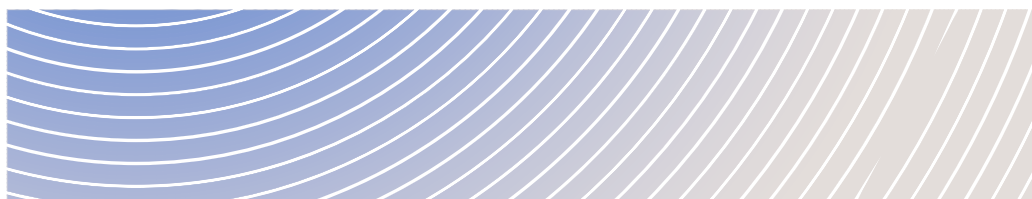


Contrecoeur Port Terminal Expansion Project



ENVIRONMENTAL ASSESSMENT REPORT

March 2021



Impact Assessment
Agency of Canada

Agence d'évaluation
d'impact du Canada

Canada



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Rapport d'évaluation environnementale – Projet d'agrandissement du terminal portuaire de Contrecoeur



Summary

The Montreal Port Authority (the proponent) proposes to develop a container port terminal with a maximum annual capacity of 1.15 million 20-foot equivalent units (TEUs) on its property in Contrecoeur, located approximately 40 kilometres downstream from Montreal. The project would include the construction of a 675-metre dock for two berths to accommodate ships ranging from 39,000 to 75,400 deadweight tonnages (DWT). The project would also include the construction of a seven-track classification yard, a container storage and handling area, an intermodal rail yard, support facilities, rail and road accesses, and a truck control area (Figures 1 and 2). The start of the construction phase is scheduled for 2021. During operation, between 56 and 156 ships per year could dock at the new terminal.

Under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), the project is subject to an environmental assessment by the Impact Assessment Agency of Canada (the Agency) because it involves activities (described as follows) in the Schedule to the *Regulations Designating Physical Activities*:

- 24(c) the construction, operation, decommissioning and abandonment of a new marine terminal designed to handle ships larger than 25,000 DWT unless the terminal is located on lands that are routinely and have been historically used as a marine terminal or that are designated for such use in a land-use plan that has been the subject of public consultation.
- 25(b) the construction, operation, decommissioning and abandonment of a new railway yard with seven or more yard tracks or a total track length of 20 kilometres or more.

The project is not subject to a provincial environmental assessment, but it is subject to a collaboration agreement between the Agency and Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC). The agreement enables the Government of Quebec to participate in the environmental assessment by providing the Agency with its concerns, comments and expert advice.

This environmental assessment report was prepared following a technical review of the Environmental Impact Statement and additional documents from the proponent. It was also prepared with the support of a committee of government experts from the Laurentian Pilotage Authority, Environment and Climate Change Canada (ECCC), the Canadian Coast Guard, the MELCC, the Canadian Transportation Agency, Parks Canada, Fisheries and Oceans Canada, Natural Resources Canada, Health Canada and Transport Canada.

During the environmental assessment process, the Agency also took into account the concerns and observations of the Mohawks of Kahnawà:ke, the W8banaki Nation and the Huron-Wendat Nation. It also took into account comments from citizen groups, environmental and economic groups, and the general public. The concerns and comments expressed covered a wide range of topics, but were primarily related to the potential effects of increased road, rail and marine transportation generated by the project on the population, including First Nations, and the potential effects of the project on special-status wildlife species.



This report presents the Agency's assessment—including information and analysis regarding the potential environmental effects of the project—and its conclusions as to whether the project is likely to cause significant adverse environmental effects, taking into account the implementation of mitigation measures.

The Agency has considered the effects that the project is likely to have on the following components:

- Those under federal jurisdiction as described in subsection 5(1) of CEAA 2012;
- Those directly linked or incidental to federal decisions that enable the project to be carried out, as described in subsection 5(2) of CEAA 2012;
- Species listed in Schedule 1 of the Species at Risk Act and their critical habitat, and species for which the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recommends a special status;
- Species designated as “threatened” or “vulnerable” under Quebec’s Act Respecting Threatened or Vulnerable Species, and species likely to be designated as threatened or vulnerable under the same Act.

The Agency also considered the factors set out in subsection 19(1) of CEAA 2012.

The Agency’s environmental assessment identified the following residual environmental effects, among other things:

- Low contribution of the project to provincial and national greenhouse gas emissions (i.e. low transboundary environmental effects resulting from greenhouse gas emissions);
- Loss and alteration of wetlands that may be caused by infrastructure development or project activities. Completion of the proposed compensation plan would however prevent the net loss of ecological functions of the wetlands that would be destroyed;
- Effects on fish and fish habitat, including copper redhorse and olive hickorynut, resulting from infrastructure development and project activities in and near water. For instance, noise, water contamination, and the alteration of the water regime could result in the mortality and disturbance of fish and the loss and alteration of their aquatic habitat;
- Effects on birds and their habitat, particularly on colonies of bank swallows, through the disturbance of their eggs and nests as well as through habitat loss and modification caused by the development of infrastructure or by project activities that could generate disturbance through light and human presence;
- Effects on some species at risk resulting from the destruction or modification of their habitat, including floristic, turtle, snake, and bat species. Project activities could result in the mortality and disturbance of individuals;
- Effects on human health (physical and psychological) may result from air contaminant emissions and noise;
- Effects on socioeconomic conditions related to recreation and tourism (e.g., water sports, fishing, cycling), economic activities (e.g., agriculture), and land traffic due to development of



port infrastructure, land use change, increased marine, road and rail traffic, and changes to public infrastructure;

- Effects on the conditions of traditional practices as well as the activities and customs surrounding the practice of fishing and hunting, community sharing or the intergenerational transmission of First Nations values and practices;
- Effects on physical heritage due to the development of port infrastructure, and effects on cultural heritage in relation to construction activities that may affect archaeological resources.

