Parks Canada Parcs Canada

DRAFT REPORT

Provisions Warehouse
Hopedale Mission National Historic Site
Condition Assessment

Prepared For

Western Newfoundland & Labrador

Parks Canada

Prepared by

Hopedale Interdisciplinary CRM Team

Indigenous Affairs and Cultural Heritage Directorate &

Strategic Policy and Investment Directorate

Parks Canada

Draft dated

13 February 2017

Canada

1.0 INTRODUCTION

1.1 Terms of Reference

Cultural heritage specialists from Parks Canada's National Office were retained by the Newfoundland West & Labrador Field Unit to perform a condition assessment of the Provisions Warehouse at Hopedale Mission National Historic Site of Canada. The purpose of the condition assessment is to identify readily apparent deficiencies, update and complement findings of the 2010 structural investigation, assess options for the preservation and rehabilitation of the building, and establish a general scope of interventions and cost estimates for the recommended option.

This document should read as a complement to the 2010 report prepared by the Heritage Conservation Directorate of PWGSC. Its specific objectives are the following:

- Update earlier observations as reported in 2010;
- Complete the understanding of the building's evolution and of the various interventions carried out since the 1970's;
- Complete the structural assessment, identify new areas of deterioration, and in particular, confirm the progression of structural deformations since the 2010 assessment;
- Recommend conservation measures for short-term implementation;
- Consider additional measures for the medium-term adaptive-reuse of the building.

As a complement, the present document paraphrases portions of the previous report in to ensure legibility and as a means of summarising conditions that have remained stable and were previously accurately reported. This report places emphasis on new information and on the implementation of conservation measures.

1.2 Project Team

This condition assessment and issues report is a collaborative process between the national office and the field unit. It also benefits from input by representatives of other stakeholder groups.

The national office project team included:

- Lisa Forbes, Policy Advisor, Cultural Resource Management
- Ève Wertheimer, Conservation Architect
- Jordan Davignon, Structural Conservation Engineer
- Kym Terry, Wood Conservator, Restoration Workshop

The following staff from the History and Archaeology Branch were also consulted:

- Yvan Fortier, Ethno-historian
- Martin Perron, Archaeologist
- Charles Burke, Archaeologist

The Field Unit team comprised of the following:

- Darren Nicolle, Asset Manager
- Denise Knott, Project Coordinator

In addition, the project team had the opportunity to meet and tour the building site with the following:

- Dr. Hans Rollman, Professor, Department of Religious Studies, Memorial University
- David Igloliorte, Conservator, Hopedale Moravian Mission Museum, Agvituk Historical Society
- Jimmy Tuttauk, past Hopedale AngajukKâk (mayor)
- Jamie Brake, Archaeologist, Nunatsiavut Government

A meeting also took place in Hopedale on Tuesday June 28 to discuss the project with representatives of the Nunatsiavut Government and of the Agvituk Historical Society, including:

- Marjory Flowers, Hopedale AngajukKâk (mayor)
- Sean Lyall
- Greg Flowers
- Sophie Pamak
- Dave Lough

1.3 Document Review

The following documents underpin this report and constitute the main source of reference information.

- Moravian Mission, Structural Investigation, Hopedale Mission National Historic Site of Canada, Hopedale Labrador, prepared by Heritage Conservation Directorate, Public Works and Government Services Canada, January 2010.
- Provisions Warehouse Archaeological Investigations, (15A5/GiCb-06): Final Report 2016, prepared by Gerald Penney Associates Limited, November 2016.
- Geotechnical and Structural, Assessment – Hopedale Mission Provisions House, Hopedale Mission National Historic Site, Hopedale, NL, prepared by Stantec Consulting Ltd., November 2016.
- The Hopedale Moravian Mission: Adaptive Reuse Master Plan, prepared by Ekistics Planning & Design: 2013.
- The 1782 Mission House and 1817 Parks Canada Building at Hopedale: Final Report for Parks Canada, prepared by Hans Rollmann, 2001.

1.4 Limitations

Any comments or conclusions within this report are the opinions of the authors and are based upon field investigation of the current physical condition of the structures, professional judgment, and experience.

Analysis of the buildings or building components, structural or otherwise, was not undertaken in preparing this report, nor was it within the scope of the assignment. Findings in this report are unless otherwise noted based on visual review of the surface conditions.

Deficiencies existing but not recorded in this report were not apparent given the level of study undertaken. Components not included have not been reviewed, and further study would be required if their condition need be known.

Costs estimates are based on prices of similar projects and on costing manuals. More precise cost estimates would require investigations that are more detailed in order to define the scope of work. All costs are identified in 2017 Canadian dollars, include consultant and contractor costs, and exclude applicable taxes.

2.0 BUILDING DESCRIPTION

2.1 Building History

For most of the 20th century, the Provisions Warehouse was mistaken to be the original Mission House that was built upon the establishment of Hopedale Mission in 1782. It was only after the end of the cold war that North American researchers had access to the extensive Labrador archival records in the central Moravian archive in Herrnhut, Saxony, in former East Germany.[1] In 1999-2001, research proved that the building dated from 1817 and that the Moravians called it "Profiant-Haus".

The provisions warehouse was constructed in 1817 with wood from Labrador forests that was floated to Hopedale by Inuit. When built, the building had for four purposes:

1) Beer Brewing

2) Bakery

3) Provisions

4) Wood shed

In a letter to elders in Germany, the Moravians wrote on 21 August 1817:

"The saviour has also given the healthy brothers courage and powers to built [sic] with the help of the Inuit brethren for ourselves a new house with two low stories [sic], wherein one part is applied for beer brewing, another part for bakery, the third part for a provisions chamber, and the fourth part for wood shed. It has also a roomy attic, which will be beneficial for the brethren. The wood for building was floated by Inuit from a distant forest."[2]

Based on the archival research of Hans Rollmann, the following evolution of build use emerges for the Provisions Warehouse.

1817: Four uses – Brewery, bakery, provisions, wood shed.

1850s: Bakery moved to old Mission house once the new mission house was complete.

1870s-80s: Brewery may have moved from building at this time, if not before. Drawings from the visit of Bishop Reichel in 1874 show that the workshops, smithy, bakery and brewery were in the old 1782 mission house at this time.

[1] Hans Rollmann, "The 1782 Mission House and 1817 Parks Canada Building at Hopedale: Final Report for Parks Canada" (2001): p. 4.
[2] Letter to elders in Germany (Hopedale House Conference to Mission Department of the UEC), 21 August 1817. In Hans Rollmann, "The 1782 Mission House and 1817 Parks Canada Building at Hopedale: Final Report for Parks Canada," (2001): p. 45.

1889: The Moravians stopped storing provisions in warehouse because they believed the moisture was contributing to the decay of the building.

1889-on: The building was used almost solely as a woodshed. According to some accounts and supported by archaeological evidence, it would have housed livestock in the northern half of the ground floor at some point, whereas a diesel generator was located in the former bakery/brewery area during the mid-twentieth century.

2.2 Description and Construction

The following description is borrowed from the 2010 report prepared by the Heritage Conservation Directorate.

