Appendix A:

Regulatory Approvals

FISHERIES AND OCEANS
CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA) 2012
PROJECT EFFECTS DETERMINATION REPORT

GENERAL INFORMATION

1. Project Title: Harbour Development, Fort Amherst (Prosser's Rock), NL	
2 Proponent: Fisheries and Oceans Canada, Small Craft Harbours (DFO SCH)	
3. Other Contacts **(Other Proponent, Consultant or Contractor):** Public Works and Government Services Canada	**4. Role:** OGD Consultant
5. Source of Project Information: Paul Curran, Regional Engineer, DFO SCH Branch	
6. Project Review Start Date: October 10, 2018	
7. DFO File No.: NA	**8. PWGSC File No:**
9. TC File No.: NPP #8200-01-1383 / NEATS: 49135	

BACKGROUND

10. Background about Proposed Development (including a description of the proposed development):

DFO-SCH proposes the construction of a new marginal wharf and a hockey stick shaped pile and cap wharf adjacent to (west) the existing SCH site at Prosser's Rock in St. John's, NL (see Appendix A) to facilitate a new boat basin. The project will require site excavation and a minor amount of dredging to create a stable slope for the marginal wharf. See attached site plan in Appendix B.

PROJECT REVIEW

11. DFO's rationale for the project review:

Project is on federal land ☒ and;

☒ DFO is the proponent

☐ DFO to issue *Fisheries Act* Authorization or *Species at Risk Act* Permit

☐ DFO to provide financial assistance to another party to enable the project to proceed

☐ DFO to lease or sell federal land to enable the project to proceed

☐ Other

12. Fisheries Act Sections (if applicable): n/a

13. Other Authorities • Transport Canada – Navigation Protection Program (NPP) and Environmental Affairs and Aboriginal Consultation Unit	**14. Other Authorities rationale for involvement:** • *Navigation Protection Act*

15. Other Jurisdiction: • Department of Environment and Conservation, Water Resources Division (NLDOEC WR) • Service NL	
16. Other Expert Departments Providing Advice: • Fisheries and Oceans Canada, Fisheries Protection Program (DFO-FPP)	**17. Areas of Interest of Expert Departments:** *Fisheries Act*
18. Other Contacts and Responses: N/A	

19. Scope of Project (details of the project subject to review):

Project Description

The proposed project will consist of constructing a new marginal wharf and a hockey stick shaped pile and cap wharf adjacent to (west) the existing SCH site to facilitate a new boat basin. The new marginal wharf will measure 103m x 6.1m. The new hockey stick shaped wharf, which will sit perpendicular to the new marginal, will measure 140m long by 9.1m wide and be constructed of steel pile and cap. Three rows of piles will be installed along the width and 36 rows along the length of the wharf (every 4 meters). The piles will be in a 4mx4m grid formation.

The proposed marginal wharf will consist of 16 new treated timber cribs. The new marginal cribwork will fit up tight against an existing wharf infrastructure on the eastern edge. The contractor is to excavate to install cribs on a hard flat bottom and install rock mattress if there are any areas where hard bottom is lower than designed crib seat. The new treated cribwork will be surrounded by a layer of 200 kg scour protection, and clean rock fill will be utilized as ballast in the structure. There will be backfilling of the area behind the marginal wharf and topped with a concrete slab on grade that will tie into the paved lot of the existing facility.

The construction may require rock busting and/or rock fill removal to accommodate a draft of -4.5m below LNT at the face of the new marginal wharf, inside the basin area. If found to be suitable, this rock fill material may be reused for infilling on the uplands. There may be a small amount of sediment material to be removed from the construction area, less than 200m^3. Typically sediment from St. John's Harbour is unsuitable for landfill disposal. Two sediment samples were collected from the outside section of the project site, where small amounts of sediment are present. The samples results showed the sediment exceeded landfill disposal criteria for metals and TPH. As a result, any sediment material taken from the harbour bottom and suspect of being unsuitable will be dredged, trucked and disposed of at a soil treatment facility. If there is a requirement for sediment to be temporarily stored on site to allow for drainage, it will be place on an impermeable membrane. Construction debris will be disposed of appropriately as per regulatory approvals.

The Prosser's Rock project will be carried out in two Phases. Phase I will include the new marginal wharf and half of the pile wharf. Phase II of the project will be the continuation of the pile wharf up to 140m. All work is in previously undisturbed area.

Footprint of project phases are as follows:
Phase 1 cribs: 617m2
Phase 1 piles: 594m2
Phase 2 piles: 658m2

Footprint below high water (includes partial uplands): 907m2 for phase 1 + 658m2 to include Phase 2 pile work = total of 1565m2.

Construction will be carried out using dump trucks, manual labour and an excavator operating from existing structures on land.

Operation/Maintenance

The Environmental Management System (EMS) with an integrated Environmental Management Plan (EMP) for the Harbour Authority of Prosser's Rock will cover operational aspects of environmental management at the harbour (fuelling, waste disposal, activities on the property and water). As such, environmental effects resulting from the SCH operations are not considered further in this project effects determination.

Decommissioning

This facility is not presently planned to be decommissioned. At the time of decommissioning, Small Craft Harbours will develop a site-specific re-use or reclamation plan that is appropriate for the applicable environmental legislation and Fisheries and Oceans Canada Policies.

Scheduling

Subject to regulatory approval and DFO SCH operational priorities and funding, this project may commence during the 2019-2020 fiscal year.

20. Location of Project:

Prosser's Rock is located on the south side of the Narrows in St. John's Harbour at coordinates 47° 30' 69" N, 53° 00' 73" W. The project site can be accessed from local roads via Pitts Memorial Drive (Route 2).

21. Environment Description:

Physical Environment

The general project area includes a finger pier wharf, launchway, parking lot, the harbor authority office and maintenance building.

Biological Environment

The site is within the Southeastern Barrens subregion of the Maritime Barrens Ecoregion. The ecoregion's climate is affected by the Atlantic Ocean, which makes it susceptible to long periods of fog. It is characterized by cool summers and short, somewhat moderate winters along the coast and colder inland.

According to the Fisheries and Oceans' Traditional Ecological Maps in the area, Atlantic cod, sandlance, lumpfish, whales, kelp, squid, lobster, toad crab, mussel and sea urchin can be found within or very near the project area.

The landscape pattern that identifies this area – small stands of forests broken by large expanses of open barrens – is primarily the result of cutting and repeated, widespread fires. The general reduction of tree seeds by fire, the thinness of the soil layer, and climatic conditions (strong winds, lack of protective snow cover, and frequent fog) allowed time for competitive dwarf shrub species to invade and dominate the burnt-over areas. As a result, much of this subregion, and the Maritime Barrens ecoregion as a whole, is today characterized by barrens.

The topography is generally undulating with shallow heavily compacted till and numerous large erratic's. The Clintonia-Balsam Fir type is most common where the forest is still present. Good forest growth only occurs in a few large protected valleys where the Dryopteris-Balsam Fir type dominates the slopes. Good specimens of Yellow Birch are also found in these stands.

Two marine sediment samples were collected at the site during borehole investigations in August 2018. Analytical results revealed the concentrations of metals and TPHs were above CCME industrial soil quality guidelines (Appendix D). Dispose of sediment material removed from the project site according to the specifications.

Species at Risk (Aquatic and Terrestrial)

A search of the Atlantic Canada Conservation Data Centre (ACCDC) database was conducted on December 18, 2018, which produced a list of rare/unique species (i.e. plants and animals) within a 5 km buffer zone (standard ACCDC procedure) of the site of the proposed work. Prosser Rock is within the distributional range of the following species listed on Schedule 1 of the *Species at Risk Act.*):

- Red Crossbill and Ivory Gull - listed as endangered;
- Short-eared Owl, Peregrine Falcon, Rusty Blackbird, Harlequin Duck, Polar Bear and Monarch - listed as special concern;
- Bobolink, Bank Swallow, Barn Swallow and Chimney Swift – listed as threatened;
- Long stalked yellow sedge, Robinson's Hawkweed and Fernald's chuckleypear – listed as a priority 3 candidate;
- Evening Grosbeak and Hump Backed Elves – listed as a high priority candidate;
- Gray-Cheeked Thrush – listed as a mid-priority candidate; and
- Killdeer, Belted Kingfisher, King Eider and American Kestrel - listed as a low priority candidate.