The proponent has committed to implement mitigation measures that would avoid or minimize the adverse effects of the project. Compensation measures are also proposed to offset residual adverse effects. The Agency has identified key mitigation measures to avoid significant adverse environmental effects based on the measures proposed by the proponent. These key measures take into account the advice of government experts and the comments received from First Nations and the public.

The key measures would consist of implementing compensation plans for wetlands, fish (creation of fish habitat and creation of aquatic grass beds for the copper redhorse), birds (construction of bank swallow nesting boxes), and special status species (bat condos). Other measures—such as using bypass fencing for the western chorus frog, measures to minimize the release of suspended solids into the aquatic environment, and measures to minimize air contaminants—could help mitigate the effects of the project on valued components. The Agency has also identified follow-up requirements to verify the prediction of effects on the valued components and the effectiveness of the proposed mitigation measures. The results of these follow-ups would be: submitted to the Agency for review in collaboration with the federal authorities; shared with First Nations representatives, and; shared with the proponent to make corrections, if necessary.

The Agency concludes that the project is not likely to cause significant adverse environmental effects, taking into account the implementation of key mitigation measures. The Agency also concludes that the project—in combination with past, present and reasonably foreseeable future projects—is not likely to cause cumulative environmental effects on wetlands, the copper redhorse, the western chorus frog and the current use of lands and resources for traditional purposes by Indigenous peoples.

After gathering and considering comments from the public, First Nations, government experts and the proponent on the draft environmental assessment report and potential conditions, the Agency has finalized the two documents for delivery to the Minister of Environment and Climate Change for a decision under CEAA 2012 as to whether the project is likely to cause significant adverse environmental effects.

In the event that the Minister determines that the project is not likely to cause significant adverse environmental effects (or that significant adverse environmental effects are justified in the circumstances, in the opinion of the Governor in Council), the Decision Statement would set out the conditions that would be legally binding on the proponent.



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List of Abbreviations and Acronyms

Abbreviation / Acronym	Definition
ABCA	Aquatic bird concentration area
The Agency	Impact Assessment Agency of Canada
ARCDW	<i>Act Respecting the Conservation and Development of Wildlife</i>
ARTVS	<i>Act Respecting Threatened or Vulnerable Species</i>
CAAQS	Canadian Ambient Air Quality Standards
CAR	<i>Quebec's Clean Air Regulation</i>
CDPNQ	Centre de données sur le patrimoine naturel du Québec
CEAA 2012	<i>Canadian Environmental Assessment Act, 2012</i>
CIAR	Canadian Impact Assessment Registry
CNHW	Council of the Huron-Wendat Nation
CO	Carbon monoxide
CO₂ eq.	Carbon dioxide equivalent
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Department of Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
EQA	<i>Environment Quality Act</i>
GHG	Greenhouse gas
GNCWA	Grand Conseil de la Nation Waban-Aki
%HA	Percentage of severely affected population
the IAA	<i>Impact Assessment Act</i>
MCK	Mohawk Council of Kahnawà:ke
MELCC	Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques
the Minister	Minister of Environment and Climate Change
MPA	Montreal Port Authority
NH₃	Ammonia
NO₂	Nitrogen Dioxide
PM₁₀	Particulate matter with a diameter of 10 micrometres or less
PM_{2.5}	Particulate matter with a diameter of 2.5 micrometres or less
The Project	Contrecoeur Port Terminal Expansion Project
SARA	<i>Species at Risk Act</i>
SO₂	Sulphur Dioxide
TEUs	Twenty-foot equivalent units
TPM	Total Particulate Matter



Glossary

Term	Definition
Benthic fauna	Animal species living at the bottom of the water.
Critical habitat	As defined in the <i>Species at Risk Act</i> , habitat necessary for the survival or recovery of a listed wildlife species that is identified as such in a recovery strategy or in an action plan developed for the species.
Environmental Impact Statement	A detailed technical document prepared by the proponent of a designated project subject to assessment under the <i>Canadian Environmental Assessment Act, 2012</i> . It identifies the potential adverse environmental effects of a designated project, including cumulative effects and proposed measures to mitigate those effects.
Fine Particulate Matter (PM_{2.5})	Particulate matter with a diameter of 2.5 micrometres or less.
Floristic species	Plant species.
Follow-up program	A program to verify the accuracy of the environmental assessment of a designated project and to judge the effectiveness of measures to mitigate adverse environmental effects.
Freshwater mussels	Freshwater mussels
Government experts	Experts from the governments of Canada and Quebec who collaborated in the environmental assessment process for the project and who are described in sections 3.3 and 3.4 of the environmental assessment report.
Guidelines for the Preparation of an Environmental Impact Statement	A document for the proponent outlining the information requirements for the preparation of an Environmental Impact Statement for a designated project to be assessed pursuant to the <i>Canadian Environmental Assessment Act, 2012</i> . This document specifies the nature, scope and extent of the information required.
Herpetofauna	All the reptiles and amphibians of an area (e.g., turtles, snakes, frogs, salamanders).
Hibernacula	Place where the snakes will pile up in winter (rock falls, crevasses, abandoned burrows).
Hydroperiod	The duration of variations in intensity and frequency of water levels in the system annually.
Particulate Matter (PM₁₀)	Particulate matter with a diameter of 10 micrometres or less.
Mitigation measures	Measures to eliminate, reduce or limit the adverse environmental effects of a designated project. This includes measures to remedy any damage to the environment caused by such effects, including replacement, restoration or compensation.
Monitoring	Implementation of periodic or continuous controls or audits, according to a predetermined schedule, on one or more environmental components. The purpose of monitoring is generally to determine the degree of compliance with



