

REPLACEMENT CLASS SCREENING REPORT

HARBOUR MAINTENANCE RE-DREDGING AND LAND-BASED DISPOSAL OF RE-DREDGED SEDIMENTS IN PRINCE EDWARD ISLAND

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August 31, 2007

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List of Acronyms

AC CDC	Atlantic Canada Conservation Data Centre
BTEX	benzene, toluene, ethylbenzene, and xylene
CCG	Canadian Coast Guard
CCME	Canadian Council of Ministers of the Environment
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CWS	Canadian Wildlife Service
DDT	dichloro-diphenyl-trichloroethane
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EC	Environment Canada
EPP	Environmental Protection Plan
FA	Federal Authority
FCR	<i>Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements</i>
HADD	harmful alteration, destruction and disruption of fish habitat
HAZWHOPER	Hazardous Waste Operations and Emergency Response
HMB	Habitat Management Branch
HMD	Habitat Management Division
HPSDD	Habitat Protection and Sustainable Development Division
MBCA	<i>Migratory Birds Convention Act</i>
MSDS	Material Safety Data Sheet
NWPA	<i>Navigable Waters Protection Act</i>
NWPP	Navigable Waters Protection Program
PAH	polycyclic aromatic hydrocarbons
PC	Parks Canada
PCB	polychlorinated biphenyls
PEI	Prince Edward Island
PEIDEEF	Prince Edward Island Department of Environment, Energy and Forestry
PIRI	Partnership in RBCA Implementation
POL	Petroleum, Oils, Lubricants
PWGSC	Public Works and Government Services Canada
RA	Responsible Authority
RBCA	Risk-Based Corrective Action
RBSL	Risk Based Screening Levels
RCS	Replacement Class Screening
RCSR	Replacement Class Screening Report
SARA	<i>Species at Risk Act</i>
SCH	Small Craft Harbours
SQG	Soil Quality Guidelines
TC	Transport Canada
the Act	<i>Canadian Environmental Assessment Act</i>
the Agency	Canadian Environmental Assessment Agency
the Registry	Canadian Environmental Assessment Registry
TIC	total inorganic carbon
TOC	total organic carbon
TPH	total petroleum hydrocarbons
VEC	valued environmental component
WHMIS	Workplace Hazardous Materials Information System

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1.0 INTRODUCTION

Fisheries and Oceans Canada (DFO) Small Craft Harbours (SCH) Branch operates and maintains a national system of harbours and small local facilities to provide commercial fishers and recreational boaters with safe and accessible locations for boat launching, berthing and maintenance during the fishing season. DFO SCH operates under the authority of the *Fishing and Recreational Harbours Act* and the *Federal Real Property and Federal Immovables Act*.

The mandate of DFO SCH is to keep harbours that are critical to the fishing industry open and in good repair. Each year, the majority of the DFO SCH budget goes to maintenance of fishing harbours. It must ensure that the facility, which has been paid for by the taxpayer and leased at nominal cost, is used for the public good. DFO SCH must also ensure that its facilities are maintained to appropriate standards to protect the health and safety of users and the environment.

There are numerous DFO SCH harbours present along the coast of Prince Edward Island (PEI). The sites that are the subject of this replacement class screening report (RCSR) are typically basins and wharf structures for the most part are protected from exposure to weather from the Gulf of St. Lawrence or the Northumberland Strait. They have beaches of smaller substrates (sand to rubble) that are generally low-grade. At most of these sites, littoral drift and storm events result in bed load material being shifted and deposited within the approach channels or berthage areas of the site's wharf infrastructure, and safe access is seriously affected or not possible during periods of low tide. On a frequency of greater than once in a five year period, DFO SCH conducts re-dredging work on nine of these small fishing sites located throughout PEI. These re-dredging projects are necessary in order to provide fishers with safe and more secure access to/from DFO SCH facilities. Typically, the volumes of re-dredged material removed from these sites ranges between 1,000-4,000 m³ annually per site, with the exception of one harbour which typically requires removal of approximately 10,000 m³. Although dependent on the exact location to be re-dredged and the volume of material to be removed, the most practical and economical disposal method has proven to be land-based on DFO SCH property, however three of the nine sites are on private property due to their proximity to the dredge site.

DFO SCH coordinates the required re-dredging and land-based disposal activities after the conclusion of an environmental assessment (EA) under the *Canadian Environmental Assessment Act* (the Act), and after obtaining all required federal, provincial, and municipal approvals (i.e., provincial watercourse alteration permit). Each of the nine DFO SCH sites requiring re-dredging have been previously assessed at the screening level under the Act for marine infrastructure projects of similar scope (i.e., re-dredging, maintenance, new construction) within the harbours. Pursuant to the Act's *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements* (FCR), all proposed marine infrastructure projects are referred to the DFO Habitat Management Branch (HMB), Environment Canada (EC), Parks Canada (PC), and the PEI Department of Environment, Energy, and Forestry (PEIDEEF).

The Act is a sustainable development tool that relies on the precautionary principle. This said the EAs need to be done in the most efficient manner possible, as this is consistent with one of the purposes of the Act. DFO SCH has evaluated the available options to streamline the EA process, and make the planning and decision-making process more effective and efficient. As a result, DFO SCH proposes to develop a replacement class screening (RCS) for the re-dredging and land-based disposal of the marine sediment in PEI.

Anticipating the amount of screenings, many of which are similar and result in a limited range of predictable mitigable environmental effects, the Act provides for a class screening mechanism through the declaration (Section 19 (1) of the Act) of a RCSR. A RCSR consists of a single report that defines the class

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of projects and describes the associated environmental effects, design standards, and mitigation measures for projects assessed within the RCSR. It includes a conclusion of the significance of the environmental effects of all projects assessed by the RCSR. No project-specific information or further EA is required for projects in the class, provided that the design standards and mitigation measures described in the RCSR are implemented.

Declaration of the RCSR in accordance with the Act will eliminate the requirement to conduct project specific screenings for the re-dredging and land-based disposal projects prior to the issuance of the required provincial and federal approvals, provided that DFO SCH ensures implementation of mitigation measures and design standards described in the RCSR. This RCSR approach streamlines the EA process for re-dredging and land-based disposal projects, thus enabling the re-dredging to be conducted at the time when the need is identified, and reducing the danger to fishers and vessels in a more timely and cost efficient manner. It is important to note that any DFO SCH site-specific emerging issues not addressed in this RCSR will result in the site being eliminated from the RCSR and a site-specific screening under the Act will be required.

The candidate class for this RCSR is DFO SCH sites requiring re-dredging and land-based disposal of re-dredged sediments more frequently than once every five years. It is important to note that the declaration of the RCSR by the Canadian Environmental Assessment Agency (the Agency) has no bearing on the proponent's responsibility to meet the relevant federal, provincial, and municipal legislative requirements related to the project.

This document provides the RCS level EA for the DFO SCH re-dredging and land-based disposal projects in PEI. The expected term of application for this RCSR will be 5 years from the date of declaration.

1.1 CLASS SCREENING AND THE ACT

The Act and its regulations set out the legislative basis for federal EAs. The legislation ensures that the environmental effects of projects involving the federal government are carefully considered early in project planning. The Act applies to projects that require a Federal Authority (FA) to make a decision or take an action, whether as proponent, land administrator, source of funding, or a regulator (issuing particular permits or licences). The FA then becomes a Responsible Authorities (RA) and is required to ensure that an EA of the project is carried out prior to making its decision or taking an action that would facilitate the project to proceed. The process is further detailed in Section 2.1.

Most projects are assessed under a screening type of assessment. A screening systematically documents the anticipated environmental effects of a proposed project, and determines the need to modify the project plan or recommend further mitigation to eliminate or minimize the significance of these effects.

The screening of some repetitive projects may be streamlined through the use of a class screening report. This kind of report presents the accumulated knowledge of the environmental effects of a given type of project and identifies measures that are known to reduce or eliminate the likely adverse environmental effects. The Agency may declare such a report appropriate for use as a class screening after taking into account comments received during a period of public consultation.

Specifically, a RCSR consists of a single report that defines a class of projects and describes the associated environmental effects, design standards, and mitigation measures for projects assessed within the report. It includes a conclusion of significance of environmental effects of projects assessed by the RCSR. Once the Agency declares a RCSR, no further EA is required for projects within the class, provided that the design standards and mitigation measures described in the report are implemented.

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1.2 RATIONALE FOR RCS

According to the Agency, any proposed RCSR must demonstrate that the projects covered meet several criteria. The applicability of class screenings to DFO SCH re-dredging and land-based disposal projects in PEI is based on the following six criteria:

1. Well-defined Class of Projects: The proposed re-dredging and land-based disposal projects all have similar characteristics: they are carried out in the same locations (both areas being re-dredged and areas used for land disposal), over similar time periods, and with standard equipment.

Re-dredging equipment is transported to/from the sites by tractor-trailer flatbeds using the local access roads. Typically, the re-dredging activity is carried out using standard land-based construction equipment working in the dry from existing harbour infrastructure. In some instances, a suction dredge methodology may be required. In this case, the material is suction-dredged by barge and deposited via pipeline above the high water mark at a site that the PEIDEEF concurs is suitable for land-based disposal of the marine sediment.

Land disposal of marine sediment is a simple and straight forward process because the type of equipment used and the process for loading and transport are common for all projects. Most land-based disposal projects use conventional construction equipment operating from existing harbour infrastructure to excavate the substrate material and place it into watertight dump trucks for transport to a site that the PEIDEEF concurs is suitable for land-based disposal of the marine sediment.

2. Well-understood Environmental Setting: DFO SCH has been responsible for harbour re-dredging and land-based disposal of marine sediments on PEI for many years and has utilized various land-based disposal sites in association with these projects. Public Works and Government Services Canada (PWGSC), on behalf of DFO SCH, ensures that each disposal site associated with the RCSR projects has been previously disturbed, has been historically used for land-based disposal of marine sediments, and has been selected in collaboration with, and used in concurrence with, the PEIDEEF. The PEIDEEF participates in the disposal site selection through site visits, review of the sediment characterization reports, and discussion with DFO SCH on the overall suitability of the area for land-based disposal (i.e., history of the area, current and proximate land use, assessment of sensitive features and their proximity to the project area).

As well, each of the DFO SCH sites selected for the RCSR has been previously assessed at the screening level under the Act for harbour infrastructure projects of similar scope (i.e., re-dredging, maintenance, new construction) so the environmental settings are well understood. These EAs were used as resources for provision of the environmental setting (i.e., environmental characteristics of each site location, habitat/wildlife concerns, etc.) for each project area of the RCSR (**Appendix A**).

3. Unlikely to Cause Significant Adverse Environmental Effects, Taking into Account Mitigation Measures: Based on previous experience with re-dredging and land-based disposal projects, significant adverse environmental effects are unlikely to occur. Re-dredging and land-based disposal activities typically occur on an annual basis and were historically conducted in accordance with a screening under the Act which determined that significant adverse effects were not likely to occur and which imposed a site and project specific Environmental Protection Plan (EPP). The screening and EPP documents are utilized as a tool to systematically reduce the potential of cumulative environmental effects. For the purposes of this RCSR, an associated EPP has been developed which presents both standard and site-specific environmental mitigation measures developed to minimize interaction between the projects and the sensitive features in the respective environments, and to ensure significant adverse environmental effects are unlikely to occur (**Appendix B**).

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PWGSC has completed sediment sampling and analysis programs in the past for all of these DFO SCH sites. The sampling design and timing cycle have been consistent with EC guidelines. The criteria for chemical analyses and thresholds are Canadian Council of Ministers of the Environment (CCME) soil (land) based. The CCME/ Atlantic PIRI Committee (Partnership in RBCA (Risk-Based Corrective Action) Implementation) guidelines for land-based disposal are those requested by PEIDEEF. The primary objective of the Canadian Shellfish Sanitation Program is to protect the public from the consumption of contaminated shellfish by controlling the recreational and commercial harvesting of all shellfish within Canada. This RCSR will rely on the regulatory process to ensure that, over the upcoming five year period, all re-dredged materials originating from the nine identified sites are below applicable chemical screening criteria and therefore should not preclude the development of shellfish aquaculture in the area. As noted above, each disposal site associated with the RCSR projects has been previously disturbed, has been historically used for land-based disposal of marine sediments, and has been selected in collaboration with, and used in concurrence with, the PEIDEEF.

4. Project-Specific Follow-up Measures Not Required: In the case of harbour re-dredging and land-based disposal projects, specific follow-up programs are not typically required. In the past, site inspections have been implemented for marine infrastructure projects of similar scope within some of these harbours to verify the accuracy of assessment predictions and to determine the effectiveness of mitigation measures. The inspections confirmed that the assessment predictions were accurate and that the mitigation measures were effective. The knowledge gained from those assessments and the inspections has been applied to each of the RCSR projects.

5. Effective and Efficient Planning and Decision-making Process: Most harbour re-dredging and land-based disposal projects, and all of the projects considered in this RCSR, involve activities that are straightforward and routine in nature, so planning is uncomplicated. Screenings under the Act are developed with advice provided from the FCR process. This information includes representation from DFO HMB, EC, PC, and the PEIDEEF. The project proponent, DFO SCH, is highly experienced in the re-dredging of harbours, the land-based disposal of marine sediments, and with requirements under the Act.

6. Public Concerns Unlikely: The current required practice under the Act is to post a ‘Notice of Commencement’ on the Canadian Environmental Assessment Registry (the Registry) Internet site for a 15-day public viewing period for each proposed re-dredging and land-based disposal project. The screening is finalized following this 15-day period, after which a project Determination Decision is posted on the Registry Internet site permitting the commencement of project activities. To date, there has been no public response to such notifications and given the positive socio-economic benefits of such projects, historically there has been minimal public concern expressed in relation to re-dredging and land-based disposal activities at the included sites.

1.3 CONSULTATION

During the development of this RCSR, DFO SCH consulted with DFO HABITAT PROTECTION AND SUSTAINABLE DEVELOPMENT DIVISION (DFO HPSDD), EC, PEIDEEF, PC, and the Agency. Early into the RCSR development process, Transport Canada Navigable Waters Protection Program (TC NWPP) withdrew from the assessment of these projects since they are not likely to be involved when the re-dredge spoils are disposed above the high water mark. In the case of Covehead, PC offered specific advice relating to Piping Plovers, scheduling and duration of projects and transport of loose material through the park. This advice has been included in site specific mitigation and the EPP for Covehead.

The draft RCSR was reviewed and discussed by the noted departments prior to submission of the final draft to the Agency. Comments received during the entire process were considered and incorporated into the final report, as appropriate.

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Following submission of the final draft, the Agency conducted a 30-day public consultation on the RCSR. All comments received were taken into consideration and incorporated into the final RCSR, as appropriate, prior to its declaration by the Agency.

1.4 THE REGISTRY

The purpose of the Registry is to facilitate public access to records relating to environmental assessments and to provide notice of assessments in a timely manner. The Registry consists of two components – an Internet site and a project file.

The Internet site is administered by the Agency. The RA and the Agency are required to post specific records to the Internet site in relation to a class screening report.

Upon declaration of the RCSR, the Act requires RAs to post on the Internet site of the Registry, at least every three months, a statement of projects for which a RCSR was used. The statement should be in the form of a list of projects, and will include:

- the title of each project for which the RCSR was used;
- the contact information (name or number);
- the location of each project; and
- the date when it was determined that the project falls within the category of projects covered by the report.

Note: The schedule for posting a statement is:

- July 15 (for projects assessed from April 1 to June 30);
- October 15 (for projects assessed from July 1 to September 30);
- January 15 (for projects assessed from October 1 to December 31); and
- April 15 (for projects assessed from January 1 to March 31).

The RA must also provide, to the Agency, annual confirmation of cumulative effects assessment conditions to ensure no new projects cause any significant adverse environmental effects.

The project file must include a copy of the RCSR. The RA must maintain the file, ensure convenient public access, and respond to information requests in a timely manner.

Further information regarding the Registry can be found in “*The Canadian Environmental Assessment Registry*”, prepared by the Agency.

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2.0 PROJECTS SUBJECT TO CLASS SCREENING

The candidate class for this RCSR is DFO SCH sites requiring re-dredging and land-based disposal of re-dredged sediments at a frequency greater than once in a five-year period. These sites are listed in Table 1 along with respective descriptions of re-dredging location within the harbour, expected volume of material to be removed, results of the most recent sediment characterization, expected re-dredging methodology, associated land-based disposal location, and the approximate number of years the disposal site has been functioning in this capacity. Typically these sites have required re-dredging approximately every two to three years. The environmental setting of each site captured in the RCSR is provided in **Appendix A**.

Amendments to Table 1, through the addition of new DFO SCH sites or the inclusion of re-dredging and disposal at sea projects, may be considered during the 5 years term of this RCSR. Each project would be addressed on a case-by-case basis with each new site and/or re-dredging and disposal at sea project first being assessed under the Act as an individual project prior to being included in this RCSR.

2.1 PROJECTS SUBJECT TO THE ACT

To require an EA under the Act, a project must:

- 1) be an undertaking in relation to a physical work or a physical activity captured in the *Inclusion List Regulation* of the Act; and
- 2) under section 5 of the Act, have a RA with one or more of the following responsibilities:
 - a) is the proponent of a project;
 - b) grants money or other financial assistance to a project;
 - c) grants an interest in land to enable a project to be carried out; or
 - d) exercises a regulatory duty in relation to a project, such as issuing a permit, license, or authorization that is covered under the *Law List Regulations*.

Because of its involvement as a proponent, funding source, and/or owner of federal lands for the re-dredging and land-based disposal projects, DFO SCH has declared itself a RA under Section 5 of the Act. Therefore an EA must be conducted for all re-dredging and land-based disposal projects described within this undertaking.

Projects are exempt from EA if they meet all the criteria set out in the *Exclusion List Regulations*. If all components of the project are described on the *Exclusion List Regulations*, the project is exempted from an EA under the Act. If any component of the project is not described on the *Exclusion List Regulations*, an EA of the project, including all components, is required under the Act. EA practitioners should review the most current version of the *Exclusion List Regulations* prior to initiating an EA.

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Table 1: Proposed DFO SCH Re-Dredging and Land-Based Disposal Sites

DFO SCH Site	Re-Dredging Location	Expected Volume (m ³) to be Removed	Sediment Quality		Expected Re-Dredging Methodology	Land-Based Disposal Location	Approx. Number of Years Used as Land-Based Disposal Site
			Date Collected	Results*			
Covehead	Wharf Face	1000	November 2005	Acceptable for all CCME Soil Quality Guidelines (SQG) and RBCA land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property; possible use for the re-dredged material will be construction/bedding material.**	>10 years
Fishing Cove	Channel Entrance	3000	March 2005	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck	Adjacent private property	4 years
Grahams Pond	Run	4000	March 2004	Acceptable for all RBCA land use scenarios and CCME SQG land use scenarios except agricultural; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property	> 10 years
Howards Cove	Run	3500	July 2004	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand with some gravel	Land-based excavator/water-tight dump truck	Adjacent private property	3 years
Launching Pond	Basin Entrance	4000	March 2005	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property; possible use for the re-dredged material will be for concrete.**	5 years
North Lake	Basin	4000	March 2005	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property; possible use for the re-dredged material will be construction/bedding material.**	>10 years
North Lake	Run	4000	November 2005	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck/ dozer and loader	DFO SCH Property; possible use for the re-dredged material will be construction/bedding material.**	>10 years
Seacow Pond	Run Entrance	2500	March 2005	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck	Adjacent Private Property	5 years
Skidders Pond	Channel/Run Entrance	2500	July 2004	Acceptable for all RBCA land use scenarios and CCME SQG land use scenarios except agricultural; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property	>10 years
Tignish	Basin	3000	November 2003	Acceptable for all RBCA land use scenarios and CCME SQG land use scenarios except agricultural; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property	>10 years

Note: Appendix A provides figures and supporting environmental setting text illustrating the re-dredge and land-based disposal sites (including coordinates in latitude and longitude; NAD 83), and the relationship to one another, other site features, and the proposed project boundaries.

* The sediment samples collected were analyzed for the standard land-based disposal suite of parameters including the ICP 23 metals scan plus mercury and hexavalent chromium, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), low-level benzene, toluene, ethylbenzene, and xylene (BTEX), total petroleum hydrocarbons (TPH), total dichloro-diphenyl-trichloroethane (DDT), total inorganic carbon/total organic carbon (TIC/TOC), and grain size. The marine sediment sample results are compared to the CCME SQGs for the Protection of Environment and Human Health in agricultural, residential/parkland, and commercial/industrial applications, and the Atlantic RBCA Version 2.0 Tier 1 Risk Based Screening Levels (RBSLs).

**To prevent chemical cross-contamination of the disposed material and to maximize the holding capacity of the disposal sites by re-use of acceptable sediment, re-dredged sediment that does not exceed the CCME SQGs for agricultural land use will be stored separately at the disposal site from those materials containing higher levels of chemicals.

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2.2 PROJECTS SUBJECT TO THE RCSR

Projects subject to this RCSR are those that include re-dredging and land-based disposal projects at the locations provided in Table 1. Each of the sites selected for the RCSR has been previously assessed at the screening level under the Act for marine infrastructure projects of similar scope (i.e., re-dredging, maintenance, new construction) within the harbours.

2.3 PROJECTS NOT SUBJECT TO THE RCSR

DFO SCH re-dredging and land-based disposal sites not captured in Table 1 are beyond the scope of this RCSR and must be assessed as an individual screening under the Act (refer to Sections 2.0 and 2.2). DFO SCH re-dredging and land-based disposal sites that do not meet the six criteria outlined in Section 1.2 will not be eligible for consideration under the RCSR. Any emerging issues identified during the Agency review process that are not addressed in the RCSR will result in the project being eliminated from the class and an individual screening will be conducted.

Projects not subject to the RCSR also include those which:

- are located in DFO SCH sites captured in Table 1, but will not implement the relevant mitigation measures outlined in this RCSR;
- require a referral to another federal department;
- require a permit, approval or authorization from another federal department (i.e. an RA other than DFO SCH);
- require an assessment under provincial EA legislation;
- are located in Migratory Bird Sanctuaries or National Wildlife Areas;
- are likely to have an adverse effect on species ranked S1 or S2 by the Atlantic Canada Conservation Data Centre (AC CDC);
- are likely to have an adverse effect on species at risk, either directly or indirectly, such as by adversely affecting their habitat, and/or that would require a permit under the *Species at Risk Act* (SARA). For the purposes of this document, species at risk include:
 1. species identified on the List of Wildlife Species at Risk set out in Schedule 1 of SARA, and including the critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of SARA; and
 2. species that have been recognized as "at risk" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or by provincial or territorial authorities.

* if after a review of the project description using the RCSR, it becomes known or reasonably suspected that a species at risk could be adversely affected by the proposed project, the project requires an individual EA under the Act. Note the contents of the RCSR may be used in preparation of the individual screening report.

3.0 PROJECT CLASS DESCRIPTION

The project activities captured under this RCSR include the removal and land-based disposal of naturally accumulated sand, gravel and cobble material from historically dredged areas of the navigational channels/boat basins of nine specific DFO SCH sites in PEI (refer to Table 1; Appendix A).

As a result of erosion of the sandstone cliffs around PEI and the sediment transport regime, sand, silt, and clay is carried into these harbour entrances by tides and storms. Due to the dynamic nature of the

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shorelines, it is difficult to accurately predict if re-dredging will be required at any one site, and what volumes of material may be generated. The re-dredging and disposal process may need to be repeated throughout the year at some locations since the sites may begin infilling as soon as the re-dredging operation is completed.

The project re-dredging equipment is transported to/from the sites by tractor-trailer flatbeds using the local access roads. Typically, the re-dredging activity is carried out using standard land-based construction equipment working in the dry from exiting harbour infrastructure. For six of the nine DFO SCH sites, the re-dredge material is then loaded directly into watertight dump trucks and transported to a disposal site within the bounds of the DFO SCH property. At the remaining 3 sites (Seacow Pond, Fishing Cove, and Howard's Cove), the re-dredge material is loaded directly into watertight dump trucks and transported to a disposal site on adjacent privately owned property.

Suction re-dredging methodology may be required. In this instance, the dredge spoils are suctioned from the seabed by barge and transported via pipeline to a disposal site. In either case, the disposal sites used in association with the RCSR projects are previously disturbed, historically used land-based disposal sites (for marine sediments) that were selected in collaboration with, and are used in concurrence with, the PEIDEEF.

3.1 NEED FOR THE PROJECT

As noted in Section 1.0, the mandate of DFO SCH is to keep harbours and local sites that are critical to the fishing industry open and in good repair. Each year, the majority of the DFO SCH budget goes to maintenance of these areas. It must ensure that the sites, which have been paid for by the taxpayer and leased at nominal cost, are used for the public good. DFO SCH must also ensure that its facilities are maintained to appropriate standards to protect the health and safety of users and the environment.

DFO SCH conducts annual re-dredging in nine of their sites throughout PEI at a frequency of greater than once in five years. Littoral drift and storm events result in bed load material being shifted and deposited within the approach channels or berthage areas of the site's wharf infrastructure, and safe access is seriously affected or not possible during periods of low tide.

Re-dredging projects are of a positive socio-economic nature as site infrastructure and safe and accessible waterways are of vital importance to the sustainability of coastal communities in PEI. Safe and accessible harbours and local sites protect millions of dollars in user business assets, allow safe user operation, prevent coastal erosion and damage, provide local economic development and employment, and offer refuge for mariners in distress. The re-dredging and land-based disposal projects are necessary in order to provide fishers with sustainable, safe, and secure access to DFO SCH facilities throughout PEI.

DFO SCH has taken the opportunity to streamline the EA process through the development of this RCSR. By having the EA completed and the required mitigation determined, the proponent could immediately proceed with a re-dredging project (providing the required mitigation measures allow it) when the need is identified therefore reducing the danger to fishers and vessels and facilitating a more timely and cost efficient project implementation. This class screening also allows outlined mitigations regarding restrictions in spatial and temporal bounds to be more effective so work can be completed with minimal interaction between the projects and biologically sensitive features and processes in a project area.

3.2 METHODOLOGY CONSIDERATIONS OF THE PROJECT

In the past, Disposal at Sea permits have been issued for some of the harbours included in this assessment. Currently, a permit for Disposal at Sea is in place for three of the specific re-dredge locations in this RCSR (Howard's Cove, Skinner's Pond, and Fishing Cove entrance channels). However, the high costs of mobilizing and utilizing the suction dredge equipment for ocean disposal may preclude the economic

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feasibility of this option when smaller volumes of material are required to be re-dredged. It is essential that DFO SCH maintain the flexibility to employ either method of re-dredging (i.e., land-based excavator or suction dredge) and disposal (i.e., to land via dump truck or suction dredge pipeline, or to the ocean (where applicable) via suction dredge pipeline), depending on the exact location to be dredged and the quantities involved.

As noted above, ocean disposal may make more sense fiscally when larger volumes of material are required to be disposed which have been characterized as suitable for disposal at sea. For the circumstances when land-based disposal is the economically feasible alternative, please note the following economic and environmental considerations specifically related to the proposed projects captured in this RCSR:

1. The limited availability of suction dredge equipment on PEI and the large number of sites that require re-dredging during the same time period (i.e., typically immediately after the ice melts and before the commercial fishing and recreational vessel activity begins in the spring).
2. The dredge spoils from these DFO SCHs (i.e., clean sand) is considered one of the most valuable dredged materials for re-use. Sand can find wide application as a resource material for a number of uses including land reclamation, construction material, replacement fill, land improvement, capping, beach nourishment, and offshore berms (Papai, 2003). Please note that the re-dredged marine sediments are only re-used as resource material following characterization of the spoils and determination that the spoils are suitable for the desired end use.
3. The land-based disposal practice for each of the identified DFO SCH sites is sustainable in that the sites have the natural capacity to accommodate the spoils for the 5 year duration of the RCSR (at a minimum).

In summary, with the small quantities of spoils being land-disposed annually, and the demand for the spoils as a resource material, a commercial balance has been established to support the capacity of the disposal sites and the sustainability of the land-based disposal process of marine sediment as proposed in this RCSR. The sustainability of this practise supports DFO SCHs requirements to maintain the flexibility to implement the re-dredging and disposal methodology with the projects captured under this RCSR in the context of a given project's temporal and spatial scope and volume of material to be removed.

3.3 TYPICAL SEASONAL SCHEDULING AND DURATION OF PROJECTS

As noted above, the temporal scope of the re-dredging and land-based disposal process could vary because the work may need to be repeated throughout the year at some locations. In some instances, the sites may begin infilling as soon as the dredging operation is completed due to the dynamic nature of the shorelines and the frequency and severity of storms in the area. Given this, it is difficult to accurately predict if and when re-dredging will be required at any one site, and what volumes of material may be generated.

Typically, the re-dredging and land-based disposal projects take place during the spring and if required, during the late summer/fall. The schedule at each project location is fine tuned to minimize potential interaction with proximate sensitive biological features (i.e., migration routes) and socio-economic factors (i.e., commercial fishing seasons). Depending on the volume of material to be re-dredged at a site (to facilitate operational depths), project timelines could range from 0.5-7 days.

3.4 ENVIRONMENTAL SETTING

A description of the environmental setting for each of the DFO SCH sites considered under this RCSR is provided in **Appendix A**. For each of the nine sites, descriptions are given of the shoreline, harbour uses, residents and communities, vegetation and wetlands, fish and fish habitat, wildlife, migratory birds, seabirds and waterfowl, species at risk, environmentally significant areas, transportation and marine navigation,

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commercial fisheries, and aquaculture. Each of the sites selected for the RCSR has been previously assessed at the screening level under the Act for marine harbour infrastructure projects of similar scope (i.e., re-dredging, maintenance, new construction). These EAs were used to establish the environmental setting (i.e., environmental characteristics of each site location, habitat/wildlife concerns, etc.) for each project area.

4.0 ENVIRONMENTAL REVIEW METHODS

The purpose of this section is to detail the bounding (refer to Section 4.1) and analysis of significance of effect methodology (refer to Section 4.2) used to ensure the potential effects of re-dredging and land-based disposal activities are addressed in a consistent manner, regardless of the DFO SCH site.

4.1 BOUNDARIES

An important aspect of the EA process is the determination of the EA boundaries. A boundary is a function of the extent and duration of potential interaction between the proposed undertaking and a valued environmental component (VEC). Generally, these boundaries are defined by the temporal and spatial characteristics encompassing those periods and areas, during and within which, the VECs are likely to interact with, or be influenced by, the project. The EA boundary for a re-dredging and land-based disposal project under this RCSR is defined by the spatial and temporal extent of potential disturbances to the physical and chemical characteristics of the habitat, and is based on the professional judgement and experience of DFO SCH with projects of similar scope.

The following subsections outline, in a general manner, the boundaries that have been established for the project (for both ecological purposes and socioeconomic purposes). Following the identification of VECs in Section 5.0 (Environmental Assessment Analysis), each of the identified VECs has been specifically bounded in the subsections of Section 5.1.

4.1.1 PROJECT BOUNDARIES

Project boundaries refer to the spatial and temporal extent of project activities, and are dictated primarily by the project specifics within the sites listed in Table 1. The spatial boundary for the proposed project is defined as the area of project activity, both re-dredging and disposal activities, within the DFO SCH site and, if not within the DFO SCH site, the transportation route to/from the disposal site and the disposal site itself. The temporal boundary is the complete life cycle of the project activities and/or until the provincial authorizations for the activities expire.

4.1.2 ECOLOGICAL BOUNDARIES

Ecological boundaries have been considered during issues scoping and the identification of potential environmental effects. Significance ratings have been assigned based on consideration of the range or extent of the VEC that could be affected by the project.

In considering the effects of the project under the Act, socioeconomic effects are considered only principally as they derive from any change that the project may cause on the environment. The re-dredging and land-based disposal activities were considered in the context of how the project can interact with that environment (i.e., water quality, marine substrate). The PEIDEEF takes direct socioeconomic effects and other factors into consideration prior to the initiation of the re-dredging land-based disposal process.

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4.2 SIGNIFICANCE CRITERIA

Under the Act, the significance of environmental effects must be considered. This section provides criteria for evaluating the significance of potentially adverse environmental effects. Analysis of the significance of residual environmental effects is based on several criteria including magnitude, geographic extent, duration, frequency, and reversibility, and the ecological context of the effect (Table 2) in accordance with the November 1994 Agency Reference Guide, *Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects*, and the “Responsible Authorities Guide to the *Environmental Assessment Act*”. The definitions of "significant" have been based on scientific determinations, social values, public concerns, and economic judgments (The Agency, 1994). The criteria were assessed using past experience and professional judgement and are combined to determine whether or not an activity’s effect is significant.

Table 2: Rating System to Determine the Significance of Residual Environmental Effects

Criteria	Importance Level Rating		
	Negligible (1)	Minor (2)	Major (3)
Magnitude (M)	Negligible levels of disturbance and/or damage (i.e. within natural variation)	Minor levels of disturbance and /or damage (i.e. temporarily outside range of natural variation)	Major levels of disturbance and/or damage (i.e. outside range of natural variation)
Geographic Extent (GE)	Limited to project area within DFO SCH site.	Extends beyond project area but remains within the DFO SCH site.	Extends beyond the DFO SCH site and/or disposal site boundaries.
Duration of Effect (D)	2-3 days.	4 days to 4 weeks.	A month or longer.
Frequency of Effect (F)	Occurs on a monthly basis or less frequently.	Occurs on a monthly basis or more frequently.	Occurs on a monthly basis.
Reversibility (R)	Effects reversible over short term without active management.	Effects reversible over short term with active management.	Effects reversible over extended term with active management or effects are irreversible.

5.0 ENVIRONMENTAL ASSESSMENT ANALYSIS

This section describes the process used to identify VECs, which are components of the environment valued by society and upon which the assessment is focused, predicts potential effects on the environment and proposes mitigation measures to eliminate or reduce those effects, discusses accidents and malfunctions, discusses the effects of the environment on the project, discusses cumulative effects, and concludes on the significance of adverse environmental effects.

5.1 IDENTIFICATION OF VECs AND SIGNIFICANCE CRITERIA

This section describes the process used to identify VECs, which are components of the environment valued by society and upon which the assessment focused. The selection of VECs for this assessment involved issues scoping and pathway analysis; a process that has previously been undertaken for each of the DFO SCH sites identified in Table 1.