It is unlikely that the proposed development contains any critical, limiting, or sensitive habitat for any of the listed Species at Risk.

22. Scope of Effects Considered (sections 5(1) and 5(2)):

Table 1: Potential Project / Environment Interactions Matrix

	As per Section 5(1)			*Section 5(1c)*				*Section 5(2)*			*Due Diligence*			
				Aboriginal Interest										
Project Phase / Physical Work/Activity	*Fish (Fisheries Act)*	*Aquatic Species (SARA)*	*Birds (MBCA)*	*Health and Socio economic*	*Physical and cultural heritage*	*Land use*	**HAPA Significance*	*Health and Socio economic*	*Physical and cultural heritage*	**HAPA Significance*	*Water (ground, surface, drainage, etc)*	*Terrestrial / Aquatic Species*	*Soil/ Marine Sediments*	*Air Quality*
Harbour Development														
Wharf construction	P	-	P	-	-	-	-	P	-	-	P	P	P	P
Dredging	P	-	P	-	-	-	-	P	-	-	P	P	P	P
Operation / Maintenance	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Decommissioning / Abandonment	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**structure, site or thing that is of historical, archaeological, paleontological or architectural significance.*
Legend: P = Potential Effect of Project on Environment; ' - ' = No Interaction

23. Environmental Effects of Project:

Potential Project/Environment Interactions and their effects are outlined below:

Fish/ Fish Habitat

- Dredging activities could result in the loss of fish habitat.
- Sedimentation and/or increased turbidity as a result of placement of infilling material may negatively impact fish and quality of potential fish habitat.
- Infilling and construction of new marginal wharf may result in destruction of potential fish habitat.
- Accidental discharge of heavy machinery fuel/fluids or hazardous substances could negatively impact fish and potential fish habitat.

Birds/Bird Habitat

- Any type of hydrocarbon spill could result in bird or bird habitat loss.
- Noise / fumes may result in birds avoiding the site and surrounding area.

Health and Socio economic

- Potential for safety hazards to workers during demolition and construction activities.

Water

- Improper disposal of dredge material could result in contamination of groundwater by placement in areas that may be susceptible to groundwater.
- Dredging activities resulting in a sedimentation and/or increased turbidity event within the water column.
- Construction activities taking place near the shoreline may result in run off / erosion.
- Construction of marginal wharf may result in a loss of flora, fauna, and habitat.
- Sedimentation and/or increased turbidity as a result of infilling may decrease marine water quality at immediate project site.
- Accidental discharge of heavy machinery fuel/fluids or hazardous substances (e.g. Concrete washwater) may result in a decrease of marine water quality.

Aquatic species

- Sedimentation and/or increased turbidity as a result of preparation and construction may negatively impact aquatic species present at the immediate project site.
- Accidental discharge of heavy machinery fuel/fluids or hazardous substances (e.g. concrete washwater) could negatively affect aquatic species present at the immediate project site.

Soil/Marine Sediments

- Improper disposal of demolition materials may result in contamination of soils.
- Project activities could potentially result in soil contamination due to some type of mechanical malfunction resulting in a hydrocarbon spill.
- Construction activities at site or natural events (e.g. rainfalls) could result in erosion, sedimentation and/or increased turbidity events.

Air Quality/Noise

- Some minor disruptions and annoyance to facility users and residents who live near the project site can be anticipated from project activities and the use of heavy equipment.

Navigation

- Potential for direct effects to navigation.

24. Mitigation Measures for Project (including Habitat Compensation):

Work should be scheduled to avoid periods of heavy precipitation. Erosion control structures (temporary matting, geotextile filter fabric) are to be used, as appropriate, to prevent erosion and release of sediment and/or sediment laden water during the construction phase.

Minimize duration of in-water work wherever possible.

Conduct in-water work during periods of low tide, to further reduce the risk to fish and their habitat.

Develop and implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of the waterbody during all phases of the project. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody or settling basin and runoff water is clear. The plan will, where applicable, include:

- Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the water body;
- Site isolation measures (e.g., silt boom or silt curtain) for containing suspended sediment where in-water work is required (e.g., dredging, underwater cable installation);
- Measures for containing and stabilizing waste material (e.g., dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby waterbodies to prevent re-entry;
- Regular inspection and maintenance of erosion and sediment control measures and structures during the course of construction;
- Repairs to erosion and sediment control measures and structures if damage occurs;
- Removal of non-biodegradable erosion and sediment control materials once site is stabilized.

Work should be properly timed to avoid potential interference with commercial and/or recreational fisheries.

Appropriate sedimentation and/or increased turbidity control measures (e.g. silt curtains, booms, etc), should be deployed where required.

Sediment material requiring drainage prior to disposal will be placed on an impermeable liner.

No Excess water is allowed to be in dump truck boxes and truck tires must be washed clean of any dredged material prior to leaving work site.

All wastes should be recycled where possible or otherwise disposed of appropriately.

All crib backfill material should be clean and obtained from an approved quarry, or salvaged from the demolition structure.

Materials should never be removed directly from any watercourse, or shoreline area for use as ballast.

All drainage and wash water from concrete production should be properly contained and should not drain into the marine environment.

There should be no sedimentation and/or increased turbidity events as a result of proposed activities. If required, mitigation measures must be implemented such as installation of a turbidity barrier, construction of sediment ponds, etc.

Machinery should be well muffled and local municipality construction by-laws must be adhered to.

Machinery must be checked for leakage of lubricants or fuel and must be in good working order.

Refueling must be done at least 100m 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 (1-800-563-9089). The proponent should consider developing a contingency plan specific to the proposed undertaking to enable a quick and effective response to a spill event.

The proponent must ensure that all waste material will be disposed of in an environmentally acceptable manner in accordance with applicable Provincial Regulations.

Shoreline disturbance should be restricted to the immediate work area. Disturbed shorelines should be stabilized.

Conduct work in a manner that prevents the release of debris (i.e., cribbing, ballasts, etc.) or sediments into the water.

To the extent possible, the proposed work should be carried out during low tide and low wind-wave conditions to minimize turbidity and to minimize the area that might be affected by turbidity. Weather conditions should be assessed on a daily basis to determine the potential risk on project activities.

If using a floating barge for operations, vessels should be compliant with all *Canada Shipping Act, 2001* requirements for inspection, which includes certification of the vessel and adequate training and appropriate certificate of competency for the operators. The floating barge must be cleaned to prevent the spread of potential invasive species.

Ensure that all vessels will have procedures in place to ensure safeguards against marine pollution: awareness training of all employees, means of retention of waste oil on board and discharge to shore-based reception facilities, capacity of responding to and clean-up of accidental spill caused by vessels involved in any particular project.

Site access must be restricted to authorized workers only. There will be no public access to the site.

Workers in contact with hazardous materials (e.g. explosives) must be provided with and use appropriate personal protective equipment.

Workers should wear appropriate personal protective equipment and avoid contact with water from St. John's harbor as it is typically high in fecal coliforms.

Proper safety procedures must be followed during the duration of the project as per applicable municipal, provincial, and federal regulations.

Employees will be trained in health and safety protocols (e.g. safe work practices, emergency response).

Several environmental approvals / permits have been obtained on behalf of SCH. These include:

1. NLDOEC provided Water Resources Permit to Alter a Water Body Minor Dredging Permit.

2. Fisheries and Oceans provided Letter of Advice for the project outlining mitigation measures for the protection of fish and fish habitat.
3. Transport Canada may provide an approval under the *Navigation Protection Act* (NPA).