The provisions warehouse is a two-storey timber frame structure with a gable roof and rectangular footprint measuring roughly 20’-6” by 49’-0”. A 9’-6” by 4’-6” addition on the south elevation houses the main entrance and stairs between the ground and second floor levels. The ground and second floor level are divided into two rooms by an interior partition wall. The foundation is dry laid rubble stone, which has been repaired in the past with concrete and cement based mortar pointing.

The wall structures are composed of a frame of squared timber posts, braces and girt. The east and west wall frames consists of seven bays, each roughly 7’-0" in length. The posts and braces run the full height of the building and are tenoned into the sill and cap. The girts are tenoned into the posts. The braces and girts are joined with half lap connections. The girts located at the second floor level carry the floor joists, which are tenoned into the girts. The cap supports the roof framing and third floor level joists, which bear on top of the cap. The roof framing consists of tied rafters located at each post location with purlins spanning between the rafters. The floor joists span from the east to the west walls.

Brick nogging infill is visible between the framed timbers of some of the ground floor level exterior walls. Some original nogging remains at the south and west exterior walls, while the remaining areas of nogging are restoration dating from the early 2000’s. The walls are clad with 1" thick vertical sheathing varying between 4" and 12" in width and covered with painted clapboard siding. The roof is constructed of 1" thick sheathing, asphalt roll roofing membrane, drainage membrane, and cedar shingles.

2.3 Heritage Value

The HSMBC considered the national significance of the Moravian Mission at Hopedale on several occasions. It first recommended designation of the Provisions Warehouse in 1970, with the (mis)understanding that the building was in fact the first Moravian mission house, built in 1782. The limits of the designated place were expanded in 1999 to encompass the totality of the mission complex as it stands today, including the second mission house and its annexe wing, the church, reserve storehouse, the body house, and the grounds. The small powder magazine which now stands at the north-west corner of the site, was relocated from its original location outside the compound at a more recent date and was not part of this designation.

As a federally owned building over 40 years of age, the Provisions Warehouse was also recently evaluated by the Federal Heritage Buildings Review Office (FHBRO) and recommended for designation as a recognized federal heritage building. Although no Heritage Character Statement had yet been prepared at the time of writing this report, the meeting minutes do capture the committee's consensus with regards to identified values and character-defining elements for the building. These echo many of the values and character defining elements identified in the Commemorative Integrity Statement for the site (prepared in 2005).

These are quoted in the 2010 HCD report as follows:

Values:

for the Hopedale Mission complex as a whole:

- "It symbolizes the interaction between the Labrador Inuit and Moravian missionaries;
- Singularly and collectively, the mission buildings are fine representative examples of Moravian Mission architecture in Labrador."

The Provisions Warehouse more specifically (identified as a resource directly relating to the reasons for designation):

- "The physical values of the building and structures include their wooden frame construction, infill of brick (…) with wood cladding; steeply pitched gable roofs….with shallow eaves; the (…) relatively small windows with mullions and simple mouldings;
- Interior physical values include the surviving interior disposition of spaces and finishes;
- The characteristically Moravian architectural forms and motifs include the steep roofs … and the overall simplicity of the design and finishes.
- The buildings, individually and collectively, both in overall form and design details, represent Moravian architecture in Labrador.

Character-defining elements relevant to the Provisions Warehouse include:

- The evidence of Moravian construction techniques, including brick in-filling;
- The original wooden construction materials, including clapboard covered with a lime wash, and shake roofing;
- The evidence of the hand craftsmanship on most wood materials;
- The evidence of the evolution of functional design over time;
- The archaeological remains;
- The bedrock outcrop, incorporated in the operation of the Provisions Warehouse.

In addition to these, the FHBRO minutes more specifically identify the simple proportions and massing, small window openings, low ceilings and sloped roof as being typical of Newfoundland outport architecture. In addition, the small windows signal the building's primary use for storage, with limited human occupancy. The bridge is also identified as a feature linked to the local tradition of adapting buildings to their rugged environment.

2.4 Previous Interventions

The 2010 report provides a structural history of the Provisions Warehouse through historical drawings and photographs (Appendix A of 2010 report). However, we have more detailed information on early interventions to the Provisions Warehouse thanks to the extensive research into Moravian archival records by Professor Hans Rollmann of Memorial University in Newfoundland.

Key interventions that the Moravians mentioned in the Hopedale Diary and Hopedale Conference papers are the following:

1855 The walkway between the old mission house and the Provisions Warehouse was removed due to snow accumulation.

1859 Brother Ferdinand Kruth and some Inuit made repairs to the north and east sides of the Provisions Warehouse. "When Ferdinand Kruth removed the boards on the north gable of the provisions house, he found that all the construction wood had decayed. Consequently all posts, beams, and horizontal and vertical supports had to be replaced and after the repair boarded up again." (p. 48)

1863 The Provisions Warehouse was again repaired and a bridge was added to the back of the building, connecting it to the bedrock east of the building. "In the summer of 1863, Caspar Schött constructed three new bridges in Hopedale – one over the river, one over a ditch and the third "on the back of the provisions house."

1889 Problems were noted at the north and east sides of the Provisions Warehouse, where the timber had decayed and the building had sunk considerably.
No repairs could be made at this time due to lack of wood, so Brothers Kästner and Hansen did two things:

1. Supported the building until it could be repaired the following year
2. Ended the storage of provisions having found that they contributed to the building's deterioration. This involved removing the dividing wall, shelves and frames, and cleaning up the attic so all of this space was available for wood storage.

1890 Brother Käster and Inuit made extensive repairs to the Provisions Warehouse.

They dug a ditch around the building to stop water from coming in. They replaced the wooden bridge "…on the east side from the rock, a new bridge into the second story [sic] has been made in place of the old rotten one." (p. 49) And they also repaired the front steps.

1891 New shingles were put on the Provisions Warehouse and it was painted.

1913 It was noted that the west side of the building was leaning over due to the total decay of the foundations. In the fall, the Moravians made extensive repairs, which included removing and replacing all beams. Nevertheless, it was noted that it was impossible to mend the building's slight list to front.
In addition, to keep the building dry, the Moravians made a trench in the back and added clapboard to the walls. The Moravians noted their intention to paint the clapboard the following year, but whether it occurred is unknown because this was last time that work was mentioned in the minutes.[3]

1970 Designation of NHS; title of "Old Mission Building (1782)" [the Provisions Warehouse] transferred to the federal government.[4]

1971 Roof given a protective coat of 210 pound asphalt shingles. These were applied to 3/8" plywood that placed over the wooden shingles and nailed through to the rafters.[5]

1972 Indian and Northern Affairs' Restoration Services Division undertake an Architectural Investigation and survey of the building and note previous repairs, such as the replacement and/or grafting of original sills and posts.

