

PARKS CANADA ARCHAEOLOGICAL OVERVIEW ASSESSMENT (AOA)

CAPE SPEAR NHS – WWII BUNKER RECAPITALIZATION AND UPGRADES (NEWFOUNDLAND).

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January 11th, 2016 – Revised version August 17th, 2016*

BACKGROUND

Located on a rugged sandstone cliff at our continent's most easterly point, the Cape Spear Lighthouse National Historic Site host the oldest surviving lighthouse in Newfoundland and Labrador. Built in 1835 by the British Colony of Newfoundland to signal the approach to St. John's harbour, the Cape Spear Lighthouse is an iconic symbol of the island's mariner history. The structure consists of a stone light tower surrounded by a two-storey square-shaped wooden residence (fig. 1). A variety of alterations were made to the lighthouse during the 19th and 20th century, principally through construction of additions to accommodate the lightkeeper and his extended family (fig. 2). A fog alarm shed (fig. 3), new houses, a well, a new light tower and several amenities and privies were also built and dismantled in the vicinity of the lighthouse during the course of the 19th and 20th centuries (CIS 1999, p. 2; Collins 2001, p. 19-22). Several features belonging to the lighthouse complex and facilities were mapped and recorded during archaeological excavations and field survey carried out on the site in 1976 and 1999 (Phillips Parmenter 1977; Luffman 1999; Parks Canada archaeological sites 5A1-5A5). The Cape Spear lighthouse was designated a national historic site in 1962. Its heritage value lies in the remaining footprint of the original 1835 lighthouse building, its style and influence, its strategic location, and the isolated nature of its site (CIS 1999, p. 6, annexe C; Historic Sites and Monuments Board of Canada, March 1962 Minutes). Cultural resources of national historic significance (Level I) include the 1835 lighthouse and any structural remains of the original lighthouse on site. In 1977, Parks Canada embarked on a five-year restoration of Cape Spear Lighthouse in order to depict its original architecture and to reconstruct the keeper's way of life in the late 1830's.

Cultural resources of other significance (formerly Level II) are also known in the vicinity of the lighthouse. These culture resources include the contemporary 1955's lighthouse complex (fig. 5), the structural remains of the lighthouse additions, fence and privy, footprints of additions to the original lighthouse, footprints and remains of ancillary structures, evidence of pathways/roadways and agricultural activities, the Historic Sites and Monuments Board Plaque, the Memorial Cross, and the plaque commemorating the site's opening. In addition, the archaeological collection and curatorial collection are also valued as level II resources. The World War II Battery located on the edge of the cape is also designated under this classification (CIS 1999, p. 12, article 3.2.2, annexe C).

The World War II military defence complex

Approximately 450 m north/north-east of the 1835 lighthouse lies a World War II military complex. When war was declared in September of 1939, Newfoundland was under Great Britain's administration. Newfoundland's location on a direct air and sea route from Europe, combined with the colony's mining resources that were in demand for the war effort, made it a critical first point of protection for North Americans as part of Canada's defence system during the Battle of the Atlantic (Mosquin 2002, p. 1). To provide protection for convoys from German submarines, a battery and garrison were stationed on the rocky promontory of Cape Spear in 1941.

The World War II Battery consists of a number of interconnected components including concrete bunkers, two gun emplacements, two large 10 inches 30 ton gun barrels, ready room, magazine and connecting trenches (figs. 5-13). It is situated below the lighthouse at the outermost tip of the cape. Near the current parking lot lies the battery plotting room and above the battery are the remains of concrete foundations for a radar hut, antenna platform and search light platform. An extensive complex of barracks, administrative buildings and other structures were located at the base of the ridge (figs. 14-16). Most of the buildings were of temporary construction and, with the exception of the battery complex, were removed after the war. Evidence of these temporary structures still exist. The land in the area used for barracks and administrative structures had been built-up and later graded. As a result their former location is visible by changed vegetation patterns, with the exception of the area now occupied by the visitor parking lot. Similarly, altered vegetation and soil compaction indicate where interconnecting roads, walkways and the water line were located. Other evidence of Fort Cape Spear includes a memorial cross located near the tip of the peninsula and remnants of barbed wire and wire spools that are found intermittently throughout the western half of the site (CIS 1999, p. 10). Few changes have also been made to the site (for the convenience of tourists) in the second half of the 20th century which had an impact upon the gun emplacements. A raised board walk has been placed to one side and one of the gun emplacements is now covered with a wooden deck as a safety precaution and for its use as a stage for summer performances (figs. 5, 7, 13).