These approvals are attached in Appendix C and all conditions/mitigation measures must be reviewed and implemented by the contractor.

The proponent should ensure that copies of all regulatory approvals are available on-site during project activities.

Environmental effects of the project on navigation are taken into consideration as part of the Project Effects Determination (PED) only when the effects are indirect, i.e. resulting from a change in the environment affecting navigation. Direct effects on navigation are not considered in the PED, but any measures necessary to mitigate direct effects will be included as terms and conditions associated with the work approved or permitted pursuant to the *Navigation Protection Act*.

25. Significance of Adverse Environmental Effects of project:

Significant adverse environmental effects are unlikely, taking into account mitigation measures.

26. Other Considerations (Public Consultation, Aboriginal Consultation, Follow-up)

Public Consultation

The proposed project will provide safer and more secure access for vessels utilizing this facility. No negative public concern is expected as a result of this project. As such, public consultation was not deemed necessary as part of this determination.

Aboriginal Consultation

Aboriginal fishers are not known to utilize the Prosser's Rock SCH facility, nor are there any known aboriginal groups in the surrounding area. As such, aboriginal consultation was not deemed necessary as part of this determination.

Government Consultation

Federal and provincial authorities likely to have an interest in the project were consulted by Public Works & Government Services Canada, Environmental Services, during the course of this assessment. A project description was distributed to the following authorities:

- Fisheries and Oceans Canada – Fisheries Protection Program (DFO FPP)
- Transport Canada – Navigation Protection Program and Environmental Affairs and Aboriginal Consultation Unit
- NL Department of Environment and Conservation, Water Resources Division

Accuracy and Compliance Monitoring

A follow-up program (as defined in S. 2(1) and as applicable to non-designated projects on federal lands) is a program for determining the effectiveness of any mitigation measures. Site monitoring (accuracy and compliance monitoring) may be conducted to verify whether required mitigation measures were implemented. The proponent must provide site access to Responsible Authority officials and/or its agents upon request.

27. Other Monitoring and Compliance Requirements (e.g. *Fisheries Act* or *Species at Risk Act* requirements)

n/a

CONCLUSION

28. Conclusion on Significance of Adverse Environmental Effects:

The Federal Authorities have evaluated the project in accordance with Section 67 of *Canadian Environmental Assessment Act (CEAA), 2012*. On the basis of this evaluation, the departments have determined that the project is not likely to cause significant adverse environmental effects with mitigation and therefore can proceed using mitigative measures as outlined.

29. Prepared by: Cathy Martin **30. Date:** February 11, 2019

31. Name: Cathy Martin

32. Title: Environmental Specialist, PWGSC-ES

DECISION

33. Decision Taken

☒ DFO may exercise its power, duty or function, i.e. may issue the authorization - where the project is not likely to cause significant adverse environmental effects. Confirm below the specific power, duty or function that may be exercised.

- ☐ DFO to issue *Fisheries Act* Authorization or *Species at Risk Act* Permit
- ☒ DFO to proceed with project (as proponent)
- ☐ DFO to provide financial assistance for project to proceed
- ☐ DFO to provide federal land for project to proceed

☐ DFO has decided not to exercise its power, duty or function because the project is likely to cause significant adverse environmental effects.

☐ DFO to ask the Governor in Council to determine if the significant adverse environmental effects are justified in the circumstances

34. Approved by: [signature] **35. Date:** 11 Feb 2019

36. Name: for Paul Curran ACTING

37. Title: Regional Engineer, DFO-SCH, NL

38. Approved by: Paul Sheppard **39. Date:** 11 February 2019

40. Name: Paul Sheppard

41. Title: Manager Technical Services, St. John's Port Authority

42. References: n/a

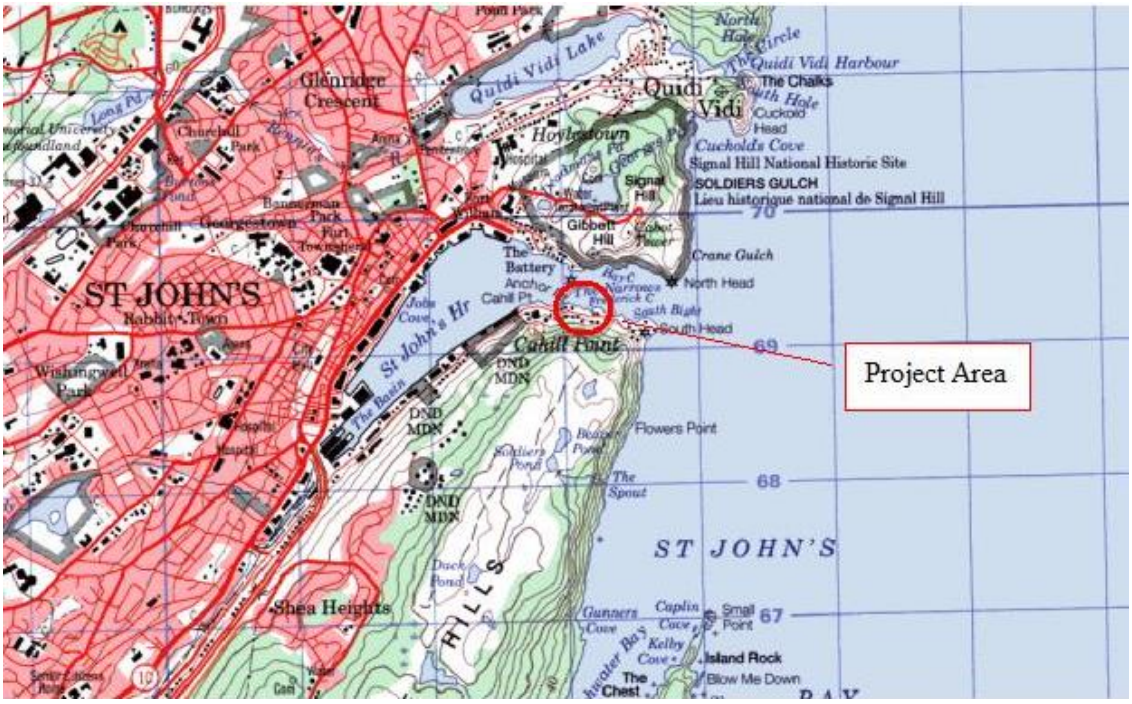
43. TRANSPORT CANADA DECISION

Project Title:	DFO-SCH Prosser's Rock, St. John's, NL - Harbour Development	
TC File No.:	NEATS: 49135	
NPP File No.:	8200-01-1383	
Environmental Review Decision:	Taking into account the implementation of any mitigation measures that Transport Canada considers appropriate, the project **is not likely** to cause significant adverse environmental effects and, as such, Transport Canada may exercise any power or perform any duty or function that would permit the project to be carried out in whole or in part.	
Prepared by:	**Melissa Ginn** Environmental Officer Environmental Affairs and Aboriginal Consultation Unit	
Signature:		**Date:**
Mailing Address:	10 Barter's Hill, St. John', NL	
Tel:	709-772-3088 / 709-351-3200	
Fax:	709-772-3072	
Email:	melissa.ginn@tc.gc.ca	
Recommended by:	**J. Jason Flanagan** Senior Environmental Assessment Officer Environmental Affairs and Aboriginal Consultation Unit	
Signature:		**Date:**
Approved by:	**Kevin LeBlanc** Regional Manager Environmental Affairs and Aboriginal Consultation Unit	
Signature:		**Date:**