Term	Definition
	established requirements or to observe the condition and trends of specific environmental components over time.
Receptors	Biological: Wildlife or plant species that could be potentially affected by the project due to exposure to contaminants or nuisances. Human: An individual or group of individuals that could potentially be affected by the project due to exposure to contaminants or nuisances.
Relevant authority	Relevant authority means federal, provincial or municipal authority that is in possession of specialist or expert information or knowledge, or that has a responsibility for the administration of a law or regulation, with respect to the subject matter of a condition set out in this document.
Residence (of a species)	As defined in the <i>Species at Risk Act</i> , a dwelling-place, such as a den, nest or other similar area or place, that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding or hibernating.
State or public lands	Federal territory as defined in the <i>Canadian Environmental Assessment Act, 2012</i> .
Study area	Project study area defined in section 1.3.3 of the report.
Total Particulate Matter (TPM)	The totality of particles suspended in the air.
Vernal ponds	Small, shallow water bodies that appear in the spring following snowmelt and that dry out completely during the summer (MFFP, 2015).
Wader birds	Long-legged birds that frequent wetlands.
Waterfowl	Refers to a type of wild aquatic bird such as ducks, Canada geese and Snow geese.
Water-tolerant vegetation	A plant that has an affinity for water.



1. Introduction

1.1 Brief Overview of the Project

The Montreal Port Authority (MPA), an autonomous federal agency created under the *Canada Marine Act*, is proposing the development of a container port terminal with a maximum annual capacity of 1.15 million twenty-foot-equivalent containers (TEUs) on its property in Contrecoeur, located approximately 40 kilometres downstream from Montreal (Figure 1). The project would involve the construction of a 675-metre wharf with two berths to accommodate ships between 39,000 and 75,400 deadweight tonnes (DWT). The project would also include the development of a seven-track rail yard, a container storage and handling area, an intermodal rail yard, support buildings, rail and road access, and a truck control area (Figures 1 and 2). The start of the construction phase is scheduled for 2021. During its operation, between 56 and 156 ships per year could dock at the new terminal.

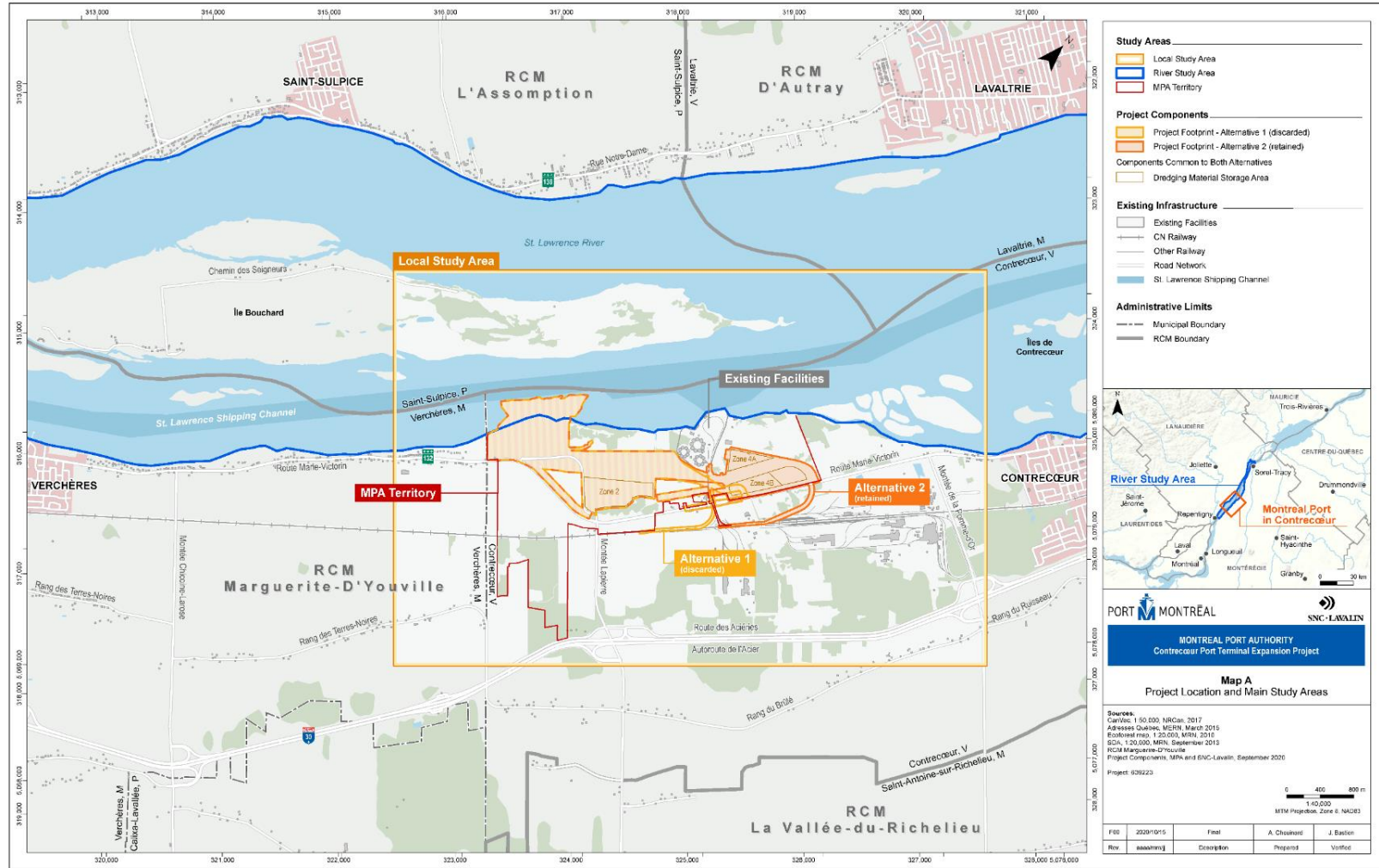
The proponent estimates that the project would require a total investment of between \$750 million and \$950 million, create approximately 5,000 jobs during the construction phase and generate just over 1,000 direct jobs during the operation phase. The MPA subsequently plans to add two development phases to its container terminal, which would eventually (in approximately 60 years) increase the maximum annual capacity to 3.5 million TEUs. These potential subsequent phases are not part of the current project under assessment.