PROJECT INTRODUCTION AND OBJECTIVES

The overall objective of the FII project is to recapitalize the existing WWII bunkers which are located on the northern tip of Cape Spear (fig. 17). Also known as the "Battery Complex", the bunker consists of two circular stepped reinforced concrete emplacements each linked by a large opening to a concrete corridor recessed in the cliffs edge. The corridor provides access to six rectangular concrete rooms. The battery plotting room is a small concrete chamber buried in the hillside. A deteriorated flat concrete roof marks its presence on landscape. These bunkers have long been a major component of the visitor experience at the site. However, the complex is nearing the end of its life cycle and the bunkers have become severely deteriorated, to the point that certain sections of them have been closed to public access for safety reasons. Some work was carried out a number of years ago in an effort to stabilize the bunker walls but this was only temporary in nature (see Mosquin 2000, p. 5-6 for details). A significant amount of work is thus required to stabilize the structures and upgrade them to the point that visitors can once again access the site.

The proposed work includes (Rodrigues BIA 2016, p. 2-3; PWGSC Design plan 99%):

- Drainage system – install new drainage system the entire structure, renew existing drainage system (under all tunnels and gun emplacements), decommission the two old pipe outfalls and install new ones.
- Waterproofing membrane – install new water proofing membrane (entire structure), renew existing flashing (gun emplacements) and reinstate ventilation shafts (all Magazines and Ready Rooms).
- Gun Emplacements – epoxy injection of cracks, surface repair exposed rebar (Ready Rooms) and reinstate ventilation shafts.
- Magazines - epoxy injection of cracks (all knee and end walls), surface repair exposed rebar, reinstate ventilation shafts (all Magazines) and spray foam insulation (all Magazines).
- Tunnels – replace sections of tunnel with precast box culvert, epoxy injection of cracks, surface repair exposed rebar and repair/replace embedded steel, restore access/egress at north side of battery, replace/install gates (various locations).
- Electrical – install electrical infrastructure to support next phase.

The scope of work includes:

- Site access: A section of the western edge of the paved visitor parking lot will be used as the staging and material storage area. The site will be accessed via the paved trail used by visitor's to access the Most Easterly Point. The trail is wide enough to accommodate vehicles and equipment access. The trail currently has a hand rail located on the left hand side and a rest area to the right on the way to the Most Easterly Point which will likely be removed to accommodate access as well as to restore the viewscape to a more natural condition. A temporary access road will have to be established to reach the gun emplacement #1 and the tunnel and magazines to the right of it.
- Demolition: manual and machinery facilitated demolition, removal of failed sections of retaining wall, rocks, concrete and other demolition related debris.
- Waste disposal: demolition waste will be sorted by material with on-site separation and disposed of in accordance with industry standards for construction waste.
- Structural repairs: epoxy injections, foam insulation, weather proof membrane installation, concrete surface treatment, concrete finishing and curing, grouting.
- Vegetation: clearing and grubbing, removal and stockpiling of sod mats, selective vegetation removal/trimming.
- Earthworks: soil and topsoil stripping/stockpiling, grading, spreading soil/topsoil, excavation (external to the structure and within tunnel), trenching, rock removal, dewatering, filling, compaction, erosion and sedimentation control.

