

**Breakwater Upgrade  
Point au Gaul, NL  
Environmental Registration Document  
Submitted to the Government of Newfoundland and Labrador  
Department of Municipal Affairs and Environment  
Environmental Assessment Division**

**Prepared for: Town of Point au Gaul**

**Prepared by: Innovative Engineering and Project Management**

**Date: Oct 25, 2018**

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## 1. NAME OF UNDERTAKING

Point au Gaul Marine Breakwater

## 2. PROPONENT

### **A. Name of Corporate Body**

- i. Municipality of Point au Gaul

### **B. Address**

- i. PO Box 30 Site 8 RR#1

### **C. Chief Executive Officer**

- i. Name: Lewis Dodge
- ii. Official Title: Mayor
- iii. Address: PO Box 30 Site 8 RR#1
- iv. Telephone No: 709 857 2832

### **D. Principal Contact Person for Purposes of Environmental Assessment**

- i. Name: Theresa Dodge
- ii. Official Title: Town Clerk
- iii. Address: PO Box 30 Site 8 RR#1
- iv. Telephone No: 709 857 2211

## 3. THE UNDERTAKING

### **A. Nature of the Undertaking**

The proposed undertaking represents the construction of approximately a 150-metre-long engineered rubble breakwater in Point au Gaul, Newfoundland and Labrador.

### **B. Purpose/Rationale/Need for the Undertaking**

The existing breakwater does not extend along the shoreline far enough to offer full protection. A section of gabions, installed there 20+ years ago, have been washed away; the new section of breakwater will extend from the existing breakwater to the remaining gabions. Sections of the shoreline are being eroded away (Figures 1, 2, and 3, Appendix A). The elevation of the town behind the breakwater is low so strong winds, high waves, storm surges, and climate change pose a significant potential danger to the houses in the town as well as increases the risk of flooding (Figure 4, Appendix A). Extending the existing breakwater with sufficiently sized armour stone and a properly engineered design will mitigate potential danger in the future.

## 4. DESCRIPTION OF THE UNDERTAKING

### **A. Geographical Location**

Point au Gaul is located on the southern part of the Burin Peninsula (Figure 5, Appendix A).

The location of work and proposed access along the main road in town can be seen in Figures 6 and 7, Appendix A.

### **B. Design Considerations**

- i. **Storm Surge:** the storm surge utilized for determining the size and shape of the revetment was determined from the Coaster Engineering Manual (CEM) as produced by the US Army Corps of Engineers (USACE). Historically, storm surges have ranged from 0.6m to 2m in Atlantic Canada. The climate change increase was selected on the 2050 predicted increase. Both the storm surge and the climate change increase were added to the Normal High-Water Level (NHWL).
- ii. **Climate Change:** climate change was deemed an important factor and taken into consideration for the design of the size of revetment stone and shape of the revetment.

### **C. Physical Features**

The only major physical feature of the undertaking is the installation of a new breakwater along the shoreline.

The breakwater will continue along the beach and will be a continuation of the existing revetment that has been constructed from the boat launch area to within 150m short of the gabion wall. The size of the section proposed to be constructed is approximately 150m in length and 17m wide in the widest area (Figure 8, Appendix A). The area to be affected by the undertaking includes this as well as sufficient space for construction. The area on the landward side of the proposed breakwater will be where most of the construction will take place. The seaward side should have very little disruption except for the area the required area being excavated to embed armour stone at the toe of the slope (Figure 9, Appendix A).

Houses are a minimum of 65m from the closest point of new revetment. Homes are approximately 2m above sea level.

The area consists mainly of sand and some small rock that is naturally occurring and gabions to the west that have been washed away. Between the beach and the homes along the shore is a grassy area that is of low elevation and does not drain. Point au Gaul is visited by capelin, gulls, other sea birds and shorebirds.

The adjacent shoreline is described as:

- i. Southern shoreline – from boat launch to within 150m of west shoreline – existing revetment consisting of 0.6 to 0.8m in diameter round stones placed on the beach.
- ii. Remaining Southern shoreline – sand beach that is currently being eroded (rates of erosion unknown).
- iii. West shoreline – gabion baskets utilized to protect shoreline from erosion.

The tombolo is described as:

- i. Tombolo at high tide – not visible. Tombolo at low tide – visible and utilized by local community as a recreational boat (canoe) launching area.
- ii. Discussing with the community, the tombolo has been eroded and there is only rock remaining.