APPENDICES

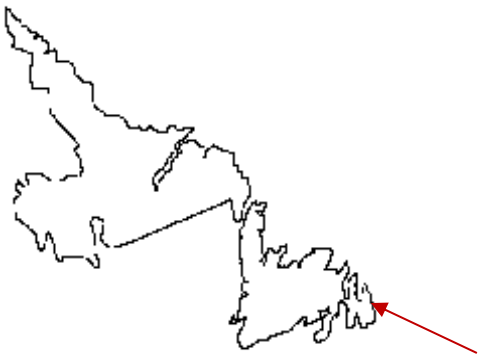
-Appendix A - Topographic Map and Aerial Photographs
- Appendix B: Site Plan
- Appendix C: Regulatory Approvals/Responses
- Appendix D: Analytical Results

Appendix A
Topographic Map and Aerial Photos



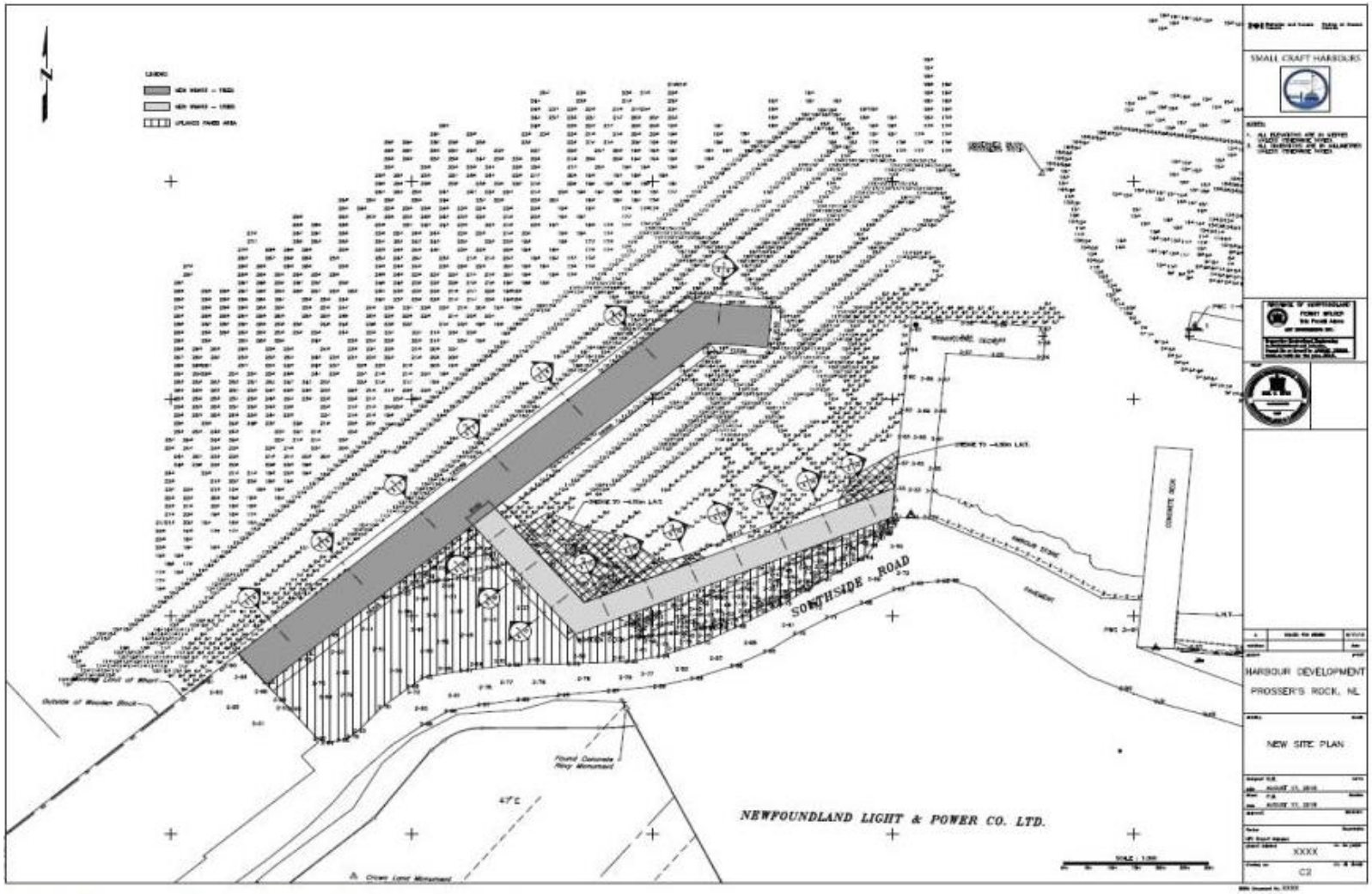
Description

Appendix A-1
Topographic Map of Proposed Site
Location: St. John's
NTS Mapsheet 01-N-10 – St. John's
Scale 1:50,000



Appendix A-2: Aerial Photo indicating proposed project site of marginal wharf construction.

Appendix B
Site Plan of proposed project



Appendix B-1: Prosser Rock new marginal wharf construction site plan.

Appendix C
Regulatory Approvals / Responses

Fisheries and Oceans Canada
Pêches et Océans Canada

P.O. Box 5667
St. John's NL A1C 5X1

DEC 19 2018

Your file Votre référence

Our file Notre référence
18-HNFL-00764

Paul Curran
DFO Small Craft Harbours Branch
10 Barters Hill
St. John's NL A1C 5X1

Subject: Harbour Development in St. John's Harbour (Prosser's Rock), St. John's – Implementation of Measures to Avoid and Mitigate Serious Harm to Fish and Prohibited Effects on Listed Aquatic Species at Risk

Dear Mr. Curran:

The Fisheries Protection Program (the Program) of Fisheries and Oceans Canada (DFO) received your proposal on October 19, 2018. We understand that you propose to:

- Construct a 130m x 6.1m (630m²) marginal wharf west of the existing SCH facility.
- Install a 140m x 9.1m sheet pile wharf composed of 142 piles measuring approximately 0.4m², total footprint below the high water mark of 57m².
- Dredge a 320m² area adjacent to existing uplands area inside the basin.
- Complete the above works between December 18, 2018 and December 31, 2020.

Our review considered the following information:

- An Application for Review including site photos and schematics.
- Additional information received by email on November 17 and December 6, 2018.

Your proposal has been reviewed to determine whether it is likely to result in serious harm to fish which is prohibited under subsection 35(1) of the *Fisheries Act* unless authorized. Your proposal has also been reviewed to determine whether it is likely to affect listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act,* unless authorized.

To avoid and mitigate the potential for serious harm to fish, we recommend implementing the measures listed below:

- The project should be carried out in a manner that minimized the release of sediment and/or other project related material into the waters of St. John's Harbour or any other adjacent waterbody (e.g. use of silt boom or silt curtain to control and limit sedimentation to the immediate project footprint).
- Project related activity should be suspended, and/or additional mitigation measures taken if wind/wave or tide conditions cause sediment/turbid water to be visible outside of the immediate project area.
- Duration of in-water works should be minimized.
- Machinery should be operated from a dry stable location – e.g., existing wharf decks, shorelines, and/or floating barge.
- Project activity should be carried out during periods of low tide, low wind/wave conditions and avoid heavy precipitation.

- Shoreline disturbances should be restricted to immediate work area. Any shoreline areas disturbed by project activities should be stabilized as soon as possible to prevent erosion.
- Rock material for wharf ballast, used to submerged timber crib structures should be clean quarry material and may include clean blasted rock or boulders free of fine erodible material or material deleterious to fish or fish habitat. Rock material should not be obtained from below the high water mark of any waterbody.
- Rock material should not be end dumped; rather it should be placed on station using an excavator or similar equipment.
- The appropriate regulatory agencies (Environment and Climate Change Canada) should be contacted regarding the use of wood treatment products, weathering, and the location of treatment sites for manually applied preservatives.
- Freshly treated preserved wood should be avoided.
- Care should be taken to insure no seepage of concrete or concrete residue occurs outside the work area.
- Minimize the amount of dredged material removed by only dredging the area and depth required.
- Dredged material should be deposited and stabilized on land or at an approved disposal and dumping site.
- Immediately before and during pile driving a bubble/are curtain should be used to disrupt the shock waves and scare mobile species from the area immediately adjacent to the pile driving activity; the curtain should surround the work site and pile driving started only after fish have been moved outside of the surrounded area.