The first step towards selecting of VECs involved identifying Environmental and Socio-Economic Components of Concern (ECCs). This was based on concerns expressed by various stakeholders, non-government organizations, scientific community and government departments and agencies; consideration of available literature and reference materials; and previous assessment experience. Re-dredging projects are of a positive socio-economic nature as harbour infrastructure and safe and accessible waterways are of vital importance to the sustainability of coastal communities in Prince Edward Island. The ECCs for the RCSR are listed in the first column of Table 3.

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The second step towards selecting of VECs involved examination of the identified ECCs and identifying the pathways (or linkages) by which the proposed project activities may affect each ECC (Table 3). This process focuses the assessment on those VECs where a clear linkage or pathway between ECCs and project activities can be identified, and potential significant adverse effects may be a concern. There is no pathway of concern for a number of the ECCs, including those components avoided as part of the DFO SCH site selection process. Therefore, these ECCs are not identified as VECs and excluded from further consideration in the assessment.

Table 3 lists the ECCs and summarizes the rationale for exclusion/inclusion of ECCs as VECs. Please note that the term ‘site’ used in the following subsections and analysis refers to the area of project activity within the DFO SCH sites listed in Table 1.

The VEC list has been condensed somewhat so that components which share common responses to activities can be assessed concurrently. Each definition was established in the context of a ‘bounded area’ (i.e. spatial and temporal boundaries) within which project activities could potentially interact with each VEC.

5.1.1 Ambient Air Quality (Includes Noise, Odour and Light)

The bounded area within which project activities could potentially interact with air quality was considered to be the provincial and local airsheds. In the context of provincial and local effects, a significant adverse effect on air quality is defined as an exceedance of national guidelines for greater than one week.

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Table 3: Issues Scoping/Pathway Analysis Summary Matrix – Valued Environmental and Socio-Economic Components of Concern: DFO SCH Re-Dredging and Land-Based Disposal Projects, PEI

Environmental Resources	Environmental Components of Concern (Biophysical and Socio-Economic)	Pathway of Concern		Possible Pathway	VEC		Project Phase			Rationale for Inclusion/Exclusion as Valued Environmental Component (VEC)
		Yes	No		Yes	No	Mobilization	Operation	Demobilization	
Atmospheric Environment	Ambient Air Quality	X		<ul style="list-style-type: none"> Equipment operation. Accidental release of hazardous materials. 	X		X	X	X	Included as a VEC – concern identified.
	Noise	X		<ul style="list-style-type: none"> Excavation and disposal activities. 	X		X	X	X	Included as a VEC – concern identified.
Biophysical Environment	Physiography and Geology		X	No pathway identified.		X				Excluded as a VEC – no significant pathway of concern identified.
	Ground Water	X		<ul style="list-style-type: none"> Excavation and disposal activities. Accidental release of hazardous materials/contaminant migration. 	X		X	X	X	Included as a VEC – protected by legislation/concern identified.
	Surface Water		X	Avoided during site selection.		X				Excluded as a VEC – avoided during site selection.
	Marine Water	X		<ul style="list-style-type: none"> Excavation near existing wetland resources. Accidental release of hazardous materials/contaminant migration. 	X			X		Included as a VEC – protected by legislation/concern identified.
	Soil and Marine Sediment	X		<ul style="list-style-type: none"> Excavation near existing wetland resources. Accidental release of hazardous materials/contaminant migration. 	X			X		Included as a VEC – protected by legislation/concern identified.
	Aquatic Wetland Resources	X		<ul style="list-style-type: none"> Accidental release of hazardous materials Sediment loading. 	X					Included as a VEC – protected by legislation/concern identified.
	Forested Land		X	Avoided during site selection.		X				Excluded as a VEC – avoided during site selection.
	Mineral Aggregate Resources		X	Avoided during site selection.		X				Excluded as a VEC – avoided during site selection.
	Wildlife/Migratory Birds	X		<ul style="list-style-type: none"> Excavation and disposal activities. Accidental release of hazardous materials/contaminant migration. 	X		X	X	X	Included as a VEC – protected by legislation/concern identified.
	Species at Risk	X		<ul style="list-style-type: none"> Excavation and disposal activities. Accidental release of hazardous materials//contaminant migration. Destruction of habitat for Species at Risk or designated critical or limiting habitat 	X		X	X	X	Included as a VEC – protected by legislation/concern identified.
	Fish, Fish Habitat, and Fishery Resources	X		<ul style="list-style-type: none"> Excavation and disposal activities. Accidental release of hazardous materials/contaminant migration. 	X			X		Included as a VEC – protected by legislation/concern identified.
	Designated Areas and Other Critical Habitat Features	X		<ul style="list-style-type: none"> Excavation and disposal activities. Accidental release of hazardous materials/contaminant migration. 	X		X	X	X	Included as a VEC – protected by legislation/concern identified.
Socio-Economic Setting	Population and Labour Force	X		<ul style="list-style-type: none"> Local economy. 		X				Excluded as a VEC – no significant pathway of concern identified.
	Commercial Fisheries	X		<ul style="list-style-type: none"> Access to commercial fishing areas. 	X		X	X	X	Included as a VEC – concern identified.
	Aquaculture		X	Avoided during site selection.		X				Excluded as a VEC – avoided during site selection.
	Existing Land Use	X		<ul style="list-style-type: none"> Access to property. 	X		X	X	X	Included as a VEC – concern identified.
	Transportation and Marine Navigation	X		<ul style="list-style-type: none"> Interference with navigable waters. Access to property. 	X			X		Included as a VEC – protected by legislation/concern identified.
	Heritage and Archaeological Resources	X		<ul style="list-style-type: none"> Excavation activities. 		X				Excluded as a VEC – avoided during site selection.
	Health and Safety	X		<ul style="list-style-type: none"> Excavation and disposal activities. 	X			X		Included as a VEC – protected by legislation/concern identified.
Aboriginal Fisheries		X	Avoided by site definition.		X				Excluded as a VEC – avoided by site definition.	

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5.1.2 Ground Water

The bounded area within which proposed project activities could potentially interact with groundwater resources is generally considered to be the area of influence for well systems within and overlapping a project site. In this context, a significant adverse effect on groundwater is defined as an effect resulting in a non-compliance of groundwater quality with regulations and guidelines for current use.

5.1.3 Marine Environmental Quality (Marine Waters and Marine Sediments)

The bounded area within which project activities could potentially interact with marine habitat was considered to be the pelagic (water column) and demersal (benthic substrate) environment of a project site. In this context, a significant adverse effect on marine habitat is defined as an effect on water or substrate quality resulting in a violation of Section 36(3) of the *Fisheries Act* (i.e., prohibits the deposit of a deleterious substance in water frequented by fish unless the deposit is authorized by regulation).

5.1.4 Aquatic Vegetation and Aquatic Wetland Resources

The area within which project activities could potentially interact with aquatic vegetation/wetland function was considered to be overlapping a project area, or as occurring within the vicinity of a project site. In this context, a significant adverse effect on aquatic vegetation and aquatic wetland habitat/species is defined as an effect resulting in a net loss of habitat function in accordance with the Federal Policy on Wetland Conservation.

5.1.5 Wildlife/Migratory Birds

The bounded area within which project activities could potentially interact with wildlife/migratory birds is considered to be the habitat of wildlife/migratory birds and is identified as occurring within the vicinity of a project site. In this context, a significant adverse effect on wildlife/migratory birds is defined as any effect resulting in a sustained suppression of fitness to maintain the population, or a decrease in density of the population below naturally occurring levels (i.e., noise or physical disturbance that could encourage wildlife/migratory birds to avoid or be displaced from feeding, breeding, or nesting habitat).

5.1.6 Species at Risk

The bounded area within which project activities could potentially interact with species at risk is considered to be the species and/or the habitat of species at risk identified as occurring within the vicinity of a project site. In this context, a significant adverse effect on species at risk is defined as any effect resulting in a sustained suppression of fitness to maintain the population, or a decrease in density of the population below naturally occurring levels or any effect which precludes use of habitat for species at risk or designated critical habitat. For species designated as endangered (or significant for other reasons), the loss of these species at an individual level and/or their habitat may be considered a significant adverse effect. As stated in section 2.3, if after a review of the project description using the RCSR, it becomes known or reasonably suspected that a species at risk could be adversely affected by the proposed project, the project requires an individual EA under the Act.

5.1.7 Fisheries Resources (Fish and Fish Habitat)

The bounded area within which project activities could potentially interact with fishery resources (i.e., fish and fish habitat) was considered to be the area immediately within and adjacent to a project site. In this context, a significant adverse effect on fishery resources is defined as any effect resulting in a sustained suppression of fitness to maintain the population, or a decrease in density of the population below naturally occurring levels.

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5.1.8 Designated or Sensitive Habitat Features

The bounded area within which project activities could potentially interact with designated or sensitive habitat features was considered to be the area of the feature(s) in immediate proximity to or overlapping the project site. In this context, a significant adverse effect on designated or sensitive habitat features is defined as any effect resulting in a net loss of habitat function.

5.1.9 Commercial Fisheries

The bounded area within which project activities could potentially interact with fisheries was considered to be areas immediately within and adjacent to a project site. In this context, a significant adverse effect on fisheries is defined as an effect resulting in exclusion of the fishing sector from areas historically accessed.

5.1.10 Existing Land Use/Transportation and Marine Navigation

The bounded area within which the proposed project could potentially interact with existing land use (i.e. tourism and recreation) was considered to be the environment immediately adjacent to a project site and the transportation routes required for site access to and from the disposal site. In this context, a significant adverse effect on existing land use is considered to be interference/disruption of existing land use activities.

The bounded area within which project activities could potentially interact with marine navigation was considered to be the physical footprint of the project site, and the marine transportation routes required for site access. In this context, a significant adverse effect on marine navigation and/or transportation is considered to be interference/disruption of existing navigable water use.

5.1.11 Health and Safety

The bounded area within which project activities could potentially interact with health and safety was considered to be a project site. At project sites where land-based disposal is not on DFO SCH property, the route and disposal facility would be included. In this context, a significant adverse effect on health and safety is defined as an unsecured safety hazard.

5.1.12 Aboriginal Fisheries

Previous assessment screenings have been conducted at each of these sites in accordance with the Act. The potential for Aboriginal Fisheries has been assessed in these previous screenings. Specifically, an assessment has been made on the interaction with potential or established Aboriginal or treaty rights (fisheries) in the project area. Prior to any project related activities occurring, the DFO Area Aboriginal Coordinator would be contacted by DFO SCH.

5.2 ANALYSIS OF ENVIRONMENTAL EFFECTS ON SELECTED VECs AND PROPOSED MITIGATION

Based on the above bounded VEC definitions, and the descriptions of the environment provided in Appendix A for the nine locations, the potential environmental effects associated with project activities (i.e., transportation of equipment and re-dredge material, re-dredging, land-based disposal of re-dredged spoils, accidents/malfunctions/unplanned events) are described throughout this section. As well, Table 4 (presented following the subsections below) lists the VECs, describes the potential interaction between each VEC and the project, and provides the standard mitigation measures, and site-specific mitigation measures where applicable, to minimize the likelihood of significant adverse residual effects related to the project. Please note that the VEC list has been condensed in the following subsections so that components which

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share common responses can be presented concurrently. **Appendix A** provides site specific Information for each of the nine SCHs.

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Table 4: Potential Environmental Effects (Biophysical & Socio-Economic) Summary and Mitigation

Valued Environmental or Socio-Economic Component (VEC)	Project Phase	Potential Effect(s)	Mitigation Required
Ambient Air Quality (including noise, odour and light)	Mobilization, Operation, Demobilization	<p>Dust from excavating, trucks and equipment movement.</p> <p>Air and noise emissions and light from trucks, vehicles, and equipment.</p>	<p>To control dust, water can be used as a dust suppressant as appropriate, truck beds can be covered, and uncovered surfaces can be re-vegetated.</p> <p>Conduct work such that noise levels remain comparable to those currently produced in the project area.</p> <p>Project vehicles will keep to designated project transportation routes.</p> <p>Lighting and working hours to be regulated by conditions of the relevant municipal permit (if applicable) and/or consultation with local authorities.</p> <p>Where additional lighting is required to conduct work, lights will be positioned such that the direction of the lighting is opposite that of nearby residential and business areas.</p> <p>To reduce the impact of the odour, the dredge material containing organics will be covered by suitable dredged material.</p> <p>All equipment shall also be well muffled.</p>
Groundwater	Mobilization, Operation, Demobilization	Accidental events/spills such as Petroleum, Oils, Lubricants (POL) resulting in contamination of groundwater in the vicinity of the project activities.	<p>Hazardous materials will be used only by personnel who are trained and qualified in the handling of these materials (i.e., Hazardous Waste Operations and Emergency Response (HAZWHOPPER)) and only in accordance with the manufacturer's instruction and government regulations. The Workplace Hazardous Materials Information System (WHMIS) program will be implemented throughout the job site in accordance with the PEI <i>Occupational Health and Safety Act</i> and regulations put forth by the Workplace Health, Safety, and Compensation Commission of PEI.</p> <p>A complete inventory of the hazardous materials is to be maintained by the Contractor according to the WHMIS. This</p>

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Valued Environmental or Socio-Economic Component (VEC)	Project Phase	Potential Effect(s)	Mitigation Required
Groundwater (Con't)	Mobilization, Operation, Demobilization (Con't)	Accidental events/spills such as POL resulting in contamination of groundwater in the vicinity of the project activities (Con't).	<p>inventory is to be available to regulatory agencies upon request.</p> <p>The transportation of hazardous materials will be conducted in compliance with the Federal <i>Transportation of Dangerous Goods Act</i>.</p> <p>Fuel storage on the work site will be undertaken in compliance with applicable Provincial and federal regulations, codes and guidelines. Where fuel storage is undertaken on federal lands, federal guidelines for aboveground storage tanks will be observed.</p> <p>All bulk storage of fuel products on site will be at least 30 m from the watercourse or wetland and in aboveground, dyked or some form of secondary containment. No hazardous materials storage will occur in a buffer zone of a watercourse or other environmentally sensitive areas.</p> <p>Locate disposal sites down gradient from wells.</p> <p>Transfer, fueling, and lubrication of equipment on the site will occur in such a manner as to minimize the possibility of contamination to soil (both surface and subsurface) and/or water (surface and groundwater). Reputable, qualified, and licensed companies will conduct the delivery of petroleum products to the site.</p> <p>Fueling or servicing of mobile equipment on land will not be allowed within 30 m of a water course or wetland except within a specifically designated refuelling area where conditions will allow for containment of an accidental spill of fuels and lubricates.</p> <p>Material Safety Data Sheets (MSDS) will be available for all hazardous materials in use or stored on-site. All hazardous materials, when required, will be removed and disposed of in an acceptable manner in accordance with government</p>

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Valued Environmental or Socio-Economic Component (VEC)	Project Phase	Potential Effect(s)	Mitigation Required
Groundwater (Con't)	Mobilization, Operation, Demobilization (Con't)	Accidental events/spills such as POL resulting in contamination of groundwater in the vicinity of the project activities (Con't).	<p>regulations and requirements.</p> <p>The Contractor will have appropriate emergency spill response equipment for containment and cleanup of spills. This equipment will consist of at least one 250 L (i.e. 55 gal. overpak) spill kit, containing equipment to prevent a spill from spreading and will quickly contain and clean up the spill area.</p> <p>All equipment should be kept in good working order to prevent leakage of hazardous materials to the environment. Should a small leak or drip be identified, they will be contained by using drip pans or other appropriate means until the equipment is properly repaired. Routine maintenance will be conducted offsite.</p> <p>Any hydrocarbon spill shall be reported to the Canadian Coast Guard (CCG) at 1-800-565-1633 and provide the following information: location of the spill source; location of the area and shoreline impact; length of shoreline impact; shoreline characteristics; wildlife in the area; and wind and current direction. The source of the spill should be stopped as soon as is safe to do so. The Contractor will prepare a written report, which will be sent to the applicable Provincial and Federal authorities no later than 30 days after the date of the spill.</p> <p>The proponent shall have an EPP, including contingency planning, in place for the project.</p> <p>The project shall be implemented according to applicable federal, provincial, and municipal regulations and guidelines.</p> <p>Operational material (i.e., rope) on land or entering a waterbody shall be quickly removed and properly disposed. If necessary, debris and leachates (films on water surface) shall be contained within the site area by using containment facilities such as floating booms or screens.</p>

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Valued Environmental or Socio-Economic Component (VEC)	Project Phase	Potential Effect(s)	Mitigation Required
Groundwater (Con't)	Mobilization, Operation, Demobilization (Con't)	<p>Accidental events/spills such as POL resulting in contamination of groundwater in the vicinity of the project activities (Con't).</p> <p>Saltwater intrusion</p>	<p>The proponent should ensure that the contractor is also aware and familiar with the Emergency Contingency Plan, Emergency Preparedness Plan, and Site Management Plan.</p> <p>The proponent should erect proper signage indicating where the storage of equipment is not permitted such as below the high water mark</p> <p>Locate disposal sites down gradient from wells.</p>
Marine Water	Operation	Accidental events/spills such as POLs resulting in degradation of marine water quality.	<p>See 'Groundwater' above.</p> <p>Project shall comply with Section 36(3) of the <i>Fisheries Act</i> which prohibits the deposit of a deleterious substance in water frequented by fish unless the deposit is authorized by regulation.</p> <p>Heavy machinery, equipment, and pollutants shall not be permitted below the ordinary high water mark and shall not be located or stored in areas in danger of floodwaters.</p>
Marine Water	Operation	Increased suspended solids/turbidity within and adjacent to the re-dredging site due to excavation activity.	<p>Trucks hauling dredged material will be equipped with watertight boxes to minimize loss of material. Trucks not meeting this criterion will be removed from the job.</p> <p>Re-dredging of the overburden will be undertaken by a properly trained operator and will be conducted in a manner, as detailed below, that minimizes the re-suspension of sediments in the water column.</p> <p>In the event that fine-grained material is being re-dredged, it may be necessary to use an environmental type bucket. The following are re-dredge material management techniques that should be employed:</p> <ul style="list-style-type: none"> • reduce the ascent speed of the bucket; • minimize over water swings; • eliminate free-board spillage; and • eliminate wash downs on the wharf deck.

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Valued Environmental or Socio-Economic Component (VEC)	Project Phase	Potential Effect(s)	Mitigation Required
Marine Water (Con't)	Operation (Con't)	Increased suspended solids/turbidity within and adjacent to the re-dredging site due to excavation activity (Con't).	<p>Visual monitoring of turbidity shall be required in the vicinity of the site to ensure that it is limited. If excessive change occurs in the turbidity beyond the site limits that differs from the existing conditions of the surrounding water bodies (i.e., distinct color difference), the work shall stop, the source of the turbidity will be determined and be reported to the Project Manager who will then make contact with DFO HPSDD to determine if additional mitigation measures are required.</p> <p>Turbidity and sedimentation should be mitigated by initiating excavation activities at the low tide to contain any suspended sediments within the site area, and permit time for local deposition of the heavier fraction to occur before any out flowing current associated with the drop in tide. Project activities should be undertaken during benign weather conditions to minimize dispersion of silt and sediment from the site.</p> <p>The proponent should consider the use of silt curtains to control sedimentation as appropriate.</p>

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Valued Environmental or Socio-Economic Component (VEC)	Project Phase	Potential Effect(s)	Mitigation Required
Marine Water (Con't)	Operation (Con't)	Transportation/introduction of invasive species.	<p>All re-dredging equipment, including excavators, dredge material haul trucks, and work boats (where applicable), are to be free of all marine growth prior to mobilization to the site.</p> <p>The Contractor is to coordinate removal and cleaning operations to ensure they abide by all requirements of EC and DFO-HPSDD.</p> <p>The Contractor will provide upon request a record of assurance (i.e., dates of cleaning, type of cleaning, location of last mobilization, type of cleaning material used, etc.) that the mitigation measures, as per DFO guidelines, for invasive species has occurred.</p> <p>The Contractor is to make all necessary enquiries during the preparation of tender in order to ensure that all costs associated with the above requirements are included in the bid price.</p>
Soils and Marine Sediment	Operation	Accidental events/spills (e.g. POL) resulting in degradation of marine sediment/substrate quality.	See 'Groundwater' and 'Marine Water' above.
		Excavation of contaminated material.	<p>This EA will rely on the regulatory process to ensure all re-dredged materials originating from the nine identified sites over the upcoming five year period are below applicable chemical screening criteria.</p> <p>Disposal sites used in association with the RCSR projects are previously disturbed, historically used land-based disposal sites (for marine sediments) selected in collaboration with, and used in concurrence with, the PEIDEEF.</p>

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Valued Environmental or Socio-Economic Component (VEC)	Project Phase	Potential Effect(s)	Mitigation Required
Aquatic Vegetation and Aquatic Wetland Resources	Operation	<p>Accidental events/spills (e.g. POL) resulting in a net loss of habitat function.</p> <p>Excavation of contaminated material.</p> <p>Increased suspended solids/turbidity within and adjacent to the project site.</p>	<p>Vehicles and equipment shall not access wetlands and wetlands shall not be used as staging areas.</p> <p>A 10m buffer zone where no re-dredged material is to be land disposed is to be maintained around adjacent wetland areas at Grahams Pond, Launching Pond, Fishing Cove, and Tignish SCHs.</p> <p>See ‘Groundwater’, ‘Marine Water’ and ‘Soils and Marine Sediment’ above.</p>
Wildlife/Migratory Species at Risk	Birds/ Mobilization, Operation, Demobilization	<p>Impacts on marine mammals due to noise.</p> <p>Attraction of birds to the project site because of a food source.</p> <p>Limit feeding and resting areas for migratory birds and disrupt resident species or species at risk, including nesting sites on shore (i.e., increased suspended solids/turbidity within and adjacent to the re-dredging site due to excavation activity may reduce ability of foraging birds to locate prey.</p>	<p>See ‘Ambient Air Quality’ above.</p> <p>Ensure project site and equipment accessing the site should be kept clean and clear of any food/debris.</p> <p>All heavy equipment associated with the project shall avoid concentrations of migratory birds during courtship, nesting, and chick-rearing seasons. Concentrations of seabirds, waterfowl, or shorebirds shall not be approached at any time. Re-dredging and land-based disposal activities shall be carried out during times acceptable to local authorities and outside the migratory and breeding season (i.e., early spring) where appropriate and as much as is practical.</p> <p>Land-based activities conducted in the near-shore environment must comply with applicable legislation, particularly the <i>Migratory Birds Convention Act</i> (MBCA) and the <i>SARA</i>.</p> <p>Any disposal site that has not been used for three years or more and has re-vegetated will be assessed with a bird survey of the disposal site footprint which will be undertaken by suitably skilled person(s) (i.e., PC and/or provincial Nature Trust representative) prior to commencement of project activities. The survey will be undertaken with specific consideration of MBCA and the SARA (i.e., colonial nesters, migratory birds, and the habitat supporting these birds and other federally and provincially listed species at risk). Upon</p>

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Valued Environmental or Socio-Economic Component (VEC)	Project Phase	Potential Effect(s)	Mitigation Required
			<p>conclusion of the survey, discussions will be held with the proponent and relevant agencies to determine the requirement, if any, to modify the scope of the proposed project (i.e., temporal or spatial).</p> <p>The Contractor is to use public roads to access the project area and where applicable, to transport dredge material to the land-based disposal site.</p> <p>See ‘Ambient Air Quality’, ‘Groundwater’, ‘Marine Water’, ‘Soils and Marine Sediment’, and ‘Aquatic Vegetation and Aquatic Wetland Resources’ above.</p>
Fish and Fish Habitat	Operation	<p>Potential harmful alteration, destruction, and disruption of fish habitat.</p>	<p>Project shall comply with Section 35(1) of the <i>Fisheries Act</i> such that no person shall carry on any work or undertaking that results in harmful alteration, destruction, and disruption (HADD) of fish habitat.</p> <p>Project schedule shall be set based on characteristics of the environmental setting of the site to avoid adverse interaction with sensitive fish and fish habitat features. Contact shall be made with the DFO Area Habitat Biologist prior to commencement of project.</p> <p>Re-dredging will not be conducted during periods of fish migration through the proposed re-dredging area. This will be verified with DFO Habitat prior to project commencement.</p> <p>See ‘Groundwater’, ‘Marine Water’, ‘Soils and Marine Sediment’, and ‘Aquatic Vegetation and Aquatic Wetland Resources’ above.</p>
		Permanent introduction of invasive species into the marine environment.	See ‘Marine Water’ above.
Designated and Sensitive Habitat Features	Mobilization, Operation, Demobilization	Potential disturbance and/or alteration/displacement of habitat.	Vehicles and equipment shall not be transported or stored on beaches or dune systems. These areas shall not be used as

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Valued Environmental or Socio-Economic Component (VEC)	Project Phase	Potential Effect(s)	Mitigation Required
			<p>staging areas.</p> <p>See ‘Ambient Air Quality’, ‘Groundwater’, ‘Marine Water’, ‘Soils and Marine Sediment’, ‘Aquatic Vegetation and Aquatic Wetland Resources’, ‘Wildlife/Migratory Birds/Species at Risk’, and ‘Fish and Fish Habitat’ above.</p>
Commercial Fisheries/Existing Land Use	Mobilization, Operation, Demobilization	Disrupt local users due to the project activities (i.e. movement of equipment, supplies, and personnel to/from the work site, excavation).	Proponent shall coordinate with local Harbour Authorities prior to commencement of the project activities such that the schedule with the least possible conflicts will be implemented.
Commercial Fisheries/Existing Land Use (Con’t)	Mobilization, Operation, Demobilization (Con’t)	Disrupt local users due to the project activities (i.e. movement of equipment, supplies, and personnel to/from the work site, excavation) (Con’t).	Discussions shall be held with municipal and provincial staff to identify peak travel times along applicable road segments with the objective of scheduling project activities (i.e., movement of equipment and personnel) outside these periods and/or high traffic flow directions.
Transportation and Marine Navigation	Operation	Disruption of navigable waters access.	<p>Where applicable, the proponent shall comply with conditions of the <i>Navigable Waters Protection Act</i> (NWPA) and should issue a “Notice to Mariners” prior to commencement.</p> <p>See ‘Commercial Fisheries/Existing Land Use’ above.</p>
Health and Safety	Mobilization, Operation, Demobilization	Workers could be injured or killed if accidents occur during the mobilization, operation, demobilization phases of the project.	Employees should be trained in health and safety protocols (e.g. safe work practices, emergency response).
		Truck traffic related to hauling equipment and excavated spoils (if applicable); and vehicle traffic related to movement of the workforce.	<p>Project truck and vehicle movements shall be carefully controlled and managed in accordance applicable aspects of the <i>Occupational Health and Safety Act</i>.</p> <p>Project activities will only take place within the project contract limits.</p>
		Equipment rollover or loss to the marine environment could impact selected VECs.	Proper safety procedures shall be followed during the project as per applicable municipal, provincial, and federal

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Valued Environmental or Socio-Economic Component (VEC)	Project Phase	Potential Effect(s)	Mitigation Required
			regulations. See 'Commercial Fisheries/Existing Land Use' above.

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For the purposes of this RCSR, an associated EPP has been developed which provides the procedures and organization to ensure that project personnel understand and implement environmental protection procedures for both routine and unplanned events associated with the re-dredging and land-based disposal project. The EPP also presents the standard environmental mitigation measures, and site-specific mitigation measures where applicable, developed for the RCSR to minimize interaction between the projects and the sensitive features in the respective environments, and to ensure significant adverse environmental effects are unlikely to occur (**Appendix B**).

5.2.1 Ambient Air Quality (Includes Noise, Odour and Light)

The primary air quality concern during re-dredging and land-based disposal work is the effect of dust, emissions, noise, and odour from the project activities (i.e., vehicles and equipment on the surrounding environment). The potential effects are influenced by project site and weather conditions (rain and wind direction) and by preventative measures implemented during project activities to minimize emissions.

Equipment produces emissions typical of gas or diesel-fuelled vehicles. Generally, emissions may cause occasional nuisance problems on construction sites; however, they typically do not present problems outside the immediate project area and for projects of this nature, emissions would be short-term and localized.

Hazardous materials may be released to the surrounding airshed as a result of accidental spillage of solvents, fuels, and epoxies used during project activities. The primary air quality concern resulting from the accidental release of contaminants is the effect of solvent, hydrocarbon, and fuel vapours on air quality.

The re-dredging of organic material may also result in odours (i.e., sulphurous or rotten egg odour) within the project boundaries (i.e., re-dredging and land-based disposal areas).

5.2.2 Ground Water

There are no groundwater protection areas for municipal water supplies located within the project areas. Given that this RCSR covers re-dredging and land-based disposal in previously disturbed commercial settings, the potential effect of concern is reduced water quality (i.e., accidental release of hazardous materials used during the project (i.e., POL, solvents, and epoxy resins) into the groundwater system). Loss of POL into the groundwater system may occur from parked vehicles, working equipment, and refuelling points.

The severity of the effect resulting from an accidental release will depend on the quantity released, characteristics of the contaminants, local hydrogeologic characteristics, and groundwater use in the area. Accidental releases of hazardous materials may potentially cause some parameters in the affected groundwater to exceed the Guidelines for Canadian Drinking Water Quality (Health Canada, 1996).

5.2.3 Marine Environmental Quality (Marine Waters and Marine Sediments)/ Aquatic Vegetation and Aquatic Wetland Resources

The proposed project re-dredging activity has potential to influence local marine water and sediment/substrate quality. For projects of this nature, the potential effects of concern are increased suspended solids load in the marine environment and accidental leakage/spillage of hazardous materials/contaminant mobilization.

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Sedimentation may result from the re-dredging activity. Sedimentation is known to adversely affect the ecology of most aquatic systems with the severity of associated impacts generally decreasing with distance from the area of disturbance and with time after the project activity is completed.

Degradation of marine water and sediment/substrate quality may occur through contamination from accidental releases of hazardous materials (i.e., leaks from project machinery and accidental spills of fuels and lubricants) down gradient of the project, which may then deposit, and affect aquatic resources. The severity of the effect of these substances on marine water and sediment/substrate quality is variable, and may be affected by water regime, precipitation patterns, topography, and the sensitivity of particular organisms to the chemical concerned.

5.2.4 Wildlife/Migratory Birds/Species At Risk/Designated or Sensitive Habitat Features

The significance of any effect on wildlife/migratory species/species at risk/designated or sensitive habitat will depend in part on the permanence of that effect and the sensitivity of the particular species or habitat component affected. The potential effects associated with the re-dredging and land-based disposal activities on wildlife/migratory species/species at risk/designated or sensitive habitat relate to noise disturbance, disruption of feeding and resting areas (i.e., increased suspended solids load in the marine environment making prey location more difficult and accidental leakage/spillage of hazardous materials/contaminant mobilization), and attraction of birds because of a food source (i.e., invertebrates in the re-dredge spoils).

5.2.5 Fisheries Resources (Fish and Fish Habitat)

Re-dredging activities may adversely affect fisheries resources by means of structural habitat changes. The physical removal of the marine sediment and associated turbidity from the disturbed areas can transport suspended solids down gradient of the project, which may then deposit, and affect aquatic resources. There is potential for the use of equipment or machinery from areas known to support invasive alien species to result in the spread of these species within the project areas.

5.2.6 Commercial Fisheries/Existing Land Use/Transportation and Marine Navigation

The potential interaction between re-dredging and land-based disposal activities and land use/commercial fisheries/transportation and marine navigation relate to interruption of facility use, and additional traffic and marine navigation restrictions within the project area.

5.2.7 Health and Safety

The potential health and safety effects associated with re-dredging and land-based disposal crews are similar to that required for other construction projects which involve heavy machinery. The potential health and safety effects considered in relation to the RCSR projects are worker injury or death, equipment rollover or loss to the marine environment, risk of injury with increased traffic during transport of the workforce, the equipment, and/or re-dredged spoils.

5.3 EVALUATION OF RESIDUAL ENVIRONMENTAL EFFECTS

Following the application of mitigation measures, residual environmental effects are not significant based on the criteria used to determine significance (refer to Section 4.2). As summarized below and shown in Table 5, with proper implementation of the mitigative measures identified in Table 4, significant adverse residual effects are not likely to occur as a result of the project. As noted in Section 5.2, please note that the VEC list has been condensed somewhat so that components which share common responses can be presented concurrently.

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Table 5: Residual Environmental Effects Across all Project Phases for each VEC Following the Application of Mitigation Measures

VEC	Project Phase	Residual Environmental Effect	M	GE	F	R	D	S/NS
Ambient Air Quality (including Noise)	Mobilization, Operation, Demobilization	None	1	2	1	1	1	NS
Groundwater	Mobilization, Operation, Demobilization	None	1	2	1	1	1	NS
Marine Habitat (including Marine Waters and Marine Sediments)/ Aquatic Vegetation and Aquatic Wetland Resources	Operation	Potential for minor, localized, degradation of habitat (i.e. water quality, sediment loading).	2	2	2	1	1	NS
Wildlife/Migratory Birds/ Species at Risk/ Designated Areas and Sensitive Habitat Features	Mobilization, Operation, Demobilization	None	2	2	1	2	1	NS
Fisheries Resources (including Fish and Fish Habitat)	Operation	Potential for minor, localized, disruption of habitat (i.e. decline in macrofauna).	2	2	2	1	1	NS
Commercial Fisheries/ Existing Land Use	Mobilization, Operation, Demobilization	Potential for some temporary disruption of commercial fishing activities.	2	2	2	1	1	NS
Transportation and Marine Navigation	Mobilization, Operation, Demobilization	None	1	2	1	1	1	NS
Human Health	Mobilization, Operation, Demobilization	None	1	1	1	1	1	NS

M = Magnitude; GE = Geographic Extent; F = Frequency; R = Reversibility; D = Duration of Effect; and S/NS = Significant/Not-Significant
1=Negligible, 2=Minor, 3=Major (Refer to Section 4.2 for significance criteria)

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5.3.1 Ambient Air Quality (Includes Noise, Odour and Light)

As noted in Section 5.2.1, the primary air quality concern during re-dredging and land-based disposal work is the effect of dust, emissions, noise, odour, and light from the project activities (i.e., vehicles and equipment on the surrounding environment).

Due to the limited geographic extent (the dredge and disposal sites), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this VEC. Detailed standard environmental protection measures are provided in Table 4 and in the RCSR EPP (**Appendix B**).

5.3.2 Groundwater

The principal means for minimizing the potential groundwater system effects related to accidental releases of hazardous materials is by ensuring that an adequate level of awareness of the environmental sensitivity of environmental components is maintained by contractors and workers, and through incorporation of appropriate prevention and response measures in operational practices. Due to the limited geographic extent (the dredge and disposal sites), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this VEC. Detailed protection measures are provided in Table 4 and the RCSR EPP (**Appendix B**).

