Lawn Breakwater Construction and Channel Dredging

Environmental Registration Document

Prepared For:	**Department of Fisheries and Oceans** **Small Craft Harbours Branch**
Prepared By:	**Public Works & Government Services Canada** **Environmental Services**
Date:	**June 4, 2004**
Project No.:	**313148**

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1.0 NAME OF UNDERTAKING:

Lawn Breakwater Construction and Channel Dredging

2.0 PROPONENT:

(i) Department of Fisheries and Oceans
Small Craft Harbours Branch – Eastern and Southern Area

(ii) P.O. Box 5667
St. John's, NL
A1C 5X1

(iii) Mr. Dan Blundon
DFO, Small Craft Harbours
Regional Engineer
P.O. Box 5667
John Cabot Building
St. John's, NL.
A1C 5X1
Phone: (709) 772-2375
Fax: (709) 772-3765

(iv) Cathy Martin
Environmental Assessment Officer
Public Works & Government Services Canada
10 Barter's Hill
P.O. Box 4600
St. John's, NL
A1C 5T2
Phone: (709) 772-5852
Fax: (709) 772-0916

3.0 THE UNDERTAKING:

The proposed development will consist of the construction of a new armour stone breakwater extending from the existing wharf, as well as channel dredging, and shoreline protection to provide users with safer conditions and better utilization of the existing facilities.

4.0 DESCRIPTION OF THE UNDERTAKING:

4.1 Geographical Location:

The proposed project site is located in the community of Lawn on the southern coast of the Burin Peninsula, approximately forty kilometers in a straight-line southwest of the Town of Marystown.

Lawn is a rural fishing community located on the south coast of the Burin Peninsula in the waters of Great Lawn Harbour. According to the Department of Fisheries and Oceans 2003 statistics, this harbour serves twenty-seven enterprises operating from thirty-four homeport vessels, as well as an additional eighteen transient vessels, which land at this site. Much of the current activity in Lawn centers on the cod, lumpfish and crab fisheries, with home and transient vessels landing approximately 945,814 kilograms of product.

4.2 Physical Features:

The rubblemound breakwater structure will measure approximately 100 m long, out into the waters of Great Lawn Harbour in a hockey stick formation, extending from the existing breakwater wharf and measuring 25 m wide along the ocean floor, with a crest width of 5 m. The breakwater will be constructed to an elevation of 3.6 m high and will be composed of a variety of materials such as core stone, filter stone and armour stone.

The immediate upland area is relatively flat, sloping gently back to the site access road that leads to the main road through the community. The area adjacent to the access road is where the shoreline protection will be installed. There are no permanent residences in the immediate vicinity of the project site. The general upland area is very exposed, with limited grass, native shrub, and coniferous vegetation.

The dredging channel is located between the proposed breakwater and a natural grassy knoll that reaches out into the Lawn Harbour.

4.3 Construction:

Project design is underway and should enable tendering to proceed before August 31, 2004. Construction at the site will commence early in September 2004 and should conclude by late December 2004.

The project will begin with the placement of core stone over the indented footprint, which will then be covered with filter stone. Layers of armour stone will then be placed on top of the filter stone layer. The armour stone will range in size from 2 – 4 tonne on the inside section of the breakwater to 4-6 tonne on the outside section.

The breakwater materials will be obtained from an approved licensed quarry and trucked to the project site where excavators will place the materials. The quarry source and specifications are not available at this time as that will be determined after award of the contract, before construction.

This project will also entail the removal of approximately fifteen hundred cubic meters (1500m^3) of sand material from the area inside the access channel. The target areas will be dredged using land-based long reach tracked excavator/backhoe equipment. Wherever possible, the dredging equipment will work from dry, stable shoreline areas. However, should this not be possible, there are two dredging methodologies that will most likely be considered. The first method uses an excavator mounted on a barge where the dredge spoils are loaded on a second barge for transport to the shore for loading in watertight dump trucks for transport to an approved waste disposal landfill site. The second, and more common method, involves using material from within the target dredge area to construct a temporary road and work platform from which the excavator can reach the dredge limits. This temporary road is removed as the excavator works its way back to shore. The successful contractor in consultation with Public Works and Government Services Canada and appropriate regulators will determine the specific dredging methodology. Subject to regulatory approval, the dredged material will be deposited on site where it will be used as backfill to create upland parking and service area; otherwise it will be transported to an approved waste disposal site. As part of this project's preplanning process, three (3) sediment samples were collected and submitted for chemical analysis. All three samples tested below the CCME industrial guidelines for all parameters tested.

The final aspect of the project will involve the placement of 1000 m^3 of 2-4 ton armour stone along the adjacent shoreline to provide protection against rough seas and tidal erosion.