Provided that you incorporate these measures into your plans, the Program is of the view that your proposal will not result in serious harm to fish or prohibited effects on listed aquatic species at risk. As such, an authorization under the *Fisheries Act* or a permit under the *Species at Risk Act* is not required.

Should your plans change or if you have omitted some information in your proposal, further review by the Program may be required. Consult our website (http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html) or consult with a qualified environmental consultant to determine if further review may be necessary. It remains your responsibility to avoid causing serious harm to fish and avoid prohibited effects on listed aquatic species at risk, any part of their critical habitat or the residences of their individuals.

It is also your *Duty to Notify* DFO if you have caused, or are about to cause, serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery. Such notifications should be directed to http://www.dfo-mpo.gc.ca/pnw-ppe/violation-infraction/index-eng.html
A copy of this letter should be kept on site while the work is in progress. It remains your responsibility to meet all other federal, territorial, provincial and municipal requirements that apply to your proposal.

If you have any questions with the content of this letter, please contact Triage & Planning at our St. John's office at (709) 772-4140, by fax at (709) 772-5562, or by email at FPP.XNFL@dfo-mpo.gc.ca. Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,

Michelle M. Roberge
Team Leader, Triage and Planning
Fisheries Protection Program – Regulatory Review

Cc: Cathy Martin – Public Works and Government Services Canada

Newfoundland Labrador

Government of Newfoundland and Labrador
Department of Municipal Affairs and Environment
Water Resources Management Division

PERMIT TO ALTER A BODY OF WATER

Pursuant to the *Water Resources Act*, SNL 2002 c W-4.01, specifically Section(s) 48

Date: **DECEMBER 21, 2018**

File No: **532-02**
Permit No: **ALT10000-2018**

Permit Holder: **Department of Fisheries and Oceans Canada**
Small Craft Harbours Branch
John Cabot Building, 10 Barters Hill
St. John's, NL, A1C 5X1

Attention: **Mr. Paul Curran**

Re: **Minor DFO Dredging, Infilling, and Works Projects**

Permission is hereby given for: routine dredging or beach grading of 2500 cubic metres or less of primarily sand, gravel, cobble and boulder material in order to provide safe navigation at various Department of Fisheries and Oceans' Small Craft Harbours facilities around the Province of Newfoundland and Labrador as well as the infilling of 500 square metres or less of DFO SCH leased waterlot to construct new or increase existing service/laydown areas at existing DFO SCH facilities, with reference to the application dated November 20, 2018.

- This permit does not release the permit holder from the obligation to obtain appropriate approvals from other concerned municipal, provincial and federal agencies.
- The Permit Holder must obtain the approval of the Crown Lands Administration Division if the project is being carried out on Crown land.
- This permit is subject to the terms and conditions indicated in Appendices A and B (attached).
- It should be noted that prior to any significant changes in the design or installation of the proposed works, or in event of changes in ownership or management of the project, an amendment to this Permit must be obtained from the Department of Municipal Affairs and Environment under Section 48 of the *Water Resources Act*.

MINISTER

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Municipal Affairs and Environment

File No: 532-02
Permit No: ALT10060-2018

APPENDIX A

Terms and Conditions for Permit

Dredging

1. Dredging activity must only be carried out during periods when wind, wave and tide conditions minimize the dispersion of silt and sediment from the work site.

2. The area to be dredged must be enclosed and isolated from the rest of the body of water through the use of a filter fabric curtain or similar method.

3. Dredged material must be disposed of in accordance with the regional Service NL Centre of the Department of Service NL. The Department of Service NL may require samples to be submitted for testing and analysis.

Infilling

4. The slopes along the perimeter of infilled areas must be no steeper than two horizontal to one vertical (2H:1V).

5. The constructed works must be inspected regularly so that action can be taken to undertake repairs as required.

6. Fill material must be obtained from an approved quarry site. It must not be taken from beaches or streams, and must not be dredged from a body of water.

7. The natural course of any stream must not be altered.

8. Infilling must not disrupt the established surface drainage pattern of the area.

9. Infilling must not cause increased water elevation upstream or increase flow velocity downstream of the site. Reduction of the natural cross sectional area of any watercourse is not permitted.

10. Before infilling, any vegetation and topsoil must be completely removed and under no circumstances shall it be used as fill material. Topsoil must be stored and reused in final landscaping of the infilled area.

11. The constructed works must comply with all other terms and conditions provided in the Crown Lands grant, lease, or license for occupancy.

12. Select heavy rocks must be placed along the toe of any infilling to provide slope stability and erosion protection.

13. A minimum 15 metre wide vegetated buffer zone must be maintained along the edge of the waterbody in order to provide bank stability and maintain local aesthetics.

Special Conditions

14. The Permit Holder must apply for and obtain a separate permit under the Water Resources Act, SNL 2002 cW-4.01, specifically Section 39 https://assembly.nl.ca/Legislation/sr/statutes/w04-01.htm for any minor dredging or associated works that may take place within any designated Protected Public Water Supply Area servicing any community as indicated in Water Resources Portal available at https://maps.gov.nl.ca/water/mapbrowser/Default.aspx.

15. The Permit Holder may be required to apply for and obtain a separate permit under the Water Resources Act, SNL 2002 cW-4.01, specifically Section 48 https://assembly.nl.ca/legislation/sr/statutes/w04-01.htm for any minor dredging or associated works that may take place within any designated flood risk area as indicated at https://www.mae.gov.nl.ca/waterres/flooding/fim.html.

16. Any alteration in or near a freshwater body (including wetlands) requires a separate permit under the Water Resources Act, SNL 2002 cW-4.01, specifically Section 48 https://assembly.nl.ca/legislation/sr/statutes/w04-01.htm. The Permit Holder must avoid work activities in wetlands wherever possible.

17. A water quality monitoring program is not required at this time. However, the Department reserves the right to require that the Permit Holder sample, analyze, and submit results of water quality tests, for the purpose of ensuring that the water quality

is maintained within acceptable guidelines. All analyses must be undertaken by a CALA accredited laboratory.

18. Suitable booms must be deployed around work sites to contain any floating debris that might otherwise be carried away. All booms must be properly maintained and remain in place until all work is completed.

19. Creosote treated wood must not be used in the construction of any structures in or within 15 metre of any body of water.

20. If a minor dredging or associated work carried out under this Permit does prohibit, restrict or impede public access along the shoreline reservation then the Permit Holder shall restore the shoreline reservation to the satisfaction of the Minister within sixty (60) days of a written notice.

21. For each minor dredging or associated work carried out under this Permit, the Permit Holder must notify this Department via email to waterinvestigations@gov.nl.ca or facsimile at (709)729-0320 in accordance with a reporting protocol as deemed necessary and appropriate in the opinion of the Minister. Also, each minor dredging or associated work carried out under this Permit shall be subject to the payment of applicable fee by the Permit Holder as stated in the application fee schedules approved by the Minister.

22. The acknowledgment of the receipt of this Permit by the Permit Holder constitutes the acceptance of this Permit and its terms and conditions and requirements stated in Appendices A, B and C.

23. At the end of each year, the permit holder submits a report of all the work done under this permit along with the applicable fees incurred during the period.

General Alterations

24. Any work that must be performed below the high water mark must be carried out during a period of low water levels.

25. Any flowing or standing water must be diverted around work sites so that work is carried out in the dry.

26. Water pumped from excavations or work areas, or any runoff or effluent directed out of work sites, must have silt and turbidity removed by settling ponds, filtration, or other suitable treatment before discharging to a body of water. Effluent discharged into receiving waters must comply with the *Environmental Control Water and Sewage Regulations, 2003*.