1.2 Purpose of the Environmental Assessment Report

This environmental assessment report provides a summary of the analysis carried out by the Impact Assessment Agency of Canada (the Agency), including the information it considered to determine whether the proposed expansion of the Contrecoeur Port Terminal is likely to cause significant adverse environmental effects following the implementation of the proposed mitigation measures.

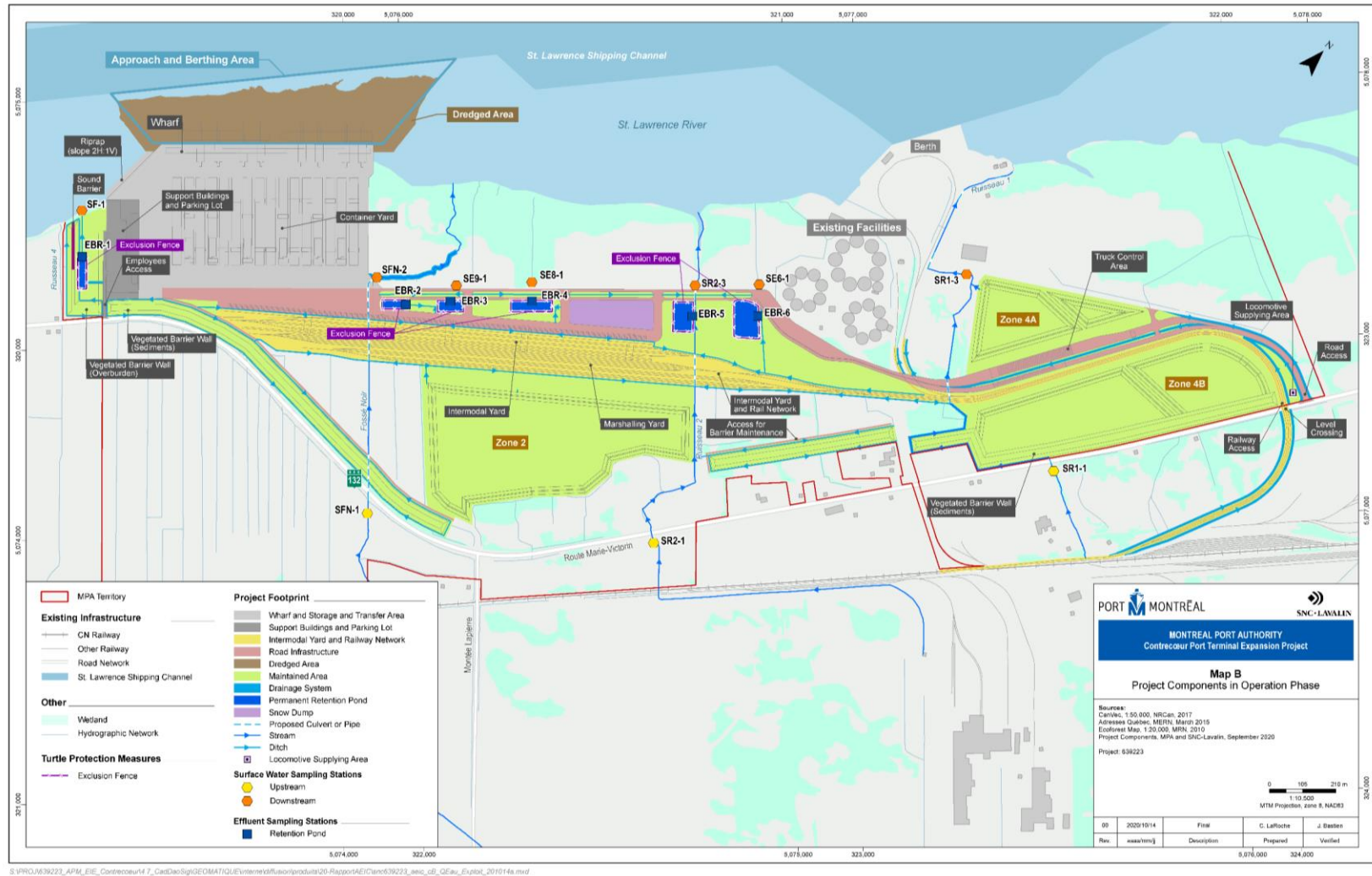
The Minister of Environment and Climate Change (the Minister) will review the report and take into account the comments of First Nations, the public, the proponent and experts from the governments of Canada and Quebec before making their decision under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). On August 28, 2019, the *Impact Assessment Act* (the IAA) came into force, repealing CEAA 2012. However, in accordance with the transitional provisions of the IAA, the environmental assessment of this project is being continued under CEAA 2012 as if that Act had not been repealed.

Figure 1: Project Location and Main Study Areas



Source: SNC-Lavalin, October 2020

Figure 2: Project Components



Source: SNC-Lavalin, October 2020



1.3 Scope of the Environmental Assessment

1.3.1 Environmental Assessment Requirements

On November 30, 2015, the Agency reviewed the [project description](#) submitted by the proponent, as the project includes activities designated by the *Physical Activity Designation Regulations*:

- 24(c) The construction, operation, decommissioning and closure of a new marine terminal designed to accommodate ships over 25,000 DWT, unless it is located on land that is currently and historically used as a marine terminal or is designated for such use in a land use plan that has been subject to public consultation.
- 25(b) The construction, operation, decommissioning and closure of a new yard that includes at least seven yard tracks or tracks with a total length of 20 kilometres or more.