1973 The following stabilization measures occurred in late summer of 1973:[6]

- Entire building structure jacked up
- Rotted and non-existent sills replaced with 8" by 8" creosoted spruce sills
- New stone foundation built from bedrock to about 6" above the height of the then existing level
- Misalignment of the frame corrected
- Building then jacked down onto the new foundation
- Clapboard covering on walls examined: extensive new clapboard was applied to replace missing and badly damaged pieces and remaining clapboards were renailed as required
- Window openings were covered with plywood
- 1971 roof shingles became wavy in some areas after the building was straightened, but this did not seem to affect the water tightness of the roof

1978 Hopedale visited by field unit superintendents and restoration services staff from the Atlantic region. They noted that the exterior was improved since 1972 but

[3] For further information, see the report: "The 1782 Mission House and 1817 Parks Canada Building at Hopedale: Final Report for Parks Canada" by Hans Rollmann (2001).
[4] Hale, p 1.
[5] E. J. Poirier and R. M. Peck, *Report: Trip to Moravian Sites at Hopedale and Hebron, Labrador*, January 1978, page 2.
[6] These details were recorded by E. J. Poirier, Restoration Coordinator for Atlantic Region, and Ronald Peck, Head of Restoration Design for the Atlantic Region, in E. J. Poirier and R. M. Peck, *Report: Trip to Moravian Sites at Hopedale and Hebron, Labrador*, January 1978.

that it was difficult to examine the interior of the building because it was filled with insulation, plywood and other building materials. Mr. Flowers (building caretaker?) was asked to make the following repairs before winter that year:

- Replace asphalt shingles that had blown off one corner of the back roof slope
- Replace plywood coverings that were missing from the exterior of some window openings

1988 Parks Canada stabilization work:

- Replacement and 'upgrading' of wood beams, posts, planks and sills (Based on HCD site investigation, a line of new columns and beams were added to support first and second floor level floor joists, the nature or extent of other "upgrades" is unknown)
- Replacement of clapboard on west, north and south elevations.
- New plywood sheathing nailed directly over remnants of older wood shingles, new asphalt shingles installed.
- Collar ties added to roof framing.
- "Other work" evident that predates 1988 work, but date of work is unknown.

2002 Building stabilized in advance of 250th anniversary of the Moravian missions in Labrador (The extent of work noted here is based on observations by HCD in 2009. Refer also to Appendix B for additional detailed information)
Work included:

- Local replacement of floor boards.
- Replacement of all roof sheathing with new, removal of remnants of early shingles, installation of new cedar shingle roof with asphalt roll roofing underlay.
- Reinforcement of floor framing with the addition of new members.
- "Floating" ground floor added [ref. 4]. It is not known if the floor framing is tied in to the perimeter sill timbers.
- Several of the exterior wall posts, braces and girts were partially replaced.
- Wood used for replacement included new timber as well as old timber possibly reclaimed from another structure. Connections between original and new timbers involved the use of nailed plywood gussets or simple toe nailing between the new and old.
- New brick nogging added to the walls at the ground floor level, including the south exterior wall, the southern ends of the east and west exterior walls, and the interior partition wall.
- Full replacement of all exterior wall cladding and large portions of the vertical sheathing. Apparently no attempts were made to shim the cladding to create a flat exterior elevation – the cladding was installed to follow the distortion of the frame [ref. personal communication with a worker who claimed to have been involved in the 2002 work].
- All windows and exterior doors were replaced, and new window locations were introduced at the second floor level. Historic basis for the new window locations is unknown.

- Missing timber framing elements were restored using new and reclaimed timbers.
- Wood platform constructed on east elevation of warehouse spanning from rock outcrop to east wall at the second floor level.

2009

- Site investigation carried out by the Heritage Conservation Directorate, PWGSC.

3.0 CONDITION ASSESSMENT

3.1 Methodology

PCA conducted the condition assessment of the Provisions Warehouse on June 27, 28 and 29, 2016. PCA also met with the individuals listed previously in this report to discuss the historic significance of the building, its role in interpreting the Moravian Mission site, the connection between the building and the local indigenous community, the extent of previous interventions, and previous investigations.

The aim of the assessment is to confirm, update, and further develop recommendations from the 2010 Structural Investigation prepared by HCD. The assessment included visual review of the condition of the building envelope and the structure. Deficiencies of the building components were primarily identified by means of a visual inspection. Decay of timbers was assessed by sounding, pick testing, and moisture measurements. Structural deficiencies were assessed by means of direct measurement (e.g. tape measures, laser distance measurer, spirit level, and plumb bob) and indirect assessment (e.g. photography)

Following the site visit by the PCA team, additional archeological and geotechnical investigations were conducted to assess the condition of the foundation and area beneath the ground floor decking. The investigation was conducted between September 23rd and September 27th, 2016. Findings have been integrated into the body of reports and the original investigation reports are provided in Appendix A.

3.2 Building Envelope

3.2.1 Cladding

The 2010 investigation identified the following:

- White painted horizontal clapboard applied over vertical wall sheathing;
- Cladding was installed in 2002 following the distorted building;
- Clapboard was in good condition with only local decay and corrosion of nail heads;
- There were localized instances of decay on the interior face of the vertical sheathing typically coinciding with decay of framing; and,
- There was one instance of vandalism to the cladding.

At the time of PCA's site visit the general condition of the clapboard, siding was sound, however, corrosion at the nail heads was widespread and there were small areas of localized deterioration in the following locations:

- South face of south-west annex: split board
- Evidence of movement and failure at the meeting point of the clapboard and corner boards on the north elevation (north-west corner)
- Lower boards are at grade on certain elevations (north, south, east), yet do not appear to suffer extensively from water damage (did Kym probe these?).

The interior vertical wall sheathing was completely replaced in 2002 in several areas of the building, namely the north gable wall, and all of the complete east wall. Traces of dampness were observed in the new wall sheathing, confirming the recurrence of factors of deterioration in these areas.

According to architect Ron Fougere (in conversation with Denise Knott), recladding of the building in 2002 was carried out atop the previous layer of clapboard. An opening through a cracked board on the annexe revealed asphalt paper below a single layer of clapboard, however, the presence of two layers should be verified in other areas of the building.

3.2.2 Roofing

The 2010 investigation identified the following:

- The roof is finished with cedar shingles, applied over a dimpled membrane, and asphalt roll roofing below;
- Roofing was installed in 2002;
- Some shingles were cupped and lifting; and,
- A section of roof was damaged as a result of vandalism.

While physical access was limited and observations were only possible from grade and from the east deck; the following was observed by PCA at the time of its site visit

- Whereas the 2010 report observed damage to the roofing with large areas of missing cedar shingles, this has since been remediated and the roofing appears to be sound overall, with only a few lifted, displaced or missing shingles (particularly on the roof's west face).
- No traces of current/recent infiltration were visible on the underside of the roof decking.

3.2.3 Windows & Doors

The 2010 investigation identified the following:

- All exterior doors and windows were replaced except the south attic window;
- The new doors are constructed of pine planks with galvanised hardware;
- The doors and windows lack framing exposing end grain sheathing, creating a gap around openings and allowing infiltration of water causing decay of the surrounding material;
- The replacement windows are in fair condition, but are poorly constructed and fixed directly to the sheathing; and,

- Other deficiencies include replacement glazing siliconed in place and damaged sashes replaced with acrylic sheets siliconed to the interior.