5.3.3 Marine Environmental Quality (Marine Waters and Marine Sediments)/ Aquatic Vegetation and Aquatic Wetland Resources

As noted previously, increased suspended solids in the vicinity of the project site, and degradation through excavation of contaminated sediment (although not the case in the nine SCHs included in this RCSR) or contamination from accidental releases of hazardous materials could adversely affect marine environmental quality and/or the ecology of adjacent aquatic vegetation and wetland resources. However, due to the limited geographic extent (the dredge and disposal sites), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this VEC. Standard and site-specific mitigative measures are identified in Table 4 and the RCSR EPP (**Appendix B**).

5.3.4 Wildlife/Migratory Birds/Species At Risk/Designated or Sensitive Habitat Features

During re-dredging, it can be expected that most wildlife and avian species occupying the immediate vicinity of the site will initially be displaced. However, due to the limited geographic extent (the dredge and disposal sites), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this VEC. Standard mitigative measures are identified in Table 4 and the RCSR EPP (**Appendix B**).

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5.3.5 Fisheries Resources (Fish and Fish Habitat)

Fish can move to avoid direct mortality and once re-dredging is finished and the area is re-stabilized, fish can return to the area provided habitat quality is acceptable. Fish habitat also includes fish food organisms, which much of the macroinvertebrate biomass within the immediate re-dredging area will be lost during the activity. However, following completion of the activities fish food organisms will rapidly recolonize the area. Due to the limited geographic extent (the dredge and disposal sites), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this VEC. Standard mitigative measures are identified in Table 4 and the RCSR EPP (**Appendix B**).

5.3.6 Commercial Fisheries/Existing Land Use/Transportation and Marine Navigation

Re-dredging projects are of a positive socio-economic nature as site infrastructure and safe and accessible waterways are of vital importance to the sustainability of coastal communities in the Maritimes. Safe and accessible harbours protect millions of dollars in user business assets, allow safe user operation, prevent coastal erosion and damage, provide local economic development and employment and offer refuge for mariners in distress. The re-dredging and land-based disposal projects are necessary to provide boats with sustainable, safe, and secure access to DFO SCHs. As well, the temporal scope of the projects is designed to work with the schedules of the marine resource users to ensure the least amount of disruption. Due to the limited geographic extent, duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this VEC. Standard mitigative measures are identified in Table 4 and the RCSR EPP (**Appendix B**).

5.3.7 Health and Safety

The emergency services required by re-dredging and land-based disposal crews are similar to those required for other construction projects which involve heavy machinery. A review of the emergency service capabilities in the RCSR projects areas indicate that these communities have adequate services to respond to an emergency. Contractors must also have the capabilities to deal with medical emergencies as required by the *Occupational Health and Safety Act*. With implementation of the standard mitigative measures are identified in Table 4 and the RCSR EPP (**Appendix B**), and due to the limited geographic extent (the dredge and disposal sites), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this VEC.

5.4 ACCIDENTS AND MALFUNCTIONS

Accidents and malfunctions were considered relative to each identified VEC. With the nature of the projects to be captured under this RCSR, the potential environmental effects resulting from an accident/malfunction include:

- Potential fuel/oil spills and or hydraulic oil spills which could impact marine water/sediment/fish habitat quality, soil quality, groundwater quality, as well as migratory birds, species at risk, and their habitats.
- Equipment rollover or loss to the marine environment could impact selected VECs.

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- Workers could be injured or killed if accidents occur during the mobilization, operation, and/or demobilization phases of the work.

Refer to the recommended mitigation outlined in Table 4 for ‘Ambient Air Quality’, ‘Groundwater’, ‘Marine Water’, ‘Soils and Marine Sediment’, ‘Aquatic Vegetation and Aquatic Wetland Resources’, ‘Wildlife/Migratory Birds/ Species at Risk’, ‘Fish and Fish Habitat’ and ‘Health and Safety’ for the above impacts, respectively.

Significance of Residual Effects

No significant adverse residual effects on the project resulting from the accidents/malfunctions are likely with proper implementation of the identified mitigative measures.

5.5 EFFECTS OF THE ENVIRONMENT ON THE PROJECT

Under the Act, the assessment must also consider the potential affects the environment may have on the project. Within the scope of this RCSR, potential effects of the environment on the project consist of:

- Weather and Ice – storm events and ice movements can affect the sediment shift patterns and rates within the DFO SCHs; and,
- Climate change – sea level rise may implicate operations within the DFO SCHs through changing water levels and water quality, weather patterns.

The site specific issues associated with these potential affects are addressed in the EPPs developed for each project. The issues have been considered by DFO for the re-dredging and land-based disposal projects captured under this RCSR and are considered mitigable through project design, harbour maintenance procedures, and temporal scope.

Potential pathways and effects of the environment on the project include permanent damage and/or loss of project equipment at the site for the duration of the project. The following measures will be implemented to mitigate these potential effects:

- use only proven methodologies for re-dredging and/or land-based disposal; and
- implement the project during benign weather conditions to minimize potential for accidents (i.e., consult EC’s local forecast {<http://weatheroffice.ec.gc.ca>} and storm surge advisory and warning bulletins).

Significance of Residual Effects

No significant adverse residual effects on the project resulting from the existing environment are likely with proper implementation of the identified mitigation measures.

5.6 CUMULATIVE EFFECTS

The Act requires that the assessment of potential environmental effects also consider the potential of cumulative environmental effects. Cumulative environmental effects are defined as “changes to the environment that are caused by an action in combination with other past, present and future human activities” (the Agency, 1999). Cumulative effects can occur when environmental effects take place so frequently in time or so densely in space that the effects of individual impacts cannot be assimilated. For example, an impact considered minor within the framework of a project might become more significant if

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the analysis of the other activities indicates that the VEC is already affected, or could be affected, in different ways. They can also occur when the effects of one activity combine with those of another in a cumulative or synergistic manner.

Under the Act, the identification of likely future projects takes into consideration projects that are certain (i.e. approved, under regulatory review, or officially announced to regulatory agencies) and reasonably foreseeable (i.e. identified in a development plan that is approved or under review, or conditional upon approval of a development plan that is under review) (CEAA 1999). Hypothetical actions (i.e. conjectural or discussed on a conceptual basis) are not considered (CEAA 1999).

Reviews of the methodologies of accessing cumulative effects in the coastal environment (Vestal et.al. 1995) recognize the importance of establishing context for upland contributions to the coastal marine environment. Principal in their review of cumulative effects contributing to losses in the environment were increased loading attributable to increased nutrient and sediment discharges from municipalities and agricultural areas.

Potential cumulative environmental effects include those noted for the VECs in Section 5.0, being compounded by potentially working in synergy with similar effects of other existing or likely future terrestrial and marine infrastructure projects in the vicinity of the RCSR project sites. Cumulative environmental effects also could occur as a result of these same effects working in concert with other anthropogenic sources of pollutants (i.e., nutrient loading from agricultural run-off) in the vicinity of the RCSR project sites which could degrade water quality and habitat and/or affect local flora and fauna. With the implementation of all the mitigation measures, including the EPP outlined in the RCSR, the potential for significant adverse cumulative environmental effects are not likely to occur.

Many of the potential effects associated with annual re-dredging and land-based disposal are short-lived, localized, and reversible. Their capacity to act in a cumulative manner is minimal. Re-dredging and land-based disposal activities are controlled under provincial Watercourse Alteration permits to reduce the likelihood of interaction with other activities that could produce a cumulative environmental effect. In addition, the intermittent and seasonal nature of the re-dredging and land-based disposal activities allows time for the sites to recover naturally. For these reasons, significant, adverse cumulative environmental effects are not likely to occur.

Since proponents are responsible for obtaining all relevant licenses, permits, and authorizations and ensuring that the project meets all federal, provincial and municipal legislative requirements, it is unlikely that there would be an interaction amongst re-dredging and land-based disposal projects, or between re-dredging and land-based disposal projects and other activities within the project's boundaries, or between re-dredging and land-based disposal projects and activities outside the project's boundaries. For these reasons, significant, adverse cumulative environmental effects are not likely to occur.

Assumptions made regarding cumulative environmental effects in the RCSR will be confirmed on a yearly basis to the Agency as part of the conditions for declaration set by the Agency's President.

5.7 PROJECT IMPLEMENTATION PLANNING AND MONITORING REQUIREMENTS

Please note that to supplement the environmental information provided in Appendix A, any disposal site that has not been used for three years or more and has re-vegetated will be assessed with a bird survey of the disposal site footprint which will be undertaken by suitably skilled person(s) (i.e., PC and/or provincial Nature Trust representative) prior to commencement of each round of project activities (i.e, typically annually). The survey will be undertaken with specific consideration of MBCA and the SARA (i.e., colonial nesters, migratory birds, and the habitat supporting these birds and other federally and provincially

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listed species at risk). Upon conclusion of the survey, discussions will be held with the proponent and relevant agencies to determine the requirement, if any, to modify the scope of the proposed project (i.e., temporal or spatial).

Prior to any project related activities occurring, the DFO Area Aboriginal Coordinator would be contacted by DFO SCH to assess the status of any Aboriginal Fisheries in the project area.

Re-dredging will not be conducted during periods of fish migration through the proposed re-dredging area. Fish migration will be verified with DFO Habitat prior to project commencement.

In the case of re-dredging and land-based disposal operations, project-specific follow-up programs are not typically required nor conducted. However, compliance monitoring inspections are occasionally undertaken by provincial and federal regulatory agencies and the RA to ensure mitigation measures are being implemented as part of the project, as outlined in the EA and associated permits.

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6.0 ROLES AND RESPONSIBILITIES

The RA:

DFO SCH is the sole RA involved in the RCSR. The FAs are DFO HPSDD, PC, and EC. DFO SCH will be responsible for determining whether a project fits within the class, for recording the number of assessments conducted under the RCSR and for updating the Registry as described in Section 1.5. DFO SCH will be responsible for reviewing and amending the report as described in Section 7.0.

DFO SCH is responsible for ensuring that design standards and site-specific mitigation measures described in the RCSR are implemented and are also responsible for obtaining all relevant licenses, permits, and authorizations and ensuring that the project meets all federal, provincial, and municipal legislative requirements (i.e., provincial watercourse alteration permits). This EA should not be taken to imply approval of the project in accordance with any other federal or provincial legislation, or municipal by-laws. DFO SCH (including Harbour Authorities) are required to adhere to relevant legislation.

7.0 PROCEDURES FOR AMENDING THE REPLACEMENT CLASS SCREENING REPORT (RCSR)

The purpose of an amending procedure is to allow the modification of the RCSR after experience has been gained with its operation and effectiveness. The reasons for such modification may include:

- clarification of the document and procedures;
- streamlining or modifying the planning process in areas where problems may have arisen;
- minor modifications and revisions to the factors to be considered in the assessment to reflect new or changed regulatory requirements, policies or standards; and
- new procedures and environmental mitigation practices that have been developed over time.

The RA will notify the Agency in writing of its interest to amend the RCSR. It will discuss the proposed amendments with the Agency and affected federal government departments and may invite comment from stakeholders and the public on the proposed changes. The RA will then submit the proposed amendments to the Agency along with a statement providing a rationale for each amendment proposed.

The Agency may amend the RCSR without changing the declaration period if the changes:

- are minor;
- represent editorial changes intended to clarify or improve the screening process;
- do not materially alter the projects subject to the RCSR or the factors to be considered in the assessment of these projects;
- include a new site that has been previously assessed under the Act prior to inclusion in the RCSR; and
- do not reflect new or changed regulatory requirements, policies, or standards.

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The Agency may initiate a new declaration for the RCSR for the remaining balance of the original declaration period or for a new declaration period if the changes:

- are considered to be substantial; or
- represent modifications or the scope of the projects subject to the RCSR or factors to be considered in the assessment required for these projects.

Term of Application:

This RCSR will be in effect for a period of 5 years.

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(Final Draft)

8.0 REFERENCES

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- DFO-SCH. 2005g. CEAA Environmental Screening for Harbour Run Re-Dredging (2-Year Period) at Skinners Pond Harbour, PEI.
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Personal Communications

- Mr. Ronnie Campbell DFO SCH Covehead Harbour Authority contacted on January 24, 2006.
- Mr. Wayne Campbell DFO SCH Launching Pond Harbour Authority contacted on January 23, 2006.
- Mr. Jim Cooke DFO SCH Howard's Cove Harbour Authority contacted on January 20, 2006.
- Mr. Barry Creed DFO SCH Graham's Pond Harbour Authority contacted on January 20, 2006
- Ms. Rosemary Curley, DFO, contacted on January 23, 2006
- Mr. Robert Gallant DFO SCH Fishing Cove Authority contacted on January 24, 2006.
- Mr. Mike McKinnis DFO SCH Tignish Harbour Authority contacted on January 23, 2006.
- Mr. Francis Morrissey DFO SCH Seacow Pond Harbour Authority contacted on January 20, 2006.

Annual Harbour Maintenance Re-Dredging – Replacement Class Screening Report
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APPENDIX A: DFO SCH SITE-SPECIFIC INFORMATION

Note 1: Appendix A presents a description and illustration of each DFO SCH defined for this RCSR. The descriptions have been adapted in consideration of the information provided in Sections 4.0 (Environmental Review Methods) and 5.0 (Environmental Assessment Analysis) and the outcome of the issues scoping analysis.

Note 2: As a standard product, the AC CDC supplied information regarding species at risk occurring within 5km the study area. This study area is of sufficient size to ensure that the re-dredge site, the disposal site and the transportation corridor are captured in the search.

Note 3: Prior to any project related activities occurring, the DFO Area Aboriginal Coordinator would be contacted by DFO SCH.

Note 4: Any disposal site that has not been used for three years or more and has re-vegetated will be assessed with a bird survey of the disposal site footprint which will be undertaken by suitably skilled person(s) (i.e., PC and/or provincial Nature Trust representative) prior to commencement of project activities. The survey will be undertaken with specific consideration of the *Migratory Birds Convention Act* and the *Species at Risk Act* (i.e., colonial nesters, migratory birds, and the habitat supporting these birds and other federally and provincially listed species at risk). Upon conclusion of the survey, discussions will be held with the proponent and relevant agencies to determine the requirement, if any, to modify the scope of the proposed project (i.e., temporal or spatial).

SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Covehead Harbour

Site Name:	Covehead Harbour, Queen’s County, PEI
Dredging Timeline:	Spring to early summer.
Dredging Site Location:	46.428454°N 63.146074° W Harbour basin entrance.
Location of Disposal Site:	The dredged material will be land-based disposed on property owned by DFO-SCH in Covehead Harbour (46.428014°N 63.145186° W).
Disposal Method:	Dredging will be done by a land-based mechanical excavator working from existing infrastructure. The material will be loaded directly into watertight tandem dump trucks. It will be land-disposed in a bermed disposal site.
Quantity of Dredged Material:	The dredging will include the removal of approximately 1000 cubic meters (m ³) of material annually.
Quality of Dredged Material:	The most recent analytical sampling at this site was conducted in November 2005. The samples were tested for the land- based disposal suite of parameters. The analytical test results show that the sediments are acceptable for all land use scenarios.
Shoreline:	Developed harbour located on the North coast of PEI. Grain size material to be removed is predominantly sand (99%).
Harbour Uses:	The harbour has been developed to serve the general fishing industry and includes storage sheds for equipment associated with the fishing industry. The Harbour Authority will coordinate between the fisheries and the contractor to insure the project proceeds with the least possible interruption. Covehead Harbour serves recreational users, as well as users from the National Park. Tourism is one of the main activities at the harbour. There are 6 boats used in the harbour for chartered tours (R. Campbell, pers. comm., 2006).
Residents &Communities:	There are 2,344 individuals residing in the statistical district of Lot 34, which encompasses Covehead Harbour (Statistics Canada, 2006).
Vegetation and Wetlands:	The closest wetland resource is ~100m from the project site (Government of PEI, 2006).

SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Covehead Harbour

Fish and Fish Habitat:	<p>Covehead harbour supports a large number of fish species. Dominant fish species in the area include:</p> <ul style="list-style-type: none"> • lobster (<i>Homarus americanus</i>) • hake (<i>Merluccius bilinearis</i>) • cod (<i>Gadus morhua</i>) • herring (<i>Clupea harengus</i>) • mackerel (<i>Scomber scombrus</i>)
Wildlife:	<p>Harbour seals (<i>Phoca vitulina</i>) have been identified as rarely occurring in the harbour area (R. Campbell, pers. comm., 2006).</p>
Migratory Birds, Seabirds, Shorebirds, and Waterfowl:	<p>Birds found in the area include the piping plover (<i>Charadrius melodus</i>), common tern (<i>Sterna hirundo</i>), arctic tern (<i>Sterna paradisaea</i>), Killdeer (<i>Charadrius vociferus</i>), Willet (<i>Catoptrophorus semipalmatus</i>), Spotted Sandpiper (<i>Actitis macularia</i>) and Common Snipe (<i>Gallinago gallinago</i>).</p>
Species at Risk:	<p>On the west side of the harbour there is a duned area where three pairs of piping plovers historically nest. There is also an indication that terns may be nesting in the area. These nesting sites are monitored on a daily basis by PC as the piping plover is a species at risk. The following species at risk have also been identified as potentially occurring in the area:</p> <ul style="list-style-type: none"> • blue whale (<i>Balaenoptera Musculus</i>) • North Atlantic right whale (<i>Eubalanea glacilais</i>) • barrow's goldeneye (<i>Bucephala islandica</i>) • monarch butterfly (<i>Danaus plexippus</i>) • Gulf of St. Lawrence Aster (<i>Symphyotrichum laurentianum</i>) (Canadian Wildlife Services, 2006) <p>A search of the ACCDC database (5 kilometre (km) buffer around the study area) yielded 83 records of 67 species of rare vascular flora, and no records of rare nonvascular flora. This study also found 15 records of 9 sensitive vertebrate fauna and 67 records of 26 species of sensitive invertebrate fauna (ACCDC, 2006).</p> <ul style="list-style-type: none"> • Red-breasted Merganser (<i>Mergus serrator</i>) • Piping Plover (<i>Charadrius melodus</i>) • Common Tern (<i>Sterna hirundo</i>) • Arctic Tern (<i>Sterna paradisaea</i>) • Nelson's Sharp-tailed Sparrow (<i>Ammodramus nelsoni</i>) • Bobolink (<i>Dolichonyx oryzivorus</i>) • Water Shrew (<i>Sorex palustris</i>) • Smoky Shrew (<i>Sorex fumeus</i>) • Pygmy Shrew (<i>Sorex hoyi</i>) • Lance-Tipped Darner (<i>Aeshna constricta</i>) • Black-Tipped Darner (<i>Aeshna tuberculifera</i>) • American Emerald (<i>Cordulia shurtleffii</i>)

SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Covehead Harbour

Species at Risk:	<ul style="list-style-type: none"> • Racket-Tailed Emerald (<i>Dorocordulia libera</i>) • Beaverpond Baskettail (<i>Epiheca canis</i>) • Spiny Baskettail (<i>Epiheca spinigera</i>) • Ski-Tailed Emerald (<i>Somatochlora elongata</i>) • Delicate Emerald (<i>Somatochlora franklini</i>) • Brush-Tipped Emerald (<i>Somatochlora walshii</i>) • Williamson's Emerald (<i>Somatochlora williamsoni</i>) • Hudsonian Whiteface (<i>Leucorrhinia hudsonica</i>) • Dot-Tailed Whiteface (<i>Leucorrhinia intacta</i>) • Red-Waisted Whiteface (<i>Leucorrhinia proxima</i>) • Chalk-Fronted Corporal (<i>Ladona julia</i>) • Saffron-Winged Meadowhawk (<i>Sympetrum costiferum</i>) • Black Meadowhawk (<i>Sympetrum danae</i>) • White-Faced Meadowhawk (<i>Sympetrum obtrusum</i>) • Ruby Meadowhawk (<i>Sympetrum rubicundulum</i>) • Yellow-Legged Meadowhawk (<i>Sympetrum vicinum</i>) • Emerald Spreadwing (<i>Lestes dryas</i>) • Sweetflag Spreadwing (<i>Lestes forcipatus</i>) • Lyre-Tipped Spreadwing (<i>Lestes unguiculatus</i>) • Taiga Bluet (<i>Coenagrion resolutum</i>) • Boreal Bluet (<i>Enallagma boreale</i>) • Tule Bluet (<i>Enallagma carunculatum</i>) • Sedge Sprite (<i>Nehalennia irene</i>) • a Moss (<i>Dicranum bonjeanii</i>) • Fringed Bog Moss (<i>Sphagnum fimbriatum</i>) • Staghorn Sumac (<i>Rhus typhina</i>) • Pussy-Toes (<i>Antennaria howellii</i> ssp. <i>petaloidea</i>) • White-Top Fleabane (<i>Erigeron annuus</i>) • Fragrant Cudweed (<i>Pseudognaphalium obtusifolium</i>) • Canada Hawkweed (<i>Hieracium canadense</i>) • Umbellate Hawkweed (<i>Hieracium umbellatum</i>) • Sweet Coltsfoot (<i>Petasites frigidus</i> var. <i>palmatus</i>) • St. Lawrence Aster (<i>Symphyotrichum laurentianum</i>) • Large-Leaf Wood-Aster (<i>Eurybia macrophylla</i>) • Indian-Tobacco (<i>Lobelia inflata</i>) • Sea-Chickweed (<i>Honckenya peploides</i> ssp. <i>robusta</i>) • Canada Sand-Spurry (<i>Spergularia canadensis</i>) • Purple Sandspurry (<i>Spergularia salina</i>) • Tropical Saltbush (<i>Atriplex littoralis</i>) • Golden-Heather (<i>Hudsonia ericoides</i>) • Sand-Heather (<i>Hudsonia tomentosa</i>) • Narrowleaf Pinweed (<i>Lechea intermedia</i>) • Larger Canadian St. John's Wort (<i>Hypericum majus</i>) • Purple Crowberry (<i>Empetrum eamesii</i> ssp. <i>atropurpureum</i>) • Purple Crowberry (<i>Empetrum eamesii</i> ssp. <i>eamesii</i>)
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SITE SPECIFIC INFORMATION

FOR REPLACEMENT CLASS SCREENING – Covehead Harbour

Species at Risk:	<ul style="list-style-type: none"> • Mountain Cranberry (<i>Vaccinium vitis-idaea</i>) • Mountain Cranberry (<i>Vaccinium vitis-idaea</i> ssp. <i>minus</i>) • American Pinesap (<i>Monotropa hypopithys</i>) • Hairy Evening-Primrose (<i>Oenothera villosa</i>) • Pondshore Knotweed (<i>Polygonum raii</i>) • Sea-Side Dock (<i>Rumex maritimus</i>) • One-Flower Wintergreen (<i>Moneses uniflora</i>) • Greenish-Flowered Wintergreen (<i>Pyrola chlorantha</i>) • Running Serviceberry (<i>Amelanchier stolonifera</i>) • Allegheny Service-Berry (<i>Amelanchier laevis</i>) • Fleshy Hawthorn (<i>Crataegus succulenta</i>) • Fineberry Hawthorn (<i>Crataegus chrysocarpa</i>) • Shining Rose (<i>Rosa nitida</i>) • Heart-Leaved Willow (<i>Salix eriocephala</i>) • Umbellate Bastard Toad-Flax (<i>Comandra umbellata</i>) • Square-Stem Monkeyflower (<i>Mimulus ringens</i>) • Dwarf Mistletoe (<i>Arceuthobium pusillum</i>) • Dwarf Juniper (<i>Juniperus communis</i> var. <i>depressa</i>) • Creeping Juniper (<i>Juniperus horizontalis</i>) • Golden-Fruited Sedge (<i>Carex aurea</i>) • Mud Sedge (<i>Carex limosa</i>) • Umbel-Like Sedge (<i>Carex tonsa</i> var. <i>rugosperma</i>) • Little Green Sedge (<i>Carex viridula</i>) • Fox Sedge (<i>Carex vulpinoidea</i>) • Emmons Sedge (<i>Carex albicans</i> var. <i>emmonsii</i>) • Bear Sedge (<i>Carex utriculata</i>) • Shaved Sedge (<i>Carex tonsa</i>) • Russet Cotton-Grass (<i>Eriophorum russeolum</i>) • Red Bulrush (<i>Blysmus rufus</i>) • Beach-Head Iris (<i>Iris setosa</i> var. <i>canadensis</i>) • Richardson's Rush (<i>Juncus alpinoarticulatus</i> ssp. <i>nodulosus</i>) • Spotted Coralroot (<i>Corallorhiza maculata</i>) • Early Coralroot (<i>Corallorhiza trifida</i>) • Loesel's Twayblade (<i>Liparis loeselii</i>) • Green Adder's-Mouth (<i>Malaxis unifolia</i>) • Leafy White Orchis (<i>Platanthera dilatata</i>) • Large Roundleaf Orchid (<i>Platanthera orbiculata</i>) • Hooded Ladies'-Tresses (<i>Spiranthes romanzoffiana</i>) • Northern Slender Pondweed (<i>Stuckenia filiformis</i> ssp. <i>alpina</i>) • Floating Bur-Reed (<i>Sparganium fluctuans</i>) • Ground-Fir (<i>Lycopodium sabinifolium</i>) • Bog Clubmoss (<i>Lycopodiella inundata</i>) • Chamomile Grape-Fern (<i>Botrychium matricariifolium</i>) • Leathery Grape-Fern (<i>Botrychium multifidum</i>) • Adder's Tongue (<i>Ophioglossum pusillum</i>)
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SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Covehead Harbour

Species at Risk:	
Environmentally Significant Areas:	ACCDC has identified PEI National Park and the Marshalls Ducks Unlimited Area within 5 km of the proposed project.
Transportation and Navigation:	The harbour is usually open to navigation from April 15 to December 15. The harbour experiences the highest boating activity during mid April to the second week in September (R. Campbell, pers. comm., 2006).
Commercial Fishing and Aquaculture:	See “Fish and Fish Habitat” above.

Due to the repetitive use of the dredge spoil disposal site footprint the quality of habitat is limited thus there is no critical or limiting habitat for the species listed above, therefore, no significant residual adverse effects are anticipated.

Also, due to the limited geographic extent (the dredge and disposal site footprints), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this location.

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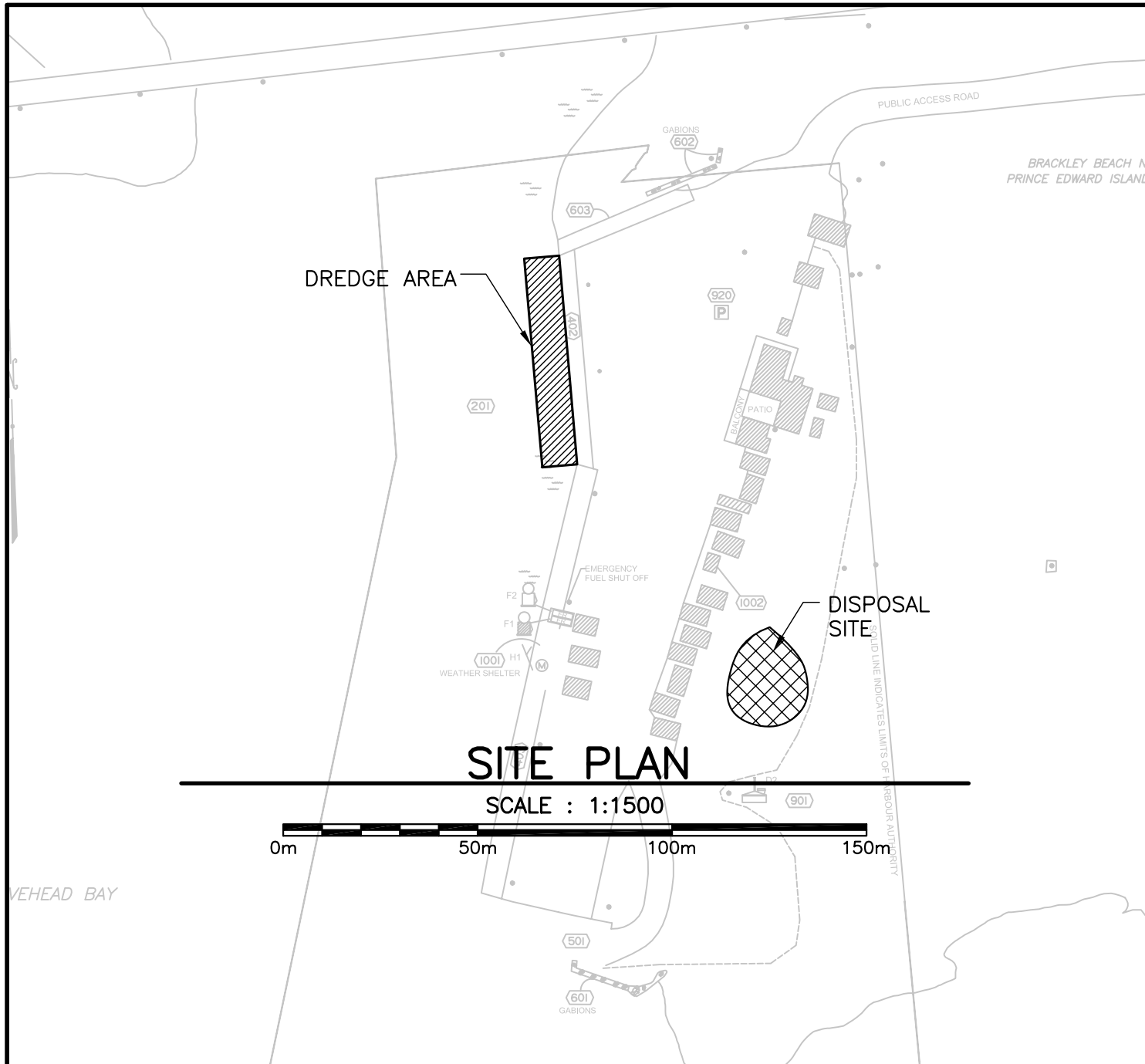
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Personal Communications

Mr. Ronnie Campbell DFO SCH Covehead Harbour Authority contacted on January 24, 2006.

Ms. Rosemary Curley, DFO, contacted on January 23, 2006




**Public Works and
Government Services
Canada**

**Travaux publics et
Services gouvernementaux
Canada**

HARBOUR DREDGING

COVEHEAD
QUEENS COUNTY, PEI

Drawing title: Titre du dessin:

SITE PLAN
 scale: AS NOTED
 échelle: AS NOTED

date: 2006-01-30
 revisions:

designed by: conçu par:

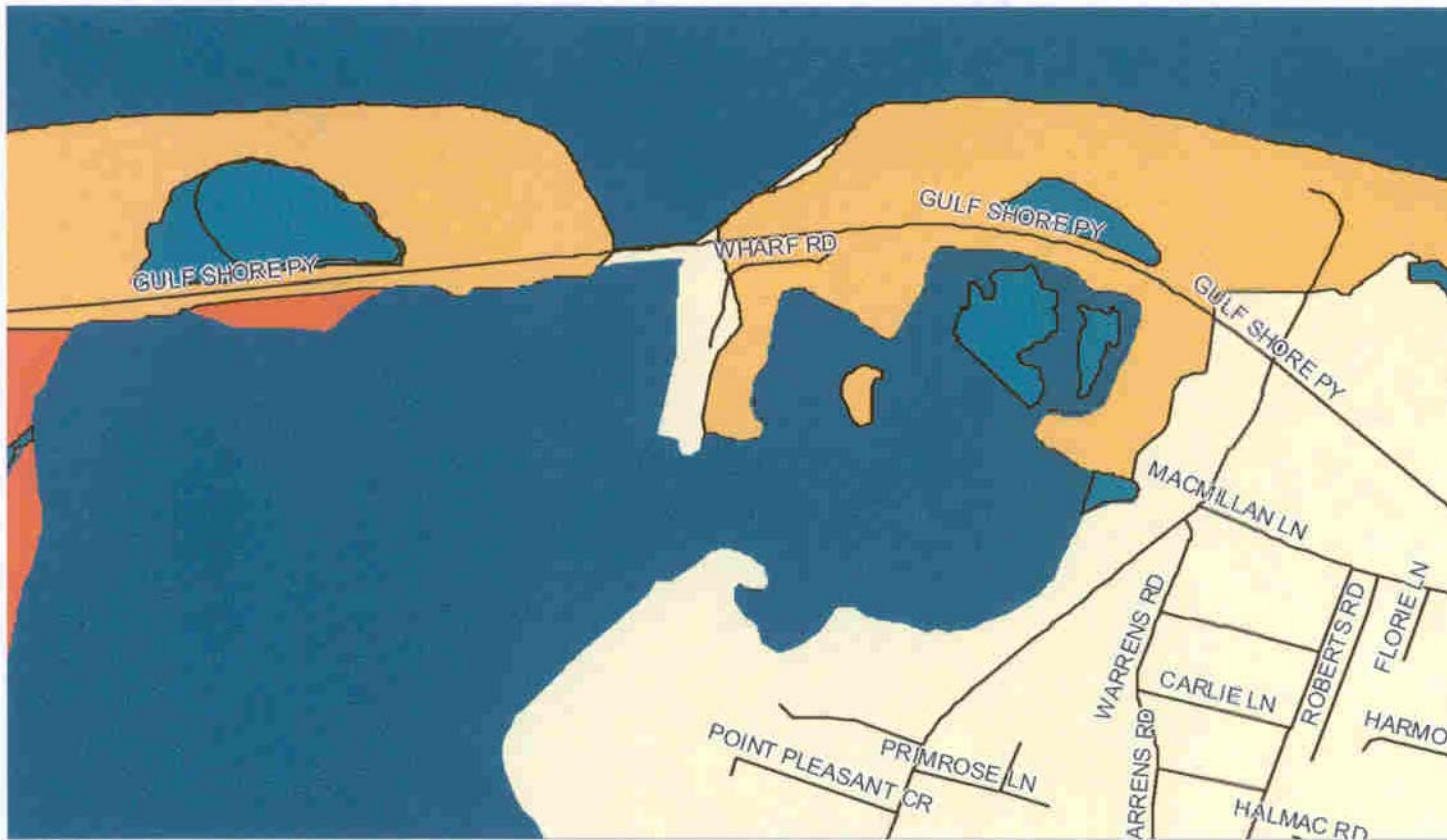
drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: **DWG No. 1**
 dessin no.:

Plot Scale: 1:1



Environment Surrounding Covehead Harbour

Legend:

- Red** - Salt Marsh
- Orange** - Sand Dunes
- Blue** - Freshwater Wetlands

**HARBOUR DREDGING
COVEHEAD
QUEENS COUNTY, PEI**

Drawing title: Titre du dessin:

SURROUNDING ENVIRONMENT

scale: AS NOTED
échelle:

date: 2006-01-30
revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG No. 1



Covehead, PE
27-July-2004 #01-02

Plot Scale: 1:1

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Canada

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Canada

HARBOUR DREDGING
COVEHEAD
QUEENS COUNTY, PEI

Drawing title: Titre du dessin:

AERIAL PHOTO

scale: AS NOTED
échelle:

date: 2006-01-30 revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG No. 2

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Fishing Cove Harbour**

Site Name:	Fishing Cove, Prince County, PEI
Dredging Timeline:	Spring to early summer.
Dredging Site Location:	46.407310°N 64.134920°W Harbour basin entrance.
Location of Disposal Site:	The dredged material will be land-based disposed on private property. The property has been used in the past as a disposal site (refer to the Fishing Cove figures).
Disposal Method:	Dredging may be done by land-based mechanical excavator working from existing infrastructure or by suction dredge. If land-based excavator is used, the material will be trucked by watertight tandem dump trucks and land-disposed in accordance with applicable regulations. If suction dredge is used, the material will be transported via pipeline in accordance with applicable regulations.
Quantity of Dredged Material:	The dredging will include the removal of approximately 3000 cubic meters (m ³) of overburden (i.e., silt and sand) annually.
Quality of Dredged Material:	The most recent analytical sampling at this site was conducted in March 2005. The samples were tested for the land-based disposal suite of parameters. The analytical test results show that the sediments are acceptable for all land use scenarios.
Shoreline:	Developed harbour located on the West coast of PEI. Grain size material to be removed is predominantly sand (95%) with small amounts of silt (2.7%) and clay (2.5%).
Harbour Uses:	The harbour has been developed to serve the general fishing industry and includes several storage sheds for equipment associated with the fishing industry. The Harbour Authority will coordinate between the fisheries and the contractor to insure the project proceeds with the least possible interruption. Recreational boating activities occur in the project area. There are no chartered tours based out of Fishing Cove (R. Gallant, pers. comm., 2006).
Residents & Communities:	There are 1,161 individuals residing in the statistical district which encompasses Fishing cove. The statistical district ranges from approximately Victoria West to Union Corner (Statistics Canada, 2006). The majority of the residents in the community work in the fishing industry.
Vegetation and Wetlands:	The closest wetland resource is >200m from the project site (Government of PEI, 2006).