- Setup of temporary facilities: temporary washroom facilities, office and storage will be situated in the staging area during the construction mobilization phase.
- Use of machinery: dump trucks, large and small excavators, cranes, mobile cranes and lifting devices.
- Transport of materials and equipment: materials will be transported to the site along Blackhead Road to the staging area on the parking lot. From there, materials will be transported to the site along the Most Easterly Point paved trail.

The new repairs will allow for an expanded visitor experience – an offering of new initiatives such as concessions, interpretive programs, exhibits, etc. – within the scope of the “Road to 2017” programme. According to the project manager, the site has undergone extensive analysis of its resources and the planned work should “only affect the bunker structures and not the surrounding area” (see the RPA 446 document).

POTENTIAL FOR CULTURAL RESOURCES

Based on the Project Summary (TOR), PWGSC Construction Design Plan at 99%, the Commemorative Integrity Statement and the existing documentation available at Parks Canada (which includes photographs, fields archaeological reports and plans), our research indicates that the area targeted by the conservation work has a low potential for archaeological resources.

At the exception of the cultural resources of other significance (formerly Level II) associated with the military complex of 1941-1945, no other resources are known in this area of the cape. No archaeological excavations or surveys have been carried out in the area and no known pre-contact or post-contact sites are recorded in the vicinity of the bunkers. However, as several generations of lightkeeper families have lived and worked on Cape Spear, cultural resources associated with their occupation like gardens, pathways, dumps, farming installations, wells, ect., might have been located in this area of the peninsula. The remains of the fog alarm shed may also be in the vicinity of the area targeted by the FII project. However, the construction of the military complex in 1941 must have swept and destroyed most of the surface soils and potential structures or covered them with concrete slabs. Remains of the temporary WWII barracks and WWII artefacts could yet still be visible in the project area.

OBSERVATIONS AND ARCHAEOLOGICAL REQUIREMENTS

Several excavation, trenching and landscaping activities will be carried out at the site. To document, conserve and protect potential archaeological resources, the Terrestrial Archaeology Unit recommends the followings mitigation measures:

- 1) The installation of new drainage and electrical systems will required **archaeological monitoring** during trenching as there will be excavation under and around the battery wall. Although the electrical conduits will be most likely buried above the new drainage system, table 8 mentioned that some electrical infrastructure locations still need to be defined. If some electrical features are to be buried outside the drainage footprint (See drawing S101 of PWGSC Design plan 99%).

- 2) The installation of new water proofing membrane around and over the battery walls (See drawing S104 of PWGSC Design plan 99%) will required **archaeological monitoring** during the removing of the fill and **archaeological recording** of the features brought to light. It is important to document the walls, roofing, foundations, and construction techniques of the battery as well as the different fills used to cover its structure.
- 3) The replacement of tunnel sections with precast box culvert will required a large scale **archaeological recording (pictures, scale drawings, GPS coordinates) of every features seen *in situ* before their removal and replacement. Then, the archaeological features and/or soils found underneath and/or behind the removed/replaced sections will need to be properly recorded.** Excavation is also planned to remove soil above/around the north entrance of the battery. **Archaeological monitoring will be required.**
- 4) **As for staging/laydown/circulation areas,** we recommend that the consultant stores his construction material, circulates and parks his machinery over paved areas (or over bedrock).

To sum up, if the proposed work to restore and repair the WWII Battery requires any soil disturbance (digging, trenching, exposure of below grade structures, use of heavy machinery above known resources, etc.) an archaeological intervention – testing and monitoring – will be required. The mitigation measures presented in this screening report are subject to additions or alterations prior to and during the project. If additional or modified scenarios are considered by the consulting engineering firm and/or the project manager, these mitigation measures will no longer apply and the new or modified plan must be send to Parks Canada for review and evaluation.

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- Canada’s historic places website: <http://historicplaces.ca/en/rep-reg/place-lieu.aspx?id=7404>;
- <http://www.encyclopediecanadienne.ca/fr/article/cap-spear/>;

Illustrations



Figure 1. The Cape Spear Lighthouse in 2010.