These conditions were confirmed by PCA, and the following was also noted:

- The sashes are not set in properly constructed frames, but simply screwed into the wall decking with a trim applied on the exterior around the opening.
- None of the openings are equipped with a sill and as the sashes are generally loosely fitted wind-driven precipitations is allowed into the building.
- The north-east door at 2nd floor was observed to be particularly problematic; the opening cannot be tightly closed (with daylight visible around the door leaf) and evidence of water entry was demonstrated by extensive dampness in the wall frame and sheathing below.
- All doors have been replaced in the 2002 campaign of work, with inaccurate reproductions. At least two historic doors which appear to belong to the building are stored inside and seem in reasonably sound condition. It is unclear why these were removed. (question for R. Fougere)
- Despite the previous report's claim that the south gable window may be of an earlier construction, current observations lead to believe that it is contemporary to other replacement sashes.

3.3 Structure

3.3.1 Foundation

The 2010 investigation identified the following:

- The above grade portions of the foundation walls are in poor condition;
- The dry laid stone foundation walls are poorly constructed of small and irregular stones. Many of the stones were loose and could be removed by hand;
- Repairs were completed using mortar and cement to fill gaps and stabilize the stones work;
- The foundation extend above grade between 0 mm and 275 mm with the majority only extending 50 mm above grade; and,
- Exterior site grading is sloped down towards the west elevation and there is a large bedrock outcropping on the east sloping towards the building.

The 2010 investigation reports cites a 2001 archeological report as a source of the following sub-grade information:

- Bedrock slopes down towards the south end of the building;
- Bedrock is located 15-25 cm below grade at the north wall and more than 42 cm below the south wall;
- Founding soils are described as sand lenses with varying amounts of coarse gravel and silt.
- Overburden is a peaty stratum of buried sod;

- The south side foundations are set in a 2.3m wide and 45cm deep trench. The north side foundations are set on the grounds surface partially on bedrock, partially on sand;
- The footing consists of three courses of dry laid rectangular stones.
- The top course may not be original and in places has been partially replaced or consolidated with concrete.

At the time of the site visit PCA noted the following observations:

- The visible portion of the foundation walls are in very poor condition. The majority of dry laid stones could be removed by hand and there is a significant hole in the foundation below the door in the center of the west elevation.
- There is evidence of cement and mortar in the upper courses of the foundation walls that is in poor condition. Generally, stones abutting repairs are displaced and deteriorated;
- The foundation extends very little above grade; however, on parts of the west elevation up to three courses of stone are visible above grade; and,
- Exterior site grading is sloped down towards the west elevation; however, the ground on the south and a west side of the building is damp and spongy.

The 2016 archeological and geotechnical investigations observed the following:

- Overburden materials in Hopedale generally consist of veneers of organic soils overlying exposed bedrock or sequences of till, and granular deposits overlying bedrock. The depth of overburden in Hopedale can reach as much as 9m;
- Bedrock within the community consists of a variety of volcanic and sedimentary type rock that have been metamorphosed;
- The soil materials 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. No evidence of finegraded soils were observed;
- The depth of bedrock varied from 80mm to more than 1040mm (the maximum reach of sounding probe);
- Groundwater was not encountered in test pits but wetting of the probe was noted at several locations;
- Test pits dug to expose the foundations found the walls consists of three courses of dry laid rectangular stones which are in poor condition;
- Settlement of the masonry foundation was observed and is believed to be a likely cause of the lean and distortion of the frame; and,
- Observations are consistent with past reports, including the 2010 Structural Investigation by HCD.

3.3.2 Timber Frame

The 2010 investigation identified the following:

- The timber framing is in relatively good condition with instances of localized decay and structural distress;

- The framing is well preserved, however recent alterations made in attempt to stabilize the structure may represent long-term issues with the structure's serviceability;
- Decay was observed primarily on the east wall, generally at horizontal girts below window and door openings. Posts and braces located below or adjacent to window and door openings were also often decayed. There are also are instances of materials decay abutting previous repairs, likely due to failure to remove all of the decayed wood. Finally, the accessible sill timbers were sound with no evidence of crushing which might signifying advanced decay;
- The remaining original section of the repaired rafter tie (either in 1988 or 2002) at west end of north wall is fractured;
- There is opening and twisting of joints, particularly at the scarf joint in the cap on the east elevation wall;
- Fractured dowels and movement where second floor joists frame into west wall girt (joists XVIIII, XXI, XIII, and X);
- There are instances of minor distress including shear failure of two roof purlins, a fracture in the west elevation diagonal brace, and fractured dowels at top posts of the second floor partition wall;
- There is significant and deep checking of floor as well as notable deflection of floor joists. The quality was determined, based on checking, notes and grain slope, to be poor or equal to contemporary No.2 grade lumber;
- Framing added in 1988 to support the second floor joists is in relatively good condition. Some of the 1988 posts are not in contact with the 1988 beams and the beam below the second floor is significantly deflected;
- Structural alterations to the original timbers are undated and all completed in a similar manner: splices of new and reclaimed wood supported by plywood gussets. The splices were evidently not designed by a structural engineer and many of the original mortise and tennon joints have been replaced with joints that are unable to transfer tensile forces, leaving the walls unrestrained against lateral movement; and,
- In 2002 the brick nogging was extensively replaced. The new nogging was in good condition. Like the original nogging, it was mortared tight to the framing, significantly stiffening the south end of the building and increasing weight on the foundations. The repair mortar is cementitious.

At the time of the site visit PCA noted the following observations:

- In general, observations made during the site visit were consistent with the findings of the 2010 Structural Investigation report prepared by HCD. No new work appears to have been undertaken since the issuance of the HCD report;
- Significant decay of the timber frame on the east elevation primarily below door openings along girts. Decay appears to originate from both grade and the deck at the second floor;
- Localized decay on the west elevation where the vertical sheathing was replaced;

- Localized decay on the north elevation below on the columns and girts below the attic window and hatch, as well as on the column in the NW corner.
- Higher moisture content in timbers on the SE corner around the nogging and decay abutting previous repairs;
- Significant deflection of the second floor joists as well as general sagging of the second floor towards the center of the building. Deflection of joist in EW direction measured to be up to 100mm and general sag towards the center of the building in the NS direction up to 180mm. Deflection is more significant on the north half of the building where material is stored on the second floor; and,
- Deficiencies in the execution of previous repairs are consistent with findings of the 2010 Structural Investigation report prepared by HCD.

3.4 Building Lean & Distortion

The 2010 investigation identified the following:

- The building leans primarily to the west, with a lesser lean to the south and an accompanying slight twisting;
- Measured with a plumb bob with an accuracy of approximately +/- 6mm, the lean to the west is approximately 3 degrees from vertical at the NW corner and 1.2 degrees from vertical at the SE corner. The SW corner leans to the east approximately 0.5 degrees from vertical. The lean towards the south is approximately 1 degree from vertical at the NE corner and 0.3 degrees from vertical at the SE corner;
- Settlement was measured between the NW and SW corners to be approximately 180mm (north corner lower); and,
- There is a 12mm wide gap between the east side deck, constructed in 2002, and the east side wall.

