

APPENDIX B

ANNOTATED ENVIRONMENTAL PROTECTION PLAN OUTLINE FOR THE PROPOSED CRÉMAILÈRE HARBOUR PORT DEVELOPMENT

1.0 Introduction

The Introduction is intended to provide the context needed for the reader to understand where the EPP fits into the Project development process, as well as information on the organization, intended purpose, scope, and document control processes that apply to the document.

1.1. Purpose of the Environmental Protection Plan

1.2 Organization of the Environmental Protection Planning

1.3 Roles and Responsibilities

1.4 Environmental Orientation

1.5 Description of Activities

1.6 Policies and Procedures

1.7 Document Management

2.0 Environmental Protection Procedures

2.1 Surveying

Surveying activities may include: vegetation removal, traversing, and establishing targets, benchmarks and transponder stations.

The EPP for the Project will identify specific environmental protection measures that will be applied during surveying activities including, but not limited to, the following applicable protection measures identified in the EPR:

- Limiting equipment and human foot traffic to smallest necessary footprint;
- Beach and cliff areas to be assessed for presence of plant species that may be rare or threatened;
- Implementation of Avifauna Management Plan (AMP) during survey activities.

2.2 Buffer Zones

The EPR has identified the need for buffer zones for stream and wetland protection as well as at shore zones. Blasting will be controlled according to established guidelines to limit noise impacts and disturbance to fish bearing waters.

No clearing, fencing, or other development shall occur within buffer areas identified in the vicinity of seven known archaeological sites located in Crémaillère Harbour.

2.3 Laydown and Storage Areas

Environmental concerns relating to laydown and storage areas include:

- The danger of spillage of hydrocarbons or other hazardous products during equipment assembly or repair.
- The physical disturbance of the terrestrial environment during vehicle movements or equipment assembly.
- Potential erosion and run-off of sediment into nearby water bodies.

The EPP for the Project will identify specific environmental protection measures that will be applied relating to laydown and storage areas including, but not limited to, the following applicable protection measures identified in the EPR:

- Storage of chemicals and hazardous materials in approved storage and transport containers;
- Development of Emergency Preparedness and Response Plans appropriate for the types and quantities of materials to be handled.

- Limiting areas to be affected on the principle of smallest necessary footprint;
- Use of aggregate material from on-site excavations as much as possible when infilling is required;
- Development and implementation of an Erosion and Sedimentation Control Plan (ESCP) incorporating principles of limiting the exposed area, limiting exposure time, diverting runoff, limiting runoff velocity, and protecting concentrated flow areas.

2.4 Clearing Vegetation

Environmental concerns include loss of habitat, sedimentation of watercourses, and disturbance or destruction of historic resources.

The EPP for the Project will identify specific environmental protection measures that will be applied during clearing activities including, but not limited to, the following applicable protection measures identified in the EPR:

- Limiting equipment and human foot traffic to smallest necessary footprint;
- Beach and cliff areas to be assessed for presence of plant species that may be rare or threatened;
- Implementation of Avifauna Management Plan (AMP) during survey activities;
- No clearing, fencing, or other development shall occur within buffer areas identified in the vicinity of seven known archaeological sites located in Crémaillère Harbour.

2.5 Grubbing and Disposal of Related Debris

The principal concerns associated with grubbing and disposal of related debris are the potential effects of erosion and sedimentation on marine and freshwater ecosystems and water quality. Potential disturbance to rare species and habitat, and historic or archeological resources must also be taken into consideration.

The EPP for the Project will identify specific environmental protection measures that will be applied during this activity including, but not limited to, the following applicable protection measures identified in the EPR:

- Limiting areas to be affected on the principle of smallest necessary footprint;
- Development and implementation of an Erosion and Sedimentation Control Plan (ESCP) incorporating principles of limiting the exposed area, limiting exposure time, diverting runoff, limiting runoff velocity, and protecting concentrated flow areas
- Implementation of Avifauna Management Plan (AMP) prior to grubbing activities;
- No clearing, fencing, or other development shall occur within buffer areas identified in the vicinity of seven known archaeological sites located in Crémaillère Harbour.