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Fishing Cove Harbour**

Fish and Fish Habitat:	<p>Fishing Cove area supports a large number of fish species. Dominant fish species in the area include:</p> <ul style="list-style-type: none"> • lobster (<i>Homarus americanus</i>) • winter flounder (<i>Pseudopleuronectes americanus</i>) • rock crab (<i>Cancer irroratus</i>) • cod (<i>Gadus morhua</i>) • scallop (<i>Placopecten magellanicus</i>) • herring (<i>Clupea harengus</i>) • mackerel (<i>Scomber scombrus</i>)
Wildlife:	<p>Harbour seals (<i>Phoca vitulina</i>) have been identified as rarely occurring in the harbour area (R. Gallant, pers. comm., 2006).</p>
Migratory Birds, Seabirds, Shorebirds, and Waterfowl:	<p>According to Erskine’s Atlas of Breeding Birds of the Maritime Provinces the following breeding bird species are located in the proximity of Fishing Cove Harbour. The species list is considered to be conservative given that the area of the sample is larger than that of the harbour.</p> <ul style="list-style-type: none"> • American black duck (<i>Anas rubripes</i>) • American redstart (<i>Setophaga ruticilla</i>) • bank swallow (<i>Riparian riparia</i>) • belted kingfisher (<i>Ceryle alcyon</i>) • bobolink (<i>Dolichonyx oryzivorus</i>) • common tern (<i>Sterna hirundo</i>) • common snipe (<i>Gallinago gallinago</i>) • killdeer (<i>Charadrius vociferus</i>) • northern harrier (<i>Circus cyaneus</i>) • red-breasted grosbeak (<i>Pheucticus iudovicianus</i>) • red-breasted merganser (<i>Mergus serrator</i>) • red-eyed vireo (<i>Vireo olivaceus</i>) • red-winged blackbird (<i>Agelaius phoeniceus</i>) • savannah sparrow (<i>Passerculus sandwichensis</i>) • semi-palmated plover (<i>Charadrius semipalmatus</i>) • spotted sandpiper (<i>Actitis macularia</i>) • willet (<i>Catoptrophorus semipalmatus</i>) • yellow warbler (<i>Dendroica petechia</i>)
Species at Risk:	<p>The following species at risk have been identified as potentially occurring in the area:</p> <ul style="list-style-type: none"> • blue whale (<i>Balaenoptera Musculus</i>) • North Atlantic right whale (<i>Eubalanea glacilais</i>) • barrow's goldeneye (<i>Bucephala islandica</i>) • piping plover (<i>Charadrius melodus</i>) • monarch butterfly (<i>Danaus plexippus</i>) (Canadian Wildlife Services, 2006)

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Fishing Cove Harbour**

Species at Risk:	A search of the ACCDC database (5 kilometre (km) buffer around the study area) yielded 1 record of 1 species of sensitive invertebrate fauna (ACCDC, 2006). <ul style="list-style-type: none"> • Familiar Bluet (<i>Enallagma civile</i>)
Environmentally Significant Areas:	There are no designated areas within Fishing Cove Harbour (R. Curley, pers. comm., 2006).
Transportation and Navigation:	The harbour is usually open to navigation from April 15 to December 15. The harbour experiences the highest boating activity during late April to the end of May (R. Gallant, pers. comm., 2006).
Commercial Fishing and Aquaculture:	See “Fish and Fish Habitat” above. Fishing Cove is used for seasonal lobster and herring fisheries.

Due to the repetitive use of the dredge spoil disposal site footprint the quality of habitat is limited thus there is no critical or limiting habitat for the species listed above, therefore, no significant residual adverse effects are anticipated.

Also, due to the limited geographic extent (the dredge and disposal site footprints), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this location.

References

Information is provided by, Public Works and Government Services Canada. 2005. Small Craft Harbours Branch (DFO-SCH) Gulf Region Environmental Screening Report For Harbour Entrance re-dredging (2 year period) at Fishing Cove Harbour, Prince County, PEI, unless otherwise stated.

ACCDC (Atlantic Canada Conservation Data Centre). 2006. ACCDC data response for Fishing Cove Harbour, Prince Edward island. S. Gerriets, Senior Data Manager.

Canadian Wildlife Service (CWS). 2006. Species at Risk. Internet Link: http://www.speciesatrisk.gc.ca/search/speciesResults_e.cfm.

Department of Fisheries and Oceans, 2006a. Tides, Current and Water Levels. URL: <http://www.lau.chs-shc.dfo-mpo.gc.ca/english/Canada.shtml>

Department of Fisheries and Oceans, 2006b. Traditional Fisheries Knowledge Internet Mapping Application. URL: <http://glfgeo.dfo-mpo.gc.ca/tfk-ctp/>

Erskine, A.J., 1992. Atlas of Breeding Birds of the Maritime Provinces. The Province of Nova Scotia.

Government of Prince Edward Island (PEI). 2006. Wetland Information. <http://www.gov.pei.ca>.

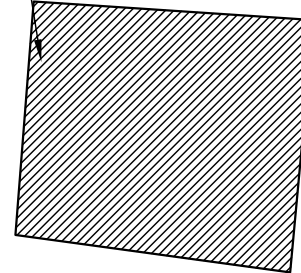
Statistics Canada. 2006. 2001 Census. www.statscan.ca

Personal Communications

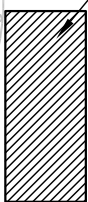
Mr. Robert Gallant DFO SCH Fishing Cove Authority contacted on January 24, 2006.

Ms. Rosemary Curley, DFO, contacted on January 23, 2006

DISPOSAL
SITE



DREDGE
LOCATION



SOLID RED LINE INDICATES LIMITS OF HARBOUR AUTHORITY LEASE
(BOUNDARIES SHOWN ARE FOR VISUAL REFERENCE ONLY)

SITE PLAN

SCALE: 1:2000



CHANNEL DREDGING FISHING COVE HARBOUR CAPE EGMONT PRINCE COUNTY, PEI

Drawing title: Titre du dessin:

SITE PLAN

scale: AS NOTED
échelle:

date: 2006-02-02 revisions:

designed by: conçu par: date:

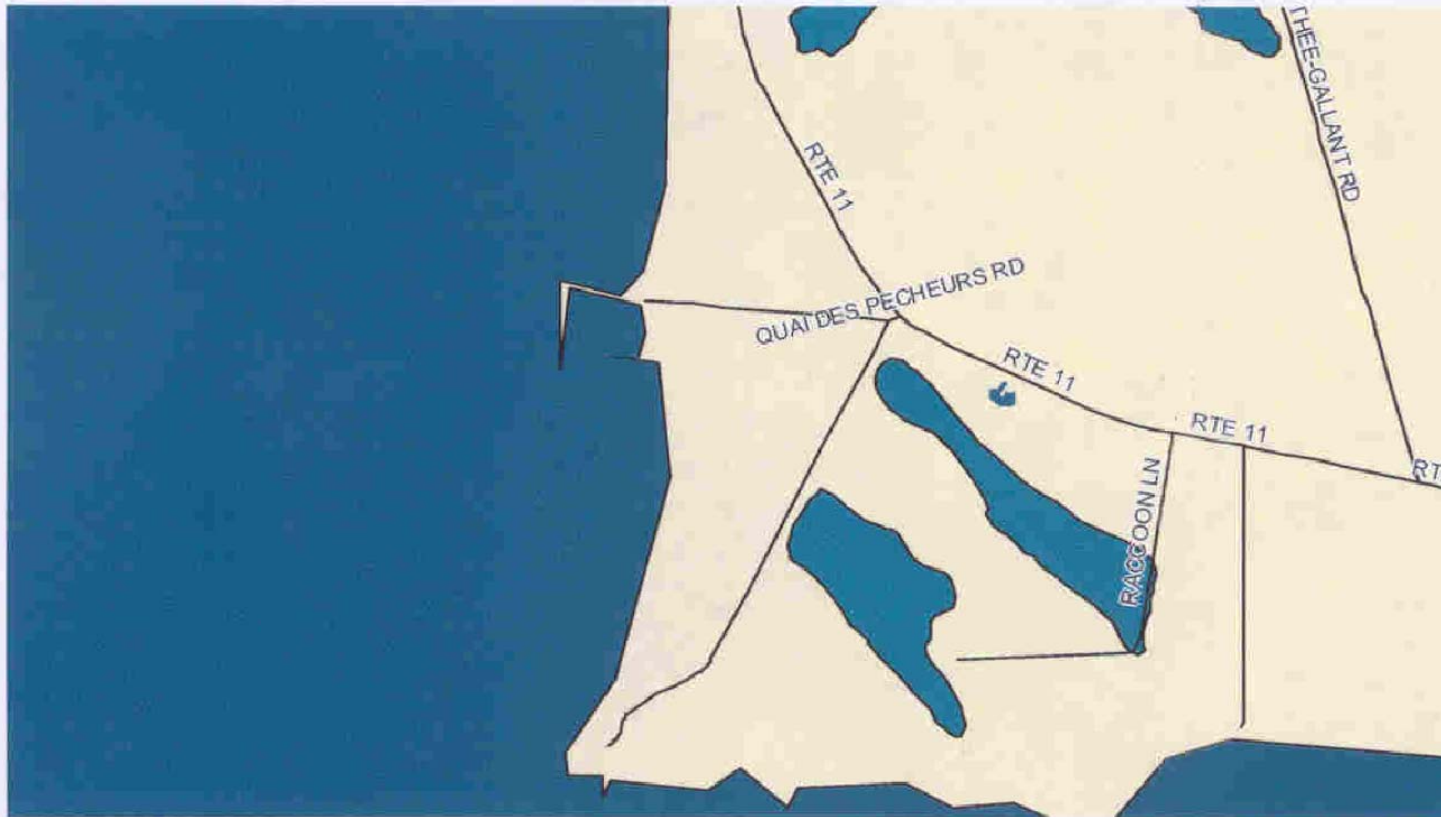
drawn by: dessiné par: C. BANKS

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

DWG No.1



Environment Surrounding Fishing Cove Harbour

Legend:

- Red - Salt Marsh*
- Orange - Sand Dunes*
- Blue - Freshwater Wetlands*

**CHANNEL DREDGING
FISHING COVE HARBOUR
CAPE EGMONT
PRINCE COUNTY, PEI**

Drawing title: Titre du dessin:

SURROUNDING ENVIRONMENT

scale: AS NOTED
échelle: AS NOTED

date: 2006-02-02 revisions:

designed by: conçu par: date:

drawn by: dessiné par: C. BANKS

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG No.1



Fishing Cove 04/07/27 12:07

Plot Scale: 1:1

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Travaux publics et
Services gouvernementaux
Canada

**CHANNEL DREDGING
FISHING COVE HARBOUR
CAPE EGMONT
PRINCE COUNTY, PEI**

Drawing title: Titre du dessin:

AERIAL PHOTO

scale: AS NOTED
échelle:

date: 2006-02-02 revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG No.2

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Grahams Pond**

Site Name:	Grahams Pond, Kings County, PEI
Dredging Timeline:	Spring to early summer.
Dredging Site Location:	46.092833°N 62.451666°W Harbour run.
Location of Disposal Site:	The dredged material will be land-based disposed on DFO-SCH property on the north side of the basin at Grahams Pond (46. 583092°N 62. 272521° W).
Disposal Method:	Dredging will be done by a land-based mechanical excavator working from the existing infrastructure. Material will be trucked by watertight tandem dump trucks and land-disposed in accordance with applicable regulations.
Quantity of Dredged Material:	The dredging will include the removal of approximately 4000 cubic meters (m ³) of overburden (i.e., silt and sand) annually.
Quality of Dredged Material:	The most recent analytical sampling at this site was conducted in May 2004. The samples were tested for the land-based disposal suite of parameters. The analytical test results show that the sediments are acceptable for all land use scenarios except agricultural.
Shoreline:	Developed harbour located on the southeast coast of PEI. Grain size material to be removed is predominantly sand (98.5%) with small amounts of silt (<1%) and clay (1.2%).
Harbour Uses:	The harbour has been developed to serve the general fishing industry and includes several storage sheds for equipment associated with the fishing industry. The Harbour Authority will coordinate between the fisheries and the contractor to insure the project proceeds with the least possible interruption. Recreational boating activities occur in the project area (B. Creed, pers. comm., 2006).
Residents & Communities:	There are 994 individuals residing in the statistical district of Lot 63, which encompasses Grahams Pond (Statistics Canada, 2006).
Vegetation and Wetlands:	The closest wetland resource is >200m from the project site (Government of PEI, 2006).

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Grahams Pond**

Fish and Fish Habitat:	<p>Graham’s Pond Harbour area supports a large number of fish species. Dominant fish species in the area include:</p> <ul style="list-style-type: none"> • lobster (<i>Homarus americanus</i>) • rock crab (<i>Cancer irroratus</i>) • herring (<i>Clupea harengus</i>)
Wildlife:	<p>According to Traditional Fishery Mapping from the DFO there is no marine wildlife in the vicinity of the harbour (DFO, 2004).</p>
Migratory Birds, Seabirds, Shorebirds, and Waterfowl:	<p>Piping plover (<i>Charadrius melodus</i>), common tern (<i>Sterna hirundo</i>), and arctic tern (<i>Sterna paradisaea</i>) are known to inhabit an area at Poverty Beach.</p>
Species at Risk:	<p>According to the Canadian Wildlife Service (CWS) (2006), the following species at risk have been identified as potentially occurring in the area:</p> <ul style="list-style-type: none"> • blue whale (<i>Balaenoptera Musculus</i>) • North Atlantic right whale (<i>Eubalanea glacilais</i>) • barrow's goldeneye (<i>Bucephala islandica</i>) • piping plover (<i>Charadrius melodus</i>) • monarch butterfly (<i>Danaus plexippus</i>) <p>A search of the ACCDC database (5 kilometre (km) buffer around the study area) yielded 3 records of 3 sensitive vertebrate fauna and 2 records of 2 species of sensitive invertebrate fauna (ACCDC, 2006).</p> <ul style="list-style-type: none"> • Red-breasted Merganser (<i>Mergus serrator</i>) • Barn Swallow (<i>Hirundo rustica</i>) • Bobolink (<i>Dolichonyx oryzivorus</i>) • Saffron-Winged Meadowhawk (<i>Sympetrum costiferum</i>) • Yellow-Legged Meadowhawk (<i>Sympetrum vicinum</i>)
Environmentally Significant Areas:	<p>The Poverty Beach Natural Area (PID 251561) is located within 5 kms of Graham's Pond. This area is considered significant for reasons of ecosystem values (R. Curley, 2006). ACCDC has identified Panmure Island Provincial Park within 5 km of the proposed project.</p>
Transportation and Navigation:	<p>Graham’s Pond harbour is free of ice from approximately April 15 to December 15. The harbour experiences the highest boating activity during May and June (B. Creed, pers. comm., 2006).</p>
Commercial Fishing and Aquaculture:	<p>See “Fish and Fish Habitat” above.</p>

Due to the repetitive use of the dredge spoil disposal site footprint the quality of habitat is limited thus there is no critical or limiting habitat for the species listed above, therefore, no significant residual adverse effects are anticipated.

Also, due to the limited geographic extent (the dredge and disposal site footprints), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this location.

References

NOTE: All information is provided by the following reference, unless otherwise indicated:

Public Works and Government Services Canada. 2005. Small Craft Harbours Branch (DFO-SCH) Gulf Region Environmental Screening Report for Harbour Basin and Channel Re-Dredging and Disposal of Clean Dredge Material at Sea - Grahams Pond, Kings County, Gulf Region, PEI.

ACCDC (Atlantic Canada Conservation Data Centre). 2006. ACCDC data response for Grahams Pond Harbour, Prince Edward island. S. Gerriets, Senior Data Manager.

Canadian Wildlife Service. 2006. Species at Risk. Internet Link:
http://www.speciesatrisk.gc.ca/search/speciesResults_e.cfm.

Department of Fisheries and Oceans Canada. 2004. Traditional Fishery Mapping – Inshore and Nearshore Database Searches for Prince Edward Island. URL: <http://glfgeo.dfo-mpo.gc.ca/tfk-ctp/>.

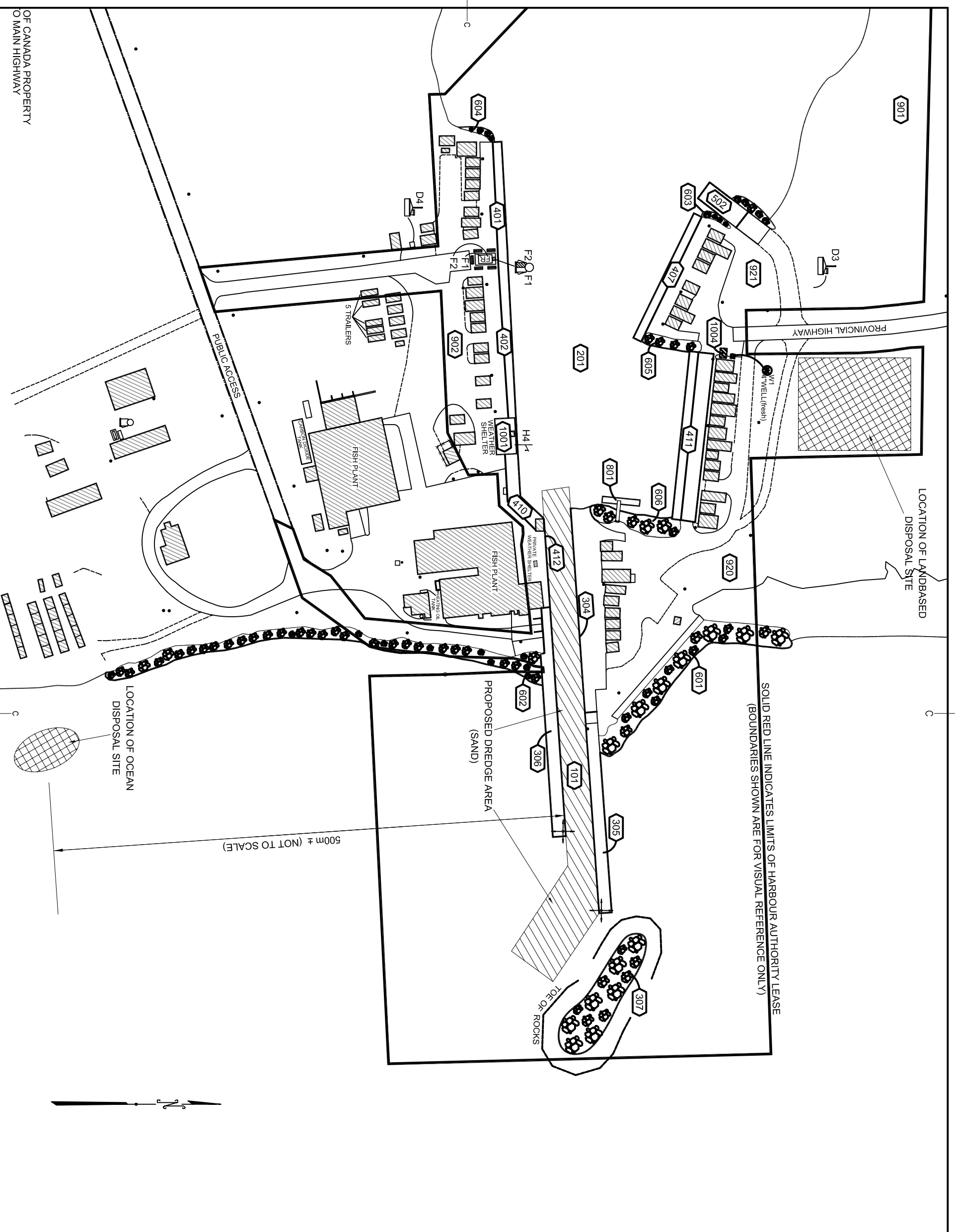
Government of PEI. 2006. Wetland Information. <http://www.gov.pei.ca>.

Statistics Canada. 2006. 2001 Census. www.statscan.ca

Personal Communications

Mr. Barry Creed DFO SCH Graham's Pond Harbour Authority contacted on January 20, 2006

Ms. Rosemary Curley, DFO, contacted on January 23, 2006

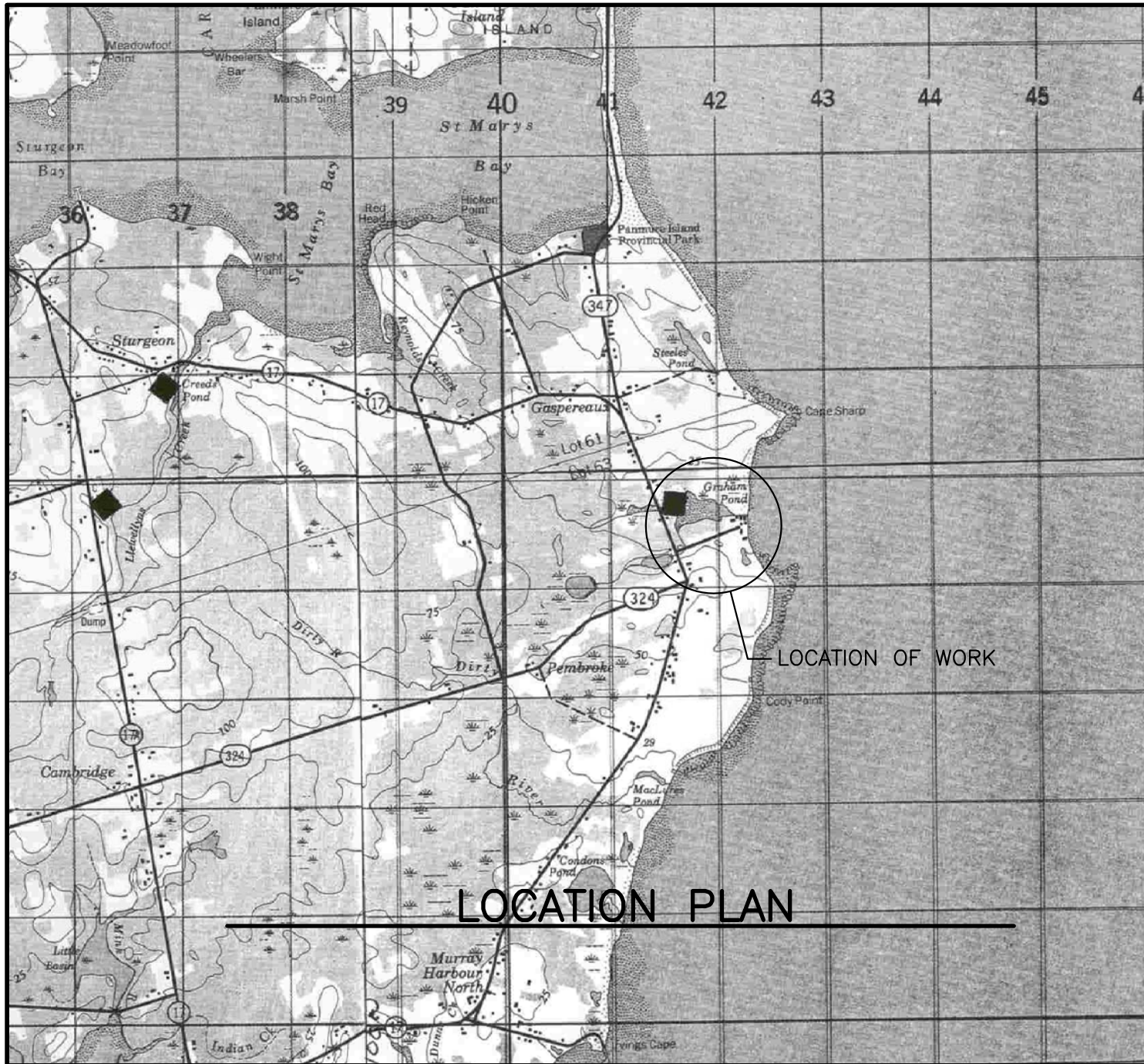



OF CANADA PROPERTY
O MAIN HIGHWAY

PWSSC L3 (2004)

<p>Public Works and Government Services Canada</p> <p>Travaux Publics et Services gouvernementaux Canada</p>	
<p>0</p>	<p>0</p>
<p>revisions</p>	<p>date</p>
<p>project</p>	<p>project</p>
<p>drawing</p>	<p>dessin</p>
<p>designed</p>	<p>conçu</p>
<p>date</p>	<p>date</p>
<p>drawn</p>	<p>dessiné</p>
<p>date</p>	<p>date</p>
<p>approved</p>	<p>approuvé</p>
<p>date</p>	<p>date</p>
<p>Tender</p>	<p>Submission</p>
<p>PWSSC Project Manager</p>	<p>Administrateur de projets TPSSC</p>
<p>project number</p>	<p>no. du projet</p>
<p>drawing no.</p>	<p>no. du dessin</p>

E-DRM/GDD-E:




Public Works and Government Services Canada
 Travaux publics et Services gouvernementaux Canada

DREDGING
GRAHAMS POND
KING'S COUNTY, PEI

Drawing title: Titre du dessin:

LOCATION PLAN
 scale: AS NOTED
 échelle: AS NOTED

date: 2006-01-31
 revisions:

designed by: conçu par:

drawn by: dessiné par: **C. BANKS**

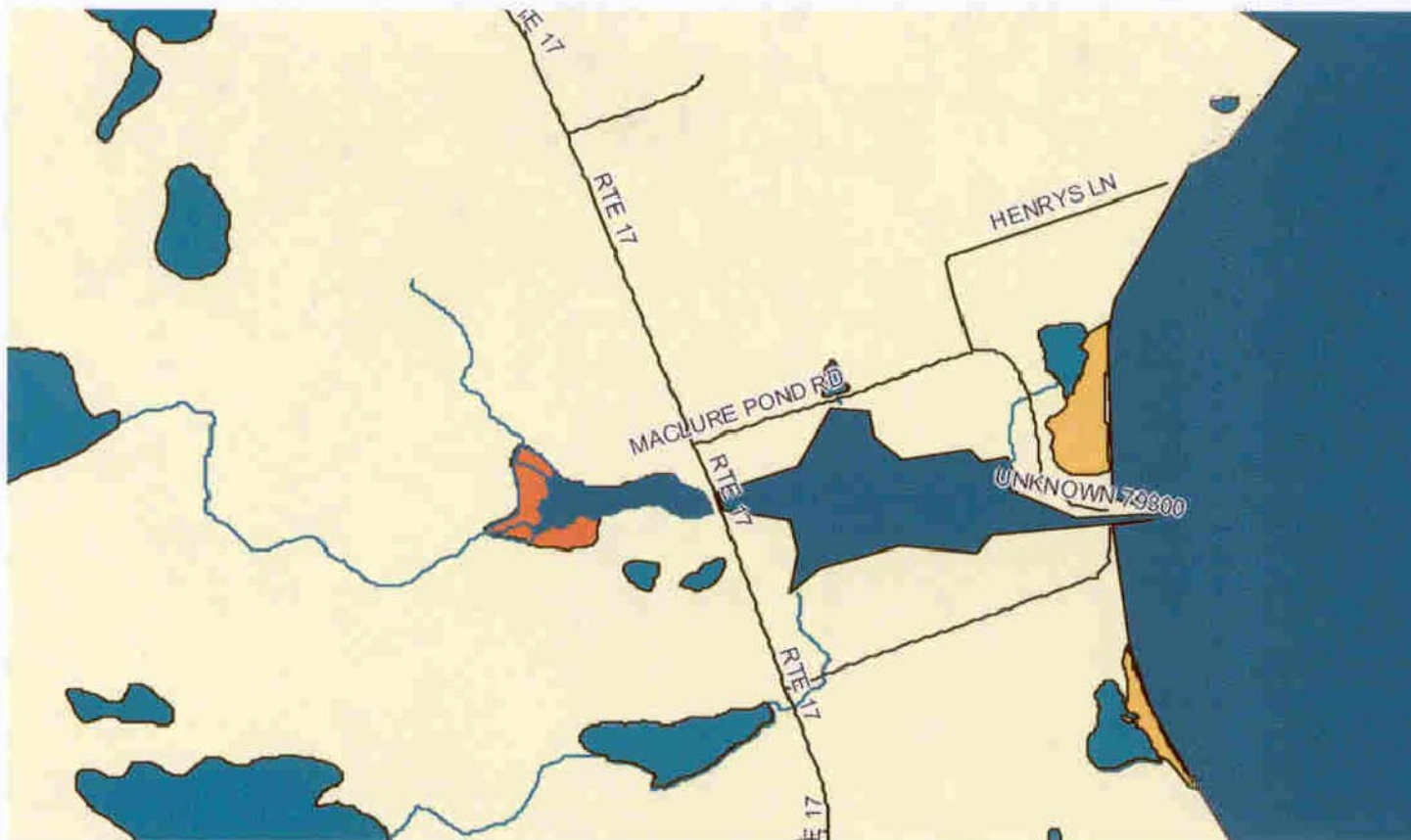
approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:
FIG No. 1

Plot Scale: 1:1

LOCATION PLAN



Environment Surrounding Graham's Pond Harbour

Legend:

- Red** - Salt Marsh
- Orange** - Sand Dunes
- Blue** - Freshwater Wetlands

DREDGING
GRAHAMS POND
KING'S COUNTY, PEI

Drawing title: Titre du dessin:
SURROUNDING ENVIRONMENT

scale: AS NOTED
échelle:

date: 2006-01-31
revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG No. 2



Graham Pond 04/07/27 17:09

Plot Scale: 1:1

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DREDGING

**GRAHAMS POND
KING'S COUNTY, PEI**

Drawing title: Titre du dessin:

AERIAL PHOTO

scale: AS NOTED
échelle:

date: 2006-01-31 revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG No. 3

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Howard’s Cove Harbour**

Site Name:	Howard’s Cove Harbour, Prince County, PEI
Dredging Timeline:	Spring to early summer.
Dredging Site Location:	46.739835° N, 64.379239° W Harbour run.
Location of Disposal Site:	The dredged material will be disposed of on a previously disturbed disposal site on a nearby private property (46.725487°N 64.389350° W). The property has been used in the past as a dredge spoil disposal site for material from Howard’s Cove Harbour.
Disposal Method:	Dredging will be done by a land-based mechanical excavator working from the existing infrastructure. Material will be trucked by watertight tandem dump trucks and disposed of in accordance with applicable regulations.
Quantity of Dredged Material:	The dredging will include the removal of approximately 3500 cubic meters (m ³) of overburden (i.e., sand and gravel) annually.
Quality of Dredged Material:	The most recent analytical sampling at this site was conducted in July 2004. The samples were tested for the land-based disposal suite of parameters. The analytical test results show that the sediments are acceptable for all land use scenarios.
Shoreline:	Developed harbour located on the west coast of PEI, and empties into the Northumberland Strait. Grain size material to be removed is predominantly sand (83%) with small amounts of silt (<1%), clay (1.5%), and gravel (15.2).
Harbour Uses:	The harbour is an active fishing harbour that serves both commercial and recreational boating activities. The land in the immediate vicinity of the proposed project has been developed to serve the general fishing industry and includes several storage sheds for equipment associated with the fishing industry. There is also a fish processing plant set to resume operations. The Harbour Authority will coordinate between the fisheries and the contractor to insure the project proceeds with the least possible interruption.
Residents & Communities:	There are 585 individuals residing in the statistical district of Lot 7, which encompasses Howards Cove Harbour (Statistics Canada, 2006).
Vegetation and Wetlands:	The closest wetland resource is ~200m from the project site (Government of PEI, 2006).