27. All operations must be carried out in a manner that prevents damage to land, vegetation, and watercourses, and which prevents pollution of bodies of water.

28. The use of heavy equipment in streams or bodies of water is not permitted. The operation of heavy equipment must be confined to dry stable areas.

29. All vehicles and equipment must be clean and in good repair, free of mud and oil, or other harmful substances that could impair water quality.

30. During the construction of concrete components, formwork must be properly constructed to prevent any fresh concrete from entering a body of water. Dumping of concrete or washing of tools and equipment in any body of water is prohibited.

31. Wood preservatives such as penta, CCA or other such chemicals must not be applied to timber near a body of water. All treated wood or timber must be thoroughly dry before being brought to any work site and installed.

32. Any areas adversely affected by this project must be restored to a state that resembles local natural conditions. Further remedial measures to mitigate environmental impacts on water resources can and will be specified, if considered necessary in the opinion of this Department.

33. The bed, banks and floodplains of watercourses, or other vulnerable areas affected by this project, must be adequately protected from erosion by seeding, sodding or placing of rip-rap.

34. All waste materials resulting from this project must be disposed of at a site approved by the Department of Service NL.

35. Periodic maintenance such as painting, resurfacing, clearing of debris, or minor repairs, must be carried out without causing any physical disruption of any watercourse. Care must be taken to prevent spillage of pollutants into the water.

36. The owners of structures are responsible for any environmental damage resulting from dislodgement caused by wind, wave, ice action, or structural failure.

37. Sediment and erosion control measures must be installed before starting work. All control measures must be inspected regularly and any necessary repairs made if damage is discovered.

38. Fill material must be of good quality, free of fines or other substances including metals, organics, or chemicals that may be harmful to the receiving waters.

39. The attached Completion Report (Appendix C) for Permit No. 10060 must be completed and returned to this Department upon completion of the approved works. Pictures must be submitted along with the completion report, showing the project site prior to and after development.

40. This Permit is effective January 1, 2019 and shall expire on December 31, 2020 or earlier if modified, suspended or cancelled by the Minister. Also, this Permit may be renewed by the Minister for such renewal term as the Minister deems appropriate, on such terms and conditions as the Minister considers appropriate and in the public interest, provided the Permit Holder applies for the renewal at least ninety (90) days before the expiry of this Permit.

41. All work must be carried out within the Permit Holder's legal property boundaries.

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Municipal Affairs and Environment

File No: 532-02
Permit No: A LT10060-2018

APPENDIX B

Special Terms and Conditions for Permit

1. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall keep all systems and works in good condition and repair and in accordance with all laws, by-laws, directions, rules and regulations of any governmental authority. The Permit Holder or its agent(s), subcontractor(s), or consultant(s) shall immediately notify the Minister if any problem arises which may threaten the structural stability of the systems and works, endanger public safety and/or the environment or adversely affect others and/or any body of water either in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for all damages suffered by the Minister and Government resulting from any defect in the systems and works, operational deficiencies/inadequacies, or structural failure.

2. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall operate the said Project and its systems and works in a manner which does not cause any water related and/or environmental problems, including but not limited to problems of erosion, deposition, flooding, and deterioration of water quality and groundwater depletion, in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for any and all damages associated with these problems caused as a result of changes, deficiencies, and inadequacies in the operational procedures by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).

3. If the Permit Holder or its agent(s), subcontractor(s), or consultant(s) fails to perform, fulfil, or observe any of the terms and conditions, or provisions of this Permit, as determined by this Department, the Minister may, without notice, amend, modify, suspend or cancel this Permit in accordance with the *Water Resources Act*.

4. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) indemnify and hold the Minister and Government harmless against any and all liabilities, losses, claims, demands, damages or expenses including legal expenses of any nature whatsoever whether arising in tort, contract, statute, trust or otherwise resulting directly or indirectly from granting this Permit, systems and works in or outside the said Project areas, or any act or omission of the Permit Holder or its agent(s), subcontractor (s), or consultant(s) in or outside the said Project areas, or arising out of a breach or non-performance of any of the terms and conditions, or provisions of this Permit by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).

5. This Permit is subject to all provisions of the *Water Resources Act* and any regulations in effect either at the date of this Permit or hereafter made pursuant thereto or any other relevant legislation enacted by the Province of Newfoundland and Labrador in the future.

6. This Permit shall be construed and interpreted in accordance with the laws of the Province of Newfoundland and Labrador.

File No: 532-02
Permit No: ALT10060-2018

cc: Amir Ali Khan, Ph.D., P. Eng.
Manager, Water Rights, Investigations and Modelling Section
Water Resources Management Division
Department of Municipal Affairs and Environment
P.O. Box 8700
4th Floor, West Block, Confederation Building
St. John's, NL A1B 4J6
akhan@gov.nl.ca

cc: File Copy for Binder

cc: Mr. Ken Russell (Labrador)
Manager of Operations, GSC - Happy Valley-Goose Bay, Service NL
Government Service Centre
2 Tenth Street, P.O. Box 3014, Stn. B
Happy Valley-Goose Bay, NL A0P 1E0
krussell@gov.nl.ca

cc: Mr. Rick Curran (Eastern)
Director of Regional Operations Avalon , Service NL
149 Smallwood Drive, Mount Pearl
PO Box 8700
St. John's NL A1B 4J6
rjcurran@gov.nl.ca

cc: Mr. Robert Locke
Manager of Operations and Environmental Protection, GSC - Mount Pearl, Service NL
P.O. Box 8700
St. John's, NL A1B 4J6
rlocke@gov.nl.ca

cc: Mr. Wayne Lynch (Central)
Regional Director (Central)
Service NL
P.O. Box 2222
Gander, NL A1V 2N9
waynelynch@gov.nl.ca

cc: Ms. Susan Hoddinott (Western/Labrador)
Regional Director
Service NL
PO Box 2006
Corner Brook NL A2H 6J8
Susan.Hoddinott@gov.nl.ca

cc: Marine Safety
Transport Canada, Atlantic Regional Headquarters
Airports, Harbours and Ports, and Environmental Services
95 Foundry St.
P.O. Box 42
Moncton, NB E1C 8K6
NPPATL-PNATL@tc.gc.ca

cc: Mark McNeil
Public Works and Government Service Canada
Suite 204, 1 Regent Square
Corner Brook, NL A2H 7K6
mark.mcneil@pwgsc-tpsgc.gc.ca

cc: Mr. Shawn Kean
Environmental Services
Public Works & Government Services Canada

Newfoundland Labrador

Government of Newfoundland and Labrador
Department of Municipal Affairs and Environment
Water Resources Management Division

Appendix C - Completion Report

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 48

Date: **DECEMBER 31, 2018**

File No: **532-02**
Permit No: **AL.T10060-2018**

Permit Holder: **Department of Fisheries and Oceans Canada**
Small Craft Harbours Branch
John Cabot Building, 10 Barters Hill
St. John's, NL, A1C 5X1

Attention: **Mr. Paul Curran**

Re: **Minor DFO Dredging, Infilling, and Works Projects**

Permission was given for : **routine dredging or beach grading of 3500 cubic metres or less of primarily sand, gravel, cobble and boulder material in order to provide safe navigation at various Department of Fisheries and Oceans' Small Craft Harbours facilities around the Province of Newfoundland and Labrador as well as the infilling of 500 square metres or less of DFO SCH leased waterlot to construct new or increase existing service/laydown areas at existing DFO SCH facilities, with reference to the application dated November 20, 2018.**

I (the Permit Holder named above or agent authorized to represent the Permit Holder) do hereby certify that the project described above was completed in accordance with the plans and specifications submitted to the Department of Municipal Affairs and Environment and that the work was carried out in strict compliance with the terms and conditions of the Permit issued for this project.