2.7 Excavation, Embankment, and Grading (including cutting and filling)

The principal environmental concern associated with excavation, backfill and grading is the potential impact on aquatic ecosystems and water quality due to runoff of sediment-laden water. Potential disturbance to rare species and habitat, and historic or archeological resources must also be taken into consideration, along with the effect on forests, side hills and steep slopes (i.e danger trees or wind falls).

The EPP for the Project will identify specific environmental protection measures that will be applied during these activities including, but not limited to, the following applicable protection measures identified in the EPR:

- Limiting areas to be affected on the principle of smallest necessary footprint;
- Development and implementation of an Erosion and Sedimentation Control Plan (ESCP) incorporating principles of limiting the exposed area, limiting exposure time, diverting runoff, limiting runoff velocity, and protecting concentrated flow areas;
- Beach and cliff areas to be assessed for presence of plant species that may be rare or threatened;
- Implementation of Avifauna Management Plan (AMP) prior to excavation and backfilling activities
- No clearing, fencing, or other development shall occur within buffer areas identified in the vicinity of seven known archaeological sites located in Crémaillère Harbour.

2.8 Erosion Prevention and Sediment Control

Runoff from disturbed terrain can result in the terrain instability and the movement of sediment. Eroded material may alter drainage patterns, increase stream velocities and cause siltation in water bodies and, subsequently, decrease suitable habitat for aquatic and terrestrial animals.

The EPP for the Project will identify specific environmental protection measures that will be applied during in relation to erosion prevention and sediment control, including, but not limited to, the following applicable protection measures identified in the EPR:

- Limiting areas to be affected on the principle of smallest necessary footprint;
- Development and implementation of an Erosion and Sedimentation Control Plan (ESCP) incorporating principles of limiting the exposed area, limiting exposure time, diverting runoff, limiting runoff velocity, and protecting concentrated flow areas.

2.9 Camps and Temporary Facilities

There is the potential for site erosion and the introduction of sediment into local waterbodies. These activities will result in terrestrial habitat alterations and noise disturbances to wildlife in the area.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to camps and temporary facilities, including, but not limited to, the following applicable protection measures identified in the EPR:

- Limiting areas to be affected on the principle of smallest necessary footprint;
- Development and implementation of an Erosion and Sedimentation Control Plan (ESCP) incorporating principles of limiting the exposed area, limiting exposure time, diverting runoff, limiting runoff velocity, and protecting concentrated flow areas;
- Implementation of Avifauna Management Plan (AMP) prior to excavation and backfilling activities;
- No clearing, fencing, or other development shall occur within buffer areas identified in the vicinity of seven known archaeological sites located in Crémaillère Harbour.
- Sanitary wastewater to be stored in temporary units, either enclosed portable toilets or containerized sanitary wastewater tanks adjoining temporary construction site buildings. These will be cleaned and the wastewater transported to off-site sanitary fill treatment and disposal facilities;
- Tendering of temporary camp requirements to an experienced contractor responsible for ensuring that all permits are acquired and inspection, management and decommissioning of the temporary construction camp are completed with due attention to environmental requirements and sensitivities.

2.10 Watercourse (Stream) Crossings

The environmental concerns associated with fording, culvert installations, bridge construction and maintenance include direct disturbance to, or mortality of, fish, disturbance to waterfowl, and loss of fish habitat caused by sedimentation and removal of substrate, and disturbances to stream bank vegetation.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to watercourse crossings, including, but not limited to, the following applicable protection measures identified in the EPR:

- Machinery fording of watercourse will be avoided as much as possible. If not possible the crossing will be limit to one time-events (to and back);
- Culverts will be installed following provincial guidelines;
- If stream alterations are necessary, provincial guidelines will be followed;
- Silt fencing will be in place to reduce effects of potential increased sedimentation;
- Water samples will be collected from key areas throughout the construction period;
- Work sites will be isolated from running water, and appropriate barriers will be installed to prevent accidental released of deleterious substances;
- A response plan will be developed to address potential accidental releases of deleterious substances;
- All necessary permits will be acquired and applied throughout the duration of construction and for routine/non-routine maintenance;
- Guidelines and best practices relating to use of treated wood and concrete in and around aquatic environments will be applied.