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Howard’s Cove Harbour**

Fish and Fish Habitat:	Howard’s Cove harbour supports a large number of fish species. Dominant fish species in the area include: <ul style="list-style-type: none"> • lobster (<i>Homarus americanus</i>) • rock crab (<i>Cancer irroratus</i>) • herring (<i>Clupea harengus</i>)
Wildlife:	According to Traditional Fishery Mapping from the DFO there is no marine wildlife in the vicinity of the harbour (DFO, 2004).
Migratory Birds, Seabirds, Shorebirds, and Waterfowl:	According to Erskine’s Atlas of Breeding Birds of the Maritime Provinces the following breeding bird species are located in proximity to Howard’s Cove Harbour. The species list is considered to be conservative given that the area of the sample is larger than that of the harbour. <ul style="list-style-type: none"> • American redstart (<i>Setophaga ruticilla</i>) • bank swallow (<i>Riparian riparia</i>) • red-winged blackbird (<i>Agelaius phoeniceus</i>) • savannah sparrow (<i>Passerculus sandwichensis</i>) • song sparrow (<i>Melospiza melodia</i>) • white-winged crossbill (<i>Loxia leucoptera</i>)
Species at Risk:	A search of the ACCDC database (5 kilometre (km) buffer around the study area) yielded 8 records of 7 species of rare vascular flora, and no records of rare nonvascular flora. This study also found 1 records of 1 sensitive vertebrate fauna (ACCDC, 2006). <ul style="list-style-type: none"> • barn swallow (<i>Hirundo rustica</i>) • Great Angelica (<i>Angelica atropurpurea</i>) • Herb-Robert (<i>Geranium robertianum</i>) • Carolina Spring-Beauty (<i>Claytonia caroliniana</i>) • a Marsh Grass-of-Parnassus (<i>Parnassia palustris</i> var. <i>parviflora</i>) • Salt-Marsh Sedge (<i>Carex recta</i>) • Russet Cotton-Grass (<i>Eriophorum russeolum</i>) • Slender Bog Arrow-Grass (<i>Triglochin palustris</i>)
Environmentally Significant Areas:	The Cedar Dunes Provincial Park and Natural Area (PIDs 85266 and 45617) are located within 5 kms of Howards Cove Harbour. These areas are considered significant for reasons of ecosystem values (R. Curley, 2006). ACCDC has identified the Haliburton Ironwood Natural Area within 5 km of the proposed project.
Transportation and Navigation:	Howard’s Cove harbour is free of ice from approximately April 20 to December 20. The harbour experiences the highest boating activity during April to June and August to the second week in October (J. Cooke, pers. comm., 2006).

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Howard’s Cove Harbour**

Commercial Fishing and Aquaculture:	The seasonal lobster and crab fisheries play an important role in the economy for this small fishing community. The majority of residents in the community work in the fishing industry. Howard’s Cove Harbour has been the location of a harbour for many years and can accommodate upwards to 45 vessels.
--	---

Due to the repetitive use of the dredge spoil disposal site footprint the quality of habitat is limited thus there is no critical or limiting habitat for the species listed above, therefore, no significant residual adverse effects are anticipated.

Also, due to the limited geographic extent (the dredge and disposal site footprints), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this location.

References

NOTE: All information is provided by the following reference, unless otherwise indicated:
Public Works and Government Services Canada. 2005. Small Craft Harbours Branch (DFO-SCH) Gulf Region Environmental Screening Report for 2 Year Entrance Re-Dredging – Howard’s Cove, Prince County, PEI.

ACCDC (Atlantic Canada Conservation Data Centre). 2006. ACCDC data response for Howards Cove Harbour, Prince Edward island. S. Gerriets, Senior Data Manager.

Canadian Wildlife Service. 2006. Species at Risk. Internet Link:
http://www.speciesatrisk.gc.ca/search/speciesResults_e.cfm.

Department of Fisheries and Oceans Canada. 2004. Traditional Fishery Mapping – Inshore and Nearshore Database Searches for Prince Edward Island. URL: <http://glfgeo.dfo-mpo.gc.ca/tfk-ctp/>.

Government of PEI. 2006. Wetland Information. <http://www.gov.pei.ca>.

Erskine, A.J., 1992. Atlas of Breeding Birds of the Maritime Provinces. The Province of Nova Scotia.

Statistics Canada. 2006. 2001 Census. www.statscan.ca

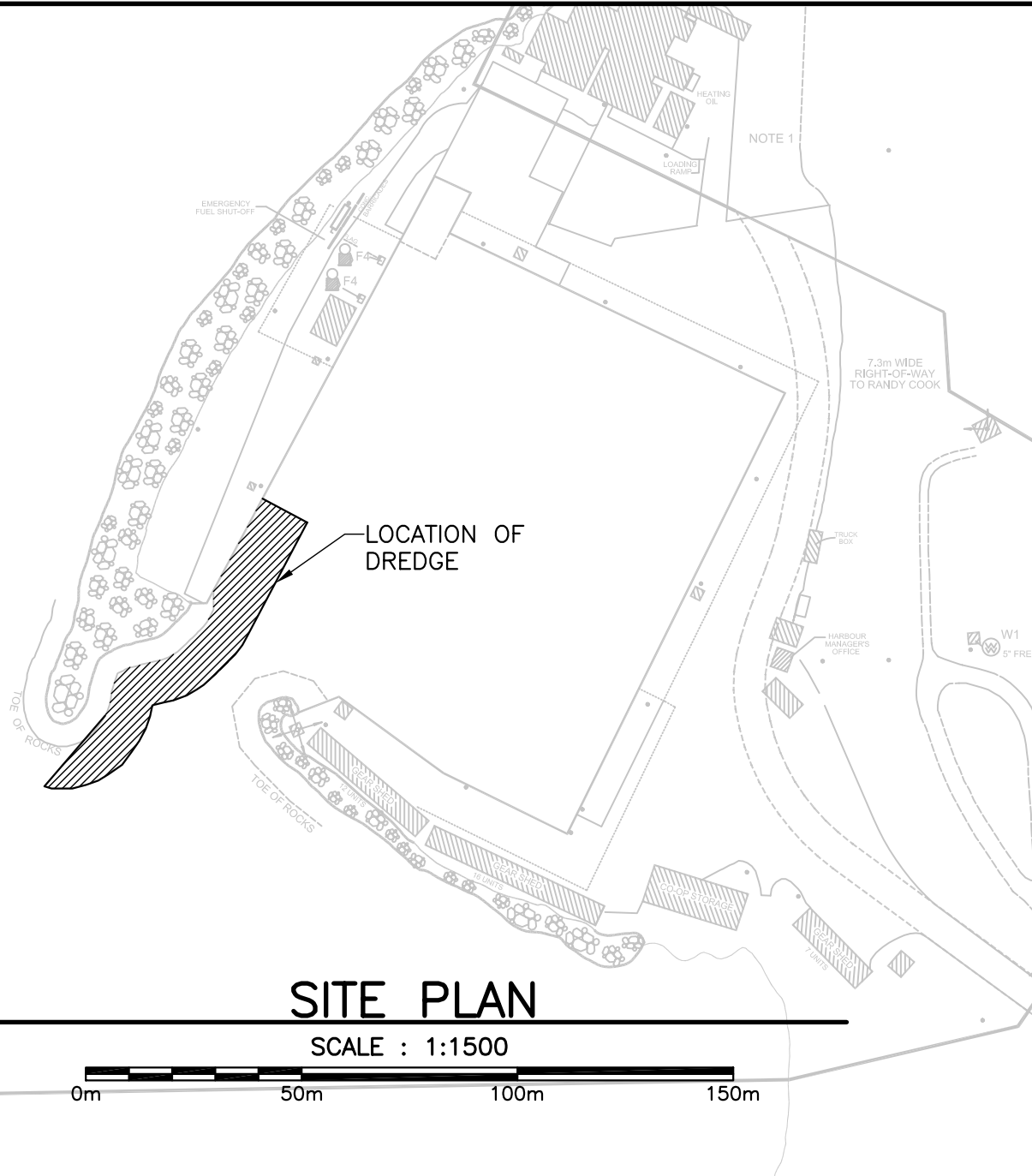
Personal Communications

Mr. Jim Cooke DFO SCH Howard’s Cove Harbour Authority contacted on January 20, 2006.

Ms. Rosemary Curley, DFO, contacted on January 23, 2006

Plot Scale: 1:1

SOLID RED LINE INDICATES LIMITS OF HARBOUR AUTHORITY LEASE
(BOUNDARIES SHOWN ARE FOR VISUAL REFERENCE ONLY)



SITE PLAN

SCALE : 1:1500



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Canada

DREDGING

HOWARD'S COVE PRINCE COUNTY, PEI

Drawing title: Titre du dessin:

SITE PLAN

scale: AS NOTED
échelle:

date: 2006-01-31 revisions:

designed by: conçu par: date:

drawn by: dessiné par: C. BANKS

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

DWG No. 1



Environment Surrounding Howards Cove Harbour

Legend:

Red - Salt Marsh

Orange - Sand Dunes

Blue - Freshwater Wetlands

DREDGING

**HOWARD'S COVE
PRINCE COUNTY, PEI**

Drawing title: Titre du dessin:

ENVIRONMENT SURROUNDING

scale: AS NOTED
échelle:

date: 2006-01-31 revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

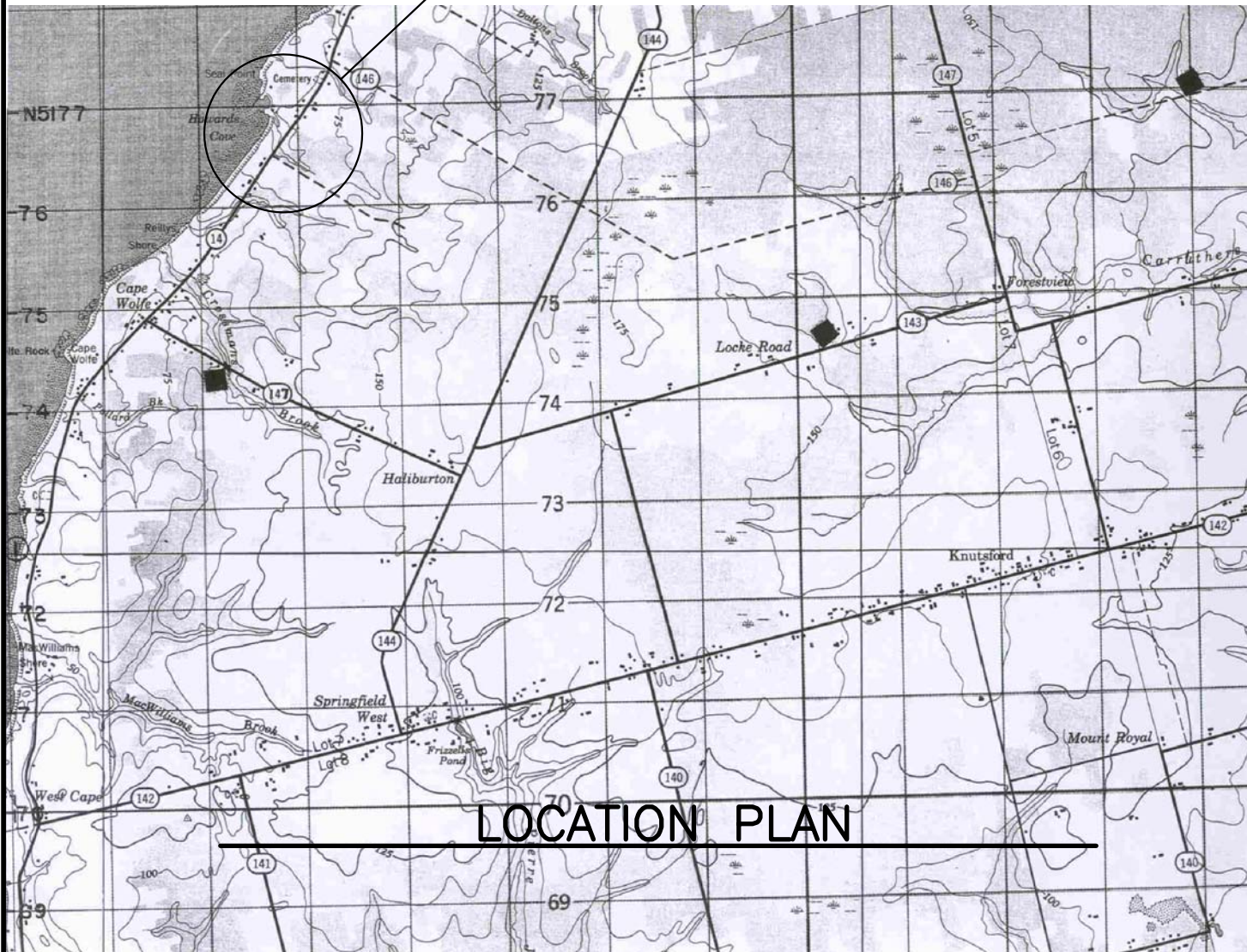
approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG No. 2

LOCATION OF WORK



LOCATION PLAN

DREDGING

**HOWARD'S COVE
PRINCE COUNTY, PEI**

Drawing title: Titre du dessin:

LOCATION PLAN

scale: échelle: AS NOTED

date: 2006-01-31 revisions:

designed by: conçu par: date:


drawn by: dessiné par: C. BANKS

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.: **FIG No. 1**




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Canada**

DREDGING

**HOWARD'S COVE
PRINCE COUNTY, PEI**

Drawing title: Titre du dessin:

DISPOSAL SITE

scale: échelle:

AS NOTED

date: revisions:

2006-01-31

designed by: date:

conçu par:

drawn by: dessiné par:

C. BANKS

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

DWG No. 2

Plot Scale: 1:1

Plot Scale: 1:1



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DREDGING

HOWARD'S COVE PRINCE COUNTY, PEI

Drawing title: Titre du dessin:

AERIAL PHOTO

scale: AS NOTED
échelle:

date: 2006-01-31 revisions:

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project no.: no. du projet:

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FIG No. 3

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Launching Pond Harbour**

Site Name:	Launching Pond Harbour, Kings County, PEI
Dredging Timeline:	Spring to early summer.
Dredging Site Location:	46.219891° N, 62.409806° W Harbour basin entrance.
Location of Disposal Site:	The disposal site has been previously disturbed, has been historically used for land-based disposal of marine sediments, and has been selected in collaboration with, and used in concurrence with, the PEIDEEF (46.222745°N 62.413419°W).
Disposal Method:	Dredging will be done by a land-based mechanical excavator working from existing infrastructure. Material will be trucked by watertight tandem dump trucks and disposed of in accordance with applicable regulations.
Quantity of Dredged Material:	The dredging will include the removal of approximately 4000 cubic meters (m ³) of overburden (i.e., silt and sand) annually.
Quality of Dredged Material:	The most recent analytical sampling at this site was conducted in March 2005. The samples were tested for the land-based disposal suite of parameters. The analytical test results show that the sediments are acceptable for all land use scenarios.
Shoreline:	Developed harbour located on the eastern shore of PEI along Boughton Bay, exiting into the Gulf of St. Lawrence. Grain size material to be removed is predominantly sand (97%) with small amounts of silt (<1%) and clay (1.1%).
Harbour Uses:	The harbour serves mainly commercial fishing and some recreational users. There are no fish processing plants at the harbour, however there is one lobster holding facility and facilities used for fishing gear storage and fish hauling. The Harbour Authority will coordinate between the fisheries and the contractor to insure the project proceeds with the least possible interruption.
Residents & Communities:	There are 443 individuals residing in the statistical district of Lot 55, which encompasses Seacow Pond Harbour (Statistics Canada, 2006).
Vegetation and Wetlands:	The closest wetland resource is ~50m from the project site (Government of PEI, 2006).

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Launching Pond Harbour**

<p>Fish and Fish Habitat:</p>	<p>Launching Pond harbour supports a large number of fish species. Dominant fish species in the area include:</p> <ul style="list-style-type: none"> • lobster (<i>Homarus americanus</i>) • herring (<i>Clupea harengus</i>) • Atlantic deep sea scallop (<i>Placopecten magellanicus</i>) • hake (<i>Merluccius bilinearis</i>) • winter flounder (<i>Pseudopleuronectes americanus</i>) • rock crab (<i>Cancer irroratus</i>) • mackerel (<i>Scomber scombrus</i>) • American plaice (<i>Hippoglossoides platessoides</i>), • Atlantic cod (<i>Gadus morhua</i>) • Bluefin tuna (<i>Thunnus thynnus</i>)
<p>Wildlife:</p>	<p>Harbour seals (<i>Phoca vitulina</i>) have been identified rarely occurring in the harbour area (W. Campbell, pers. comm., 2006).</p>
<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl:</p>	<p>According to Erskine’s Atlas of Breeding Birds of the Maritime Provinces the following breeding bird species are located in proximity Launching Pond Harbour. The species list is considered to be conservative given that the area of the sample is larger than that of the harbour.</p> <ul style="list-style-type: none"> • bank swallow (<i>Riparian riparia</i>) • common tern (<i>Sterna hirundo</i>) • double-crested cormorant (<i>Phalacrocorax auritus</i>) • Eastern kingbird (<i>Tyrannus tyrannus</i>) • osprey (<i>Pandion haliaetus</i>) • song sparrow (<i>Melospiza melodia</i>) • white-winged crossbill (<i>Loxia leucoptera</i>) • yellow warbler (<i>Dendroica petechia</i>)
<p>Species at Risk:</p>	<p>According to CWS (2006), the following species at risk have been identified as potentially occurring in the area:</p> <ul style="list-style-type: none"> • blue whale (<i>Balaenoptera Musculus</i>) • North Atlantic right whale (<i>Eubalanea glacilais</i>) • barrow's goldeneye (<i>Bucephala islandica</i>) • piping plover (<i>Charadrius melodus</i>) • monarch butterfly (<i>Danaus plexippus</i>) <p>A search of the ACCDC database (5 kilometre (km) buffer around the study area) yielded 2 records of 2 species of rare vascular flora, and no records of rare nonvascular flora. This study also found 11 records of 9 sensitive vertebrate fauna and 6 records of 5 species of sensitive invertebrate fauna (ACCDC, 2006).</p>

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Launching Pond Harbour**

Species at Risk:	<ul style="list-style-type: none"> • Great Cormorant (<i>Phalacrocorax carbo</i>) • Piping Plover (<i>Charadrius melodus</i>) • Common Tern (<i>Sterna hirundo</i>) • Black Guillemot (<i>Cepphus grylle</i>) • Black-backed Woodpecker (<i>Picoides arcticus</i>) • Barn Swallow (<i>Hirundo rustica</i>) • Bobolink (<i>Dolichonyx oryzivorus</i>) • Rusty Blackbird (<i>Euphagus carolinus</i>) • White-winged Crossbill (<i>Loxia leucoptera</i>) • Twin-Spotted Spiketail (<i>Cordulegaster maculata</i>) • Beaverpond Baskettail (<i>Epiteca canis</i>) • Delicate Emerald (<i>Somatochlora franklini</i>) • Hudsonian Whiteface (<i>Leucorrhinia hudsonica</i>) • Sedge Sprite (<i>Nehalennia irene</i>) • Swamp Birch (<i>Betula pumila</i>) • Brook Grass (<i>Catabrosa aquatica var. laurentiana</i>)
Environmentally Significant Areas:	<p>The Boughton Island Natural Area (PID 783829) is located within 5 kms of Launching Pond Harbour. This area is considered significant for reasons of ecosystem values (R. Curley, 2006). ACCDC has identified the Black Creek Ducks Unlimited Area within 5 km of the proposed project.</p>
Transportation and Navigation:	<p>Launching Pond harbour is free of ice from approximately March 1 to December 31. The harbour experiences the highest boating activity during mid April to mid July (W. Campbell, pers. comm., 2006).</p>
Commercial Fishing and Aquaculture:	<p>There are approximately 53 commercial fishing vessels operating out of the harbour with minimal recreational use. Fisheries at this harbour include:</p> <ul style="list-style-type: none"> • Lobster is harvested during the months of May and June. • Herring is harvested between the end of August and mid-September. • Scallops are harvested between November 1st and December 15th. • Tuna fishing begins on July 15th and runs to mid-October. <p>There are mussel boats (four vessels) that use Launching Pond Harbour and the aquaculture lease sites are located approximately 6-8 km from the Launching Pond wharf.</p>

Due to the repetitive use of the dredge spoil disposal site footprint the quality of habitat is limited thus there is no critical or limiting habitat for the species listed above, therefore, no significant residual adverse effects are anticipated.

Also, due to the limited geographic extent (the dredge and disposal site footprints), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this location.

References

NOTE: All information is provided by the following reference, unless otherwise indicated:

Public Works and Government Services Canada. 2005. Small Craft Harbours Branch (DFO-SCH) Gulf Region Environmental Screening Report for Reconstruction and Dredging/Excavation – Launching Pond Harbour, Kings County, PEI.

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http://www.speciesatrisk.gc.ca/search/speciesResults_e.cfm.

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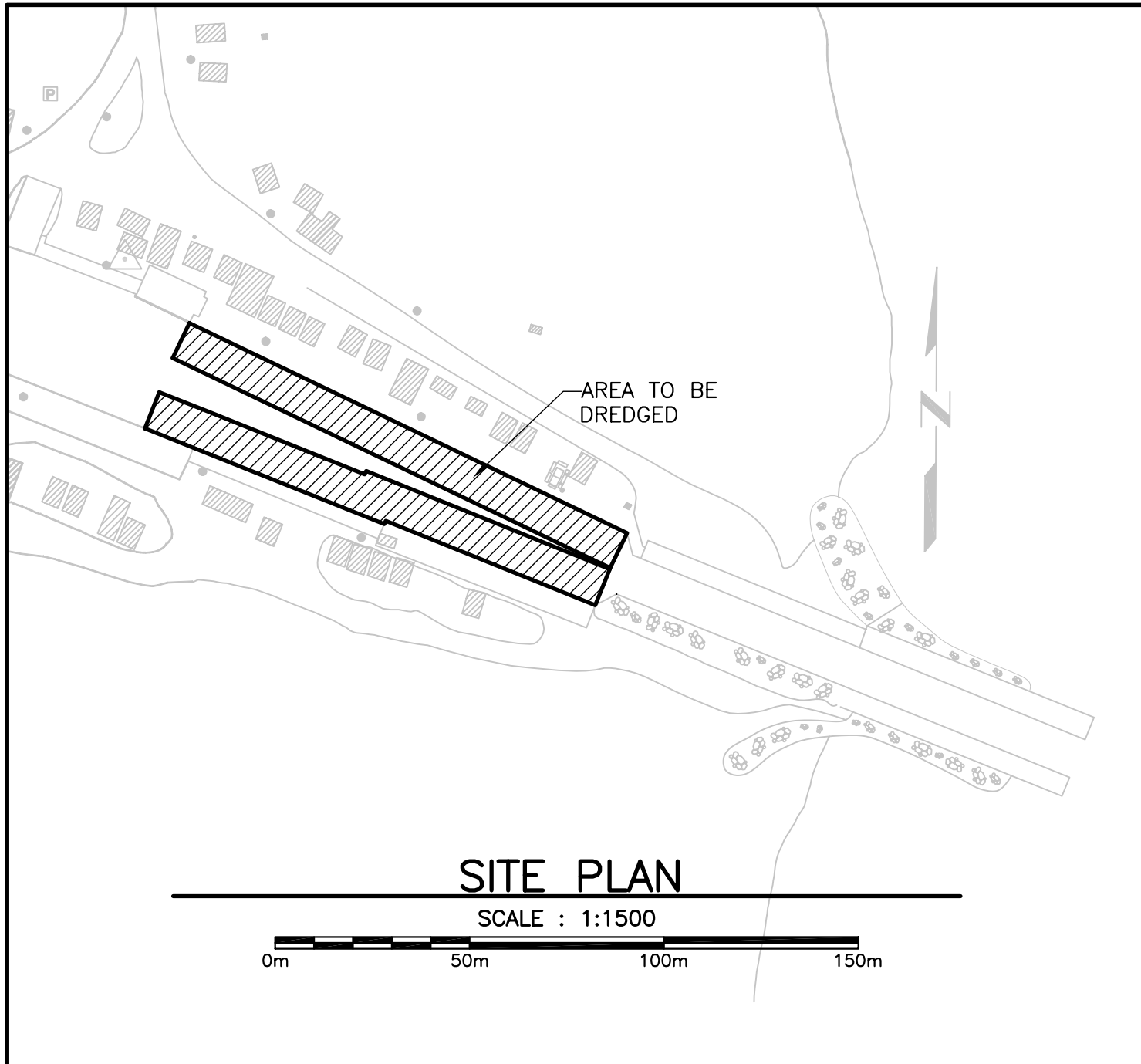
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Personal Communications

Mr. Wayne Campbell DFO SCH Launching Pond Harbour Authority contacted on January 23, 2006.

Ms. Rosemary Curley, DFO, contacted on January 23, 2006




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**HARBOUR BASIN
 DREDGING
 LAUNCHING POND HARBOUR
 KINGS COUNTY, PEI**

Drawing title: Titre du dessin:

HARBOUR DREDGE LIMITS

scale: échelle: N.T.S.

date: 2006-02-02 revisions:

designed by: conçu par: date:

drawn by: dessiné par: C. BANKS

approved by: approuvé par:


project no.: no. du projet:

dwg no.: dessin no.:

DWG No. 1

Plot Scale: 1:1




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**HARBOUR BASIN
 DREDGING
 LAUNCHING POND HARBOUR
 KINGS COUNTY, PEI**

Drawing title:	Titre du dessin:
SITE LOCATION PLAN	
scale:	N.T.S.
échelle:	N.T.S.
date:	revisions:
2006-02-02	
designed by:	date:
conçu par:	
drawn by:	
dessiné par:	C. BANKS
approved by:	
approuvé par:	
project no.:	no. du projet:
dwg no.:	dessin no.:
FIG No. 2	

Plot Scale: 1:1


LOCATION PLAN

Plot Scale: 1:1



Figure 1. Environment Surrounding Launching Harbour

- Legend:**
- Pink** – Salt Marsh
 - Peach** – Sand Dunes
 - Light Blue** – Freshwater Wetland
 - Dark Blue** – Boughton Bay
 - Green** – Forest Cover (1990)

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**HARBOUR BASIN
DREDGING
LAUNCHING POND HARBOUR
KINGS COUNTY, PEI**

Drawing title: Titre du dessin:
SURROUNDING ENVIRONMENT

scale: N.T.S.
échelle:

date: 2006-02-02
revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**


approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:
FIG No. 1



Plot Scale: 1:1


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**HARBOUR BASIN
DREDGING
LAUNCHING POND HARBOUR
KINGS COUNTY, PEI**

Drawing title: Titre du dessin:
AERIAL PHOTOGRAPH
 scale: échelle:
 N.T.S.

date: revisions:
 2006-02-02

designed by: date:
 conçu par:

drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:
FIG No. 3

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Tignish Harbour**

Site Name:	Tignish Harbour, Prince County, PEI
Dredging Timeline:	Spring to early summer.
Dredging Site Location:	46.951740°N 63. 998010°W Harbour basin entrance.
Location of Disposal Site:	Material removed from the harbour basin will be land disposed of on a previously used dredge disposal site on DFO-SCH property (46. 950950°N 63. 999570°W).
Disposal Method:	Dredging will be done by a land-based mechanical excavator working from existing infrastructure. The material will be trucked by watertight dump trucks and disposed of in accordance with applicable regulations.
Quantity of Dredged Material:	The dredging will include the removal of approximately 3000 cubic meters (m ³) of material annually.
Quality of Dredged Material:	The most recent analytical sampling at this site was conducted in November 2003. The samples were tested for the land-based disposal suite of parameters. The analytical test results show that the sediments are acceptable for all land use scenarios except agricultural.
Shoreline:	Developed harbour located on the West coast of PEI. Grain size material to be removed is predominantly sand (98%) with small amounts of silt/clay (2%) and gravel (<1%).
Harbour Uses:	The harbour has been developed to serve the general fishing industry and includes several storage sheds for equipment associated with the fishing industry. The Harbour Authority will coordinate between the fisheries and the contractor to insure the project proceeds with the least possible interruption. Boat tours are not conducted from Tignish harbour. The harbour has the capacity to serve recreational users, however, the harbour generally services commercial fishing vessels only (M. McKinnis, pers. comm., 2006).
Residents & Communities:	There are 2,731 individuals residing in the statistical districts of Lot 1 and Tignish, which encompass Tignish Harbour. (Statistics Canada, 2006).
Vegetation and Wetlands:	The closest wetland resource is ~100m from the project site (Government of PEI, 2006).

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Tignish Harbour**

<p>Fish and Fish Habitat:</p>	<p>Tignish Harbour supports a large number of fish species, crustaceans, mollusks and marine plants. Dominant fish species in the area include:</p> <ul style="list-style-type: none"> • Atlantic herring (<i>Clupea harengus</i>) • American smelt (<i>Osmerus mordax</i>) • Atlantic silverside (<i>Menidia menidia</i>) <p>Crustaceans and shellfish in the area include:</p> <ul style="list-style-type: none"> • lobster (<i>Homarus americanus</i>) • rock crab (<i>Cancer irroratus</i>)
<p>Wildlife:</p>	<p>Harbour seals (<i>Phoca vitulina</i>) have been identified as not occurring in the harbour area (M. McKinnis, pers. comm., 2006).</p>
<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl:</p>	<p>According to Erskine’s Atlas of Breeding Birds of the Maritime Provinces the following breeding bird species are located in proximity to Tignish Harbour. The species list is considered to be conservative given that the area of the sample is larger than that of the harbour.</p> <ul style="list-style-type: none"> • alder flycatcher (<i>Empidonax alnorum</i>) • American black duck (<i>Anas rubripes</i>) • American kestrel (<i>Falco sparverius</i>) • American redstart (<i>Setophaga ruticilla</i>) • bank swallow (<i>Riparian riparia</i>) • black guillemot (<i>Cepphus grille</i>) • black-and-white warbler (<i>Mniotilta varia</i>) • blue-winged teal (<i>Anas dicors</i>) • bobolink (<i>Dolichonyx oryzivorus</i>) • cedar waxwing (<i>Bombycilla cedrorum</i>) • chipping sparrow (<i>Spizella passerine</i>) • common yellowthroat (<i>Geothlypis trichas</i>) • Eastern Kingbird (<i>Tyrannus tyrannus</i>) • green-winged teal (<i>Anas crecca</i>) • pie-billed grebe (<i>Podilymbus podiceps</i>) • red-winged blackbird (<i>Agelaius phoneiceus</i>) • ruby-crowned kinglet (<i>Regulus calendula</i>) • savannah sparrow (<i>Passerculus sandwichensis</i>) • song sparrow (<i>Melospiza melodia</i>) • spotted sandpiper (<i>Actitis macularia</i>) • swamp sparrow (<i>Melospiza georgiana</i>) • white-throated sparrow (<i>Zonotrichia albicollis</i>) • yellow warbler (<i>Dendroica petechia</i>) • yellowrumped warbler (<i>Dendroica coronata</i>)

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Tignish Harbour**

Species at Risk:	<p>The following species at risk have been identified by the CWS (2006) as potentially occurring in the area:</p> <ul style="list-style-type: none"> • blue whale (<i>Balaenoptera Musculus</i>) • North Atlantic right whale (<i>Eubalanea glacialis</i>) • piping plover (<i>Charadrius melodus</i>) • monarch butterfly (<i>Danaus plexippus</i>) • Gulf of St. Lawrence Aster (<i>Symphyotrichum laurentianum</i>) <p>A search of the ACCDC database (5 kilometre (km) buffer around the study area) yielded 62 records of 51 species of rare vascular flora, and no records of rare nonvascular flora. This study also found 8 records of 8 sensitive vertebrate fauna and 5 records of 5 species of sensitive invertebrate fauna (ACCDC, 2006).</p> <ul style="list-style-type: none"> • Red-breasted Merganser (<i>Mergus serrator</i>) • Piping Plover (<i>Charadrius melodus</i>) • Black Guillemot (<i>Cepphus grylle</i>) • Barn Swallow (<i>Hirundo rustica</i>) • Northern Waterthrush (<i>Seiurus noveboracensis</i>) • Vesper Sparrow (<i>Pooecetes gramineus</i>) • Nelson's Sharp-tailed Sparrow (<i>Ammodramus nelsoni</i>) • Bobolink (<i>Dolichonyx oryzivorus</i>) • Lake Darner (<i>Aeshna eremita</i>) • Saffron-Winged Meadowhawk (<i>Sympetrum costiferum</i>) • Yellow-Legged Meadowhawk (<i>Sympetrum vicinum</i>) • Taiga Bluet (<i>Coenagrion resolutum</i>) • Sedge Sprite (<i>Nehalennia irene</i>) • Great Angelica (<i>Angelica atropurpurea</i>) • Black Snake-Root (<i>Sanicula marilandica</i>) • Swamp Thistle (<i>Cirsium muticum</i>) • Fireweed (<i>Erechtites hieraciifolia</i>) • Golden Groundsel (<i>Packera aurea</i>) • Smooth Goldenrod (<i>Solidago gigantea</i>) • Large-Leaf Goldenrod (<i>Solidago macrophylla</i>) • Cockle Bur (<i>Xanthium strumarium</i> var. <i>canadense</i>) • St. Lawrence Aster (<i>Symphyotrichum laurentianum</i>) • Marsh Yellow Cress (<i>Rorippa palustris</i> ssp. <i>fernaldiana</i>) • Knotted Pearlwort (<i>Sagina nodosa</i> ssp. <i>borealis</i>) • Canada Sand-Spurry (<i>Spergularia canadensis</i>) • Purple Sandspurry (<i>Spergularia salina</i>) • Roundleaf Dogwood (<i>Cornus rugosa</i>) • Seaside Spurge (<i>Chamaesyce polygonifolia</i>) • Swamp Red Currant (<i>Ribes triste</i>) • Whorled Water-Milfoil (<i>Myriophyllum verticillatum</i>)
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**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Tignish Harbour**

<p>Species at Risk:</p>	<ul style="list-style-type: none"> • Hairy Evening-Primrose (<i>Oenothera villosa</i>) • Bushy Knotweed (<i>Polygonum ramosissimum</i> var. <i>ramosissimum</i>) • Sea-Side Dock (<i>Rumex maritimus</i>) • Greenish-Flowered Wintergreen (<i>Pyrola chlorantha</i>) • Small Yellow Water-Crowfoot (<i>Ranunculus gmelinii</i>) • Bristly Crowfoot (<i>Ranunculus pensylvanicus</i>) • Alderleaf Buckthorn (<i>Rhamnus alnifolia</i>) • Tall Hairy Groovebur (<i>Agrimonia gryposepala</i>) • Pennsylvania Blackberry (<i>Rubus pensilvanicus</i>) • Hoary Willow (<i>Salix candida</i>) • Mudwort (<i>Limosella australis</i>) • Canada Clearweed (<i>Pilea pumila</i>) • Dwarf Mistletoe (<i>Arceuthobium pusillum</i>) • Jack Pine (<i>Pinus banksiana</i>) • Crawford Sedge (<i>Carex crawfordii</i>) • Mackenzie Sedge (<i>Carex mackenziei</i>) • Fox Sedge (<i>Carex vulpinoidea</i>) • Bear Sedge (<i>Carex utriculata</i>) • Shaved Sedge (<i>Carex tonsa</i>) • Small Spikerush (<i>Eleocharis parvula</i>) • Russet Cotton-Grass (<i>Eriophorum russeolum</i>) • Dudley's Rush (<i>Juncus dudleyi</i>) • Star Duckweed (<i>Lemna trisulca</i>) • Showy Lady's-Slipper (<i>Cypripedium reginae</i>) • Loesel's Twayblade (<i>Liparis loeselii</i>) • Small Green Woodland Orchid (<i>Platanthera clavellata</i>) • Leafy White Orchis (<i>Platanthera dilatata</i>) • Rose Pogonia (<i>Pogonia ophioglossoides</i>) • Brook Grass (<i>Catabrosa aquatica</i> var. <i>laurentiana</i>) • Small Floating Manna-Grass (<i>Glyceria borealis</i>) • American Bur-Reed (<i>Sparganium americanum</i>) • Small Bur-Reed (<i>Sparganium natans</i>) • Bog Clubmoss (<i>Lycopodiella inundata</i>) • Rattlesnake Fern (<i>Botrychium virginianum</i>)
<p>Environmentally Significant Areas:</p>	<p>The designated areas near Tignish Harbour are Little Tignish Run PID all of 531970 and parts of 556092, 592477, 705749, 481705, 672071, 1511, and 3756 (R. Curley, pers. comm., 2006). ACCDC has identified the Arsenaults Pond, Tignish Natural Area, Little Tignish Run Natural Area, Round Pond Natural Area, Arsenaults Pond, Tignish Ducks Unlimited Area and the Blanchard's Pond Ducks Unlimited Area within 5 km of the proposed project.</p>

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Tignish Harbour**

Transportation and Navigation:	Tignish Harbour is free of ice from approximately April 15 to December 31. The harbour experiences the highest boating activity during mid April to June and September to the second week in October (M. McKinnis, pers. comm., 2006).
Commercial Fishing and Aquaculture:	See “Fish and Fish Habitat” above.

