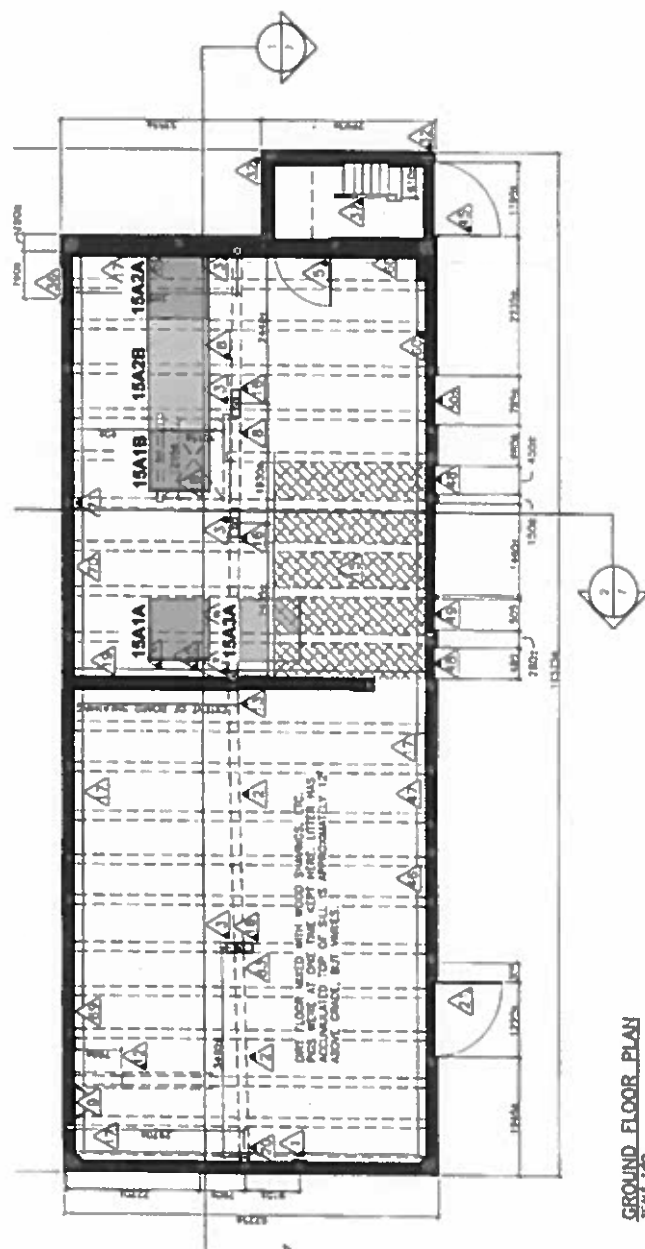
The following are the recommended steps and precautions for the removal of the ground floor boards in anticipation of the completion of archaeological and geotechnical investigations. The floorboards appear to be straight-edged rather than tongue and grooved. According to photographic records, the floor boards were not present in 1971, nor at the time of archaeological investigations carried out inside the southern portion of the building in 2001. Current floorboards were most likely installed as part of the 2002-2003 work to the building, although some may predate this. Because the existing floorboards are well adapted to the building and for the sake of economy, these should therefore be carefully removed and accurately reinstated, once all work to the foundations has been completed.

This protocol can also serve to guide similar work within the Hopedale Mission Complex.

- 1) All material and artefacts currently stored within the building should be removed and relocated to a safe and dry interim storage facility. Several of these elements are associated to the building's evolution and should be accurately measured, individually photographed, inventoried and tagged prior to their removal.
- 2) Prior to its removal, all areas of the floor should be recorded through photographs and plan sketches identifying the location of individual floor boards and of joints between them.
- 3) Remove the nails from the first board using a nail pull and pulling boards upwards with care not to damage their surface or cause any breakage. After the first board is removed, other boards should be pried up by placing a wide edged crowbar between the floor board and joist and levering it up taking care not to damage the top and edges of the board. If a board is too difficult to pry up completely, the edge of the board can be levered up slightly and the nails then cut using a "Sawzall". Care is to be taken to not cut into the joist. The shaft of the nail that remains in the joist can then be removed using a "cat's paw".
- 4) As removal proceeds, all boards should be marked in an identical location, preferably on their underside, using a grease pencil. Boards should be marked twice to limit the risk of erasure over time, and identification should be cross-referenced on plan.
- 5) Removal should proceed in a systematic manner, from one end of the building to another. Removed boards from a given area of the floor should be bundled by grouping of 10-15. These "bundles" should be carefully identified for future reinstallation (with marked reference plans). They should be stored in a safe, dry and well ventilated space, and placed off the ground, on the flat and with sufficient support, so as to avoid any damage from moisture, deflection or to their edges.
- 6) Areas at grade level below the floor which have not yet undergone archaeological investigations should be protected from any disturbance (see plan below). Any visible artefact must be left in place undisturbed. Workers should avoid stepping directly on the ground, and should walk on the floor joists. Plywood sheets can also be placed at grade to limit disturbance to the site.

Parks Canada – Built Heritage Section, August 2016







Appendix 3: Hopedale Mission Site Images

Photo 1: View of Provisions Warehouse and mission yard from west



Photo 2: Bedrock and vegetation on north side of Provisions Warehouse, illustrating the east-west slope of the bedrock.





Photo 3: Vegetation and uneven ground to south of Provisions Warehouse



Photo 4: Bedrock on east side of Provisions Warehouse





Photo 5: View of Hopedale Mission from north, illustrating slope to stream and harbour