2.11 Pumps and Generators

Environmental concerns are associated with any accidental spills or chronic leaks contaminating waterbodies and soil. There may also be concerns with noise, as well as air emissions from generators at the site.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to the location and operation of pumps and generators, including, but not limited to, the following applicable protection measures identified in the EPR:

- These activities will be planned to limit the potential of environmental effects from accidental events and to ensure that emergency response procedures and capability are in place in case of accidental events.
- Development and implementation of an Erosion and Sedimentation Control Plan (ESCP) incorporating principles of limiting the exposed area, limiting exposure time, diverting runoff, limiting runoff velocity, and protecting concentrated flow areas;
- Noise and air emissions.

2.12 Dewatering Work Areas and Site Drainage

The major concerns associated with dewatering are sedimentation, direct fish mortality, and/or habitat destruction for freshwater and marine fish species.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to dewatering activities, including, but not limited to, the following applicable protection measures identified in the EPR:

- Wetland, natural riparian buffer zones and areas of indigenous vegetation to be preserved, where feasible, to provide natural drainage and filtration;
- Development and implementation of an Erosion and Sedimentation Control Plan (ESCP) incorporating principles of limiting the exposed area, limiting exposure time, diverting runoff, limiting runoff velocity, and protecting concentrated flow areas;
- If stream alterations are necessary, provincial and federal guidelines will be followed;
- Silt fencing will be in place to reduce effects of potential increased sedimentation;
- Water samples will be collected from key areas throughout the construction period;
- Work sites will be isolated from running water, and appropriate barriers will be installed to prevent accidental release of deleterious substances;
- A response plan will be developed to address potential accidental releases of deleterious substances;
- All necessary permits will be acquired and applied throughout the duration of construction and for routine/non-routine maintenance.

2.13 Equipment Installation, Use and Maintenance

Noise associated with equipment operation and movement may negatively affect humans and wildlife. Air emissions may have air quality implications. Accidental leaks or spills of fuel or other hazardous materials may affect soils, water, fish, vegetation and wildlife. Tracked equipment has the potential to disturb the ground around/at work fronts.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to equipment use and maintenance, including, but not limited to, the following applicable protection measures identified in the EPR:

- Limiting areas to be affected on the principle of smallest necessary footprint;
- use of sound barriers and work scheduling, as well as scheduled maintenance of equipment and minimizing the amount, and unnecessary idling, of on-site equipment and vehicles, to limit the potential effects of construction noise and emissions on wildlife use of the Project area;
- Exposure of plants and wildlife to hazardous materials and substances, as well as contamination of habitat will be prevented by appropriate containment and handling practices;
- The Project site will be equipped with mobile spill response kits at all active construction locations;
- All waste materials, including recyclable materials, food and beverage waste, camp waste, hazardous waste and scrap construction waste, will be collected in appropriate containers for transport and disposal to off-site disposal/recycling facilities subject to provincial and federal regulatory requirements and guidelines.

2.14 Storage, Handling and Transfer of Fuel and Other Hazardous Materials

The primary concern regarding the use of fuel and hazardous materials is their uncontrolled release to the environment through spillage, and the subsequent adverse effects on human health and safety, terrestrial, aquatic and marine habitat and species, soil, and groundwater quality.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to the storage, handling and transportation of fuels and other hazardous materials, including, but not limited to, the following applicable protection measures identified in the EPR:

- Bulk fuel and hazardous liquids will be stored in tanks and containers designed according to the latest applicable standards and guidelines;
- All bulk storage of fuels and hazardous liquids will be designed with secondary containment systems

according to the latest applicable standards and guidelines;

- All petroleum storage tanks will be registered in accordance with Services NL regulations;
- Controlled products will be stored and transferred in appropriate containers as defined in Transportation of Dangerous Goods Regulations and Workplace Hazardous Materials Safety Regulations;
- The Project site will be equipped with mobile spill response kits at all active construction locations;
- All waste materials, including recyclable materials, food and beverage waste, camp waste, hazardous waste and scrap construction waste, will be collected in appropriate containers for transport and disposal to off-site disposal/recycling facilities subject to provincial and federal regulatory requirements and guidelines.