Due to the repetitive use of the dredge spoil disposal site footprint the quality of habitat is limited thus there is no critical or limiting habitat for the species listed above, therefore, no significant residual adverse effects are anticipated.

Also, due to the limited geographic extent (the dredge and disposal site footprints), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this location.

References

Information is provided by Public Works and Government Services Canada. 2004. CEEA Environmental Screening For Basin Dredging at Tignish Harbour, PEI, unless otherwise stated.

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Erskine, A.J., 1992. Atlas of Breeding Birds of the Maritime Provinces. The Province of Nova Scotia.

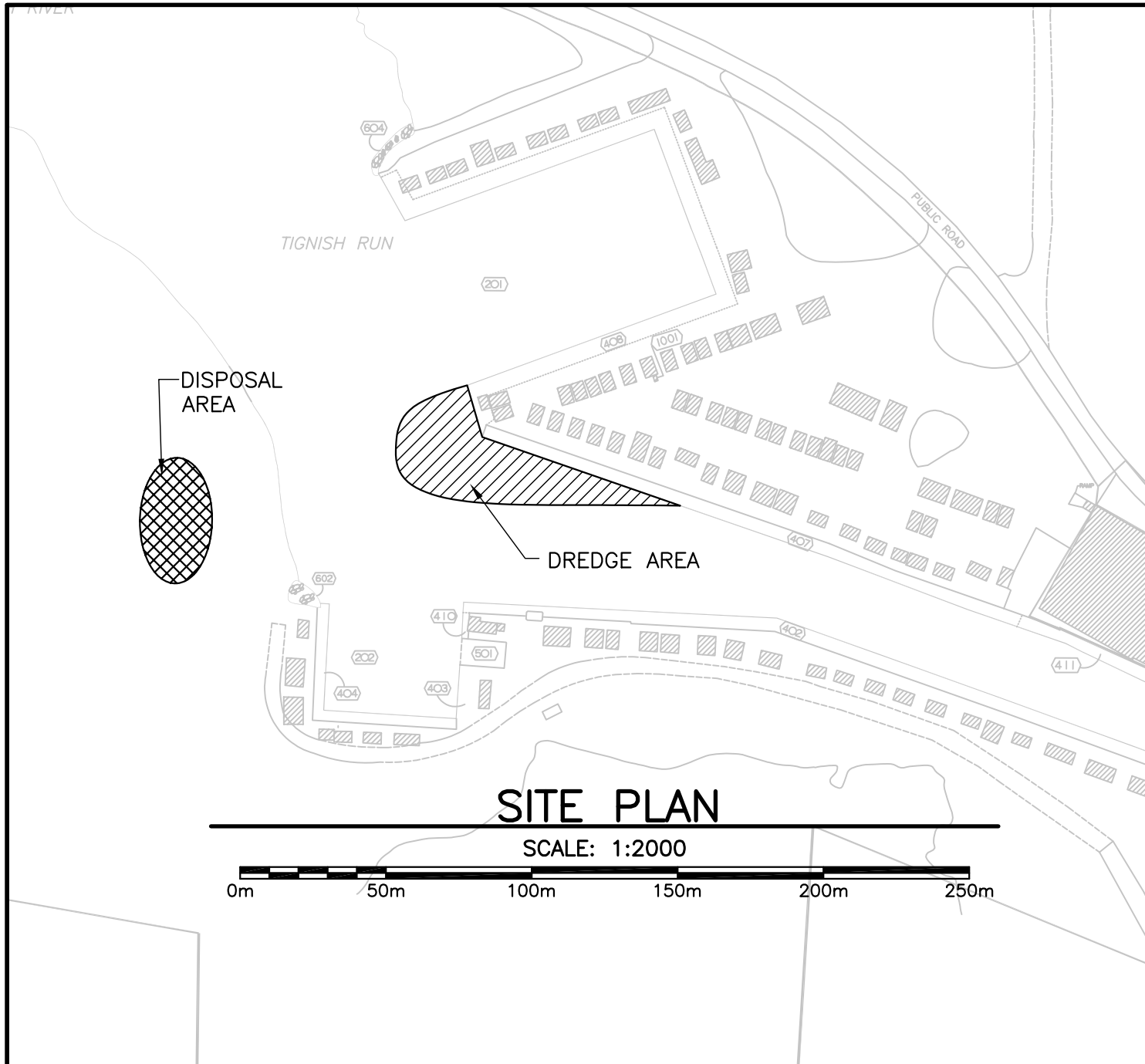
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Personal Communications

Ms. Rosemary Curley, DFO, contacted on January 23, 2006

Mr. Mike McKinnis DFO SCH Tignish Harbour Authority contacted on January 23, 2006.

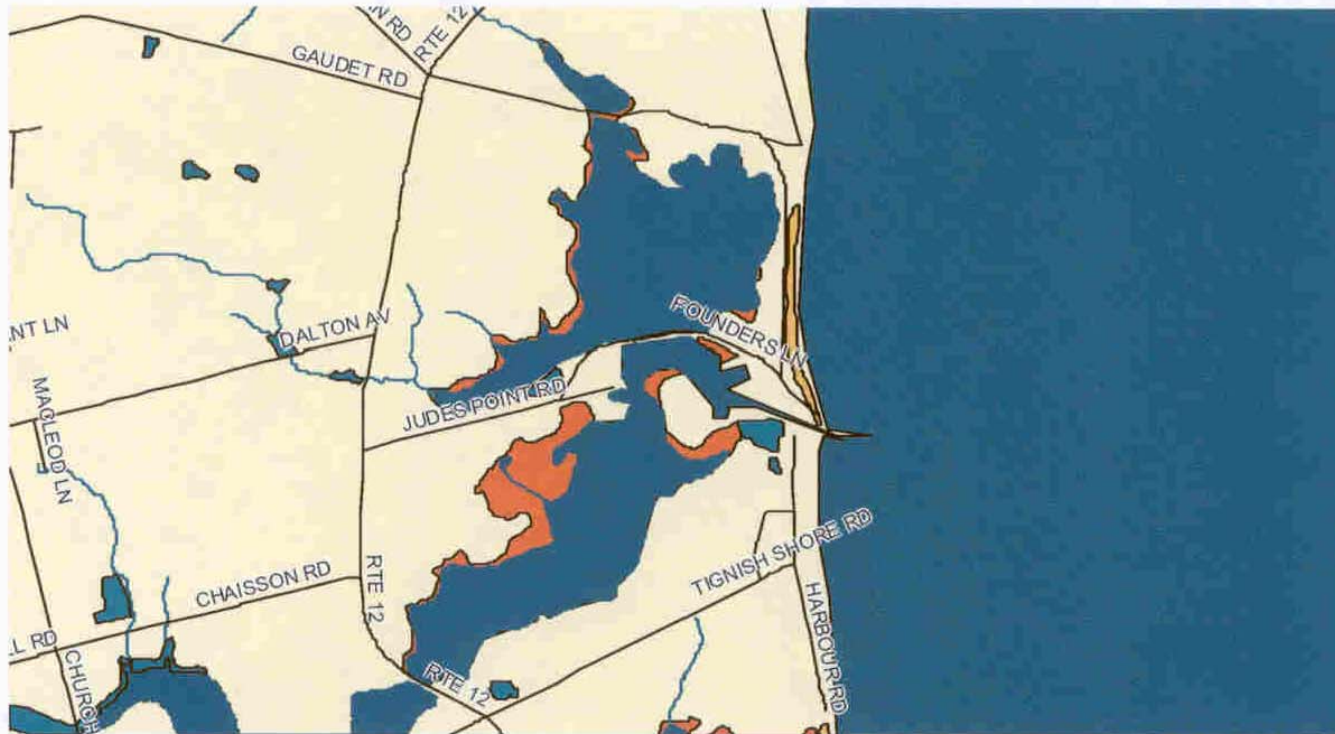



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DREDGING
TIGNISH HARBOUR
PRINCE COUNTY, PEI

Drawing title:	Titre du dessin:
SITE PLAN	
scale: échelle:	AS NOTED
date:	revisions:
2006-01-30	
designed by: conçu par:	date:
drawn by: dessiné par:	C. BANKS
approved by: approuvé par:	
project no.:	no. du projet:
dwg no.:	dessin no.:
DWG. No. 1	

Plot Scale: 1:1



Environment Surrounding Tignish Harbour

Legend:

- Red - Salt Marsh
- Orange - Sand Dunes
- Blue - Freshwater Wetlands

DREDGING
TIGNISH HARBOUR
PRINCE COUNTY, PEI

Drawing title: Titre du dessin:

ENVIRONMENT SURROUNDING

scale: AS NOTED
échelle:

date: 2006-01-30
revisions:

designed by: conçu par: date:

drawn by: dessiné par: C. BANKS

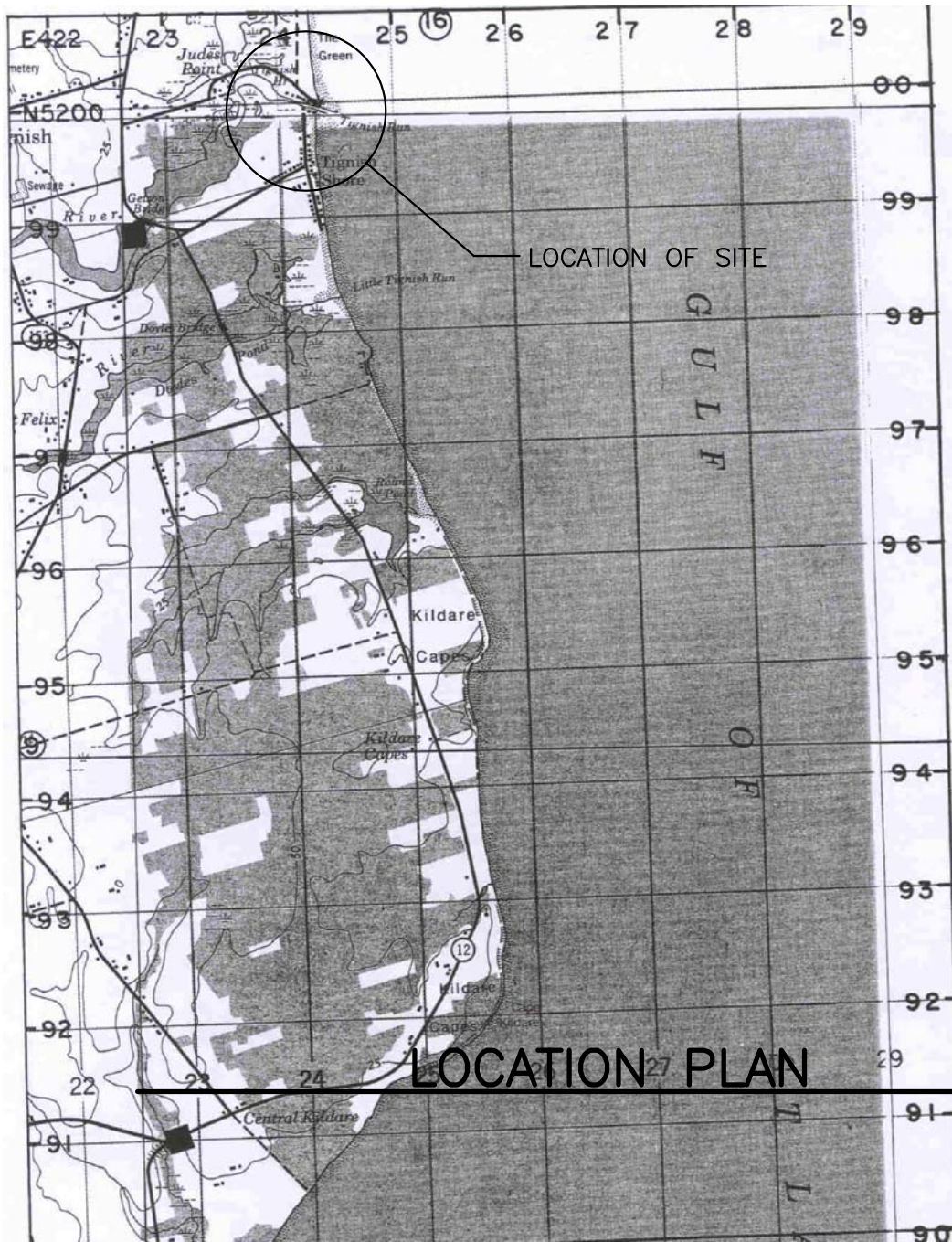
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project no.: no. du projet:

dwg no.: dessin no.:

FIG. No. 2

Plot Scale: 1:1



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DREDGING

TIGNISH HARBOUR PRINCE COUNTY, PEI

Drawing title: Titre du dessin:

LOCATION PLAN

scale: AS NOTED
échelle: AS NOTED

date: 2006-01-30 revisions:

designed by: conçu par: date:

drawn by: dessiné par: C. BANKS

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG. No. 1



Tignish 04/07/27 13:07

Plot Scale: 1:1

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DREDGING

TIGNISH HARBOUR PRINCE COUNTY, PEI

Drawing title: Titre du dessin:

AERIAL PHOTO

scale: AS NOTED
échelle:

date: 2006-01-30 revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG. No. 3

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – North Lake Harbour**

Site Name:	North Lake Harbour, Kings County, PEI
Dredging Timeline:	Spring to early summer and if required, during the late summer/fall due to the dynamic nature of the shorelines and the frequency and severity of storms in the area.
Dredging Site Location 1:	46.466800°N 62.069890°W Harbour basin.
Dredging Site Location 2:	46.468010°N 62.068550°W Harbour run.
Location of Disposal Site:	The dredged material from the basin will be land-based disposed on property owned by DFO-SCH in North Lake (refer to North Lake figures).
Disposal Method:	Dredging of the basin will be done by a land-based mechanical excavator working from existing infrastructure. The material will be loaded directly into watertight dump trucks. It will be land-disposed in a bermed disposal site (refer to North Lake figures). Dredging of the run will be done by a land-based mechanical excavator. The material will be placed on the side of the breakwater and bulldozed above the high tide mark (refer to North Lake figures).
Quantity of Dredged Material:	The dredging will include the removal of approximately 4000 cubic meters (m ³) of material from both the basin and the run for a total of 8000 m ³ annually.
Quality of Dredged Material:	<i>Dredge Site Location 1:</i> The most recent analytical sampling at this site was conducted in March 2005. The samples were tested for the land-based disposal suite of parameters. The analytical test results show that the sediments are acceptable for all land use scenarios. <i>Dredge Site Location 2:</i> The most recent analytical sampling at this site was conducted in November 2004. The samples were tested for the land-based disposal suite of parameters. The analytical test results show that the sediments are acceptable for all land use scenarios.
Shoreline:	Grain size material to be removed in North Lake Harbour basin is predominantly sand (99%) with trace amounts of silt (<1%) and clay (1-1.2%). Grain size material to be removed in North Lake Harbour run is predominantly sand (99%) with trace amounts of clay (1%).

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – North Lake Harbour**

Harbour Uses:	<p>The harbour has been developed to serve the general fishing industry and includes a fish processing facility and bait sheds. The Harbour Authority will coordinate between the fisheries and the contractor to insure the project proceeds with the least possible interruption.</p> <p>Tourism is one of the main activities at the harbour. There are sand beaches on both sides of the harbour, which are used for recreational purposes during the summer months.</p>
Residents &Communities:	<p>There are 586 individuals residing in the statistical district of Lot 47, which encompasses North Lake Harbour (Statistics Canada, 2006).</p>
Vegetation and Wetlands:	<p>There closest wetland resource is >200m from the project site (Government of PEI, 2006).</p>
Fish and Fish Habitat:	<p>North Lake Harbour supports a large number of fish species, crustaceans, mollusks and marine plants. Dominant fish species in the area include:</p> <ul style="list-style-type: none"> • Atlantic herring (<i>Clupea harengus</i>) • Atlantic cod (<i>Gadus morhua</i>) • winter flounder (<i>Pseudopleuronectes americanus</i>) • hake (<i>Merluccius bilinearis</i>) • mackerel (<i>Scomber scombrus</i>) <p>Crustaceans and shellfish in the area include:</p> <ul style="list-style-type: none"> • lobster (<i>Homarus americanus</i>) • rock crab (<i>Cancer irroratus</i>) • toad crab (<i>Hyas araneus</i>)
Wildlife:	<p>According to Traditional Fishery Mapping from the DFO there is no marine wildlife in the vicinity of the harbour (DFO, 2004).</p>
Migratory Birds, Seabirds, Shorebirds, and Waterfowl:	<p>Migratory birds associated with the area are the killdeer (<i>Charadrius vociferus</i>), spotted sandpiper (<i>Actitis macularia</i>), and the common snipe (<i>Gallinago gallinago</i>).</p>
Species at Risk:	<p>North Lake area is considered a bay of interest as a breeding area for the piping plover (<i>Charadrius melodus</i>) and the willow flycatcher (<i>Empidonax traillii</i>). The following species at risk have also been identified as potentially occurring in the area:</p> <ul style="list-style-type: none"> • blue whale (<i>Balaenoptera Musculus</i>) • North Atlantic right whale (<i>Eubalanea glacilais</i>) • barrow's goldeneye (<i>Bucephala islandica</i>) • piping plover (<i>Charadrius melodus</i>) • monarch butterfly (<i>Danaus plexippus</i>) (Canadian Wildlife Services, 2006) <p>A search of the ACCDC database (5 kilometre (km) buffer around the</p>

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – North Lake Harbour**

Species at Risk:	<p>study area) yielded 13 records of 12 species of rare vascular flora, and no records of rare nonvascular flora. This study also found 2 records of 2 sensitive vertebrate fauna (ACCDC, 2006).</p> <ul style="list-style-type: none"> • Great Cormorant (<i>Phalacrocorax carbo</i>) • Piping Plover (<i>Charadrius melodus</i>) • Canada Hawkweed (<i>Hieracium canadense</i>) • Indian-Tobacco (<i>Lobelia inflata</i>) • Mountain Cranberry (<i>Vaccinium vitis-idaea</i>) • Giant Pinedrops (<i>Pterospora andromedea</i>) • Pondshore Knotweed (<i>Polygonum raii</i>) • Running Serviceberry (<i>Amelanchier stolonifera</i>) • Mudwort (<i>Limosella australis</i>) • Star Duckweed (<i>Lemna trisulca</i>) • Flattened Oatgrass (<i>Danthonia compressa</i>) • Northern Slender Pondweed (<i>Stuckenia filiformis ssp. alpina</i>) • Bog Clubmoss (<i>Lycopodiella inundata</i>) • Leathery Grape-Fern (<i>Botrychium multifidum</i>)
Environmentally Significant Areas:	<p>Designated areas near North Lake Harbour are East Lake, including Dunes PID 111351, 110783, 110791, 433490, and 813428 (R. Curley, pers. comm., 2006). ACCDC has identified the East Lake Natural Area, North Lake Natural Area, East Lake 1 and 2 Ducks Unlimited Areas and the North Lake Ducks Unlimited Area within 5 km of the proposed project</p>
Transportation and Navigation:	<p>According to the Atlas of Canada, the harbour is usually open to navigation from April 1 to January 15.</p>
Commercial Fishing and Aquaculture:	<p>Fisheries at this harbour include:</p> <ul style="list-style-type: none"> • lobster (May to July) • tuna (July to September) • rock crab (July to October) • toad crab (July to September) • herring (spring and fall) • mackerel (July and late October)

Due to the repetitive use of the dredge spoil disposal site footprint the quality of habitat is limited thus there is no critical or limiting habitat for the species listed above, therefore, no significant residual adverse effects are anticipated.

Also, due to the limited geographic extent (the dredge and disposal site footprints), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this location.

References

Information is provided by Public Works and Government Services Canada. 2005. CEEA Environmental Screening For Harbour Re-Dredging at North Lake Harbour, PEI and Public Works and Government Services Canada. 2005. CEEA Environmental Screening For Basin Re-Dredging at North Lake Harbour, PEI, unless otherwise stated.

The Atlas of Canada, 2006. URL: <http://atlas.gc.ca/site/english/index.html> Canadian Wildlife Service (CWS). 2006. Species at Risk. Internet Link: http://www.speciesatrisk.gc.ca/search/speciesResults_e.cfm.

ACCDC (Atlantic Canada Conservation Data Centre). 2006. ACCDC data response for North Lake Harbour, Prince Edward island. S. Gerriets, Senior Data Manager.

Canadian Wildlife Service (CWS). 2006. Species at Risk. Internet Link: http://www.speciesatrisk.gc.ca/search/speciesResults_e.cfm.

Department of Fisheries and Oceans Canada. 2004. Traditional Fishery Mapping – Inshore and Nearshore Database Searches for Prince Edward Island. URL: <http://glfgeo.dfo-mpo.gc.ca/tfk-ctp/>.

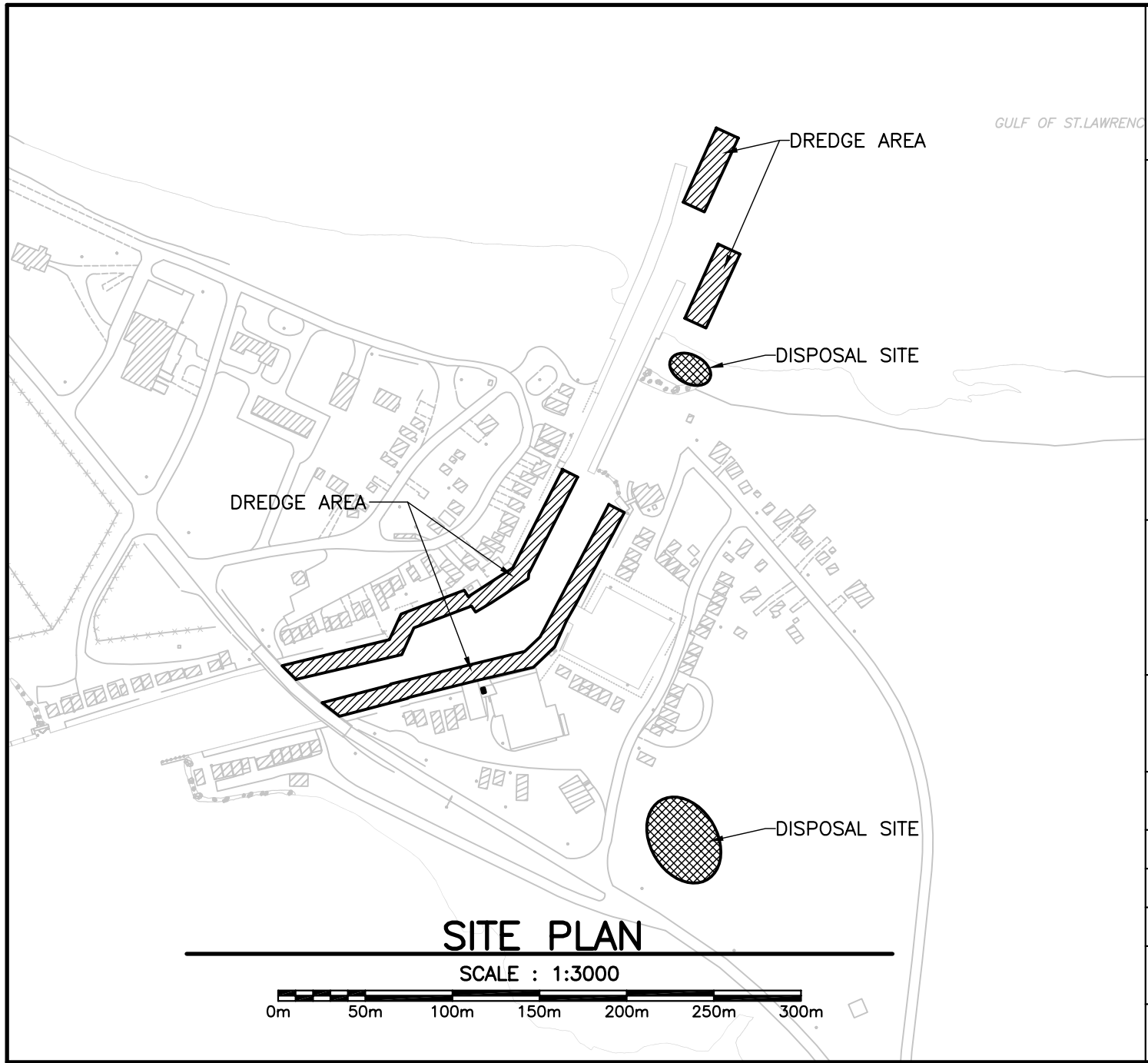
Government of Prince Edward Island (PEI). 2006. Wetland Information. <http://www.gov.pei.ca>.


Statistics Canada. 2006. 2001 Census. www.statscan.ca

Personal Communications

Ms. Rosemary Curley, DFO, contacted on January 23, 2006

Plot Scale: 1:1



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Canada

GULF OF ST. LAWRENCE

CHANNEL DREDGING

NORTH LAKE HARBOUR

KINGS COUNTY, PEI

Drawing title: Titre du dessin:

SITE PLAN

scale: AS NOTED

échelle: AS NOTED

date: revisions:

2006-01-30

designed by: date:

conçu par:

drawn by: C. BANKS

dessiné par:

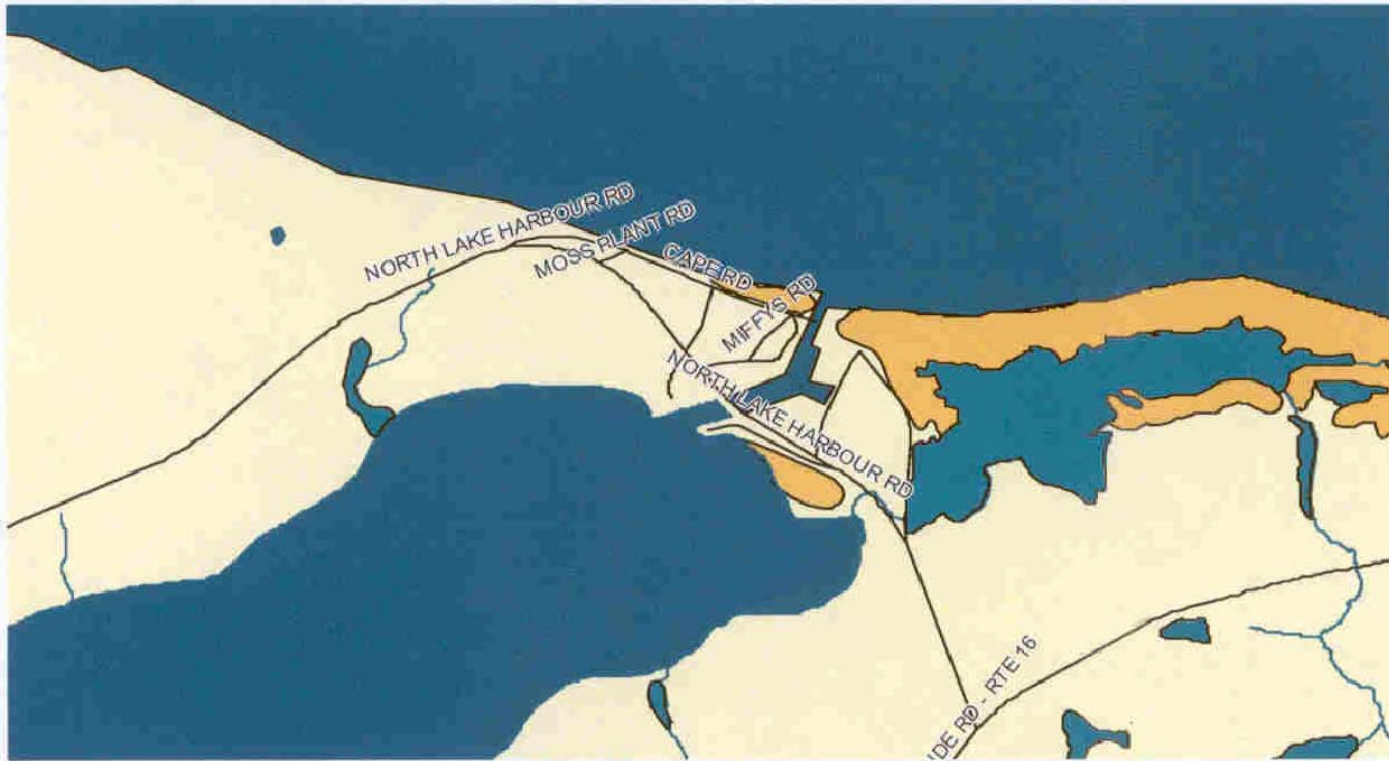
approved by: no. du projet:

approuvé par:

project no.:

dwg no.: dessin no.:

DWG No. 1



Environment Surrounding North Lake Harbour

Legend:

- Red** - Salt Marsh
- Orange** - Sand Dunes
- Blue** - Freshwater Wetlands

CHANNEL DREDGING
NORTH LAKE HARBOUR
KINGS COUNTY, PEI

Drawing title: Titre du dessin:

ENVIRONMENT SURROUNDING

scale: AS NOTED
échelle:

date: 2006-01-30
revisions:

designed by: conçu par: date:

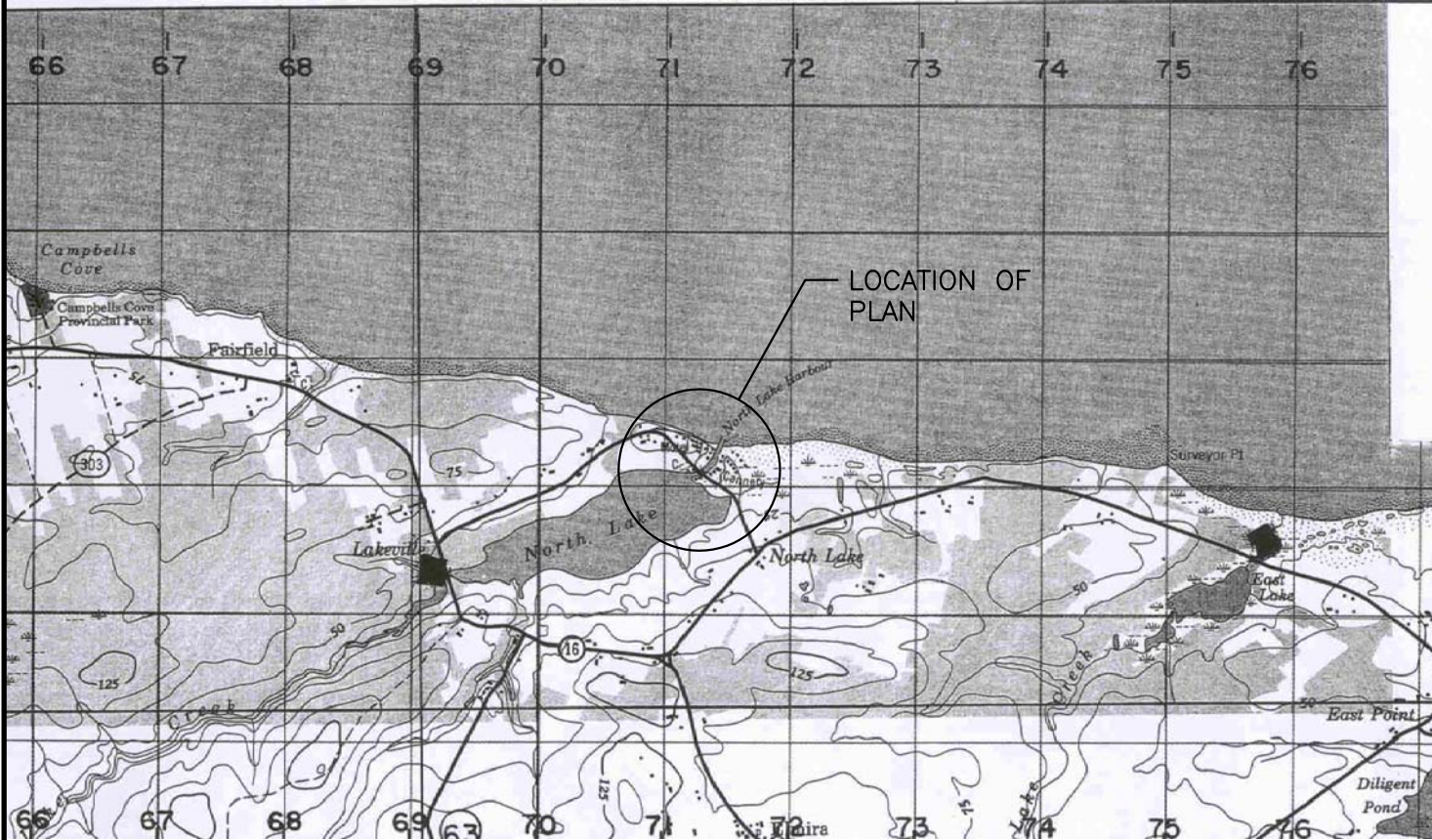
drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG No. 2



**CHANNEL DREDGING
NORTH LAKE HARBOUR
KINGS COUNTY, PEI**

Drawing title: Titre du dessin:

LOCATION PLAN

scale: échelle: AS NOTED

date: 2006-01-30 revisions:

designed by: conçu par: date:

drawn by: dessiné par: C. BANKS

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:


FIG No. 1

LOCATION PLAN



North Lake, PE
27-July-2004 #05-06

Plot Scale: 1:1


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CHANNEL DREDGING
NORTH LAKE HARBOUR
KINGS COUNTY, PEI

Drawing title: Titre du dessin:

AERIAL PHOTO

scale: AS NOTED
 échelle:

date: 2006-01-30
 revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: **FIG No. 3** dessin no.:

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Seacow Pond Harbour**

Site Name:	Seacow Pond Harbour, Prince County, PEI
Dredging Timeline:	Spring to early summer.
Dredging Site Location:	47.029405° N, 63.990578° W Harbour entrance run.
Location of Disposal Site:	The dredged material will be land-based disposed at either the previously used disposal site on DFO-SCH property at Seacow Pond (47.020018°N 64.001822°W), or the previously used disposal site on adjacent private property (refer to location figures).
Disposal Method:	Dredging will be done by a land-based mechanical excavator working from existing infrastructure. Material will be trucked by watertight dump trucks and disposed of in accordance with applicable regulations.
Quantity of Dredged Material:	The dredging will include the removal of approximately 2500 cubic meters (m ³) of overburden (i.e., silt and sand) annually.
Quality of Dredged Material:	The most recent analytical sampling at this site was conducted in March 2005. The samples were tested for the land-based disposal suite of parameters. The analytical test results show that the sediments are acceptable for all land use scenarios.
Shoreline:	Developed harbour located on the north shore of PEI along the Gulf of St. Lawrence. Grain size material to be removed is predominantly sand (98%) with small amounts of silt (<1%) and clay (1.9%).
Harbour Uses:	The harbour serves both recreational and commercial users with facilities used for fishing gear storage and fish hauling located at the harbour. The Harbour Authority will coordinate between the fisheries and the contractor to insure the project proceeds with the least possible interruption.
Residents & Communities:	There are 1900 individuals residing in the statistical district of Lot 1, which encompasses Seacow Pond Harbour (Statistics Canada, 2006).
Vegetation and Wetlands:	The closest wetland resource is ~25m from the project site (Government of PEI, 2006).