Date: _____ Signature: _____

This completion report must be completed and forwarded to the following address upon completion of the approved work.

Department of Municipal Affairs and Environment
Water Resources Management Division
PO Box 8700
St. John's NL A1B 4J6

Appendix D
Analytical Results

Maxxam

Your Project #: R.0495480.064
Site Location: PROSSER'S ROCK, ST. JOHN'S
Your C.O.C. #: FFC-3129-COC-01

Attention: Cathy Martin

Public Works & Government Services Canada
PO Box 4000
10 Barter's Hill
St. John's , NL
CANADA A1C 5T2

Report Date: 2018/08/30
Report #: R5180006
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B8B6400
Received: 2018/08/13, 09:25

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Benzo(b)fluoranthene Sum (11 soil)	2	N/A	2018/08/17	N/A	Auto Calc.
Boron Solid MS - Hot Water Soluble	2	2018/08/16	2018/08/16	ATL SOP 00058	EPA 6020A R1 m
Hexavalent Chromium in Soil by IC (1, 3)	2	2018/08/20	2018/08/20	CAM SOP-00436	EPA 3060/7199 m
TEH in Soil (PIRI) (3)	2	2018/08/24	2018/08/26	ATL SOP 00111	Atl. RBCA v3.1 m
Metals Leach TCLP/CGSB extraction	2	2018/08/28	2018/08/29	ATL SOP 00058	EPA 6020A R1 m
Metals Solids Acid Extr. ICPMS	2	2018/08/15	2018/08/15	ATL SOP 00058	EPA 6020A R1 m
Weak Acid Dissociable Cyanides (2)	2	2018/08/17	2018/08/17	STL SOP-00035	MA300-CN 1.2 R3 m
Total Cyanide (2)	2	2018/08/17	2018/08/20	STL SOP-00035	MA300-CN 1.2 R3 m
Water Content (Subcontracted) (2, 4)	2	N/A	2018/08/20	STL SOP-00031	MA.100-S.T. 1.1 R4 m
Moisture	2	N/A	2018/08/15	ATL SOP 00001	OMOE Handbook 1983 m
PAH in sediment by GC/MS (Low Level) (3)	2	2018/08/15	2018/08/17	ATL SOP 00102	EPA 8270E 2017 m
Low Level PCBs in Soil by GC-ECD	2	2018/08/15	2018/08/21	ATL SOP 00106	EPA 8082A m
PCB Aroclor sum (low level soil)	2	N/A	2018/08/21	N/A	Auto Calc.
TCLP Inorganic extraction - pH	2	N/A	2018/08/28	ATL SOP 00035	EPA 1311 m
TCLP Inorganic extraction - Weight	2	N/A	2018/08/28	ATL SOP 00035	EPA 1311 m
ModTPH (T1) Calc. for Soil	2	N/A	2018/08/27	N/A	Atl. RBCA v3.1 m
VPH in Soil (PIRI) - Field Preserved (5)	2	N/A	2018/08/20	ATL SOP 00119	Atl. RBCA v3.1 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia, Canada B4B 1G9 Tel 902-420-0203 Toll Free 800-565-7227 Fax 902-420-8612 www.maxxamanalytics.com

Maxxam

Your Project #: R.0089540.064
Site Location: PROSSER'S ROCK, ST. JOHN'S
Your C.O.C. #: FFC-0129-COC-01

Attention: Cathy Martin
Public Works & Government Services Canada
PO Box 4000
10 Barter's Hill
St. John's , NL
CANADA A1C 5T2

Report Date: 2018/08/30
Report #: R5380006
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B818406
Received: 2018/08/13, 09:25
agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Analytics Mississauga
(2) This test was performed by Bedford To Montreal Offsite
(3) Soils are reported on a dry weight basis unless otherwise specified.
(4) Offsite analysis requires that subcontracted moisture be reported.
(5) No lab extraction date is given for C6-C10/BTEX and VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.

Encryption Key

Karen Neil
Project Manager Assistant
30 Aug 2018 17:28:32

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Maryann Comeau, Project Manager
Email: MComeau@maxxam.ca
Phone# (902) 420-0203

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.1 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia, Canada B4B 1G9 Tel 902-420-0203 Toll Free 800-565-7227 Fax 902-420-8521 www.maxxamanalytics.com

Maxxam Job #: B818806
Report Date: 2018/08/30

Public Works & Government Services Canada
Client Project #: R.049540.064
Site Location: PROSSER'S ROCK, ST. JOHN'S
Sampler Initials: DN

RESULTS OF ANALYSES OF SOIL

Maxxam ID		HLS087	HLS088		
Sampling Date		2018/08/01 13:00	2018/08/01 16:23		
COC Number		FFC-3129-COC-01	FFC-3129-COC-01		
	UNITS	3129-PC9-MS1-02	3129-PC9-MS1-02	RDL	QC Batch
Inorganics					
Moisture	%	65	67	1.0	5678028
Sample Weight (as received)	g	100	100	N/A	5700728
Total Cyanide (CN)	mg/kg	ND	ND	1.0	5691360
Initial pH	N/A	5.0	5.0		5700726
WAD Cyanide (Free)	mg/kg	ND	ND	1.0	5691359
Final pH	N/A	5.1	5.1		5700726
Physical Testing					
Moisture-Subcontracted	%w/w	63	70	0.50	5691361

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
ND = Not detected

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia, Canada B4B 1G9 Tel: 902-420-0203 Toll Free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B818406
Report Date: 2018/08/30

Public Works & Government Services Canada
Client Project #: R.045540.064
Site Location: PROSSER'S ROCK, ST. JOHN'S
Sampler Initials: DN

ELEMENTS BY ICP/MS (SOIL)

Maxxam ID		H15087			H15087			H15088		
Sampling Date		2018/08/01 13:00			2018/08/01 13:00			2018/08/01 16:23		
COC Number		FFC-3129-COC-01			FFC-3129-COC-01			FFC-3129-COC-01		
	UNITS	3129-PC3-MS1-02	RDL	QC Batch	3129-PC3-MS1-02 Lab-Dup	RDL	QC Batch	3129-PC9-MS1-02	RDL	QC Batch
Metals										
Soluble (Hot Water) Boron (B)	mg/kg	27	3.0	5682709	28	3.0	5682709	32	3.0	5682709
Leachable Arsenic (As)	ug/L	ND	20	5702249				62	20	5702249
Leachable Copper (Cu)	ug/L	ND	20	5702249				ND	20	5702249
Leachable Zinc (Zn)	ug/L	60	50	5702249				130	50	5702249

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
ND = Not detected

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel 902-420-0203 Toll Free 800-565-7227 Fax 902-420-0611 www.maxxamanalytics.com

Maxxam Job #: B8X6406
Report Date: 2018/08/30

Public Works & Government Services Canada
Client Project #: R.049540.064
Site Location: PROSSER'S ROCK, ST. JOHN'S
Sampler Initials: DN