The Agency began its environmental assessment of the project on January 15, 2016, after determining that an environmental assessment was required under CEEA 2012. This determination was informed by, among other things, comments received from government experts, the public and First Nations during consultations held on the project description.

The Agency consulted on the draft Environmental Impact Statement Guidelines before finalizing them and submitting them to the proponent on March 10, 2016.

The project is not subject to a provincial environmental assessment, however, it is subject to a collaboration agreement between the Agency and Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC). The agreement enables the Government of Quebec to participate in the environmental assessment by providing the Agency with its concerns, comments and expert advice.

1.3.2 Elements Considered in the Assessment

The guidelines for the preparation of an Environmental Impact Statement describe the environmental effects and factors to be considered in the environmental assessment and are available on the Canadian Impact Assessment Registry (the Registry).

The scope of the environmental assessment includes port infrastructure, road and rail transportation in the project area, as well as navigation related to the project that takes place within the MPA's jurisdiction area between Contrecoeur and Sorel-Tracy. The limits of the scope of navigation were determined considering that the proponent would have an influence on navigation within this area and that the environmental effects of maritime transport on the elements of section 5 of the *Canadian Environmental Assessment Act (2012)* are most likely to occur in this area.

Shipping (and the effects of shipping) in the St. Lawrence River, its estuary, and the Gulf of St. Lawrence downstream of the jurisdiction area are therefore not included in the scope of the assessment. This

decision also takes into account: the relatively small increase in shipping related to the project (approximately 6% when compared to the maritime traffic of the area, including ships serving the existing bulk terminal at Contrecoeur); the existing regulations governing navigation and its effects on marine mammals, and; the proponent's limited influence on shipping activities beyond its jurisdiction area.

Regarding the whale protection initiative and the Oceans Protection Plan collaborative initiative on the cumulative effects of marine activities on the St. Lawrence and Saguenay rivers, the Government of Canada is working with Indigenous peoples, scientists, non-governmental organizations, marine industry representatives and provincial governments to better understand the potential effects of shipping activities on cetaceans and other valued components of marine and coastal ecosystems. Together with its partners, the Government of Canada is developing and implementing several measures to protect marine mammals in the Estuary and Gulf of St. Lawrence, whether through collision risk reduction or underwater noise mitigation.

Ships heading for the port of Contrecoeur will have to comply with the measures implemented by Transport Canada, Parks Canada, and Fisheries and Oceans Canada to protect vulnerable marine mammals, including the beluga whale (St. Lawrence Estuary population) and North Atlantic right whale populations. For example, every year the Minister of Transport puts mandatory measures in place under the *Canada Shipping Act, 2001* for the protection of right whales in the Gulf of St. Lawrence, prohibiting, among other things, ships from sailing at speeds greater than 10 knots in areas identified as being frequented by right whales. These protection measures will be updated periodically to take into account the evolution of the ecological context, scientific knowledge and available technologies.

The [Guidelines for the Preparation of an Environmental Impact Statement](#) for the project include the factors set out in subsection 19(1) of CEEA 2012:

- The environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in connection with the designated project and any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out;
- The significance of the effects;
- Comments from the public;
- Mitigation measures that are technically and economically feasible for each significant adverse environmental effect of the project;
- The requirements of the follow-up program in respect of the designated project;
- The purpose of the designated project;
- Alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means;
- Any change to the designated project that may be caused by the environment.

During its analysis, the Agency also took into consideration the advice of experts from the governments of Canada and Quebec, as well as comments and indigenous knowledge of First Nations and the public.



Other federal decisions or the exercise of powers, duties or functions under other federal legislation may be required for the project to proceed (Table 1).

Table 1: Other Project Decisions or Assignments

Federal Law	Type of Decision	Element, Activity or Effect of the Project Affected by the Decision
<i>Fisheries Act, Paragraphs 34.4(2)(b) and 35(2)(b)</i>	Authorization	A work or activity that could result in the killing of fish or the harmful alteration, disruption or destruction of fish habitat.
<i>Species at Risk Act, Section 73</i>	Agreement or Permit	Activities affecting a listed wildlife species, any part of its critical habitat or the residences of its individuals.
<i>Canada Marine Act, Section 28</i>	Exercise of Powers Conferred on the MPA	Operate a port and acquire the land needed to deliver a project.

The guidelines for the preparation of an Environmental Impact Statement for the project guide the assessment by identifying the valued components to be considered. These components are likely to be affected by the project and play an important role in the ecosystem or are valued by government agencies, First Nations or the public. The components that were considered by the Agency in its environmental assessment are presented in Table 2.

The environmental effects assessed are those described in subsections 5(1) and 5(2) of CEAA 2012 and those that may affect species at risk and their critical habitats under subsection 79(2) of the *Species at Risk Act*. The Agency has also ensured that measures consistent with any recovery strategy are taken to avoid or mitigate as well as monitor adverse effects on species at risk, should the project proceed.