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Seacow Pond Harbour**

<p>Fish and Fish Habitat:</p>	<p>Seacow Pond supports a large number of fish species, crustaceans, mollusks and marine plants. Dominant fish species in the area include:</p> <ul style="list-style-type: none"> • Atlantic cod (<i>Gadus morhua</i>) • Atlantic herring (<i>Clupea harengus</i>) • Hake (<i>Merluccius bilinearis</i>) • gaspereau (<i>Alosa pseudoharengus</i>) • mackerel (<i>Scomber scombrus</i>) <p>Crustaceans and shellfish in the area include:</p> <ul style="list-style-type: none"> • lobster (<i>Homarus americanus</i>) • rock crab (<i>Cancer irroratus</i>) • toad crab (<i>Hyas areneus</i>)
<p>Wildlife:</p>	<p>According to Traditional Fishery Mapping from the DFO there is no marine wildlife in the vicinity of the harbour (DFO, 2004).</p>
<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl:</p>	<p>Seacow Pond is known to provide habitat for migratory birds including: killdeer (<i>Charadrius vociferus.</i>), spotted sandpiper (<i>Actitis macularia</i>), common snipe (<i>Gallinago gallinago</i>) and black guillemot (<i>Cepphus grylle</i>).</p>
<p>Species at Risk:</p>	<p>According to the CWS (2006), the following species at risk have been identified as potentially occurring in the area:</p> <ul style="list-style-type: none"> • blue whale (<i>Balaenoptera Musculus</i>) • North Atlantic right whale (<i>Eubalanea glacilais</i>) • monarch butterfly (<i>Danaus plexippus</i>) <p>A search of the ACCDC database (5 kilometre (km) buffer around the study area) yielded 56 records of 50 species of rare vascular flora, and no records of rare nonvascular flora. This study also found 7 records of 4 sensitive vertebrate fauna and 3 records of 3 species of sensitive invertebrate fauna (ACCDC, 2006).</p> <ul style="list-style-type: none"> • Great Cormorant (<i>Phalacrocorax carbo</i>) • Piping Plover (<i>Charadrius melodus</i>) • Black Guillemot (<i>Cepphus grylle</i>) • Barn Swallow (<i>Hirundo rustica</i>) • Red-Waisted Whiteface (<i>Leucorrhinia proxima</i>) • Emerald Spreadwing (<i>Lestes dryas</i>) • Lyre-Tipped Spreadwing (<i>Lestes unguiculatus</i>) • Connecticut Beggar-Ticks (<i>Bidens heterodoxa</i>) • Golden Groundsel (<i>Packera aurea</i>) • Smooth Goldenrod (<i>Solidago gigantea</i>) • Boreal American-Aster (<i>Symphyotrichum boreale</i>) • Hoary Whitlow-Grass (<i>Draba incana</i>)

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Seacow Pond Harbour**

Species at Risk:	<ul style="list-style-type: none"> • Knotted Pearlwort (<i>Sagina nodosa ssp. borealis</i>) • Purple Crowberry (<i>Empetrum eamesii ssp. atropurpureum</i>) • Bog Rosemary (<i>Andromeda polifolia var. glaucophylla</i>) • Dwarf Huckleberry (<i>Gaylussacia dumosa</i>) • Mountain Cranberry (<i>Vaccinium vitis-idaea</i>) • Seaside Spurge (<i>Chamaesyce polygonifolia</i>) • Pink Wintergreen (<i>Pyrola asarifolia</i>) • Small Yellow Water-Crowfoot (<i>Ranunculus gmelinii</i>) • Alderleaf Buckthorn (<i>Rhamnus alnifolia</i>) • Cloudberry (<i>Rubus chamaemorus</i>) • Bog Bedstraw (<i>Galium labradoricum</i>) • Hoary Willow (<i>Salix candida</i>) • a Marsh Grass-of-Parnassus (<i>Parnassia palustris var. parviflora</i>) • Labrador Violet (<i>Viola labradorica</i>) • Lance-Leaf Violet (<i>Viola lanceolata</i>) • Dwarf Mistletoe (<i>Arceuthobium pusillum</i>) • Dwarf Juniper (<i>Juniperus communis var. montana</i>) • Water Sedge (<i>Carex aquatilis</i>) • Golden-Fruited Sedge (<i>Carex aurea</i>) • Yellow Sedge (<i>Carex flava</i>) • Long Sedge (<i>Carex folliculata</i>) • Northern Bog Sedge (<i>Carex gynocrates</i>) • Porcupine Sedge (<i>Carex hystericina</i>) • Mud Sedge (<i>Carex limosa</i>) • Loose-Flowered Sedge (<i>Carex rariflora</i>) • Little Green Sedge (<i>Carex viridula</i>) • Few-Flower Spikerush (<i>Eleocharis quinqueflora</i>) • Alpine Cotton-Grass (<i>Trichophorum alpinum</i>) • Russet Cotton-Grass (<i>Eriophorum russeolum</i>) • Tufted Leafless-Bulrush (<i>Trichophorum caespitosum</i>) • Gaspé Peninsula Arrow-Grass (<i>Triglochin gaspensis</i>) • Greene's Rush (<i>Juncus greenet</i>) • Star Duckweed (<i>Lemna trisulca</i>) • Starflower Solomon's-Plume (<i>Maianthemum stellatum</i>) • Tuberous Grass-Pink (<i>Calopogon tuberosus</i>) • Loesel's Twayblade (<i>Liparis loeselii</i>) • Rose Pogonia (<i>Pogonia ophioglossoides</i>) • Marsh Muhly (<i>Muhlenbergia glomerata</i>) • Common Reed (<i>Phragmites australis</i>) • American Bur-Reed (<i>Sparganium americanum</i>) • Trailing Clubmoss (<i>Lycopodium complanatum</i>) • Deep-Root Clubmoss (<i>Lycopodium tristachyum</i>) • Chamomile Grape-Fern (<i>Botrychium matricariifolium</i>) • Least Grape-Fern (<i>Botrychium simplex</i>)
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**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Seacow Pond Harbour**

	<ul style="list-style-type: none"> Royal Fern (<i>Osmunda regalis</i> var. <i>spectabilis</i>)
Environmentally Significant Areas:	ACCDC has identified the Nail Pond Nautral Area within 5 km of the proposed project.
Transportation and Navigation:	Seacow Pond harbour is free of ice from approximately April 15 to December 15. The harbour experiences the highest boating activity during May and June (F. Morrissey, pers. comm., 2006).
Commercial Fishing and Aquaculture:	<p>There are approximately 50 homeport commercial vessels operating out of the harbour with minimal recreational use. Fisheries at this harbour include:</p> <ul style="list-style-type: none"> Lobster is harvested during the months of May and June. Snow crab fishing occurs from April to mid-September. The ground fishery traditionally commences from August and extends to November. There is also herring fishery at this harbour. <p>There are no aquaculture operations, aquaculture leased sites, or fish processing plants at or near the harbour.</p>

Due to the repetitive use of the dredge spoil disposal site footprint the quality of habitat is limited thus there is no critical or limiting habitat for the species listed above, therefore, no significant residual adverse effects are anticipated.

Also, due to the limited geographic extent (the dredge and disposal site footprints), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this location.

References

NOTE: All information is provided by the following reference, unless otherwise indicated:

Public Works and Government Services Canada. 2005. Small Craft Harbours Branch (DFO-SCH) Gulf Region Environmental Screening Report for Basin/Run Redredging – Seacow Pond Harbour, Seacow Pond, Prince County, PEI.

ACCDC (Atlantic Canada Conservation Data Centre). 2006. ACCDC data response for Seacow Pond Harbour, Prince Edward island. S. Gerriets, Senior Data Manager.

Canadian Wildlife Service. 2006. Species at Risk. Internet Link: http://www.speciesatrisk.gc.ca/search/speciesResults_e.cfm.

Department of Fisheries and Oceans Canada. 2004. Traditional Fishery Mapping – Inshore and Nearshore Database Searches for Prince Edward Island. URL: <http://glfgeo.dfo-mpo.gc.ca/tfk-ctp/>.

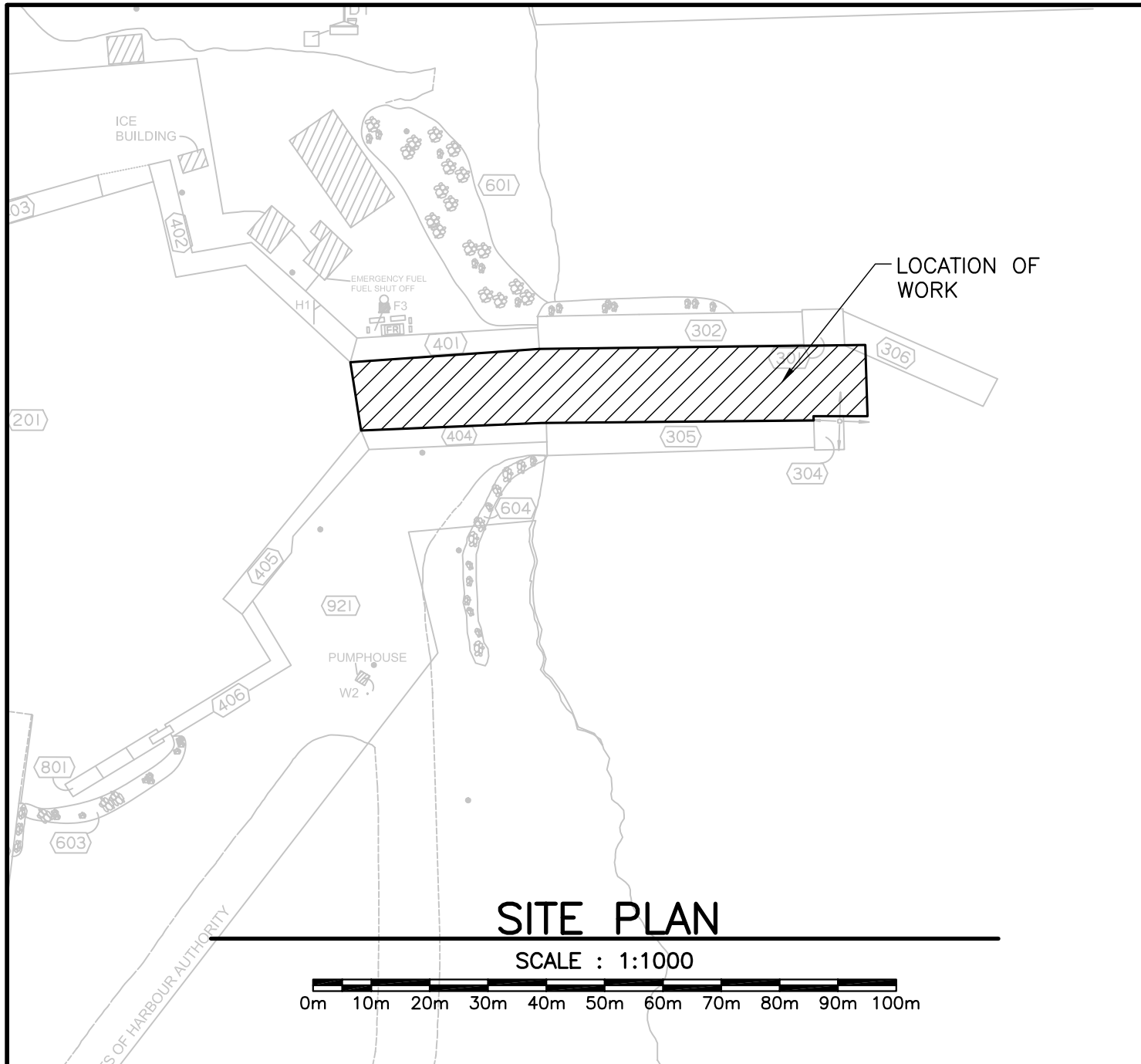
Government of PEI. 2006. Wetland Information. <http://www.gov.pei.ca>.


Statistics Canada. 2006. 2001 Census. www.statscan.ca

Personal Communications

Mr. Francis Morrissey DFO SCH Seacow Pond Harbour Authority contacted on January 20, 2006.

Ms. Rosemary Curley, DFO, contacted on January 23, 2006




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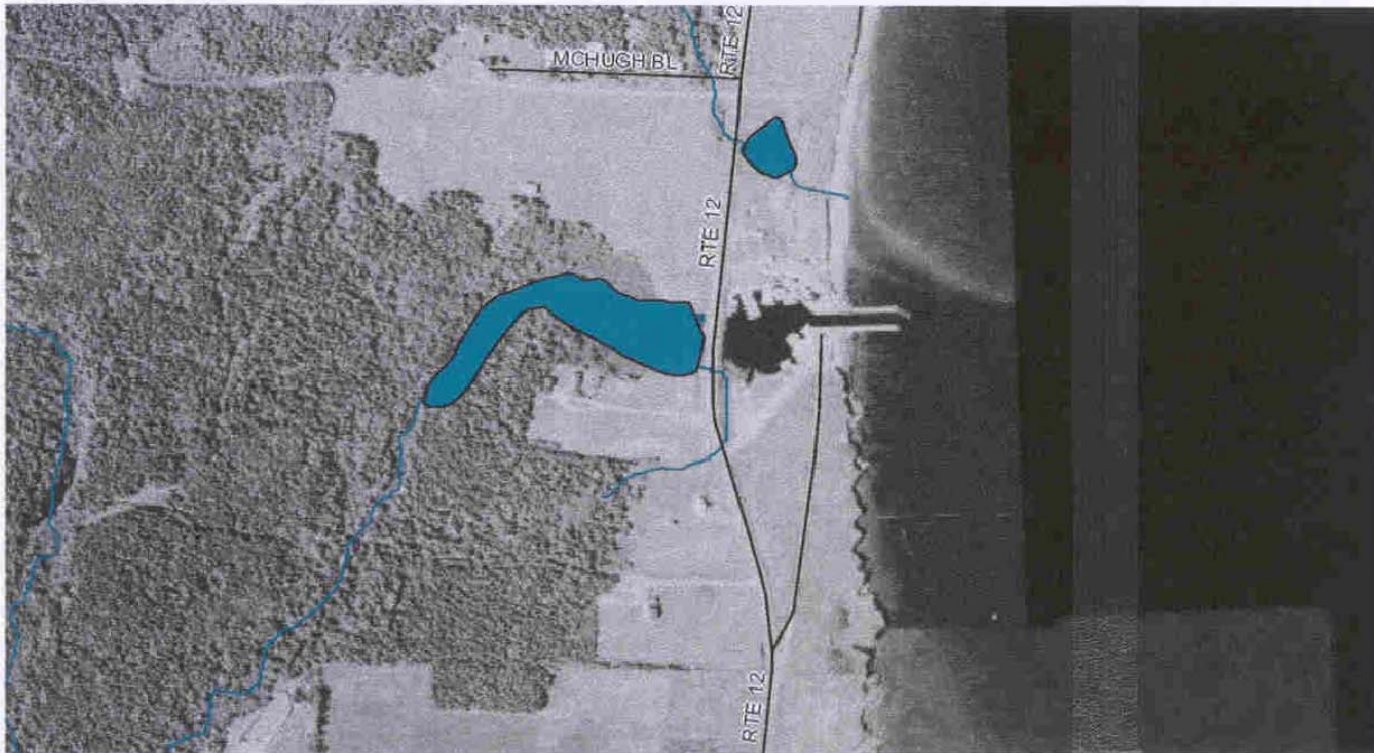
**Travaux publics et
Services gouvernementaux
Canada**

DREDGING

**SEACOW POND
PRINCE COUNTY, PEI**

Drawing title:	Titre du dessin:
SITE PLAN	
scale:	AS NOTED
échelle:	AS NOTED
date:	revisions:
2006-01-31	
designed by:	date:
conçu par:	
drawn by:	C. BANKS
dessiné par:	
approved by:	
approuvé par:	
project no.:	no. du projet:
dwg no.:	dessin no.:
DWG No. 1	

Plot Scale: 1:1



Environment Surrounding Seacow Pond Harbour

Legend:

Red - Salt Marsh

Orange - Sand Dunes

Blue - Freshwater Wetlands

DREDGING

**SEACOW POND HARBOUR
PRINCE COUNTY, PEI**

Drawing title: Titre du dessin:

ENVIRONMENT SURROUNDING

scale: N.T.S.
échelle:

date: 2006-01-31
revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

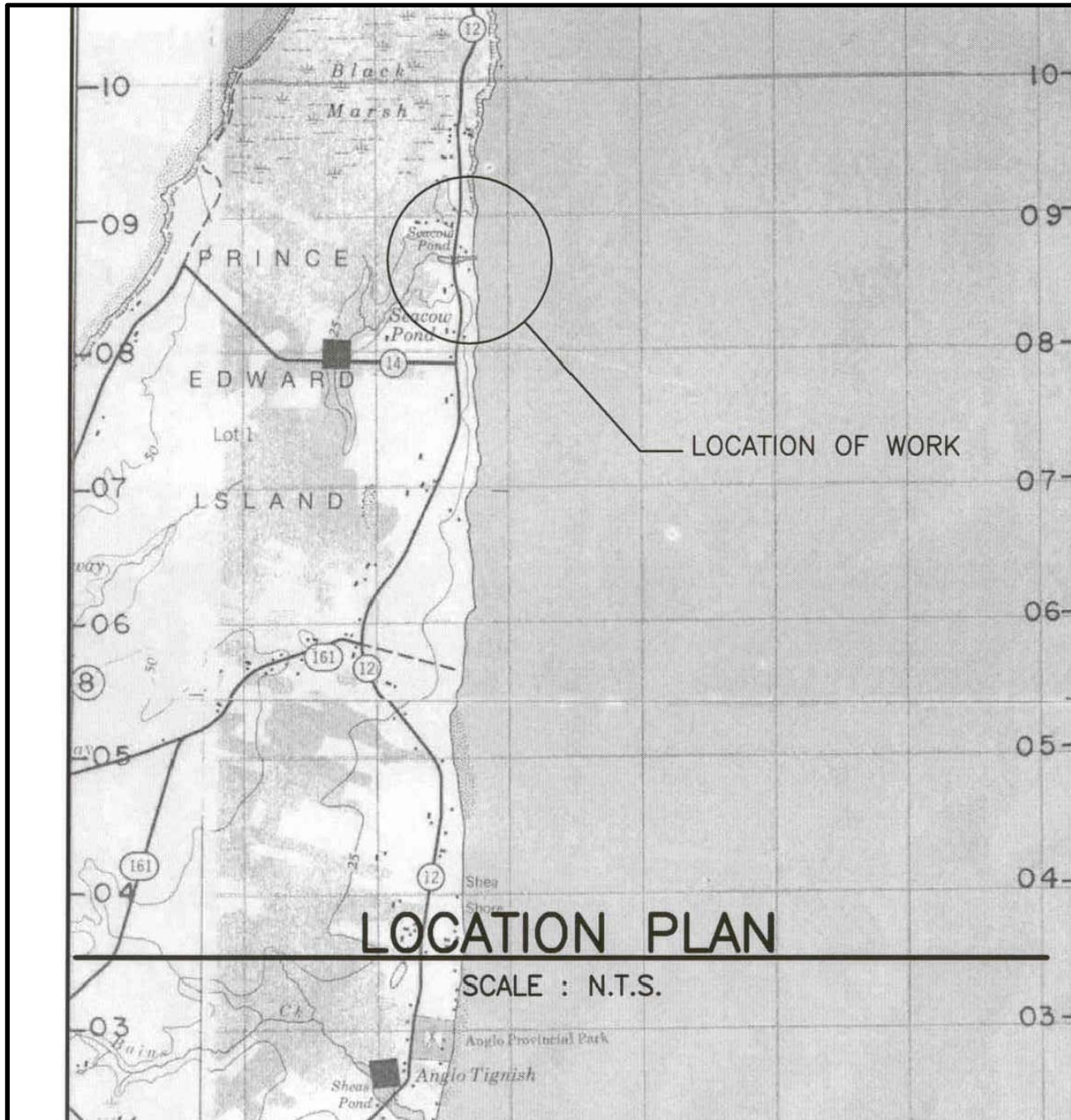
approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG. No. 2

Plot Scale: 1:1



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DREDGING

SEACOW POND HARBOUR PRINCE COUNTY, PEI

Drawing title: Titre du dessin:

LOCATION PLAN

scale: échelle: N.T.S.

date: 2006-01-31 revisions:

designed by: conçu par: date:

drawn by: dessiné par: C. BANKS

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG. No. 1




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DREDGING
SEACOW POND
PRINCE COUNTY, PEI

Drawing title: Titre du dessin:

DISPOSAL SITE

scale: AS NOTED
 échelle:

date: 2006-01-31 revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

DWG No. 2

Plot Scale: 1:1



Plot Scale: 1:1

 Public Works and
Government Services
Canada

Travaux publics et
Services gouvernementaux
Canada

DREDGING

SEACOW POND HARBOUR PRINCE COUNTY, PEI

Drawing title: Titre du dessin:

AERIAL PHOTO

scale: échelle: N.T.S.

date: 2006-01-31 revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG. No. 3

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Skinner’s Pond Harbour**

Site Name:	Skinner’s Pond Harbour, Prince County, PEI
Dredging Timeline:	Spring to early summer.
Dredging Site Location:	46.966253°N 64.126392°W Harbour basin entrance channel/run.
Location of Disposal Site:	The dredged material will be land-based disposed on property owned by DFO-SCH in Skinner’s Pond (46. 965100°N 64.122577°W)..
Disposal Method:	Dredging will be done by a land-based mechanical excavator form existing infrastructure. The material will be loaded directly into watertight tandem dump trucks. It will be land-disposed in a bermed disposal site.
Quantity of Dredged Material:	The dredging will include the removal of approximately 2500 cubic meters (m ³) of material annually.
Quality of Dredged Material:	The most recent analytical sampling at this site was conducted in July 2004. The samples were tested for the land-based disposal suite of parameters. The analytical test results show that the sediments are acceptable for all land use scenarios except agricultural.
Shoreline:	Developed harbour located on the West coast of PEI. Grain size material to be removed is predominantly sand (97%) with small amounts of silt (1.1%) and clay (1.2%).
Harbour Uses:	The harbour has been developed to serve the general fishing industry and includes several storage sheds for equipment associated with the fishing industry. The Harbour Authority will coordinate between the fisheries and the contractor to insure the project proceeds with the least possible interruption. Recreational boating activities occur in the harbour.
Residents &Communities:	There are 1,900 individuals residing in the statistical district of Lot 14, which encompasses Skinner’s Pond Harbour (Statistics Canada, 2006).
Vegetation and Wetlands:	The closest wetland resource is ~60m from the project site (Government of PEI, 2006).

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Skinner’s Pond Harbour**

<p>Fish and Fish Habitat:</p>	<p>Skinner’s Pond Harbour supports a large number of fish species, crustaceans, mollusks and marine plants. Dominant fish species in the area include:</p> <ul style="list-style-type: none"> • Atlantic cod (<i>Gadus morhua</i>) • Atlantic herring (<i>Clupea harengus</i>) • American plaice (<i>Hippoglossoides platessoides</i>) • winter flounder (<i>Pseudopleuronectes americanus</i>) • hake (<i>Merluccius bilinearis</i>) • gaspereau (<i>Alosa pseudoharengus</i>) • mackerel (<i>Scomber scombrus</i>) <p>Crustaceans and shellfish in the area include:</p> <ul style="list-style-type: none"> • lobster (<i>Homarus americanus</i>) • rock crab (<i>Cancer irroratus</i>) • scallops (<i>Placopecten magellanicus</i>)
<p>Wildlife:</p>	<p>According to Traditional Fishery Mapping from the DFO there is no marine wildlife in the vicinity of the harbour (DFO, 2004).</p>
<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl:</p>	<p>According to Erskine’s Atlas of Breeding Birds of the Maritime Provinces the following breeding bird species are located in proximity to Skinner’s Pond Harbour. The species list is considered to be conservative given that the area of the sample is larger than that of the harbour.</p> <ul style="list-style-type: none"> • alder flycatcher (<i>Empidonax alnorum</i>) • American black duck (<i>Anas rubripes</i>) • American redstart (<i>Setophaga ruticilla</i>) • bank swallow (<i>Riparian riparia</i>) • belted kingfisher (<i>Ceryle alcyon</i>) • blue-winged teal (<i>Anas dicors</i>) • bobolink (<i>Dolichonyx oryzivorus</i>) • cedar waxwing (<i>Bombycilla cedrorum</i>) • chipping sparrow (<i>Spizella passerine</i>) • common yellowthroat (<i>Geothlypis trichas</i>) • Northern Parula warbler (<i>Parula americana</i>) • Northern pintail (<i>Anas acuta</i>) • red-winged blackbird (<i>Agelaius phoeniceus</i>) • ruby-crowned kinglet (<i>Regulus calendula</i>) • savannah sparrow (<i>Passerculus sandwichensis</i>) • song sparrow (<i>Melospiza melodia</i>) • spotted sandpiper (<i>Actitis macularia</i>) • swamp sparrow (<i>Melospiza georgiana</i>) • Tennessee warbler (<i>Vermivora peregrina</i>) • White-winged crossbill (<i>Loxia leucoptera</i>)

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Skinner’s Pond Harbour**

Migratory Birds, Seabirds, Shorebirds, and Waterfowl:	<ul style="list-style-type: none"> • yellow warbler (<i>Dendroica petechia</i>) • yellowrumped warbler (<i>Dendroica coronata</i>)
Species at Risk:	<p>The following species at risk have been identified by the CWS (2006) as potentially occurring in the area:</p> <ul style="list-style-type: none"> • blue whale (<i>Balaenoptera Musculus</i>) • North Atlantic right whale (<i>Eubalanea glacilais</i>) • monarch butterfly (<i>Danaus plexippus</i>) <p>A search of the ACCDC database (5 kilometre (km) buffer around the study area) yielded 22 records of 20 species of rare vascular flora, and no records of rare nonvascular flora. This study also found 5 records of 5 sensitive vertebrate fauna (ACCDC, 2006).</p> <ul style="list-style-type: none"> • Piping Plover (<i>Charadrius melodus</i>) • Barn Swallow (<i>Hirundo rustica</i>) • Nelson's Sharp-tailed Sparrow (<i>Ammodramus nelsoni</i>) • Bobolink (<i>Dolichonyx oryzivorus</i>) • White-winged Crossbill (<i>Loxia leucoptera</i>) • Golden Groundsel (<i>Packera aurea</i>) • Smooth Goldenrod (<i>Solidago gigantea</i>) • Bog Aster (<i>Oclemena nemoralis</i>) • Rough-Leaved Aster (<i>Eurybia radula</i>) • Canada Sand-Spurry (<i>Spergularia canadensis</i>) • Bog Rosemary (<i>Andromeda polifolia</i> var. <i>glaucophylla</i>) • Alpine Blueberry (<i>Vaccinium uliginosum</i>) • Seaside Spurge (<i>Chamaesyce polygonifolia</i>) • Bristly Crowfoot (<i>Ranunculus pensylvanicus</i>) • Tall Hairy Groovebur (<i>Agrimonia gryposepala</i>) • Rough Avens (<i>Geum laciniatum</i>) • Crawford Sedge (<i>Carex crawfordii</i>) • Inflated Sedge (<i>Carex vesicaria</i> var. <i>jejuna</i>) • Beach-Head Iris (<i>Iris setosa</i> var. <i>canadensis</i>) • Dudley's Rush (<i>Juncus dudleyi</i>) • Swamp-Pink (<i>Arethusa bulbosa</i>) • Green Adder's-Mouth (<i>Malaxis unifolia</i>) • Rose Pogonia (<i>Pogonia ophioglossoides</i>) • Brook Grass (<i>Catabrosa aquatica</i> var. <i>laurentiana</i>) • Small Floating Manna-Grass (<i>Glyceria borealis</i>)
Environmentally Significant Areas:	ACCDC has identified the Nail Pond Natural Area within 5 km of the proposed project.
Transportation and Navigation:	According to the Atlas of Canada, the harbour is usually open to navigation from April 1 to January 15.

**SITE SPECIFIC INFORMATION
FOR REPLACEMENT CLASS SCREENING – Skinner’s Pond Harbour**

Commercial Fishing and Aquaculture:	See “Fish and Fish Habitat” above.
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Due to the repetitive use of the dredge spoil disposal site footprint the quality of habitat is limited thus there is no critical or limiting habitat for the species listed above, therefore, no significant residual adverse effects are anticipated.

Also, due to the limited geographic extent (the dredge and disposal site footprints), duration/frequency of the re-dredging and land-based disposal projects, and the fact that the work is being undertaken in functioning commercial harbours where similar levels of disturbance are common with normal operations at the site (i.e. reversibility of potential adverse effects), adverse residual effects are rated as not significant for this location.