4.4 Operation:

The expansion of the breakwater will provide additional protection to the fishing fleet in Lawn reducing agitation at the site, while at the same time increasing protection to the vessels. The dredging will provide fishers with safer and more secure access through the channel and installation of the shore protection will prevent erosion of the site. The project is necessary to continue service, safety and access for the fishing fleet utilizing the harbour.

The operation and maintenance of the facility will be under the control of the Harbour Authority with the support of Small Craft Harbours.

4.5 Potential Resource Conflict:

Listed below are project related activities that have potential to cause environmental issues, and the actions required to mitigate these effects.

4.5.1 Navigation:

Environmental Concern

Breakwater construction has the potential to block/reduce vessel navigation in the harbour.

Mitigation

Transport Canada has been consulted regarding the application of the Navigable Waters Protection Act and the Harbour Authority will coordinate all vessel activities within the harbour for the duration of the project. All conditions and stipulations provided by Transport Canada must be implemented and complied with by the proponent.

4.5.2 Benthic Habitat:

Environmental Concern

The breakwater structure and dredging will displace more than 3,500 m^2 of bottom substrate material and result in the destruction of fish habitat.

Mitigation

Mitigations, including the construction of the armour stone breakwater, will create additional lobster habitat in the interspatial areas. The proponent is required to obtain the approval of the DFO Area Habitat Biologist prior to undertaking the project. The mitigations stipulated in the DFO Letter of Advice are designed to protect fish and fish habitat and should be adhered to. No significant aquatic vegetation or fish habitat is known to exist within the affected areas.

4.5.3 Marine Water Quality:

Environmental Concern

Placement of the breakwater materials and dredging of the ocean bottom has the potential to conflict with the marine habitat by introducing suspended sediments into the water column.

There is also potential for accidental spills of hydrocarbon products from heavy equipment machinery.

Mitigation

This sedimentation will be short-term and should quickly dissipate due to wave and tidal action.

Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refuelling must be done at least 30m from any water body. Basic petroleum spill clean-up equipment should be on-site. All spills or leaks should be promptly contained, cleaned up and reported to the 24-hour environmental emergencies report system (1-800-563-2444).

4.5.4 Health & Safety:

Environmental Concern

Project activities may be a risk to the public.

Mitigation

Access to work areas is to be controlled and restricted to construction personnel. Equipment will utilize existing roads to gain access to the site. Some minor impacts due to speed, noise, spillage or traffic congestion can be anticipated. Reduced speed limits and appropriate signage will be put in place, if warranted. Local municipal construction bylaws will be adhered to. With appropriate mitigations in place, minimal adverse environmental effects, as a result of construction traffic, are predicted.

4.5.5 Air Quality:

Environmental Concern

Construction activities could result in nuisance impacts due to noise and dust.

Mitigation

All construction equipment must be fitted with standard and well-maintained noise suppression devices. Construction activities must respect appropriate time restriction and use smaller, less disruptive equipment where possible. Appropriate dust suppression methods are to be employed when required.

4.5.6 Aesthetics:

Environmental Concern

There is potential for local aesthetics to be affected by the proposed project.

Mitigation

The breakwater will remain low enough as to not permanently hinder the view provided from the shoreline. The contractor is required to return the site to its original condition prior to the conclusion of the project.

4.6 Occupation:

The following list outlines occupations, which will be employed during the design and construction period.

4 – Professional Engineers
2 – Engineering Technicians
2 – Surveyors
1 – Rod and Chainmen
1 – Construction Inspector
1 – Draftsperson
1 – Secretaries
2 – Labourers
5 – Heavy Equipment Operators
15 – Truck Drivers
2 – Flag People
4 – Drillers/Blasters
1 – Office Clerks
1- Construction Foremen/Superintendents

4.7 Project-Related Documents:

To date, there are no project related documents available.

5.0 APPROVAL OF THE UNDERTAKING:

The following is a list of the main permits, licences and approval required for this project.

Approvals/Certificate/Permits	Authority
Environmental Registration	Department of Environment & Labour Environmental Assessment Division
Letter of Advice	Fisheries and Oceans Canada
Application for Environmental Approval to Alter a Body of Water	Department of Environment & Labour Water Resources Division
Construction of a Breakwater Structure	Transport Canada
Waste Disposal Approval	Department of Government Services and Lands - Government Services Centre
Quarry Permit	Department of Mines and Energy

6.0 SCHEDULE:

This project is expected to go to tender before August 31, 2004. Construction is scheduled to begin as soon as the contract is awarded and is expected to continue as client resources permit, possibly until the end of December 2004.

7.0 FUNDING:

The Department of Fisheries and Oceans, Small Craft Harbours Branch will be providing the funding for this project. Approximate capital costs for the undertaking will be in the order of $430,000.

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Date Signature of SCH Regional Engineer