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		HLS087	HLS088		
Sampling Date		2018/08/01 13:00	2018/08/01 16:23		
COC Number		FFC-3129-COC-01	FFC-3129-COC-01		
	UNITS	3129-PC3-MS1-02	3129-PC9-MS1-02	RDL	QC Batch
Inorganics					
Chromium (VI)	ug/g	ND	ND	0.2	5680031
Metals					
Acid Extractable Aluminum (Al)	mg/kg	12000	13000	10	5680552
Acid Extractable Antimony (Sb)	mg/kg	2.8	2.6	2.0	5680552
Acid Extractable Arsenic (As)	mg/kg	21	47	2.0	5680552
Acid Extractable Barium (Ba)	mg/kg	200	310	5.0	5680552
Acid Extractable Beryllium (Be)	mg/kg	ND	ND	2.0	5680552
Acid Extractable Bismuth (Bi)	mg/kg	2.5	2.9	2.0	5680552
Acid Extractable Boron (B)	mg/kg	64	76	50	5680552
Acid Extractable Cadmium (Cd)	mg/kg	2.0	2.3	0.30	5680552
Acid Extractable Chromium (Cr)	mg/kg	34	52	2.0	5680552
Acid Extractable Cobalt (Co)	mg/kg	7.7	9.7	1.0	5680552
Acid Extractable Copper (Cu)	mg/kg	180	250	2.0	5680552
Acid Extractable Iron (Fe)	mg/kg	31000	29000	50	5680552
Acid Extractable Lead (Pb)	mg/kg	450	230	0.50	5680552
Acid Extractable Lithium (Li)	mg/kg	33	37	2.0	5680552
Acid Extractable Manganese (Mn)	mg/kg	330	390	2.0	5680552
Acid Extractable Mercury (Hg)	mg/kg	2.1	1.4	0.10	5680552
Acid Extractable Molybdenum (Mo)	mg/kg	17	21	2.0	5680552
Acid Extractable Nickel (Ni)	mg/kg	31	37	2.0	5680552
Acid Extractable Rubidium (Rb)	mg/kg	7.5	6.9	2.0	5680552
Acid Extractable Selenium (Se)	mg/kg	3.1	2.6	1.0	5680552
Acid Extractable Silver (Ag)	mg/kg	3.4	5.4	0.50	5680552
Acid Extractable Strontium (Sr)	mg/kg	160	160	5.0	5680552
Acid Extractable Thallium (Tl)	mg/kg	0.44	0.56	0.10	5680552
Acid Extractable Tin (Sn)	mg/kg	71	33	2.0	5680552
Acid Extractable Uranium (U)	mg/kg	4.2	5.5	0.10	5680552
Acid Extractable Vanadium (V)	mg/kg	76	85	2.0	5680552
Acid Extractable Zinc (Zn)	mg/kg	420	380	5.0	5680552

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected

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Maxxam Job #: B806406
Report Date: 2018/08/30

Public Works & Government Services Canada
Client Project #: R.069540.064
Site Location: PROSSER'S ROCK, ST. JOHN'S
Sampler Initials: DN

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		HLS087	HLS088		
Sampling Date		2018/08/01 13:00	2018/08/01 16:23		
COC Number		FFC-3129-COC-01	FFC-3129-COC-01		
	UNITS	3129-PC3-MS1-02	3129-PC3-MS1-02	RDL	QC Batch
Polyaromatic Hydrocarbons					
1-Methylnaphthalene	mg/kg	0.52	0.18	0.0050	5681305
2-Methylnaphthalene	mg/kg	0.84	0.26	0.0050	5681305
Acenaphthene	mg/kg	0.51	0.44	0.0050	5681305
Acenaphthylene	mg/kg	0.35	0.23	0.0050	5681305
Anthracene	mg/kg	2.1	4.3	0.0050	5681305
Benzo(a)anthracene	mg/kg	6.7	6.6	0.0050	5681305
Benzo(a)pyrene	mg/kg	7.5	5.3	0.0050	5681305
Benzo(b)fluoranthene	mg/kg	7.5	5.8	0.0050	5681305
Benzo(b/j)fluoranthene	mg/kg	11	8.5	0.010	5678032
Benzo(g,h,i)perylene	mg/kg	5.4	2.8	0.0050	5681305
Benzo(j)fluoranthene	mg/kg	3.3	2.7	0.0050	5681305
Benzo(k)fluoranthene	mg/kg	3.8	3.2	0.0050	5681305
Chrysene	mg/kg	6.9	6.1	0.0050	5681305
Dibenz(a,h)anthracene	mg/kg	1.2	0.76	0.0050	5681305
Fluoranthene	mg/kg	14	13	0.0050	5681305
Fluorene	mg/kg	0.85	0.86	0.0050	5681305
Indeno(1,2,3-cd)pyrene	mg/kg	4.0	2.3	0.0050	5681305
Naphthalene	mg/kg	0.75	0.32	0.0050	5681305
Perylene	mg/kg	1.9	1.4	0.0050	5681305
Phenanthrene	mg/kg	5.9	5.3	0.0050	5681305
Pyrene	mg/kg	12	8.0	0.0050	5681305
Surrogate Recovery (%)					
D10-Anthracene	%	93	101		5681305
D14-Terphenyl	%	90	93		5681305
D8-Acenaphthylene	%	107	109		5681305

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll Free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B8X0406
Report Date: 2018/08/30

Public Works & Government Services Canada
Client Project #: R.049540.064
Site Location: PROSSER'S ROCK, ST. JOHN'S
Sampler Initials: DN

ATLANTIC RBCA HYDROCARBONS (SOIL)

Maxxam ID		HL5087		HL5088		
Sampling Date		2018/08/01 13:00		2018/08/01 16:23		
COC Number		FFC-3129-COC-01		FFC-3129-COC-01		
	UNITS	3129-PC3-MS1-02	RDL	3129-PC9-MS1-02	RDL	QC Batch
Petroleum Hydrocarbons						
Benzene	mg/kg	ND	0.063	ND	0.10	5688185
Toluene	mg/kg	1.1	0.063	ND	0.10	5688185
Ethylbenzene	mg/kg	ND	0.063	ND	0.10	5688185
Total Xylenes	mg/kg	0.71	0.13	ND	0.20	5688185
C6 - C10 (less BTEX)	mg/kg	ND	6.3	ND	10	5688185
>C10-C16 Hydrocarbons	mg/kg	1700	10	330	10	5696977
>C16-C21 Hydrocarbons	mg/kg	2600	10	750	10	5696977
>C21-<C32 Hydrocarbons	mg/kg	5100	15	2100	15	5696977
Modified TPH (Tier1)	mg/kg	9400	15	3100	15	5694800
Reached Baseline at C32	mg/kg	No	N/A	No	N/A	5696977
Hydrocarbon Resemblance	mg/kg	COMMENT (1)	N/A	COMMENT (1)	N/A	5696977
Surrogate Recovery (%)						
Isobutylbenzene - Extractable	%	125		103		5696977
n-Dotriacontane - Extractable	%	128 (2)		116 (2)		5696977
Isobutylbenzene - Volatile	%	90 (3)		83 (3)		5688185

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected
N/A = Not Applicable
(1) Weathered fuel oil fraction. Lube oil fraction.
(2) TEH Analysis: Silica gel clean-up performed prior to analysis as per client request.
(3) Elevated VPH RDL(s) due to limited sample.

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Maxxam Job #: B806406
Report Date: 2018/08/30

Public Works & Government Services Canada
Client Project #: R.049540.064
Site Location: PROSSER'S ROCK, ST. JOHN'S
Sampler Initials: DN

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		HLS087	HLS088		
Sampling Date		2018/08/01 13:00	2018/08/01 16:23		
COC Number		FFC-3129-COC-01	FFC-3129-COC-01		
	UNITS	3129-PC3-MS1-0Z	3129-PC9-MS1-0Z	RDL	QC Batch
PCBs					
Aroclor 1016	mg/kg	ND	ND	0.010	5688258
Aroclor 1221	mg/kg	ND	ND	0.010	5688258
Aroclor 1232	mg/kg	ND	ND	0.010	5688258
Aroclor 1248	mg/kg	ND	ND	0.010	5688258
Aroclor 1242	mg/kg	ND	ND	0.010	5688258
Aroclor 1254	mg/kg	0.92	0.20	0.010	5688258
Aroclor 1260	mg/kg	0.30	0.35	0.010	5688258
Calculated Total PCB	mg/kg	1.2	0.56	0.010	5678036
Surrogate Recovery (%)					
Decachlorobiphenyl	%	75	74		5688258

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected

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