The history of storms and surges in the area included a tsunami that affected the area in 1929. There have been 3 hurricanes that have affected the area: Hugo, 1989; Irene, 1999; Michael, 2000.

#### **D. Construction**

Please see the following schedule breakdown; whether first physical construction begins in fall of 2018 or spring of 2019 is dependent on the date of approval of all regulatory agencies.

- i. Submit EA registration and application for a permit to alter a body of water on September 10, 2018.
- ii. Review period of regulatory bodies, approval and permits awarded – assuming 50 days for review, permits and approvals tentatively received on November 1, 2018.
- iii. Tender and award is one month – December 3, 2018.
- iv. Physical construction starts 2 weeks after tender and award. Construction would be ready to start on December 17, 2018 (or earlier if approval and permits are received at an earlier date), but weather conditions will make it unsafe for workers. Construction will therefore start on April 15, 2019.
- v. Construction takes 15 days and should be complete on May 3, 2019.

Potential pollutants include oil, gas, lubricants or diesel fuel but every precaution against pollution will be taken. There will be a spill kit on site at all times. All employees will be made aware that there will be no littering and that all material will be removed from the site every day. The contractor will be instructed to make sure there are no leaks in his equipment.

There should not be any resource conflicts. The beach is not currently used for any purpose other than leisure. Signs will be posted prior to construction to inform people of when construction will begin. The community of Point au Gaul has requested that this be installed to prevent further damage to the shoreline and to the gabion structure. There is local public support and the Town has requested that a walking path be constructed along the top of the revetment.

The revetment will be constructed in a staged plan. Beginning will be to start with excavation during low tide to create a toe for the revetment. A non-woven geotextile will be secured in place and a rip-rap material will be placed onto the fabric. The excavated material will be used to build up the revetment at the upstream side. Finally, armour stone of nominal size of 1.4m in diameter will be placed in two layers. This will provide the protection of the shoreline. The rip-rap will protect the fabric from the large

stone. The fabric will prevent any additional soils from being eroded under either the toe or behind the revetment.

#### ***E. Operation***

To prevent further erosion along the southern shoreline by preventing the wave action from reaching the beach.

#### ***F. Occupations***

The number of employees estimated for construction of the project is 6, with expected duration of employment at 15 days.

Enumeration and breakdown of occupations are as follows: 1 surveyor/inspector, 1 superintendent, 2 heavy equipment operators, and 2 truck drivers

All work will be contracted out.

#### ***G. Project Related Documents***

Design drawings have been prepared and reviewed.

No environmental work has already been performed.

### **5. APPROVAL OF THE UNDERTAKING**

The following is a list of likely permits, licenses, and approvals required for this project:

| <b>Approvals / Certificates / Permits</b> | <b>Regulatory Authority</b>   |
|---|---|
| NL Environmental Assessment Registration  | NL Department of Municipal Affairs and Environment, Environmental Assessment Division   |
| Fish Habitat Approval                     | Fisheries and Oceans Canada, Fisheries Protection Program                               |
| Permit to Alter a Body of Water           | NL Department of Municipal Affairs and Environment, Water Resources Management Division |

### **6. SCHEDULE**

Construction is anticipated to begin in the spring of 2019, weather permitting. It is anticipated that the construction period will take 14 days.

**7. FUNDING**

This project is funded by the Municipal Capital Works program under the Department of Municipal Affairs and Environment (MAE project number 17-MCW-19-00009). PO Box 8700, St. John's, NL, A1B 4J6

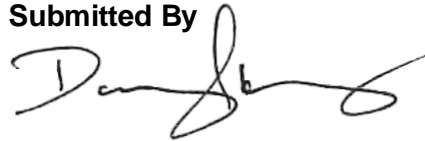
Approved funding of \$270,000 (Figure 10, Appendix A).

October 22, 2018

**Date**

Darryl Kenney, P.Eng – Project Manager

**Submitted By**

A handwritten signature in black ink, appearing to read 'Darryl Kenney', written over the 'Submitted By' label.