2.15 Waste Disposal

Solid waste if not properly controlled and disposed of, will be unsightly and may cause human safety and health concerns and could result in human-wildlife interactions.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to waste management and disposal, including, but not limited to, the following applicable protection measures identified in the EPR:

- All waste materials, including recyclable materials, food and beverage waste, camp waste, hazardous waste and scrap construction waste, will be collected in appropriate containers for transport and disposal to off-site disposal/recycling facilities subject to provincial and federal regulatory requirements and guidelines.
- Limiting areas to be affected on the principle of smallest necessary footprint;
- use of sound barriers and work scheduling, as well as scheduled maintenance of equipment and minimizing the amount, and unnecessary idling, of on-site equipment and vehicles, to limit the potential effects of construction noise and emissions on wildlife use of the Project area;

2.16 Sewage Disposal

The release of untreated sewage is a concern to human health, drinking water quality, and freshwater and marine ecosystems.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to sewage disposal, including, but not limited to, the following applicable protection measures identified in the EPR:

- Sanitary wastewater to be stored in temporary units, either enclosed portable toilets or containerized sanitary wastewater tanks adjoining temporary construction site buildings. These will be cleaned, and the wastewater transported to off-site sanitary fill treatment and disposal facilities;
- Tendering of temporary camp requirements to an experienced contractor responsible for ensuring that all permits are acquired, and inspection, management and decommissioning of the temporary construction camp are completed with due attention to environmental requirements and sensitivities.

2.17 Hazardous Waste Disposal

Hazardous waste can cause contamination of lands and waters as well as being toxic to organisms that may come in contact.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to hazardous waste handling and disposal, including, but not limited to, the following applicable protection measures identified in the EPR:

- All waste materials, including recyclable materials, food and beverage waste, camp waste, hazardous waste

and scrap construction waste, will be collected in appropriate containers for transport and disposal to off-site disposal/recycling facilities subject to provincial and federal regulatory requirements and guidelines.

2.18 Vehicle Traffic and Equipment Movement

Vehicle traffic can result in direct contact with wildlife as well as indirect effects from noise and dust.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to vehicle traffic, including, but not limited to, the following applicable protection measures identified in the EPR:

- A traffic impact study will be conducted as part of the proposed road upgrade plan and a traffic impact statement may be issued if warranted based on the results. Detailed traffic studies and projections will inform a roads upgrade plan which will set standards and scheduling for upgrading. The features of road improvements; such as paved shoulders, turning lanes etc. will rely on relevant standards for roads with loads and levels and types of traffic anticipated. Standards for road verges, drainage, erosion mitigation, and environmental remediation will be consistent with road construction standards within the project site boundaries including landscaping and replanting of exposed areas;
- Avoid wildlife-vehicle collisions by ensuring safe driving practices;
- Minimize airbourne contaminants through dust control on roads.

2.19 Dust Control

Dust generated from on-site activities can result in disturbance to wildlife habitat and add to sedimentation of watercourses.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to dust generation, including, but not limited to, the following applicable protection measures identified in the EPR:

- Use of dust control agents on roads, laydown areas and material stockpiles using dust control agents such as water and calcium chloride.