Figure 2. Cape Spear Lighthouse reconstitutions at the Cape Spear Visitor Center.

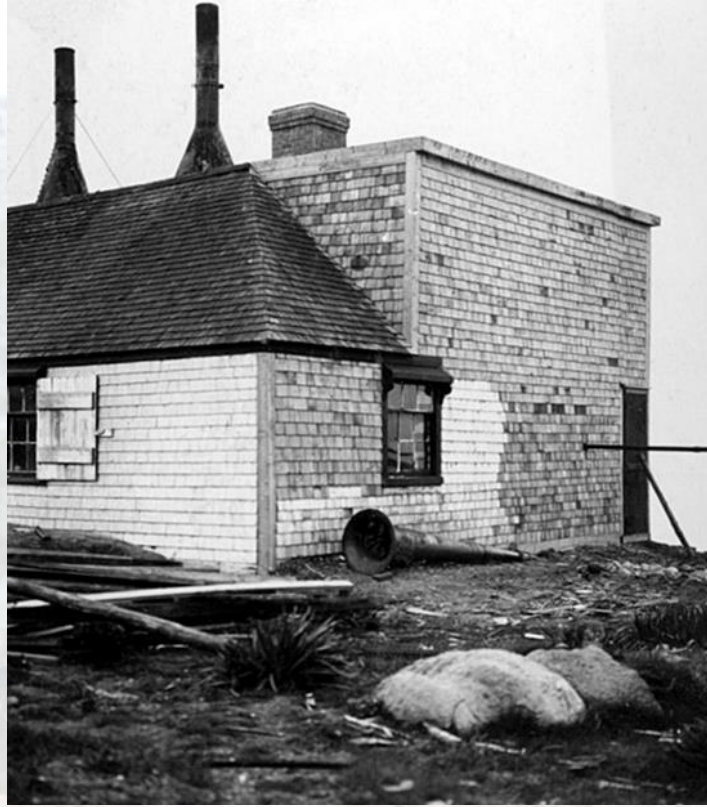


Figure 3. Cape Spear. The fog alarm shed of 1878 located near the project area.



Figure 4. The modern lighthouse complex of 1955 (in 2010).



Figure 5. WWII bunker behind gun emplacement n° 2.



Figure 6. Cape Spear WWII bunker.



Figure 7. WWII bunker behind gun emplacement n° 2.



Figure 8. WWII bunker. Gun emplacement n° 1.



Figure 9. WWII bunker. Gun emplacement n° 1.



Figure 10. WWII bunker. Gun emplacement n° 1.



Figure. 11. WWII bunker. Crew shelter behind gun emplacement n° 1.



Figure 12. WWII bunker. Corridors that lead to the ammunition storage rooms.



Figure 13. WWII bunker behind gun emplacement n° 2.



Fig. 14. Aerial view of Fort Cape Spear taken in October 1941, showing barracks buildings and construction underway for war watching station (right foreground). Cape Spear lighthouse and associated buildings at left foreground. Gun emplacements not visible. From Mosquin 2002, fig. 8. (*Parks Canada, Atlantic Region Photograph Collection*).



Figure 15. Aerial view of gun battery at Fort Cape Spear under construction in 1941. From Mosquin 2002, fig. 9. *(Parks Canada Atlantic Region Photograph Collection)*.