## APPENDIX A





***Figure 1. Shoreline Erosion***





***Figure 2. Shoreline Erosion***



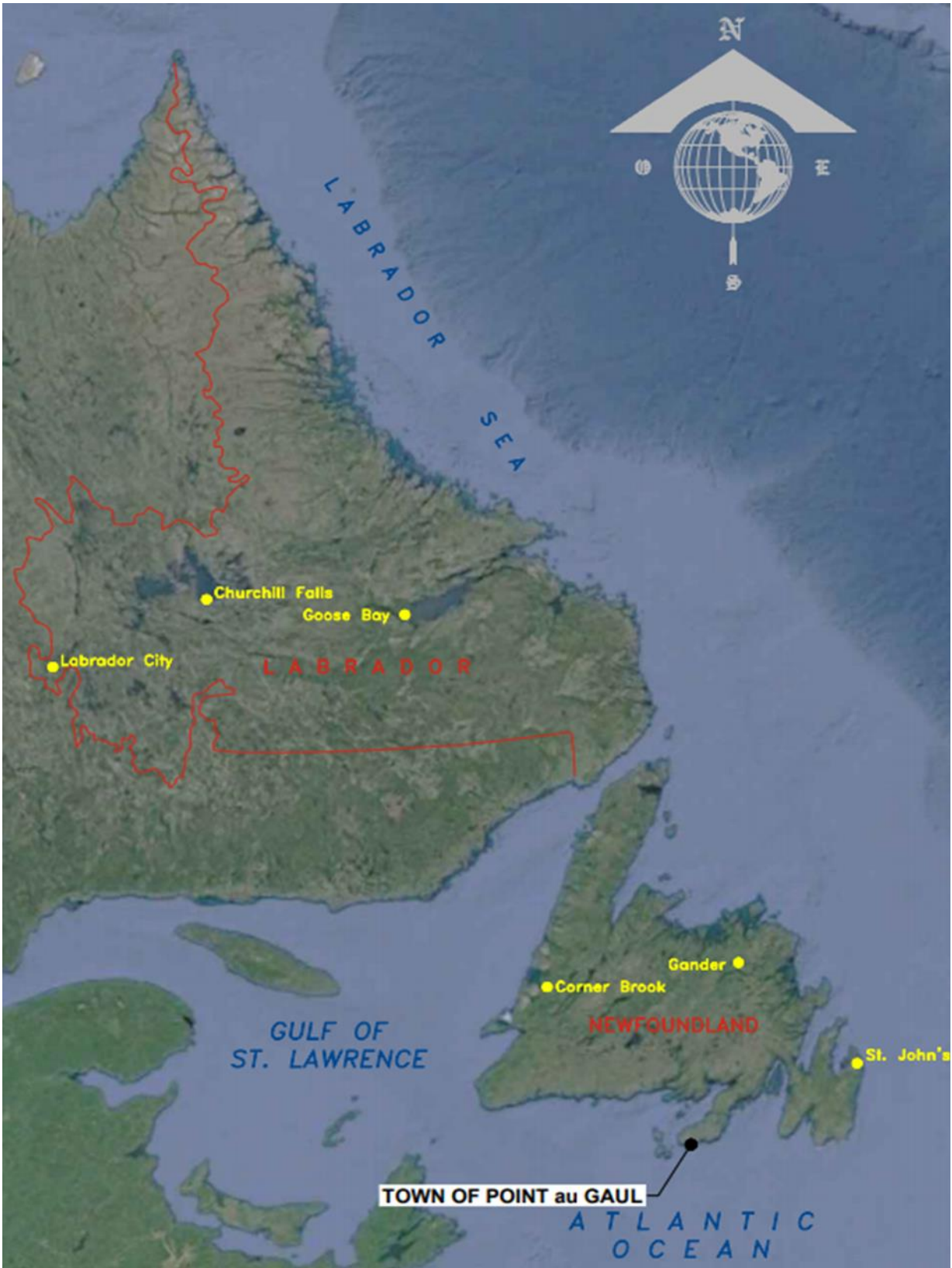


**Figure 3. Shoreline Erosion**



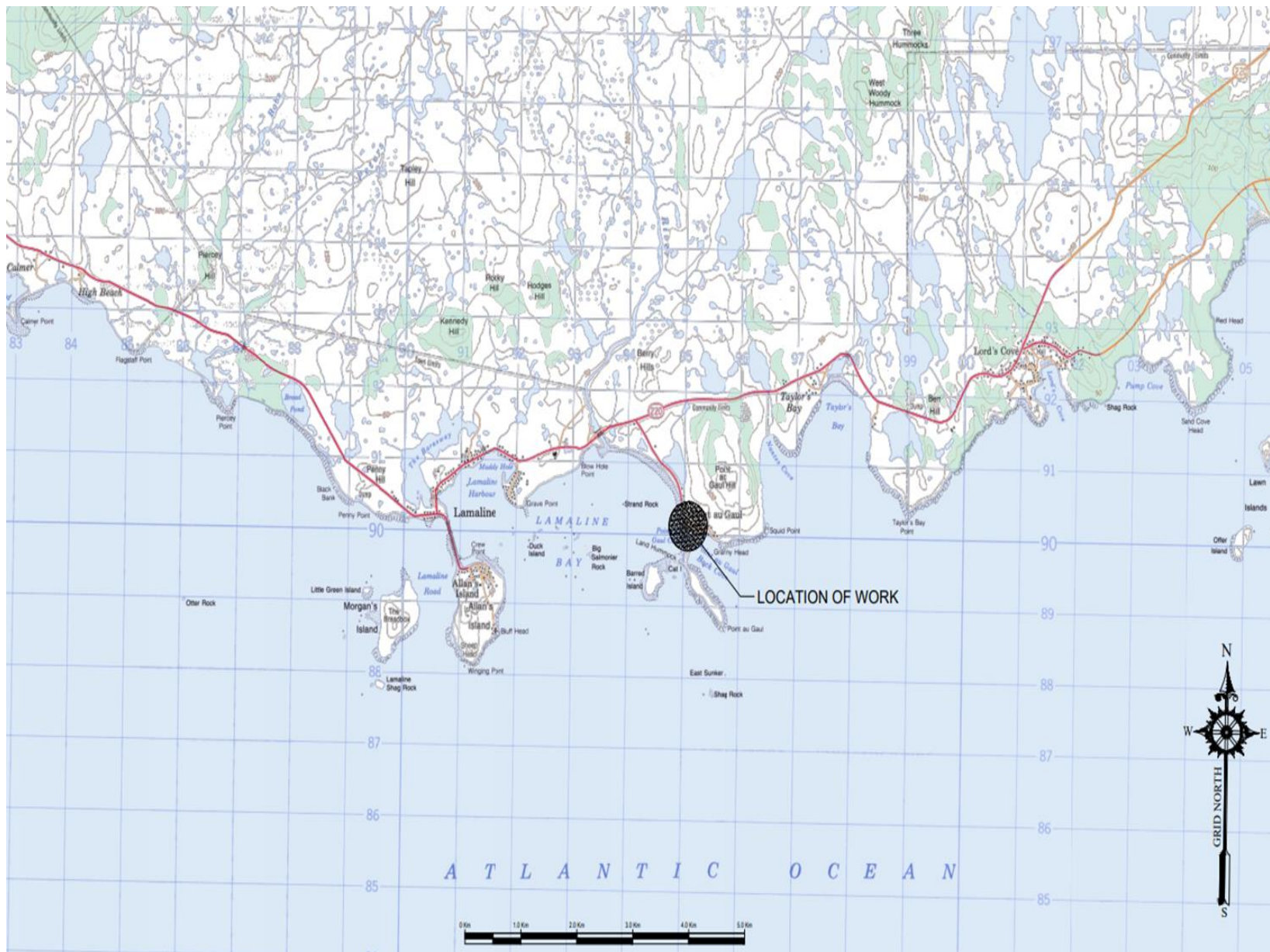


***Figure 4. Proximity of homes to shoreline***

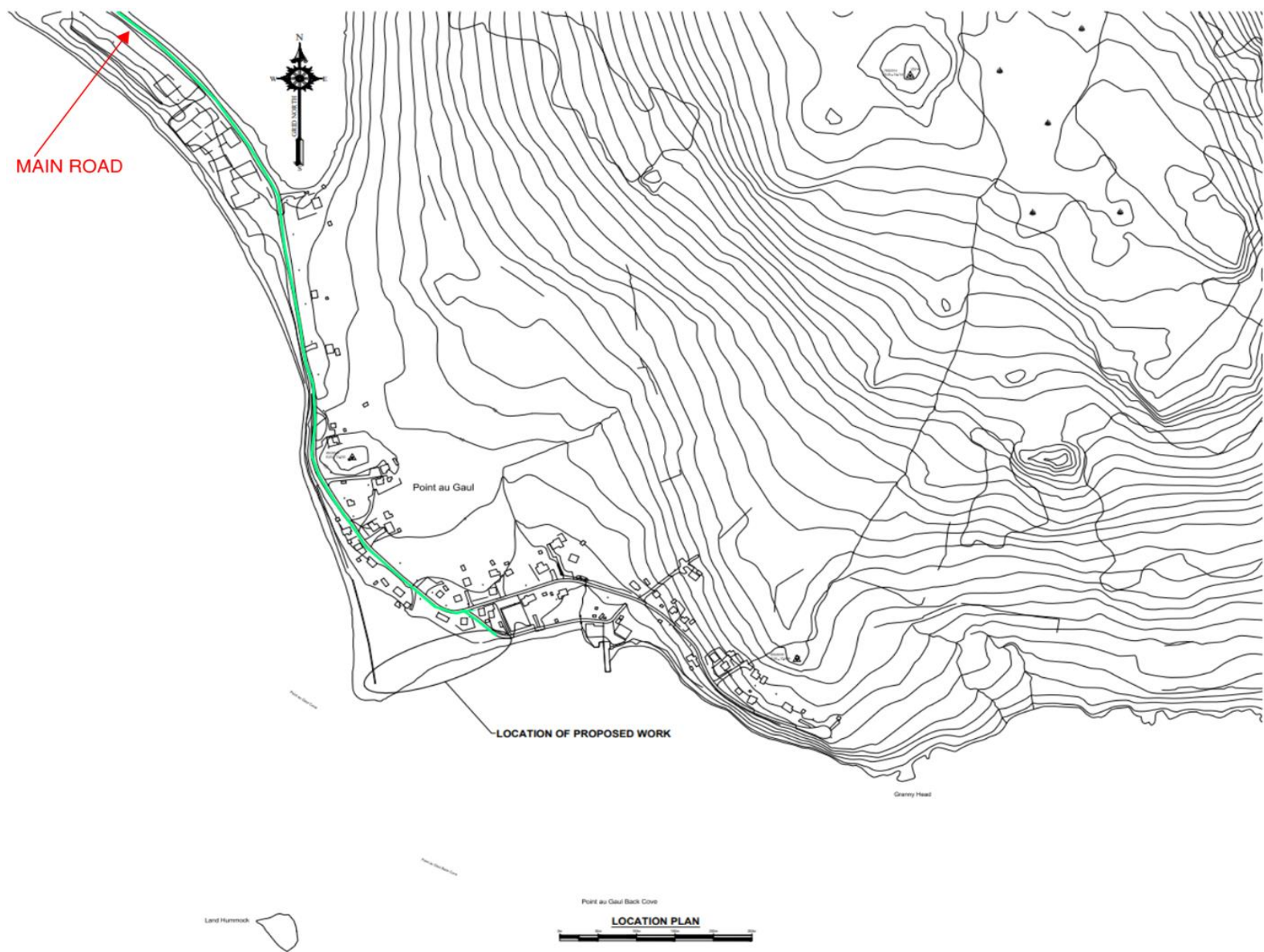


**Figure 5. Point au Gaul location in Newfoundland and Labrador**

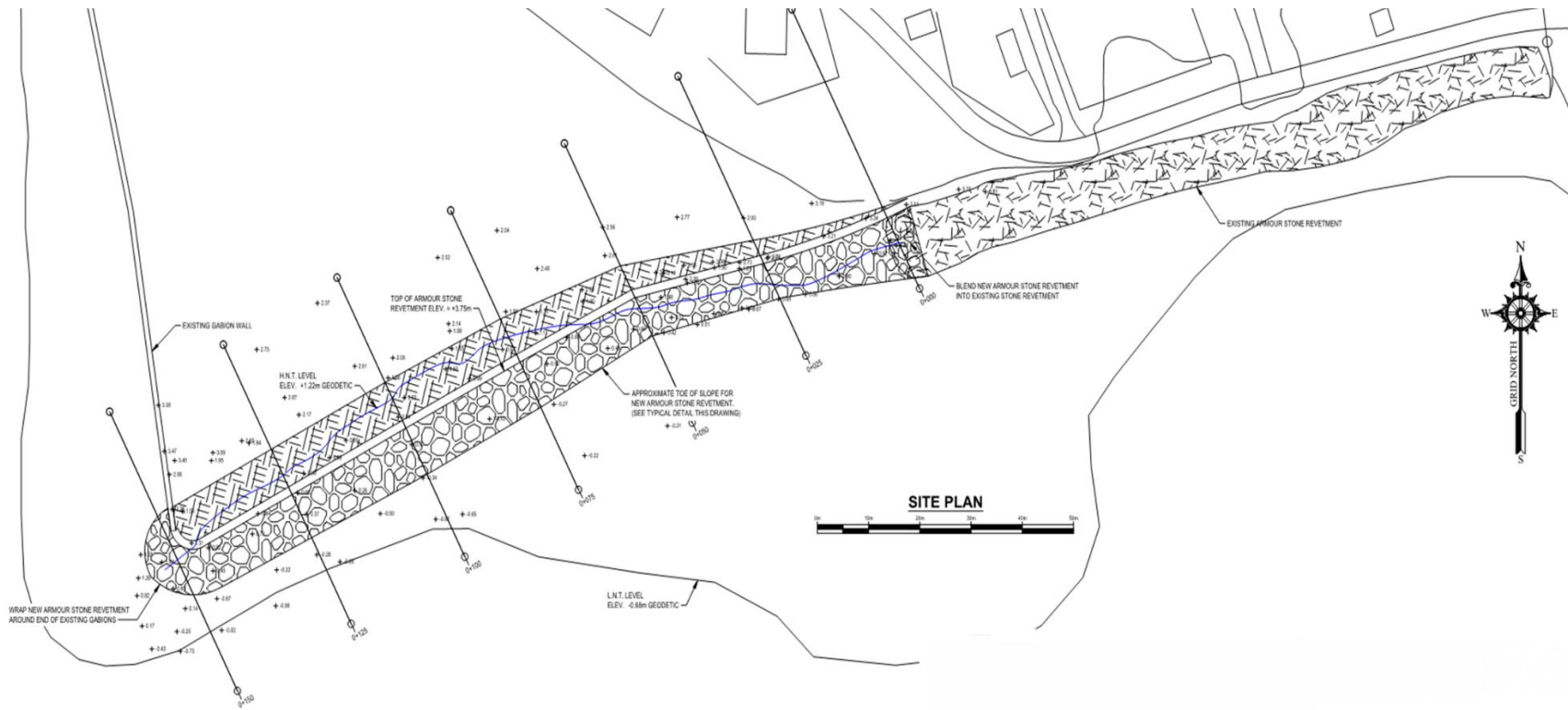




**Figure 6. Location of work in Point au Gaul**

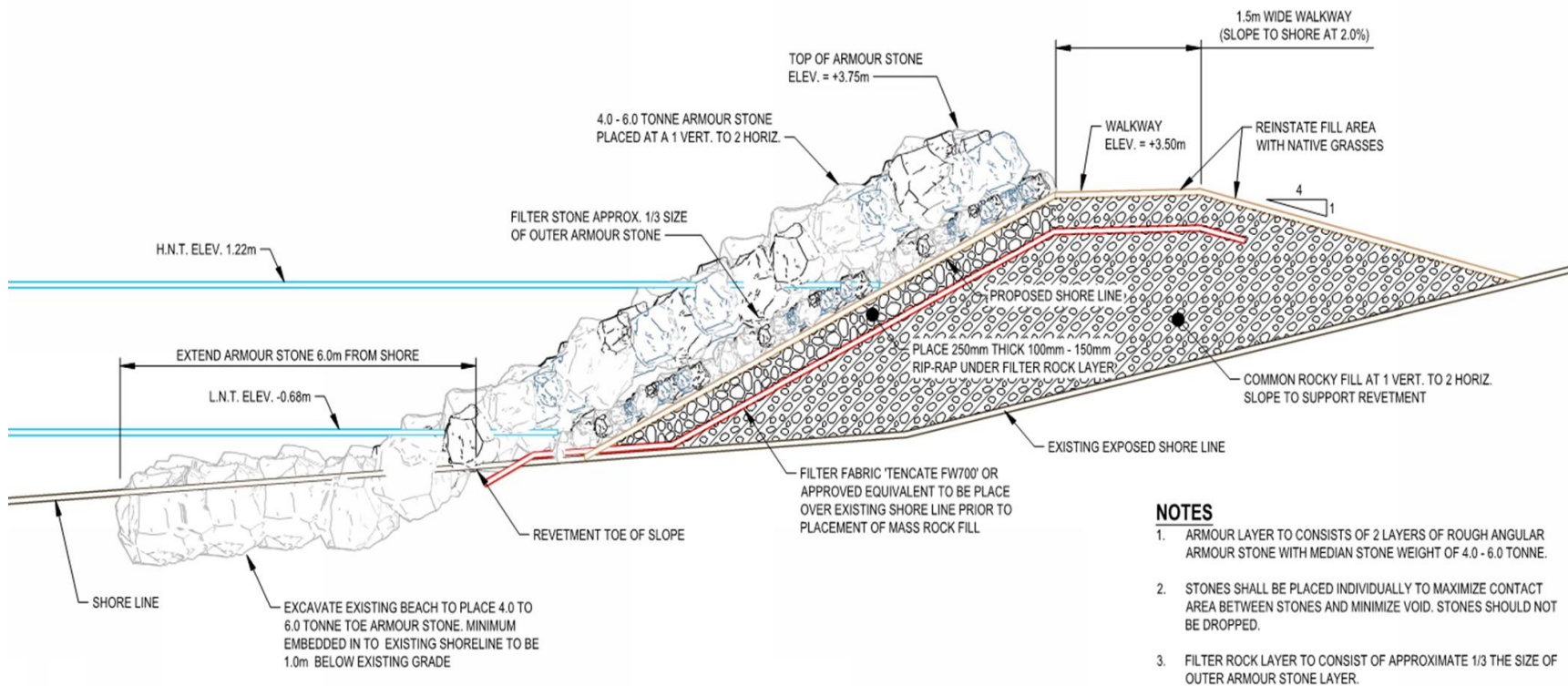


**Figure 7. Access route to work area**



**Figure 8. Plan view of proposed work**





**NOTES**

1. ARMOUR LAYER TO CONSISTS OF 2 LAYERS OF ROUGH ANGULAR ARMOUR STONE WITH MEDIAN STONE WEIGHT OF 4.0 - 6.0 TONNE.