At the time of the site visit PCA noted the following observations:

- The building primarily leans to the west and south and has a slight twist;
- Measured with plumb bob to an accuracy of +/- 3mm, the lean to the west at the NW corner is approximately 3.3 degrees from vertical, 3.6 degrees from vertical at the NE corner, 0.6 degrees from vertical at the SE corner. The lean at the SW corner could not be measured.
- Measured with a plumb bob, the lean to the south, observed in 2010, was less than 1 degree from vertical in all directions and repeated measurements resulted in a significant range in values.
- Settlement was measured between the NW and NE corners to be approximately 180mm (west corner lower);
- Settlement between the NW and SW corner was not accurately measured, however the center of the west elevation appears to be 100mm lower than the NW and SW corners; and,
- The deck on the east side is in contact with the building at its north and south corners.

4.0 ISSUES ANALYSIS

The following discussions focus on the settlement of the foundation and distortion of the timber frame, decay of the timber frame, past alteration of the timber frame, and the decay and deficiencies of the building envelope.

4.1 Settlement & Distortion of Timber Frame

Measurements of the buildings distortion and settlement made by PCA during the site visit are generally consistent with the measurements made by HCD in 2010. As concluded by HCD and the current geotechnical assessment, PCA is of the opinion that the building is presently stable and has not suffered significant movement since 2010.

The cause of the settlement and distortion of the timber frame is believed to be primarily a result of settlement and deterioration of the foundations. Observations made by PCA of the deterioration of the upper course of the foundation walls and observations of the below grade portion of the wall made in test pits are consistent and indicate that settlement are a result of founding materials, foundation construction, deterioration, and inappropriate repairs.

The current geotechnical investigation appears to have ruled out suspected secondary causes of settlement identified by HCD in 2010 such as ground water; however, the shallow portions of the foundation remain susceptible to frost heave due to the presence of organics in the overburden. The foundations also remain susceptible to differential settlement due to their founding on dissimilar materials.

Other aggravating factors include:

- The weight of the stored materials on the second floor;
- Snowdrifts collect on the deck and push against the east side of the building;
- Alterations to the timber frame that alter the load paths and deteriorated the lateral load resisting system; and,
- Replacement/reinstatement of the brick nogging altered localized loading and frame stiffness.

The general condition of the building, as observed by PCA and reported by HCD in 2010, appears to indicate that the building is currently stable in its deformed state. However, as a result of the many changes to the building, it is difficult to ascertain without a detailed structural analysis if the structure will remain stable. Furthermore, the foundation remains susceptible to further deterioration and settlement as a result of the bearing conditions

In order to ensure the building's long-term stability it is advisable that the foundations be carried down to bedrock. However, due to the inherent instability of the dry laid masonry foundations, underpinning is not advisable. Therefore, replacement of the entire foundation should be considered. The new foundations could be clad with masonry to replicate the appearance of the dry laid stone or alternatively piles could be installed under each building column to enable preservation of sections of the dry laid masonry foundations.

4.2 Decay of Timber Frame

Based on site observations and elevation drawings included in the 2010 Structural Investigation report by HCD, decay appears to have increased in the last 6 years. Decay remains most prevalent below the doors on the east elevation and below door openings on horizontal girts and columns. Decay has also increase on the north, south, and west elevations.

Factors contributing factors to increase of decay include:

- Failure to completely remove decayed wood and treat remaining wood during previous repairs;
- Continued wetting of the cladding and framing from wind driven rain
- Snow drifting, collecting and melting on the east deck elevation;
- General deficiencies in the building envelope allowing ingress of water into the building and failure to protect end grain of timber elements;
- The naturally humid marine environment in Hopedale;
- Sustained humidity levels inside the building due to the presence of damp soil and lack of ventilation.
- The presence of moisture retaining materials such as stored materials, saw dust, the brick nogging, and decayed wood frame elements.

In order to ensure the long-term serviceability of the building and to prevent further decay of the frame it will be necessary to:

- Improve the weather tightness of the building envelope, notably by modifying the frame detailing of the window and door openings and replacing sashes with soundly detailed elements;
- Improve water shedding details and waterproofing of window and door openings, by adding sills and headers as appropriate;
- Improve ventilation of the crawl space below the floor boards to aid in drying the timber sills;
- Remove existing decayed wood and moisture retaining materials;
- Reduce humidity levels in the building by drying the soil within the buildings footprint or installing a vapour impermeable membrane over the soil.
- Address causes of wetting on the east side of the building by either eliminating the source of water or installing a waterproof membrane under the siding to protect the vertical sheathing; and,
- Install drainage around the perimeter of the building to capture and direct surface water that may pool around bedrock outcroppings on the east side of the building.

4.3 Alteration of Timber Frame

There have been many alterations to the superstructure of the Provisions Warehouse including splices to frame members to address decay, the addition of secondary structure to support the second floor, the replacement of brick nogging, and repairs to the foundations. Although the distortion of the frame is likely a symptom of foundation

settlement, it is possible that improperly designed alterations to the timber frame have aggravated the condition and compromised the long-term serviceability of the building.

The modified superstructure should be assessed in detail to determine the capacity of the timber frame in its current condition and to determine the likelihood of failure should rehabilitation not be undertaken. The structural analysis would also serve to identify what further alterations are required in order improve the frame's ability to resists lateral loads prescribed by the current edition of the National Building Code of Canada and to determine the necessary alterations in order to improve the gravity frame to support a change in occupancy.

As explained by HCD in the 2010 Structural Investigation report, it is important that no further alterations be undertaken under the auspices of reversing the negative effects of previous interventions without further analysis. Due to changes in the framing, the load paths have been modified and reversal of previous repairs may be detrimental to the stability of the frame. However, should no alterations be planned in the near term, it is advisable to undertake temporary repairs to reinforce deficient connections which have lost their ability to transfer shear or tensile forces. Such work should be designed to be reversible to enable possible future interventions to restore the timber frame to its original condition.

Restoration of the timber frame cannot be completed until the foundations have been addressed. Following stabilisation of the foundations, the building frame could potentially be straightened is desired; however the lean does not appear to indicate significant structural distress and its correction would require removal of all exterior cladding. Once the foundation are rehabilitated, restoration of the timber frame should aim to replicate the original joinery and splice original material in a manner which is capable of transferring all primary and secondary loads. Splices should be constructed in a sympathetic manner (potentially using concealed hardware) employing timber material that is compatible with the original material both in size and species. Finally, because of aging and drying of original timbers, it will likely be necessary to reinforce the existing floor structure to restore the gravity frame system. Reinforcements should be sized to minimize their visual impact and installed in a manner which will have minimal impact on the original material (i.e. does not require that original material be cut or altered to accommodate new structural members).

4.4 Cumulative Impact of Past Work to the Heritage Character and Integrity of Character Defining Elements

As described in section *2.3 Heritage Value*, many of the values of the Provisions Warehouse lie in its historic fabric, comprised of locally sourced timber and imported white-washed brick nogging, as well as in the craftsmanship, incorporating traditional Moravian building techniques, adapted to the context of a new Inuit community. As demonstrated through historical records, the building has undergone constant transformations over time to correct certain deficiencies and meet changing functional requirements, however, work carried out on the building in the most recent campaign of work does not hold the same

continuity. While well-meaning, it has in fact contributed to the loss of some of the building's character-defining elements, and to the erosion of the values they hold.