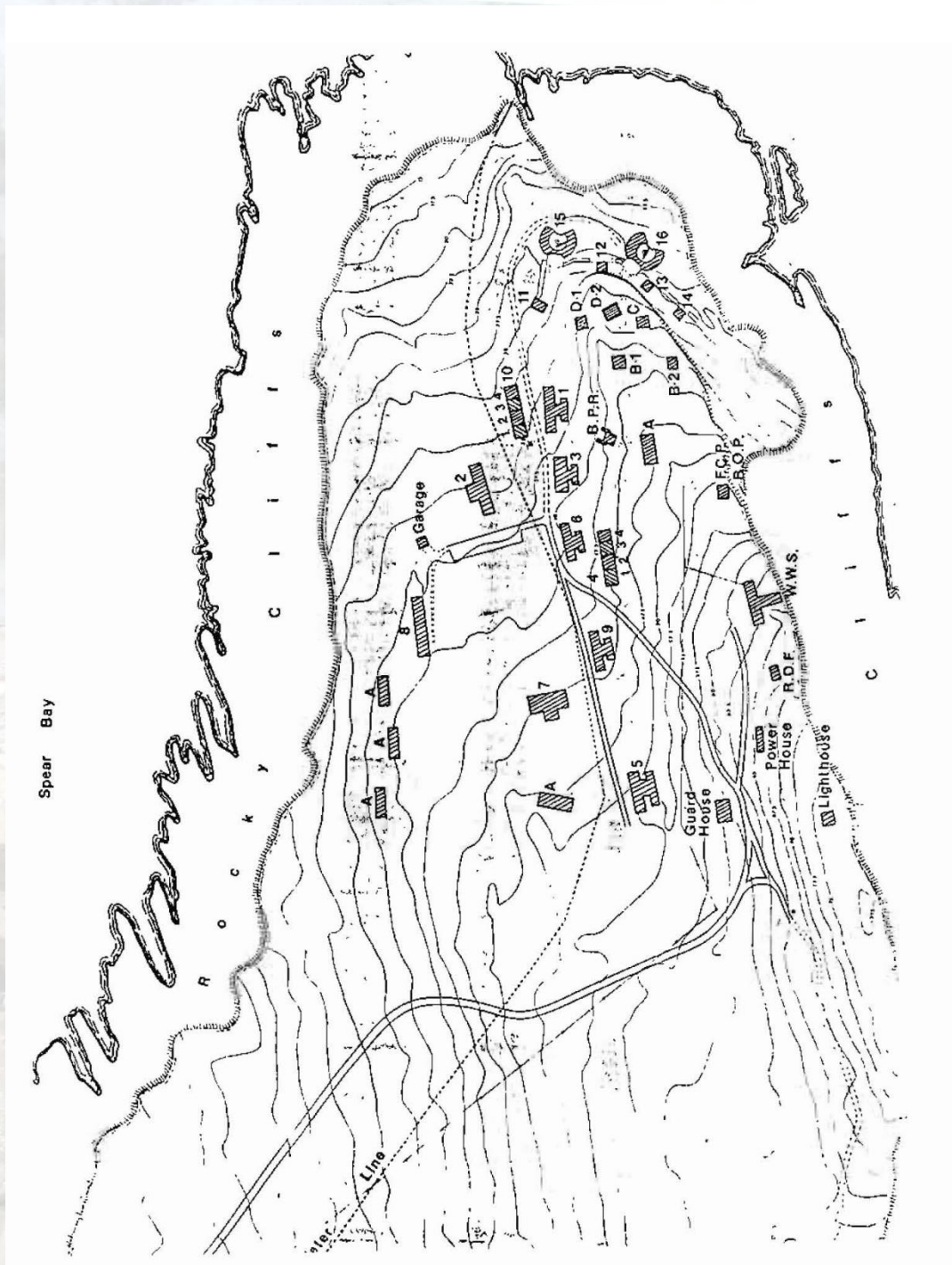


Figure 16. Map of Cape Spear showing all the buildings that were part of Fort Cape Spear. The gun emplacements are indicated by 15 and 16; the ammunition rooms which are linked by covered corridor to the emplacements are numbers 11-14. The battery plotting room is indicated B.P.R. From Mosquin 2002, fig. 10. (*Indian and Northern Affairs, Parks Canada and Atlantic Region Planning, "Cape Spear National Historic Park" n.d.*)