2. STONES SHALL BE PLACED INDIVIDUALLY TO MAXIMIZE CONTACT AREA BETWEEN STONES AND MINIMIZE VOID. STONES SHOULD NOT BE DROPPED.
3. FILTER ROCK LAYER TO CONSIST OF APPROXIMATE 1/3 THE SIZE OF OUTER ARMOUR STONE LAYER.

**ARMOUR STONE REVETMENT DETAIL**

NO TO SCALE

**Figure 9. Section view of proposed work**



APR 25 2018

Government of Newfoundland and Labrador  
Department of Municipal Affairs and Environment  
Office of the Minister

COR/2018/00943

Mayor Lewis Dodge  
Town of Point Au Gaul  
P.O. Box 30, site 8  
Point au Gaul, NL A0E 2C0

Dear Mayor Dodge:

**Re: 2018-19 Municipal Capital Works Program, Project No. 17-MCW-19-00009  
Breakwater Upgrades**

I am pleased to advise you that the Provincial Government has approved funding in support of the above project. This funding is based on a cost sharing arrangement of 90/10 Provincial/Municipal ratio and on the condition that Council is willing and able to meet its share of the costs. **Council should note the Department will not be approving additional funds for this project. Any costs over the amount indicated in this letter will be 100% responsibility of the municipality.**

The cost sharing for this project is outlined below.

| Total Project Cost | Cost Less GST/PST Rebate | Maximum Provincial Contribution | Municipal Contribution |
|--------------------|--------------------------|---------------------------------|------------------------|
| \$270,000          | \$244,845                | \$220,361,                      | \$24,485               |

The Provincial contribution will be advanced on a cash basis as costs are incurred, as noted in the guidelines.

**The Municipal Capital Works guidelines attached, require the receipt of a signed Municipal Infrastructure Agreement within 60 days of the date of this letter, however it would be appreciated if the municipality would acknowledge acceptance or rejection of this funding within two weeks. This will ensure that funding no longer required, can be reallocated early in the construction season.**

This funding has been approved subject to a number of requirements. These requirements in the form of the attached guidelines, (Appendix "A" of the Agreement), apply to both the Municipality and its consultant. Please ensure that these guidelines are followed.

Council and its consultant should also pay particular attention to the items which outline the Department's project delivery timeline policy. This policy has been developed to ensure

**Figure 10. Funding approval for work**