As identified in the HCD report, many of the recent interventions to the building have been carried out without a consistent and overarching conservation approach. More specifically, these include:

- The varying quality of repairs and treatment to the timber framing, which include plywood gussets and faulty connections in the repairs to the timber framing;
- The full replacement of the windows and doors with inaccurate and poorly detailed units;
- The partial replacement and reinstatement of missing nogging with new prefabricated brick, laid using thick joints of a cement-based mortar. These differ substantially from the original white-washed brick and mortar assembly, as can be seen in the remaining portions of nogging, located in the south-west corner of the building.

In addition to these, the impetus behind certain changes remains unclear:

- The modification of the window and door openings, which are known to have undergone constant change in the life of the building;
- The removal of historic doors which appear to be in sound condition.

Independently of the extent of the next phase of conservation work to the Provisions Warehouse, reversal of some of these changes is desirable, as it will correct deficiencies and contribute to improving the building's commemorative integrity. The following is therefore recommended:

- Reinstatement of appropriate replica window sashes and framing details at the openings, based on documentary and physical evidence;
- Reinstatement of the historic doors stored within the building to their respective openings, if their condition allows for it;
- Reinstatement of appropriate period detailing for structural connections, reinforcements and replacement of deteriorated timber framing elements;

It may be desirable to remove contemporary structural elements that degrade the integrity of the character defining elements. For instance, analysis may demonstrate that the mid span shoring, installed beneath the second floor, could be altered or even removed. To this end the structural assessment of the building should consider true permissible material performance of the existing structure instead of relying on general code values. Consideration should be given to determining maximum permissible deflection of second floor joists and beams, maximum lean of columns, and allowable checking or splitting of timber elements based on loading and not necessarily serviceability. The results of the analysis will demonstrate which modern intervention can be reversed, which can be altered, and which must be maintained or re-instated. Finally, consideration should be given to selecting modern interventions that do not impede or over shadow the original timber frame.

5.0 OPTIONS ANALYSIS

5.1 Conservation Approach

To be completed

The conservation approach will be articulated in accordance with the *Standards and Guidelines for the Conservation of Historic Places in Canada* and the *Cultural Resource Management (CRM) Policy*, on the basis of both the Commemorative Integrity Statement for the National Historic Site, and FHBRO's Heritage Character Statement.

5.2 Future Use & Occupancy

With the exception of the relatively short-lived use of the brewery and bakery in the southern half of the ground floor, the Provisions Warehouse was never intended for human occupancy. Its primary use as a storage facility is reflected throughout its design. Future uses involving extensive human occupancy are therefore limited, unless significant changes are made, with considerable impact to the building's heritage character. The following characteristics restrict the range of possible uses:

- The low ceiling height on the ground floor and minimal height of door openings throughout;
- The poor daylighting inside the building due to the small number and size of window openings;
- The poor weather tightness of the building envelope and limited comfort level it allows for;
- The stepladders which limit internal vertical circulation between floors;

Certain features do however create opportunities in identifying new uses:

- The relative ease of access to both the ground and second floor from the exterior
- The minimal partitioning of interior spaces which offer some flexibility.

Finding a viable new use for the Provisions Warehouse is closely tied to the renewal of the Hopedale Mission Complex as a whole. The 2013 *Adaptive Reuse Masterplan* identified some possibilities for revitalization and reuse of the buildings, however, this exercise was only carried out at a conceptual level. Moreover, the viability of its implementation depends largely on external factors. Though there is a clear desire to promote tourism in Hopedale and increase the site's visitation, the community's remoteness remains an obvious challenge in reaching these objectives.

Because of the relative prominence and better suitability of the Mission House and Annex in accommodating human occupancy, these will likely be the main drivers in attracting users and visitors to the site in the future. At this stage and without a clearer program of use for these other buildings of the Hopedale Mission Complex, it remains difficult to attribute a definitive use to the Provisions Warehouse and to specifically identify the extent of interventions which are therefore needed for its rehabilitation.

5.3 Options

The following options have been developed in accordance with the intent and principles identified in the Conservation approach, and to respond to varying levels of human occupancy and possible uses. They are extremes in a range of possibilities, and intended as a starting point for discussion, keeping in mind that scaling and variation is possible within each of these.

5.3.1 Option A - Preservation in Existing Condition

Use & Occupancy: Access to the building would be limited. Special visitation would be possible for small groups accompanied by a Parks Canada Agency or Agvituk Historical Society representative. General visitation by the public would be limited to the observation of the interior through open doors with cordons across the opening. Storage would be limited to non-hazardous/non-flammable materials only arranged and distributed in an organised fashion according to the specific instructions of a structural engineer. Heavier loads would be placed on the ground floor, and light loads in the second floor and attic.

Interventions: The scope of interventions would be limited to those deemed necessary to ensure the preservation of the building in its existing condition in the medium term. It is not the intent of this intervention to address all deficiencies nor to meet all provisions of the National Building Code of Canada 2015.

Structural interventions would be limited to the repair/replacement of decayed timbers as well as replacement of some inappropriate previous interventions such as braces, column splices; reinforcement of damaged timber elements; modification of the exterior raised platform and/or reinforcement of the building's lateral force resisting system; and, repair in-situ of the masonry foundations.

Only small modifications would be carried out to the building envelope, in order to remediate major deficiencies such as the entry of water at the window and door openings, with adjustments to the frame details. Replacement of the window sashes with period-accurate units would improve the commemorative integrity of the building and enhance its heritage character.

Finally, this option includes reinstatement of the building's electrical system to ensure minimum interior lighting and the installation of commercial dehumidifier designed to reduce interior humidity during periods of prolonged closure.

Pros: The scope of this intervention is minimal therefore having little impact on the historic fabric of the building, reducing overall construction costs, and reducing the construction schedule.

Cons: The minimal nature of interventions precludes future use of the interior space as part of the sites visitors' experience beyond limited guided tours. Careful management of material storage increase the level of effort on the part of the asset management team and there remains a risk that uncontrolled storage of materials causes the building to become distressed. The limited intervention on the foundation means the building remains vulnerable to frost heave or settlement and therefore further interventions may be required in the future.

5.3.2 Option B – Limited Rehabilitation to Accommodate Limited Visitation and Occupancy

Use & Occupancy: The occupancy of the building would increase to accommodate limited un-supervised visitation of parts of the interior space. Occupancy would not comply with the live load requirements for a traditional assembly area defined according to the National Building Code of Canada 2015. Therefore, a maximum occupancy would be posted at building entrances and the space would not be suitable for use for local assemblies. Storage of non-hazardous and non-flammable materials would be permissible in a controlled manner with heavy materials limited to the ground floor and lighter materials on the second floor and in the attic.

Potential uses of the building could include storage of materials on the ground floor and attic, and seasonal occupancy of the second floor for the purpose of public visitation, to house a craft shop, gallery or a temporary limited exhibition space. The deck could serve as an exterior extension of this use.

Interventions: The scope of interventions would limited to meet the needs of the new occupancy. It is not the intent of this intervention to address all deficiencies or to meet all provisions of the National Building Code of Canada 2015.