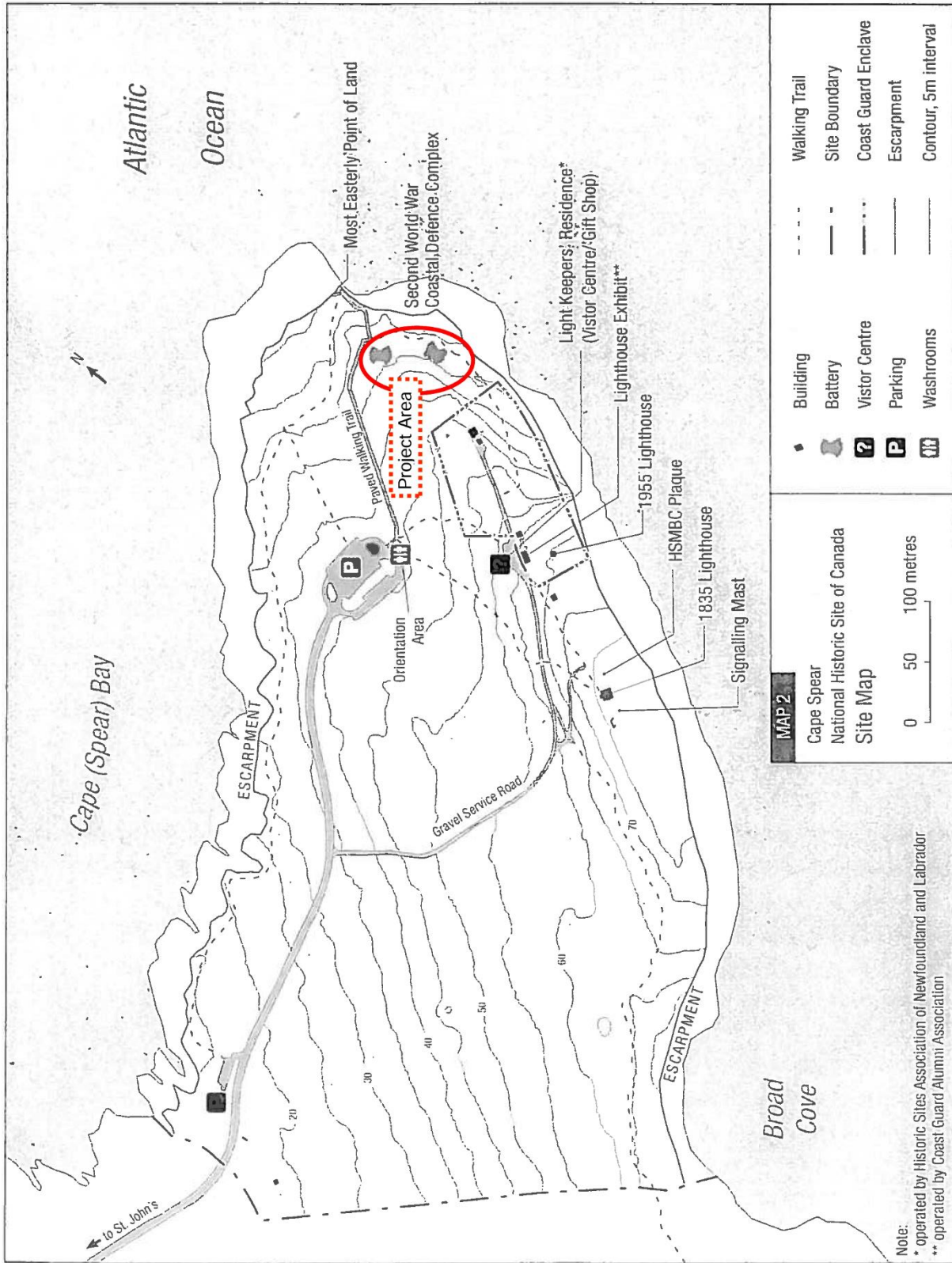
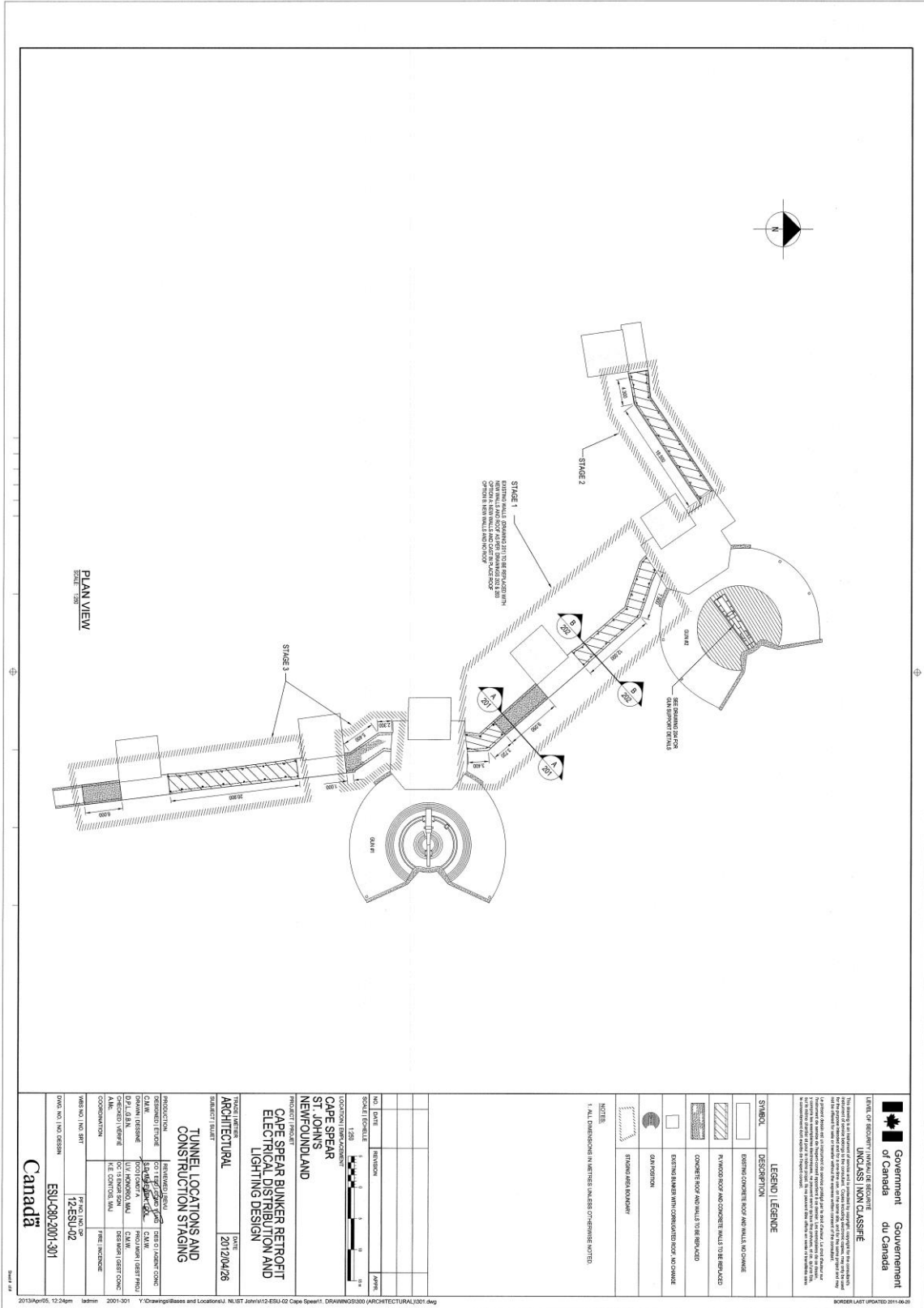


Figure 17. Cape Spear Site Map with the area aimed for the FII Project.

Annex B



Annex C