Table 2: Valued Components Selected by the Agency

Valued Component	Legislative Requirements	Justification
Transboundary Effects – Greenhouse Gas Emissions	CEAA 2012: 5(1)(b)(ii) and 5(1)(b)(iii)	The project could result in greenhouse gas emissions that could contribute to increasing global atmospheric concentrations and climate change. Effects on atmospheric concentrations of greenhouse gases are assessed as they relate to changes that cut across provincial or international boundaries.
Wetlands¹	CEAA 2012: 5(1)(b)(i) and 5(2)(a)	The project could result in the loss or alteration of wetlands caused by the implementation of new infrastructure or project activities. In addition to being habitats for several plant and animal species, these environments fulfill several important ecological or socio-economic functions. The federal and provincial governments recognize their importance, notably through the <i>Federal Policy on Wetland Conservation</i> and the <i>Act Respecting the Conservation of Wetlands and Watercourses in Quebec</i> .
Fish and Fish Habitat, Including Special Status Fish Species²	CEAA 2012: 5(1)(a)(i) and 5(2)(a) SARA ³ : 79(2) Fish at Risk	The project is likely to affect fish and fish habitats, including special-status fish species and their habitats. It could result in the loss or modification of habitats through the development of new infrastructure and activities in and around water. It could also lead to the mortality and disturbance of individuals through the activities planned by the project and through modifications (temporary or permanent) to the aquatic environment (noise, water quality, change in water regime, etc.).
Birds and Their Habitat, Including Special Status Bird Species	CEAA 2012: 5(1)(a)(iii) – birds protected under the MBCA ⁴ 5(1)(b)(i) and 5(2)(a) – birds that are not protected under the MBCA SARA: 79(2) Birds at Risk	The project is likely to affect birds (migratory and non-migratory), including special-status bird species and their habitats. The project could result in the loss or modification of habitats through the implementation of new infrastructure and project activities. The project could also cause disturbance, notably through noise (changes to the acoustic environment), luminosity and human presence (people, vehicles and infrastructure). The project could also result in bycatch, behavioural changes and affect the health of the birds.

¹ As defined in: Environment Canada, 1991. *Federal Policy on Wetland Conservation*, 15 pages.

² Special status species include species listed under federal (Schedule 1 of the *Species at Risk Act*) and provincial legislation (list of species designated as threatened or vulnerable in Quebec) and species classified by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

³ SARA: *Species at Risk Act*.

⁴ MBCA: *Migratory Birds Convention Act*.

Valued Component	Legislative Requirements	Justification
Other Special Status Species and Their Habitat	CEAA 2012: 5(1)(b)(i) and 5(2)(a) SARA: 79(2) Other Species at Risk	The project is likely to affect special-status species and their habitat. The project could result in the loss or modification of habitats through the implementation of new infrastructure and project activities. The project could also cause disturbance, particularly through noise (changes to the acoustic environment), luminosity and human presence (people, vehicles and infrastructure).
Human Health (Physical and Psychological)	CEAA 2012: 5(1)(c)(i) Indigenous peoples 5(2)(b)(i) population of the region	The project could result in changes to the environment, including air and water quality and the noise and light conditions, which could affect human health and the quality of life of the general population and First Nations members within the region.
Socio-Economic Conditions	CEAA 2012: 5(1)(c)(i) CEAA 2012 Indigenous Peoples 5(2)(b)(i) CEAA 2012 population of the region	The project could result in the alteration or loss of aquatic habitat, wetlands, or change in landscape or wind patterns and could affect fish and fish habitat, as well as air and water quality. These changes could have repercussions on the socio-economic conditions of the region's First Nations community and general population, including their access to recreational tourism activities (swimming, water sports, etc.), sport fishing, or any other traditional or contemporary activity practiced by the First Nations or the population of the region.
Current Use of Lands and Resources for Traditional Purposes by Indigenous Peoples	CEAA 2012: 5(1)(c)(iii)	The project could result in changes to the environment, including fish and fish habitat, that could affect the current use of lands and resources for traditional purposes by First Nations, including fishing.
Physical and Cultural Heritage	CEAA 2012: 5(1)(c)(ii) and (iv) Indigenous Peoples 5(2)(b)(ii) and (iii) population of the region	The project could transform the landscape of the local area and cause disturbances to natural, cultural, historical, archaeological, paleontological or architectural sites from the perspective of the First Nations or the population of the region.



1.3.3 Methodology and Approach

The Agency, in collaboration with experts from the governments of Canada and Quebec, identified and assessed the adverse environmental effects of the project based on the following documents:

- The Environmental Impact Statement (EIS) submitted by the proponent in September 2017;
- Additional information provided by the proponent since the submission of the EIS;
- Public and First Nations comments and concerns;
- The advice of experts from the federal and Quebec governments.

Based on the *Operational Policy Statement* (Agency, November 2015) and *Technical Guidance* (Agency, 2018), the Agency examined the potential adverse effects of the project on the valued components identified in Table 2, including both the direct effects of the project and the effects of changes to the environment. It then determined the residual adverse effects that may remain when mitigation measures are implemented. Finally, the Agency assessed the significance of the residual adverse effects for each valued component, taking into account the implementation of the mitigation measures (including compensation measures) proposed by the proponent and deemed necessary by the Agency.

The assessment criteria defined by the Agency to determine the significance of residual adverse effects are as follows:

- **Magnitude:** Indicates the degree of disruption (change) to the valued component under study. The assessment of intensity takes into account the ecological or social context of the component. Intensity may incorporate the notion of when the effect would occur, which may refer to a phase in the component's life cycle (migration, reproduction, feeding, etc.) or a period during which a cultural, spiritual or recreational practice would be practised by a First Nation or population (e.g., hunting season);
- **Extent:** The geographic area over which the adverse effects would occur;
- **Duration:** The period of time over which the adverse effects would be felt;
- **Frequency:** The rate at which adverse effects would occur over a given period of time;
- **Reversibility:** The likelihood that a valued component will recover from the adverse effects caused by the project.

Appendix A defines the levels of the Agency's environmental effects assessment criteria for each of the valued components.

The Agency then used a grid that combined the levels assigned to each of the criteria (magnitude, extent, duration, frequency, and reversibility) to determine the significance of each residual effect on each valued component (see Appendix A, tables AA3 to AA5). When the significance of the residual effects is high, the effects are considered significant, while those with medium or low significance are considered insignificant. The Agency's analyses and conclusions regarding the significance of adverse effects on valued components are presented in chapters 5 and 6. Appendix B presents a summary of the residual adverse environmental effects for each valued component. Appendix C brings together all the mitigation



measures and follow-up requirements that the Agency considers necessary to ensure that the project does not cause significant adverse environmental effects.