Structural interventions would include repair/reinforcement of the existing masonry foundations whereby the missing portions of the masonry are rebuilt and the dry stack masonry is pointed to improve its structural integrity. The timber frame would be repaired and reinforced and new shallow concrete pad footings added to support new framing elements. Decayed timbers would be removed and replaced. Previous incompatible repairs would be replaced. The floor structures would be reinforced to support a new live load of 2.4kPa, and the walls/roof framing would be reinforced to resists lateral wind and snow loads including those imparted snow accumulation on the exterior deck.

Only small modifications would be carried out to the building envelope, in order to remediate major deficiencies such as entry of water at the window and door openings, with adjustments to the frame details. Replacement of the window sashes with period-accurate units would improve the commemorative integrity of the building and enhance its heritage character. Consideration could also be given to reinstating certain of the former door and window openings that were removed as part of the 2002 campaign of work in order to improve daylighting inside the building. Introduction of an air barrier in the wall assembly could also be considered to improve comfort level in shoulder seasons.

Some interventions would be necessary to accommodate the new occupancy on the second floor and improve accessibility. The connection between the platform and building would be modified to allow access without creating a permanent connection to the deck structure, and a ramp/stair built to facilitate access to the deck from grade. On the interior, small modifications may be required to ensure user safety (ie. closing-off access to the step-ladder in the south-east corner) and to support the seasonal use.

Finally, this option includes reinstatement of the buildings electrical system to ensure standard interior lighting to accommodate the specific needs of the selected occupancy type. To accommodate seasonal occupancy air ventilation system would be added to ensure air quality during occupancy and a commercial dehumidifier would ensure maximum humidity levels during periods of prolonged closure. This option does not include allowances for interior plumbing and therefore the building cannot support occupancy, which requires potable water or sewage systems.

Pros: The scope of this intervention is the minimum necessary to accommodate a minimal visitor experience and asset management functional program. The building is seasonally accessible by the public and is integrated into the visitor experience of the site. Costs and construction schedule are balanced and provide a tangible return on investment.

Cons: The occupancy of the building remains limited and careful management of material storage and occupancy increases the level of effort on the part of the asset management team. There remains a risk that uncontrolled storage of materials or occupancy causes the building to become distressed. The limited intervention on the foundation means the building remains vulnerable to frost heave or settlement and therefore further interventions may be required in the future.

5.3.3 Option C – Extensive Rehabilitation to Accommodate New Occupancy

Use & Occupancy: The occupancy of the building is upgraded to comply with the requirements for an assembly area as defined by the National Building Code of Canada 2015. The building is made suitable for permanent human occupancy, including commercial use (tea-house or coffee shop) and light industrial use (micro-brewery), as identified in the 2013 Adaptive Reuse Masterplan. The public may visit the building without restriction and the building is made suitable to house permanent exhibits. Finally the building`s structure is upgraded to ensure long-term stability in accordance all applicable design requirements and new services are added to the building to service occupancy requirements.

Interventions: The scope of interventions would be extensive and address all deficiencies to ensure long-term building stability and accommodate the needs of the new occupancy. It is the intent of this intervention to meet as so far as is possible all provisions of the National Building Code of Canada 2015.

Structural interventions would include replacement of the existing foundations with new reinforced concrete foundations. The original dry stacked masonry foundations would be salvaged and installed as a grouted veneer on the face of the new foundations in order to maintain the current appearance of the building. The timber frame would be repaired and modified to suit the new occupancy, to resist prescribed wind and snow loads, and resist at minimum 60% of the National Building Code of Canada 2015 prescribed seismic loads. All existing inappropriate past interventions would be removed and replaced. Decayed timbers would be replaced or repaired. The brick nogging would be altered to accommodate movement of the timber frame, the lateral force resisting system would be reinforced, and the gravity frame would be reinforced.

Two approaches are possible in creating a building envelope that can accommodate year-round occupancy:

- The first would involve upgrading the exterior wall and roof assemblies to incorporate waterproofing, weather barriers, insulation, air and vapour control membranes, as well as connections to window, door and roof assemblies. Former door and window openings that were removed as part of the 2002 campaign of work would be reinstated and new openings could be considered in order to improve daylighting inside the building. Windows would be modified to incorporate a sealed double glazed sashes and/or exterior storm windows. The doors would be replaced with new wooden doors with integrated insulation and

weather seals. The roof would be modified to incorporate necessary flashings and details to ensure maximum serviceability.

- The second would involve creating a new self-contained sealed enclosure within the building, that is physically distinct from the existing envelope and incorporates insulation and weather barriers (or "shell within a shell"). While this would limit the need to upgrade the existing wall and roof assemblies, windows and doors, it would however create larger loads on the existing structure and a loss of usable interior space.

In either case, the interior would be modified/upgraded to meet access/egress requirements, depending on the nature of the building use, and the distribution of functions within the building (ie. openings may need to be modified, code-compliant stairs may need to be introduced to provide a second means of egress from the second floor). Furthermore, the modification of the exterior walls would likely be carried out on the interior side, concealing all or part of the wall frame.

Further interventions would be necessary to meet accessibility requirements. The connection between the platform and building would be modified to allow access without creating a permanent connection to the deck structure, and a ramp/stair built to facilitate access to the deck from grade. The interior staircase would be modified to enable travel between the two floors or else the area cordoned off with appropriate safety measures to ensure public safety.

A new code compliant electrical system would be added to support both lighting and heating, a new HVAC system installed to accommodate year round occupancy, and a full plumbing and sewage system to support the selected building use(s). Depending on the use, sprinklering may also be required to meet fire-safety requirements.

Pros: Full use of the building with enhanced visitor experience. The building forms one of the central foci of the visitors' experience to the Hopedale Mission NHS, possibly accommodating a range of social and economic functions. The serviceability of the building is maximised limiting the maintenance burden placed on the asset management team.

Cons: This is the most extensive scope of work with significant risk for affecting or degrading the integrity of the historic factors. The cost is the highest and the schedule is the longest of the three options and faces significant logistical hurdles.

6.0 RECOMMENDATIONS

This section will be completed following the options analysis. The recommendations will be made in view of the selected option. The option analysis documents will be included in the appendices of this report.

Appendix A: Options Analysis

Analysis of Options for Interventions to Cultural Resources

[Name of the Cultural Resource and Protected Heritage Place]

Executive Summary

Brief explanation of the issue and presentation of the proposed options.

Recommended Option(s)
Briefly explain the option(s) recommended, and the rationale for this recommendation.

Context

1. *Explain the operational and/or conservation issues that the proposed options are trying to address.*

2. *Using appropriate statements of heritage value (Heritage Character Statement, Heritage Value Statement and/or Commemorative Integrity Statement) and visual documentation (pictures, plans, etc.), explain which elements of the site and of the cultural resource(s) will be affected by the proposed intervention. You can also add appendices for statements of heritage value and/or visual information.*

Result of the Agency's asset prioritization exercise at the FU level
Fill out this box using the result of the Field Unit asset prioritization exercise related to the site and cultural resource(s) affected. *If Federal infrastructure Funding was approved for this proposed intervention, provide the total (multi-year) budget allocated.*

Options Evaluation

Description of Options

Option 1 - [name of option]

Identify and organize the options. If possible, indicate the primary conservation treatments from the Standards and Guidelines for Conservation of Historic Places in Canada (S&G): preservation,

rehabilitation or restoration. You may have as many options as you want. You do not need to provide an option for each conservation treatment.