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Personal Communications

Ms. Rosemary Curley, DFO, contacted on January 23, 2006

NORTHUMBERLAND STRAIT

PROVINCIAL ROADWAY

DISPOSAL AREA FOR DREDGE MATERIAL

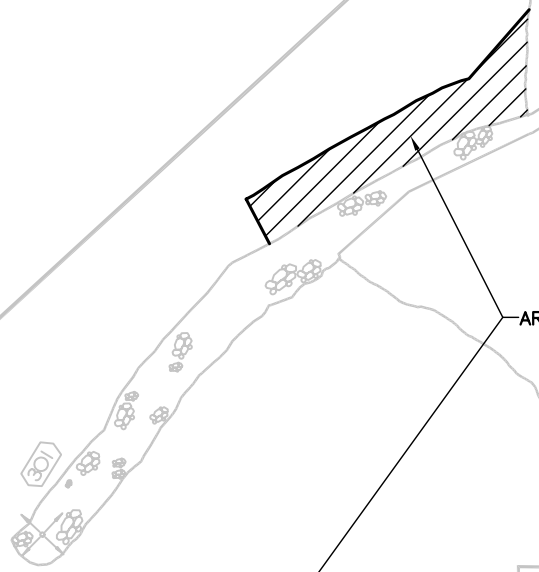
AREA TO BE DREDGED

BAIT SHED

CONCRETE REMAINS OF BUILDING

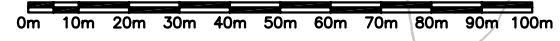
CANOPY

EMERGENCY FUEL SHUT OFF



SITE PLAN

SCALE : 1:1000



 Public Works and
Government Services
Canada

Travaux publics et
Services gouvernementaux
Canada

CHANNEL DREDGING SKINNER'S POND HARBOUR PRINCE COUNTY, PEI

Drawing title: Titre du dessin:

SITE PLAN

scale: AS NOTED
échelle:

date: revisions:

2006-01-30

designed by: conçu par: date:

drawn by: dessiné par: C. BANKS

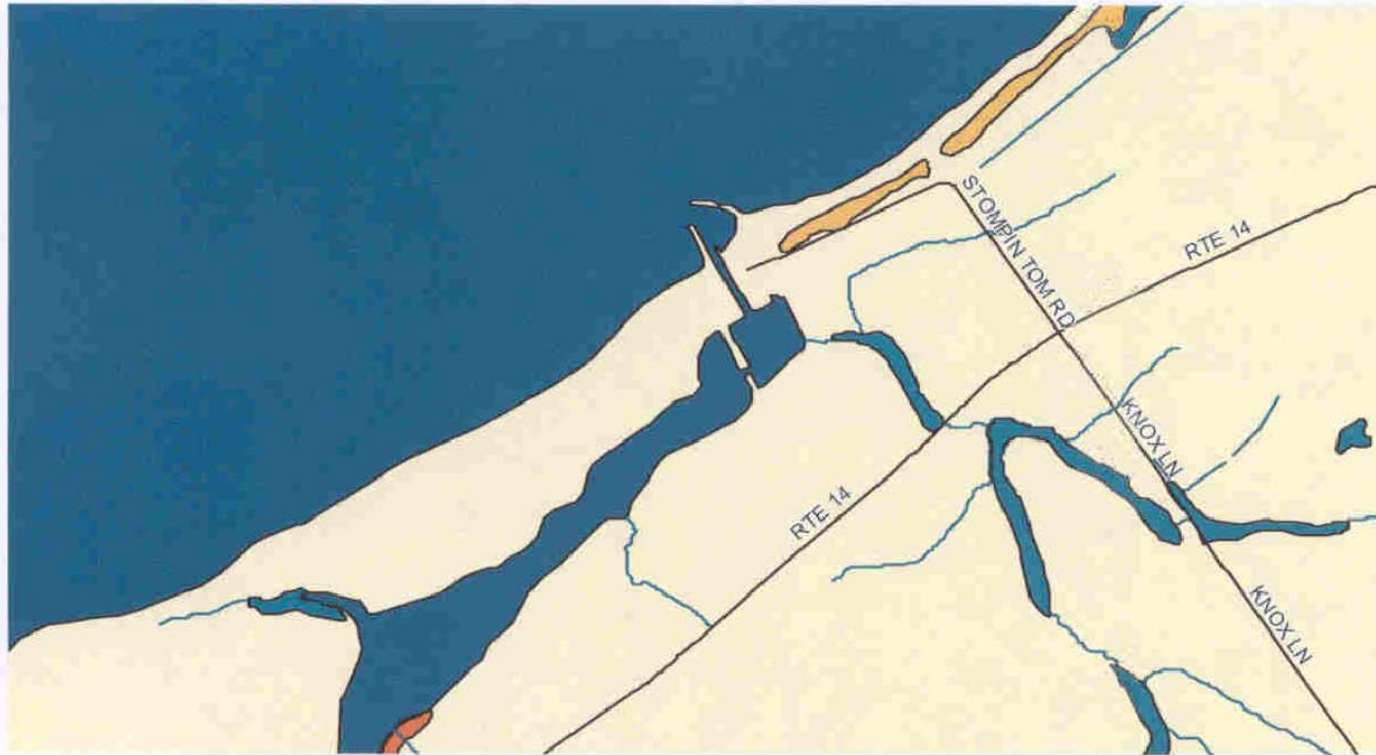
approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

DWG No.1

Plot Scale: 1:1



Environment Surrounding Skinner's Pond Harbour

Legend:

- Red** - Salt Marsh
- Orange** - Sand Dunes
- Blue** - Freshwater Wetlands

DREDGING

**SKINNER'S POND HARBOUR
PRINCE COUNTY, PEI**

Drawing title: Titre du dessin:

ENVIRONMENT SURROUNDING

scale: N.T.S.
échelle:

date: 2006-01-31
revisions:

designed by: conçu par: date:

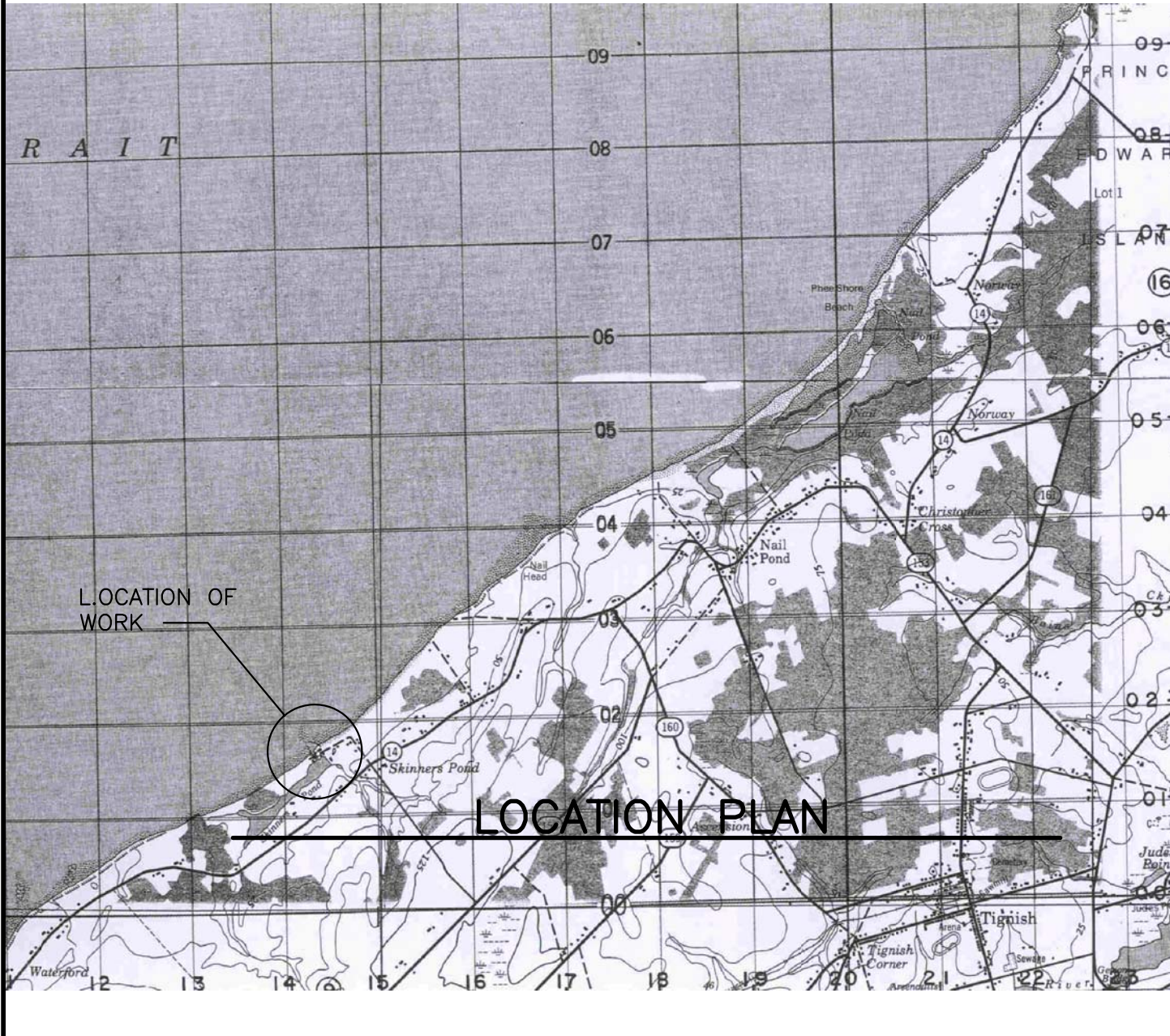
drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG No. 2



DREDGING

**SKINNER'S POND HARBOUR
PRINCE COUNTY, PEI**

Drawing title: Titre du dessin:

LOCATION PLAN

scale: échelle: N.T.S.

date: 2006-01-31 revisions:

designed by: conçu par: date:

drawn by: dessiné par: C. BANKS

approved by: approuvé par:

project no.: no. du projet:

dwg no.: dessin no.:

FIG No.1

Plot Scale: 1:1



Skinner's Pond 04/07/27 12:59

Plot Scale: 1:1

 Public Works and
Government Services
Canada

Travaux publics et
Services gouvernementaux
Canada

DREDGING

**SKINNER'S POND HARBOUR
PRINCE COUNTY, PEI**

Drawing title: Titre du dessin:

AERIAL PHOTO

scale: échelle: N.T.S.

date: 2006-01-31 revisions:

designed by: conçu par: date:

drawn by: dessiné par: **C. BANKS**

approved by: approuvé par:

project no.: no. du projet:

dwg no.: **FIG No. 3** dessin no.:

Annual Harbour Maintenance Re-Dredging – Replacement Class Screening Report
(Final Draft)

**APPENDIX B: ENVIRONMENTAL PROTECTION PLAN
WITH SITE-SPECIFIC CONSIDERATIONS**

August 31, 2007

**ENVIRONMENTAL PROTECTION PLAN (EPP)
ANNUAL HARBOUR MAINTENANCE RE-DREDGING
REPLACEMENT CLASS SCREENING REPORT (RCSR)
PRINCE EDWARD ISLAND**

*Prepared for Fisheries and Oceans Canada (DFO)-Small Craft Harbours (SCH)
By Public Works and Government Services Canada (PWGSC)
Charlottetown, Prince Edward Island (PEI)*

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List of Acronyms

BTEX	benzene, toluene, ethylbenzene, and xylene
CCG	Canadian Coast Guard
CCME	Canadian Council of Ministers of the Environment
DDT	dichloro-diphenyl-trichloroethane
DFO	Fisheries and Oceans Canada
EC	Environment Canada
EPP	Environmental Protection Plan
HADD	harmful alteration, destruction and disruption of fish habitat
HAZWHOPER	Hazardous Waste Operations and Emergency Response
HMD	Habitat Management Division
MBCA	<i>Migratory Birds Convention Act</i>
MSDS	Material Safety Data Sheet
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
PEI	Prince Edward Island
PEIDEEF	Prince Edward Island Department of Environment, Energy and Forestry
PWGSC	Public Works and Government Services Canada
RBCA	Risk-Based Corrective Action
RBSL	Risk Based Screening Levels
RCSR	Replacement Class Screening Report
SARA	<i>Species at Risk Act</i>
SCH	Small Craft Harbours
SQG	Soil Quality Guidelines
TIC	total inorganic carbon
TOC	total organic carbon
TPH	total petroleum hydrocarbons
WHMIS	Workplace Hazardous Materials Information System

1.0 PURPOSE

The purpose of the EPP is to provide environmental mitigation measures that would be implemented during the activities associated with the proposed annual maintenance re-dredging at those DFO-SCH sites included in the RCSR (see Table 1 for dredge sites / descriptions). The EPP presents standard mitigation measures that are applicable to each DFO-SCH site captured in the RCSR. As well as site-specific mitigation measures have been developed to address sensitive features identified at a portion of the sites (refer to Section 2.9).

The components of the EPP include:

- Ensuring that the Contractor's commitments to minimize the environmental impacts from the project will be met;
- Documenting environmental concerns and appropriate protection measures;
- Providing practical mitigation methods regarding procedures for protecting the environment and minimizing the environmental effects of the proposed project;
- Providing a reference document outlining specific mitigation measures to protect the environment;
- Providing a training aid during implementation efforts; and,
- Providing a reference to applicable legislative requirements.

This EPP provides the procedures and organization to ensure that project personnel understand and implement environmental protection procedures for both routine and unplanned events associated with the re-dredging activities.

The format of the EPP is intended to enhance its use by project personnel in the field and to provide an important support document between various permits and authorizations issued for specific project components and activities. This EPP comprises the following sections:

- Section 1 - outlines the purpose and organization of the EPP.
- Section 2 - outlines the potential environmental concerns and associated environmental protection procedures that are applicable to all sites, as well as site-specific issues for harbours as indicated in attached tables. Relevant permits, approvals and authorizations are provided in this section along with specific implementation notes and references to other relevant documents.
- Section 3 - outlines the specific environmental protection measures for invasive species.
- Section 4 - outlines the contingency plans including instructions for personnel to respond to accidental or unplanned events.
- Section 5 - outlines the key contacts for the project.

Table 1: Proposed DFO SCH Re-Dredging and Land-Based Disposal Sites

DFO SCH Site	Re-Dredging Location	Expected Volume (m ³) to be Removed	Sediment Quality		Expected Re-Dredging Methodology	Land-Based Disposal Location	Approx. Number of Years Used as Land-Based Disposal Site
			Date Collected	Results*			
Covehead	Wharf Face	1000	November 2005	Acceptable for all Canadian Council of Ministers of the Environment (CCME) Soil Quality Guidelines (SQG) and Risk Based Corrective Action (RBCA) land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property; possible use for the re-dredged material will be construction/bedding material.**	>10 years
Fishing Cove	Channel Entrance	3000	March 2005	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck	Adjacent private property	4 years
Grahams Pond	Run	4000	March 2004	Acceptable for all RBCA land use scenarios and CCME SQG land use scenarios except agricultural; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property	> 10 years
Howards Cove	Run	3500	July 2004	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand with some gravel	Land-based excavator/water-tight dump truck	Adjacent private property	3 years
Launching Pond	Basin Entrance	4000	March 2005	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property; possible use for the re-dredged material will be for concrete.**	5 years
North Lake	Basin	4000	March 2005	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property; possible use for the re-dredged material will be construction/bedding material.**	>10 years
North Lake	Run	4000	November 2005	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck/ dozer and loader	DFO SCH Property; possible use for the re-dredged material will be construction/bedding material.**	>10 years
Seacow Pond	Run Entrance	2500	March 2005	Acceptable for all CCME SQG and RBCA land use scenarios; predominant grain size is sand	Land-based excavator/water-tight dump truck	Adjacent Private Property	5 years
Skidders Pond	Channel/Run Entrance	2500	July 2004	Acceptable for all RBCA land use scenarios and CCME SQG land use scenarios except agricultural; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property	>10 years
Tignish	Basin	3000	November 2003	Acceptable for all RBCA land use scenarios and CCME SQG land use scenarios except agricultural; predominant grain size is sand	Land-based excavator/water-tight dump truck	DFO SCH Property	>10 years

Note: Appendix A provides figures and supporting environmental setting text illustrating the re-dredge and land-based disposal sites (including coordinates in latitude and longitude; NAD 83), and the relationship to one another, other site features, and the proposed project boundaries.

* The sediment samples collected were analyzed for the standard land based disposal suite of parameters including the ICP 23 metals scan plus mercury and hexavalent chromium, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), low-level benzene, toluene, ethylbenzene, and xylene (BTEX), total petroleum hydrocarbons (TPH), total dichloro-diphenyl-trichloroethane (DDT), total inorganic carbon/total organic carbon (TIC/TOC), and grain size. The marine sediment sample results are compared to the Canadian Council of Ministers of the Environment ~~CCME Soil Quality Guidelines~~ CCME ~~DELETED~~ SQGs for the Protection of Environment and Human Health in agricultural, residential/parkland, and commercial/industrial applications, and the Atlantic RBCA Version 2.0 *Tier 1 Risk-Based Screening Levels* (RBSLs).

**To prevent chemical cross contamination of the disposed material and to maximize the holding capacity of the disposal sites by re-use of acceptable sediment, re-dredged sediment that does not exceed the CCME SQGs for agricultural land use will be stored separately at the disposal site from those materials containing higher levels of chemicals (refer to Section 2.10).

2.0 PROCEDURES

2.1 Hazardous Materials Storage, Handling, and Disposal

A variety of potentially hazardous materials will be used or stored on-site during these projects. Potentially hazardous materials, which will be routinely used, include:

- Petroleum fuels;
- Oils;
- Lubricants; and,
- Hydraulic fluids.

The procedures and requirements of the Workplace Hazardous Materials Information System (WHMIS) program will be in place to protect employees and are generally applicable to the protection of the environment.

The WHMIS procedures and requirements reinforce the proper handling, storage, and control of hazardous or toxic materials thereby reducing the potential for accidental release and consequently environmental impacts.

Environmental Concerns

The major concern regarding the use of these substances is their uncontrolled release into the environment through spills, and subsequent adverse effects on soil (both surface and subsurface), water quality (both surface and groundwater), marine environment and human health and safety.

Environmental Protection Procedures

The implementation of a WHMIS program is directly applicable to the use of these materials for the project including re-dredging activities. The following protection procedures are intended to minimize the potential effect of hazardous materials on the environment:

- Hazardous materials will be used only by personnel who are trained and qualified in the handling of these materials (i.e., Hazardous Waste Operations and Emergency Response HAZWOPER) and only in accordance with the manufacturer's instruction and government regulations. The WHMIS program will be implemented throughout the job site in accordance with the *PEI Occupational Health and Safety Act* and regulations put forth by the Workplace Health, Safety and Compensation Commission of PEI. All employees involved with hazardous materials must be appropriately trained.
- A complete inventory of the hazardous materials is to be maintained according to the WHMIS. This inventory is to be available to regulatory agencies upon request.
- The transportation of hazardous materials will be conducted in compliance with the Federal *Transportation of Dangerous Goods Act*.
- Fuel storage on the work site will be undertaken in compliance with applicable Provincial and federal regulations, codes and guidelines. Where fuel storage is undertaken on federal lands, federal guidelines for aboveground storage tanks will be observed.
- All bulk storage of fuel products on site will be at least 30 m from a watercourse or wetland and in aboveground, dyked or some form of secondary containment. No hazardous materials storage will occur in a buffer zone of a watercourse or other environmentally sensitive areas.

- Transfer, fueling and lubrication of equipment on the site will occur in such a manner as to minimize the possibility of contamination to soil (both surface and subsurface) and/or water (surface and groundwater). Fueling or servicing of mobile equipment on land will not be allowed within 30 m of a water course or wetland except within a specifically designated refueling area where conditions will allow for containment of an accidental spill of fuels and lubricates.
- Material Safety Data Sheets (MSDS) will be available for all hazardous materials in use or stored on-site.
- All hazardous materials, when required, will be removed and disposed of in an acceptable manner in accordance with government regulations and requirements.
- The Contractor will have appropriate emergency spill response equipment for containment and cleanup of spills. This equipment will consist of at least one 250 L (i.e. 55 gal. overpak) spill kit, containing equipment to prevent a spill from spreading and will quickly contain and clean up the spill area.
- All equipment should be kept in good working order to prevent leakage of hazardous materials to the environment. Should a small leak or drip be identified, they will be contained by using drip pans or other appropriate means until the equipment is properly repaired. Routine maintenance will be conducted offsite.

2.2 Petroleum, Oils, and Lubricants

A variety of fuels, greases, motor oils and hydraulic fluids will be used in all work areas. Proper practices and procedures for handling and storage of these products will minimize chronic loss and the potential for accidental spills.

Environmental Concerns

The chronic and accidental release of petroleum products may adversely affect the terrestrial and/or marine environment.

Environmental Protection Procedures

The following protection procedures are intended to minimize the potential effect of chronic leaks and the potential for accidental spills of petroleum products in the terrestrial and/or marine environment:

Transport, Storage and Transfer of Fuel

- The transportation of fuel will be conducted in compliance with the *Transportation of Dangerous Goods Act*. Reputable, qualified and licensed companies will conduct the delivery of petroleum products to the site.
- Fuel storage on the work site will be undertaken in compliance with applicable Provincial and federal regulations, codes and guidelines. Where fuel storage is undertaken on federal lands, federal guidelines for aboveground storage tanks will be observed.
- All bulk storage of fuel products on site will be at least 30 m from a watercourse or wetland and in aboveground tanks with some form of secondary containment (i.e. double wall tank or concrete containment).

Transfer, fueling and lubrication of equipment on the site will occur in such a manner as to minimize the possibility of contamination to the surface/subsurface soil and/or surface (both marine and fresh) and/or groundwater. Fueling or servicing of mobile equipment on land will not be allowed within 30 m of a water course or wetland except within specifically designated refueling area where conditions will allow for containment of an accidental spill of fuels and/or lubricants.

Spills

- All spills and suspected spills of petroleum products, regardless of size, will be reported immediately to the Site Supervisor. The Site Supervisor will report the spill immediately to the Canadian Coast Guard (CCG) as outlined in the **CONTINGENCY PLANS** of this EPP.
- The Contractor will have the appropriate emergency spill response equipment for the containment and cleanup of spills of petroleum and/or chemical products used for the duration of the project. This equipment will consist of at least one 250 L (55 gal. overpak) spill kit, containing equipment to prevent a spill from spreading and will quickly contain and clean up the spill area.

2.3 Annual Harbour Maintenance Re-Dredging/Land-Based Disposal of Dredge Material

Environmental Concerns

The principal concerns with the annual harbour maintenance re-dredging projects are: the release of fine materials into the water column, which could have an effect on aquatic life and/or aquatic habitat, the alteration, disruption and/or destruction of wetland areas, the disturbance of endangered species/migratory birds and their habitat during the re-dredging and/or disposal process, noise, odors resulting from the presence of organic material, and the possibility of fuel spills from the equipment. The following procedures are applicable to all project sites:

Environmental Protection Procedures

- All permit conditions will be strictly complied with;
- Trucks hauling dredged material will be equipped with watertight boxes to minimize loss of material. Trucks not meeting this criteria will be removed from the job;
- Project schedule shall be set based on characteristics of the environmental setting of the site to avoid adverse interaction with sensitive fish and fish habitat features. Contact shall be made with the DFO Area Habitat Biologist prior to commencement. Re-dredging will not be conducted during periods of fish migration through the proposed re-dredging area;
- Re-dredging of the overburden will be undertaken by a properly trained operator (either suction dredge or excavator) and will be conducted in a manner that minimizes the re-suspension of sediments in the water column;
- All vessels will be governed in accordance with the *Canadian Shipping Act*;
- Any materials that enter the waterway will be immediately retrieved and disposed of in an appropriate manner;
- Project shall comply with Section 36(3) of the *Fisheries Act* which prohibits the deposit of a deleterious substance in water frequented by fish unless the deposit is authorized by regulation;
- Project shall comply with Section 35(1) of the *Fisheries Act* such that no person shall carry on any work or undertaking that results in harmful alteration, destruction, and disruption (HADD) of fish habitat;
- Heavy machinery, equipment and pollutants shall not be permitted below the ordinary high water mark and shall not be located or stored in areas in danger of floodwaters;
- Visual monitoring of turbidity shall be required in the vicinity of the site to ensure that it is limited. If excessive change occurs in the turbidity beyond the site limits that differs from the existing conditions of the surrounding water bodies (i.e., distinct color difference), the work shall stop, the source of the turbidity will be determined and be reported to the Project Manager to determine if additional mitigation measures are required;

- Turbidity and sedimentation should be mitigated by initiating excavation activities at the low tide to contain any suspended sediments within the site area, and permit time for local deposition of the heavier fraction to occur before any out flowing current associated with the drop in tide. Project activities should be undertaken during benign weather conditions to minimize dispersion of silt and sediment from the site;
- In case of an accidental spill/release of fuel, the contingency plan will be followed as per **Section 4.1**; and,

The following techniques are to be employed by the equipment operator during the re-dredging process:

- Reduce the ascent speed of the bucket;
- Minimize over water swings;
- Eliminate free-board spillage; and,
- Eliminate wash downs on the wharf deck.

In addition, to achieve proper dredge material management, it may be necessary to use an environmental type bucket when dealing with fine-grained material.

2.4 Light, Noise, and Odour Levels

During the re-dredging there will be an increase in noise level.

Environmental Concern

Excessive light, noise, and odour emissions may cause a public disturbance in the vicinity of the project area and along the transportation route, particularly during regular public off-work hours.

Environmental Protection Procedures

The following environmental protection procedures are intended to minimize the potential effects of light and noise levels on the environment:

- Conduct work such that lighting and noise levels remain comparable to those currently produced in the project area;
- All vessels and machinery should be well muffled;
- Project vehicles will keep to designated project transportation routes;
- Lighting and working hours to be regulated by conditions of the relevant municipal permit (if applicable) and/or consultation with local authorities;
- Where additional lighting is required to conduct work, lights will be positioned such that the direction of the lighting is opposite that of nearby residential and business areas;
- To reduce the impact of the odour, where there are concerns, the dredge material containing organics will be covered by suitable dredged material.

2.5 Vehicle Traffic

Equipment will be transported to the site by vehicles over the course of the re-dredging operations. Mobilization and demobilization of the project will require trucks transporting project machinery on the public roads and as well, the re-dredging and disposal operations will involve daily vehicle traffic.

Environmental Concerns

Environmental concerns associated with vehicle traffic are related to the overall condition and the equipment noise, which has the potential to disturb local wharf activities. Vehicle and equipment (surface and subsurface) operation has the potential to affect terrestrial, aquatic and marine habitat and species, soil, groundwater quality, human health and safety, and alter the aesthetic condition of the site.

Environmental Protection Procedures

The general environmental protection procedures applicable for vehicle traffic in the vicinity of the DFO-SCH dredge and disposal sites are:

- Hours of operation for the project will be limited to daylight hours to mitigate any disturbance to harbour users and nearby residents;
- Vehicles and equipment associated with the re-dredging project will be parked in designated areas as provided in consultation with the Harbour Authority;
- All vehicles and equipment associated with the project will be free from antifreeze, fuel, oil and hydraulic fluid leakage. Vehicles and equipment on site will be monitored during the project duration and if leaks are identified the equipment will be repaired or removed from the site immediately;
- Discussions shall be held with municipal and provincial staff to identify peak travel times along applicable road segments with the objective of scheduling project activities (i.e., movement of equipment and personnel) outside these periods and/or high traffic flow directions;
- To ensure no loss of materials, reduced speed is to be exercised and rural roads are to be avoided during periods of heavy traffic.

2.6 Consultation with Waterway Users to Avoid Conflict

It is recognized that SCH are active fishing and transportation ports. In order to reduce conflict with the port users during the re-dredging the Harbour Authority will plan to reduce the potential conflict with port users. The development of this project will be conducted in conjunction with the DFO, and Provincial Government Departments. They include, but are not limited to, the following:

- Consultation with local fishers through the Harbour Authority to notify them of the timing and scope of the upcoming activities. The Harbour Authority will be responsible for coordinating activities at the wharf during the project;
- Forming contingency plans to deal with unpredicted occurrences, as identified from the fishers' consultation (see above).

The programs to be implemented (and modified as necessary) are to reduce conflicts with harbour users and local residents. All project activities will comply with the applicable Provincial permit requirements that may be generated as a result of the project.

2.7 Avoidance of Migratory Birds

Environmental Concerns

All migratory birds are protected under the *Migratory Birds Convention Act* (MBCA). This legislation provides migratory birds protection from hunting and capture during sensitive periods, and prohibits the deposit of oil, oil wastes, or other substances harmful to migratory birds or in any area frequented by birds. The interpretation of "other substances" includes food scraps, sediment plumes, dust, noise and activities that could disturb nesting or feeding migratory birds.

Environmental Protection Procedures

The following environmental protection procedures are intended to minimize the potential effect of the re-dredging project on migratory birds:

- Avoid disturbances to all birds in and near the project area;
- The Contractor is to use public roads to access the project area and to transport dredge material to the approved on-land disposal site;
- The Contractor should be aware that migratory birds, their eggs, nests and young are protected under the MBCA;
- Only main navigational channels should be used;
- Concentrations of seabirds, waterfowl, or shorebirds should not be approached when anchoring equipment, accessing wharves, or ferrying supplies;
- The Contractor is to be aware of the importance of taking measures to ensure that contaminant spills and littering, regardless of the amount, do not occur at sea or along the shoreline. The *Garbage Pollution Prevention Regulations* under the *Canada Shipping Act* prohibit the discharge of garbage from a ship into marine waters; and,
- All vessels and machinery should be well muffled.

2.8 Permits, Approvals, and Authorization

The following table provides a summary of permits, approvals and authorizations.

Annual Harbour Maintenance Re-dredging –DFO-SCH sites

Required Permits	Issuing Department	Person to obtain Permit
PEI Watercourse Alteration Permit	PEI Department of Environment, Energy, and Forestry (PEIDEEF) Contact: Mr. Barry Jackson (902) 368-4684	The Contractor will be required to apply for and obtain all applicable permits (if required).

2.9 Site-Specific Environmental Protection Procedure

The following site-specific environmental protection procedures must be followed at the sites indicated in Table 1:

Environmental Protection Procedure	DFO-SCH Site
Maintenance of 10 metre buffer zone from adjacent wetland areas where no re-dredged material is to be land disposed.	Grahams Pond, Launching Pond, Fishing Cove, Tignish
Pre-disposal monitoring with specific consideration of MBCA and the <i>Species at Risk Act</i> (SARA) (i.e., colonial nesters, migratory birds, and the habitat supporting these birds and other federally and provincially listed species at risk).	Each DFO SCH site captured in the RCSR.

2.10 Disposal Site Management/Reuse of Dredged Material

Environmental Concerns:

The dredge disposal sites selected for these re-dredging projects are previously disturbed areas that have been used as storage sites for dredged sediments in the past. There is a concern that these areas will not longer be available for this use when they are filled to the maximum capacity. There is also a concern that dredged sediment that does not exceed the CCME Guidelines for Agricultural Soils will become contaminated if stored with sediment containing higher amounts of chemicals.

Environmental Protection Procedures:

To prevent chemical cross-contamination of the disposed dredged material and to maximum the holding capacity of the disposal sites by re-use of any acceptable sediment, re-dredged sediment that does not exceed the CCME Guidelines for Agricultural Soils will be stored at the disposal site separately from any sediment containing higher amounts of chemicals. Additionally, the Harbour Authority will be aware of the appropriate use/reuse of the dredged material from the harbour, as outlined in the table below:

Possible uses for dredged material	Dredge locations
Concrete	Graham's Pond, Launching Pond
Construction/ bedding material	North Lake, Covehead, Seacow

3.0 SPECIFIC ENVIRONMENTAL PROTECTION MEASURES

3.1 Prevention of the Transportation / Introduction of Invasive Species

Non-native and invasive species may be unintentionally introduced into a marine environment via various marine construction and improvement projects. The non-native and invasive species have the potential to alter the native ecosystems and have negative impacts on the commercial fishing and aquaculture industries. Some of the potential pathways for spreading these species are, but not limited to the following:

- Species or their water borne larva travels in bilge and ballast water of various marine construction equipment (i.e. barges, scows, etc.);
- Marine sediments remaining in excavation equipment, barges or truck; and,
- Species could be attached or be carried in the bottom/hull of various boats or barges.

Environmental Concerns

Waters of Atlantic Canada are experiencing the effects of invasive aquatic plant and animal species from around the world. Once these non-native or invasive species have established themselves in a new ecosystem (absent of their natural predators) they can harm native species, possibly causing entire ecosystems to be disrupted due to habitat destruction or food chain alteration (i.e. preying on native species, transmitting disease, etc.).

The principal invasive species in the Gulf of St. Lawrence and the Canadian Atlantic coast are tunicates (*Styela clava*), green crab (*Carcinus maenas*) and green alga's (i.e. oyster thief (*Codium fragile tomentosoides*)). Up to date information on the present distribution of these species can be obtained by calling DFO at (902) 566-7812. Information on the Gulf of St. Lawrence can also be found at www.glf.dfo-mpo.gc.ca and for the Canadian Atlantic coasts at www.NortheastANS.org.

Environmental Protection Procedures

The following protection procedures are intended to reduce the potential risk of transporting and introducing invasive marine/terrestrial species to the harbours included in this RCSR during re-dredging and disposal activities:

Project Equipment:

- All re-dredging equipment, including excavators, dredge material haul trucks, and work boats, are to be free of all marine growth prior to mobilization to the site;
- The Contractor is to coordinate removal and cleaning operations to ensure they abide by all requirements of Environment Canada and DFO-Habitat Protection and Sustainable Development Division (HPSDD);
- The Contractor will provide upon request a record of assurance (i.e., dates of cleaning, type of cleaning, location of last mobilization, type of cleaning material used, etc.) that the mitigation measures, as per DFO guidelines, for invasive species has occurred;
- The Contractor is to make all necessary enquiries during the preparation of tender in order to ensure that all costs associated with the above requirements are included in the bid price.

The Contractor maybe required at any time by PWGSC to produce documentation as to when and how they had conducted the above mentioned mitigation measures.

4.0 CONTINGENCY PLANS

Contingency plans have been developed for the following accidental and unplanned events including:

- Fuel and petroleum product spills; and,
- Equipment loss to the marine environment

4.1 Fuel and Petroleum Spills

Environmental Concerns

Accidental terrestrial and marine fuel spills may occur in association with construction activities. Other hazardous products associated with operations, such as hydraulic fluids, lubricating oil and solvents will be used in relatively small quantities. An accidental spill or unplanned event could occur as the result of a leak in the fuel storage units, breach of hoses or lines on equipment or if equipment is overturned. These accidental spills or unplanned events related to hazardous materials can be damaging to both the terrestrial and/or marine environment.

Environmental Protection Procedures

All personnel, supervisors and subcontractors will conduct regular inspections of all construction equipment related to the project. This procedure would identify problems such as equipment wear and tear, and any visible leaks or damage. The result of these inspections will be recorded and any problems will be brought to the Contractor's immediate attention. Fueling of vehicles will be limited to restricted areas where sumps and/or site grading is established to direct and contain an accidental spill should an accident occur, or other alternatives could be considered such as fueling at an off-site location. Small leaks and drips will be contained by using drip pans or other appropriate means until the equipment is properly repaired. The site supervisor will assume overall responsibility of maintaining the current contingency plan and updating the plan as applicable. In the event of an accidental spill or unplanned event, the following procedures will apply:

- The source of the spill must be identified and stopped, with any released material contained immediately;
- All spills, regardless of size, will be reported verbally to the supervisor immediately upon implementation of (a) above.
- The site supervisor will have a copy of the EPP and will halt work in the immediate area and initiate the commencement of spill containment and clean up with the spill kit on hand and call the CCG at **1-800-565-1633** (24 hour report line) and provide the following information:
 - name and phone number of person reporting the spill;
 - approximate time and duration of the spill;
 - type of product released to the environment;
 - locations and source of the spill
 - cause of the spill;
 - present status of clean-up effort;
 - weather conditions (include marine conditions if applicable); and,
 - proximity of water bodies, and any near by facilities.
- The spill will be cleaned up according to applicable Provincial regulations including the proper disposal of contaminated debris, cleaning materials and absorbents.
- The Contractor will prepare a written report, which will be sent to the applicable Provincial and Federal authorities no later than 30 days after the date of the spill.

4.2 Equipment Loss

Environmental Concerns

In the event of equipment roll over, entering the marine environment, or becoming lodged in sand/high water the Contractor will have a contingency plan in place prior to the commencement of work. Any of these events has the potential to harm the terrestrial and/or marine environment.

5.0 KEY CONTACTS LIST

The following section lists key organizations and/or individuals that may be contacted during emergency situations and regarding regulatory issues. The Contractor's contact personnel will be identified as the project design is finalized and specific stages of work proceed.

Royal Canadian Mounted Police (RCMP): 911
Emergency Accident Response: 911
Fire Departments: 911

PEI Emergency Measures Organization

Land Based Operations (Accidents) (902) 892-9365

REGULATORY AUTHORITIES

PEI Department of Environment, Energy and Forestry

Primary Contacts: Mr. Greg Wilson (902)368-5052

Oil Spills: Mr. Danny McInnis (902)368-5057

Wildlife Concerns: Ms. Kate MacQuarrie (902)368-4705

Fish and Wildlife Division: Phone: (902)368-4683 (Division)
Phone: (902)368-4684(Office)

Environment Canada: Canadian Wildlife Service (506)364-5044

Archaeological Contacts: Harry Holman, Provincial Archives Provincial Affairs, PEI (902)368-4227