Spatial and Temporal Boundaries

The spatial boundaries established by the proponent in its Environmental Impact Statement (SNC-Lavalin, September 2017) and those used by the Agency in this report are defined below:

- **Project Area:** Area where the project infrastructure would be located, i.e., the area occupied by the new wharf, marshalling yard, intermodal yard, related buildings, and road and rail facilities (Figure 1);
- **MPA Territory:** All land under the management of the MPA in Contrecoeur, including the shoreline (Figure 1). The territory is federal land;
- **Local Study Area:** An area of approximately 7 km by 5 km (35 km²) including all environmental components that may be directly or indirectly affected by construction and operational activities in the project area (Figure 1);
- **Fluvial Study Area:** The area that takes into account the navigation aspect of the St. Lawrence River and describes the hydrodynamic regime of the river. It includes navigation related to the project and taking place in waters under the jurisdiction of the MPA (between Contrecoeur and Sorel-Tracy). For the hydrodynamic conditions, the zone is generally limited to the south channel of the St. Lawrence River from upstream of Île Bouchard, in Verchères, to the islands of Contrecoeur, at the entrance to the south channel that leads to the Contrecoeur Marina (Figure 1)
- **Expanded Study Areas:** Expanded study areas have been defined for certain components (e.g., socio-economic conditions, air quality and greenhouse gases) where effects on these components may extend beyond the local study area boundaries
- **Montreal-Sorel Regional Study Area:** Area including the stretch of the St. Lawrence River between these two municipalities, as well as its riparian zones, which was established to assess the cumulative effects on certain biological components.

Temporal boundaries are established to take into account all project activities that may cause adverse effects on valued components. For the purposes of this environmental assessment, the temporal boundaries considered are those defined by the proponent in its Environmental Impact Statement and include the construction and operation phases of the project's life cycle. No closure phase is considered by the proponent in the medium or long term.

- **Construction Phase:** This phase is estimated to take four years from the start of mobilization of the contractor, which is scheduled for 2021;
- **Operations Phase:** This phase would begin after the construction phase and would operate continuously, 24 hours a day, 365 days a year.



2. Project Overview

2.1 Project Location and Regional Context

The project site is located on the south shore of the St. Lawrence River and falls within the territory of the City of Contrecoeur and the Regional County Municipality (RCM) of Marguerite-d'Youville (Figure 1). It is located in the western part of the land owned by the MPA in Contrecoeur. In the eastern part, the MPA operates a dry bulk handling and storage terminal. The river area between the Victoria Bridge in Montreal and Sorel-Tracy is under the jurisdiction of the MPA.

2.2 Description of the Environment

2.2.1 Physical Environment

Climate and Air Quality

The Contrecoeur region is characterized by a moderate subhumid climate with a long vegetation growth period (MENV, 2001). The local climate is largely influenced by the presence of the St. Lawrence River, which acts as a thermal buffer and a source of moisture. The St. Lawrence Valley gives the prevailing winds a northeast/southwest orientation.

The main activities likely to influence air quality in the Contrecoeur region include industrial activities in the sector and, to a lesser extent, road traffic and agricultural activities. These activities can contribute to locally increased air concentrations of total and fine particles, carbon monoxide, nitrogen oxides, sulphur dioxide, metals and volatile organic compounds (VOCs).

Topography and Geology

The territory of the MPA consists of a relatively flat topography. The elevation is generally on the order of 9.4 to 10.4 metres above sea level at Contrecoeur. The surface is intersected by drainage ditches and generally linearized streams draining the industrial area as well as agricultural land.

Contrecoeur is located in the St. Lawrence Lowlands geological province, which forms a large, generally homogeneous platform of sedimentary rocks including sandstones, limestones, shales and dolomites.



Soils and Sediments

From the soil surface to the bedrock at depth, the stratigraphy of the soils of the terrestrial part includes a layer of organic soils, a layer of fill material, a sand deposit, a thick deposit of glacio-marine clay and a deposit of glacial origin consisting of till.