Describe each of the proposed options separately, providing as much detail as possible on the different actions involved. Fill out one of the tables below for each option, using the consideration provided, and adding others if need be.

It is essential to work with the appropriate functional specialists

[NAME OF OPTION]	
Considerations	**Comments**
Primary conservation treatment under the S&G	
Respect of the three Principles of the CRM Policy • Understanding heritage value • Sustainable conservation • Benefit to Canadians	•
Sustainability of the option • Length between interventions • Ongoing maintenance required	•
Impact on heritage value and Character-defining elements • Impact on status of cultural resource • Impact on Commemorative Integrity of NHS (when applicable) • Impact on FHBRO designation (when applicable)	•
Impact on the condition of asset	
Impact on Natural Environment	
Impact on Visitor Experience	
Impact on Visitor Safety	
Risk for the Agency: Impact on Community – Public perception	
Cost	
Other (if required)	

Option Recommendation – [NAME OF OPTION]

The following considerations have a bearing on a final decision:

Using bullet points, please provide the most important considerations for decision-making

Evaluation Team

Provide the name and title of the team leader and participants to the evaluation.

Appendix B: Bibliography, by year of publication

2017
- FHBRO Provisions Warehouse Evaluation Notes (Draft)

2016
- Gerald Penney Associates Limited. *Provisions Warehouse Archaeological Investigations, (15A5/GiCb-06): Final Report 2016*. November 2016.
- MacFarlane, Kate. *Evaluation Report: 15-184 – Provisions Warehouse, Hopedale Mission National Historic Site of Canada, Hopedale, Labrador.* Federal Heritage Buildings Review Office. 2016.
- Stantec Consulting Ltd. *Geotechnical and Structural, Assessment – Hopedale Mission Provisions House, Hopedale Mission National Historic Site, Hopedale, NL*. November 2016.

2015
- Gerald Penney Associates Limited (GPA). "Hopedale Moravian Mission Site (GiCb-06), Historic Resources Overview Assessment, Final Report 2014." 2015. On file at Torngâsok Cultural Centre, Nain.

2014
- Gerald Penney Associates Limited (GPA). "Hopedale Moravian Mission Site, Historic Resources Overview Assessment, Preliminary Report 2014." 2014. On file at Torngâsok Cultural Centre, Nain.

2013
- Arendt, Beatrix. "The Return to Hopedale: Excavations at Anniowaktook Island, Hopedale, Labrador." *Canadian Journal of Archaeology,* 37, 2013: 302-330.
- Ekistics Planning & Design. *The Hopedale Moravian Mission: Adaptive Reuse Master Plan.* 2013
- Rollmann, Hans. "Hopedale: Inuit Gateway to the South and Moravian Settlement" In *Newfoundland and Labrador Studies*, 28, 2 (2013) 1719-1726.

2010
- Brake, Jamie. "Brief Archaeological Investigations in the Vicinity of Hopedale, Nunatsiavut." 2010. On file at Torngâsok Cultural Centre, Nain.
- Heritage Conservation Directorate, Public Works and Government Services Canada. *Moravian Mission, Structural Investigation, Hopedale Mission National Historic Site of Canada, Hopedale, Labrador*. January 2010.
- M. Stopp, "Moravian Missions and the Inuit in Labrador," HSMBC Supplementary Report 2010-005.

2009
- Rollmann, Hans ed. *Moravian Beginnings in Labrador: Papers from a Symposium held in Makkovik and Hopedale*. Newfoundland and Labrador Studies, Occasional Publication No. 2, 2009.

2008
- Arendt, Beatrix. "2007 Season Report: Hopedale Archaeology Project." In *Provincial Archaeology Office 2007 Archaeology Review*, Government of Newfoundland and Labrador, St. John's, 2008: pp. 3-6.
- Parks Canada. *Hopedale Mission National Historic Site of Canada Evaluation of the State of Commemorative Integrity - 2007/2008*. 2008.

2005
- Parks Canada. *Commemorative Integrity Statement: Hopedale Mission National Historic Site of Canada*. 2005

2003
- Brice-Bennett, Carol. *Hopedale: Three Ages of a Community in Northern Labrador*. Historic Sites Association of Newfoundland and Labrador, 2003.
- Ferguson, Rob. *Archaeological Research at the Moravian Mission, Hopedale*, 2001. On file at the Provincial Archaeology Office, St. John's.

2002 • Rollmann, Hans. *Labrador Through Moravian Eyes: 250 Years of Art, Photography and Records.* Department of Tourism, Culture and Recreation, St. John's. 2002
• Stopp, Marianne P. "Reconsidering Inuit Presence in Southern Labrador." *Études/Inuit/Studies 21(1-2), 2002:135-145.*
2001 • Rollmann, Hans. *The 1782 Mission House and 1817 Parks Canada Building at Hopedale: Final Report for Parks Canada*. 2001.
1999 • Charles Lindsay, "Clarification of National Historic Site Designation: Moravian Mission, Hopedale, Labrador," HSMBC Agenda Paper 1999-58, 1.
1998 • Ron Fougère Associates Limited. *Heritage Recording and Development of Stabilization Strategy for Parks Canada's Moravian Mission Building (circa 1782) [sic] at Hopedale, Labrador*. 1998
1983 • Hale, C. A. *Hopedale Mission Complex, Hopedale, Labrador*, Historic Sites and Monuments Board of Canada Agenda Paper 1983-24. 1983.
1981 • Aksim, Rudi. *A Structural History of the Moravian Mission Stations at Hebron and Hopedale in Labrador,* 1981. ms. on file, Parks Canada, Halifax
1980 • Peacock, F. W. *The Moravian Mission in Labrador 1752-1979 (The Goodly Heritage),* 1980 ms. on file, Parks Canada, Halifax
1973 • Dalibard, J., Weil M. and Peck, R. *1782 Moravian Mission Building Hopedale Labrador Architectural Investigation Report and Foundation Repairs Proposal*, Restoration Services, Indian Affairs and Northern Development, 1973.
1970 • Gillis, Sandra. *The Moravian Missions in Labrador*, Historic Sites and Monuments Board of Canada Agenda Paper 1970-35.
1961 • Whiteley, W. H. "The Records of the Moravian Mission in Labrador"
• American Archivist Vol. 24, No.4 (October, 1961), pp. 426.
1945 • Bird, Junius B. "Archaeology of the Hopedale Area, Labrador." *Anthropological Papers of the American Museum of Natural History*, Vol. 39, No.2. American Museum of Natural History, New York. 1945
1938 • Forbes, Alexander. *Northernmost Labrador Mapped from the Air.* New York: American Geographical Society, Special Publication No. 22, 1938
1930 • Hudson's Bay Company. "Plan of Buildings and Lands at Hopedale Post," 1930. Public Archives of Canada, MG 17, D1, Reel M522, p. 58698.
1929 • Hudson's Bay Company. "Plan of Buildings and Lands at Hopedale Post," 1929. Public Archives of Canada, MG 17, D1, Reel M522, p. 58696.