2.20 Noise Control

Construction generated noise can result in wildlife avoidance of habitat in the area.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to dust generation, including, but not limited to, the following applicable protection measures identified in the EPR:

- Limit ATV traffic to established roadways;
- Establish protective buffer zones around known active nests;
- Use of sound barriers and work scheduling, as well as scheduled maintenance of equipment and minimizing the amount, and unnecessary idling, of on-site equipment and vehicles, to limit the potential effects of construction noise and emissions on wildlife use of the Project area

2.21 Road Maintenance

Road repair and re-painting, and road clearing and ice control measures are considered under potential environmental effects of road maintenance.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to dust generation, including, but not limited to, the following applicable protection measures identified in the EPR:

- Emphasis will be placed on minimizing the quantity of chemicals used, including salt for de-icing in order to minimize potential runoff of chemicals to wetlands and streams. The EPP will emphasize the importance of using smaller quantities of de-icers, use of snow fences and barriers, and increased efficiency of mechanical ice removal.

2.22 Building Construction

Building construction results in disturbance through site preparation as well as generation of bulk construction waste which, if not appropriately handled can contaminate wildlife and fish habitat.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to dust generation, including, but not limited to, the following applicable protection measures identified in the EPR:

- Limiting areas to be affected on the principle of smallest necessary footprint;
- All waste materials, including recyclable materials, food and beverage waste, camp waste, hazardous waste and scrap construction waste, will be collected in appropriate containers for transport and disposal to off-site disposal/recycling facilities subject to provincial and federal regulatory requirements and guidelines.

2.23 Drilling and Blasting

The general environmental concerns associated with on-land blasting include:

- Destruction of vegetation outside excavation limits;
- Noise disturbances to humans and wildlife;
- Disturbance of archaeological resources;
- Release of chemicals (i.e. ammonia) to the environment (explosive mixtures and products); and
- Dust generation.

Blasting in or near waterbodies can affect organisms with swim bladders (fish) but may also affect a variety of aquatic animals including shellfish, marine mammals, otters, seabirds and waterfowl. The introduction of sediment into the water column is also a concern for marine/freshwater water quality and related effects on aquatic life.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to dust generation, including, but not limited to, the following applicable protection measures identified in the EPR:

- Limiting areas to be affected on the principle of smallest necessary footprint;
- Use of explosives in or near water will be avoided wherever possible. Where explosives are required in near rivers, bodies of fresh water, salt water or intertidal zones, impacts to fish and fish habitat (i.e. through sedimentation) will be minimized by adhering to the "Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters" (Wright and Hopky 1998) and mitigation measures provided therein, where applicable.

2.24 Abandonment of Work site

Abandonment of work sites can result generation of disturbed areas that can generate dust and sediment runoff into streams as well as being available for invasion of non-native vegetation.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to dust generation, including, but not limited to, the following applicable protection measures identified in the EPR:

- Use of dust control agents on roads, laydown areas and material stockpiles using dust control agents such as water and calcium chloride;
- Development and implementation of an Erosion and Sedimentation Control Plan (ESCP) incorporating principles of limiting the exposed area, limiting exposure time, diverting runoff, limiting runoff velocity, and protecting concentrated flow areas;
- Revegetation of the disturbed footprint with native plant species to stabilize the area and promote regeneration of wildlife habitat.

2.25 Vessel Operations

The primary potential interactions of increased vessel traffic during construction is with marine mammals and is associated with the increase in underwater noise produced by ships involved with construction. Marine mammals may also be affected by accidental releases of small amounts of deleterious substances such as hydrocarbons into the marine environment.

The EPP for the Project will identify specific environmental protection measures that will be applied in relation to marine traffic, including, but not limited to, the following applicable protection measures identified in the EPR:

- Adherence to Transport Canada Acts and Regulation regarding noise levels and in-water activities;
- Project vessels will maintain constant course and speed to the extent practical, and will detour around marine mammals if it is safe to do so;
- An emergency response plan will be developed to address potential accidental releases of deleterious substances.

3.0 Contingency Plans

3.1 Fuel and Hazardous Material Spills

3.2 Wildlife Encounters

3.3 Forest Fires

3.4 Discovery of Historic Resources and Management

3.5 Avifauna Management

3.6 Migratory Bird Site Management

4.0 Contacts