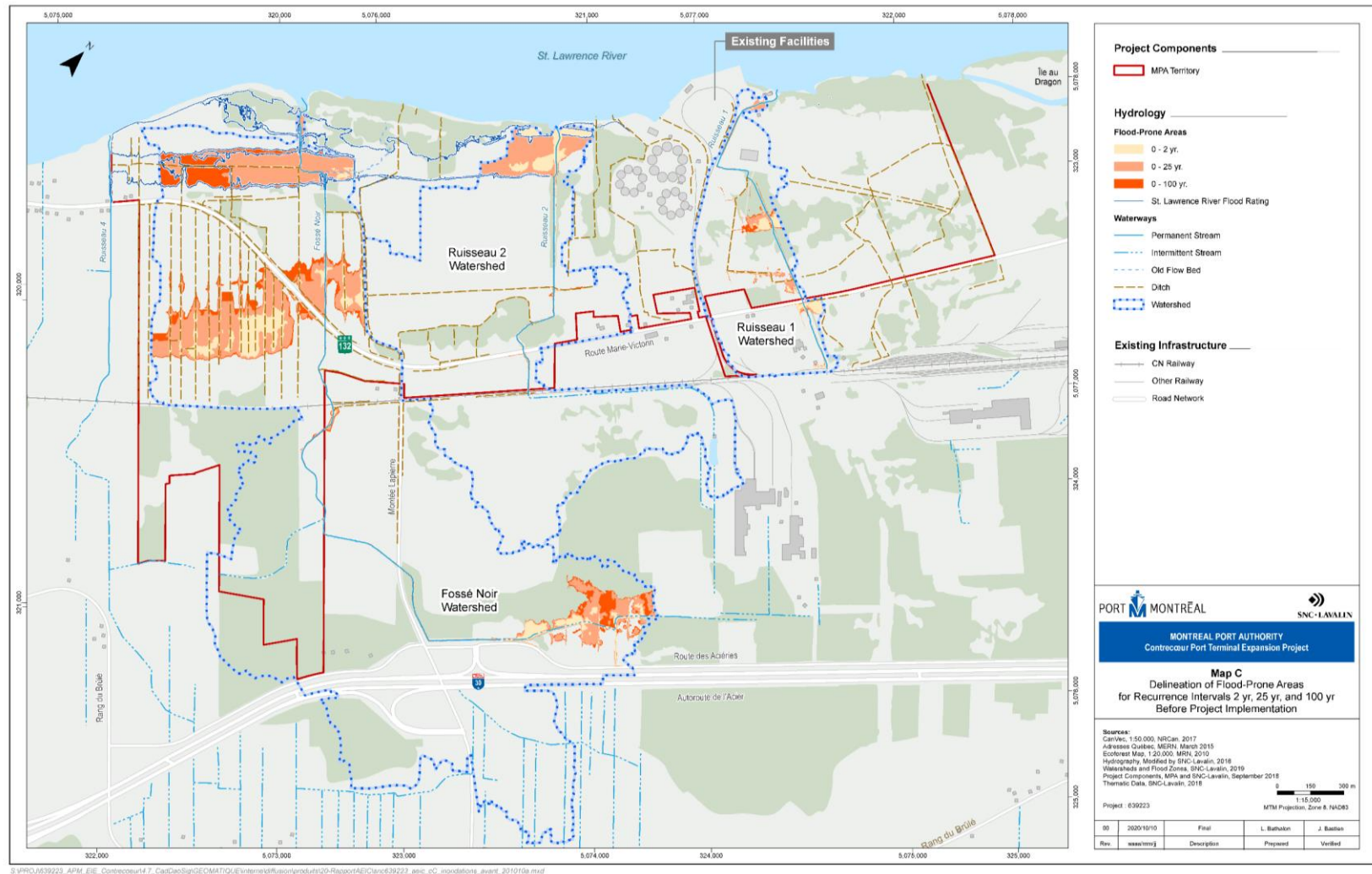
The sediment stratigraphy in the proposed dredged area (river zone) is similar and consists of three main layers covered with contemporary alluvial sediments overlying in places the same glacio-marine clay deposit that overlies the till deposit.

Surface and Ground Water

Three small streams (Fossé Noir, Ruisseau 2 and Ruisseau 1) cross the territory of the MPA from south to north and flow into the St. Lawrence River (Figure 3). There are also several ditches that drain the entire territory of the MPA towards the river. At the eastern limit of the territory is a ditch draining a marsh fed by a few small ditches.

Two hydrostratigraphic units with low aquifer potential are present on the territory of the MPA. The first unit corresponds to the thick clay layer, which is considered impermeable. The second unit corresponds to till, whose low permeability makes it not very conducive to the exploitation of groundwater. In both cases, groundwater flows generally occurs in a northwesterly direction towards the St. Lawrence River.

Figure 3: Hydrology on Montreal Port Authority Territory



Source: SNC-Lavalin, October 2020



2.2.2 Biological Environment

Terrestrial Vegetation, Wetlands and Riparian Areas

The project is located in the bioclimatic domain of the hickory maple grove, in the southernmost flora of Quebec. The forests in this location are very diversified. Vegetation in the local study area is dominated by agricultural fields and wasteland, but there are also a few forest patches. The local study area includes areas of riparian wetlands due to the St. Lawrence River, which crosses it. The land portion of the MPA territory includes various types of wetlands including marshes, treed swamps and shrub swamps.

Aquatic Fauna

The benthic fauna of the MPA's coastline is made up of various organisms, including molluscs, crustaceans, insects, worms and fish.

Fifty-three species of fish were identified in the section of the St. Lawrence River between Montreal and Sorel-Tracy during sampling carried out in 2001 by Quebec's Ministère des Ressources naturelles et de la Faune. In the fluvial study area, aquatic grass beds are present and have critical habitat characteristics for the feeding of adult copper redhorse, a fish species considered endangered under the *Species at Risk Act* (SARA).

Terrestrial and Avian Fauna

In the area surrounding the local study area, about 15 species of small mammals, including beaver and muskrat, are present according to trapping statistics. As for the large fauna, there are very few moose and black bears, but white-tailed deer are abundant. Six species of bats (chiropterans) have been confirmed on the territory of the MPA. The inventories carried out also confirmed the presence of nine species of amphibians and three species of reptiles. Among these amphibians is the western chorus frog, a species considered threatened under SARA and whose critical habitat and residence are adjacent to the project area.

The bird inventories carried out between 2008 and 2016 over the entire territory of the MPA in Contrecoeur confirmed 114 bird species. Among these birds, several are special status species, including the bank swallow, a species threatened under SARA that nests in the project area. The coastline of the project area is within the Îles de Verchères Aquatic Bird Concentration Area.

2.2.3 Human Environment

Occupation of the Territory

The project area is located within the limits of the town of Contrecoeur, approximately 2.3 kilometres west of the town's urban core. The project site is adjacent to the eastern boundary of the Municipality of Verchères.



In 2019, Contrecoeur had a population of approximately 9,000 while Verchères had a population of nearly 5,900 (Institut de la statistique du Québec, 2019). The surrounding properties are mostly for industrial and agricultural use, with the exception of residences located in the Municipality of Verchères and directly west of the MPA territory, an unoccupied residence along Montée Lapierre and another located approximately 140 metres from the project area, along Route 132. The economic structure of the Regional County Municipality of Marguerite-D'Youville is dominated by the tertiary sector (73%), followed by the secondary (26%) and primary (1%) sectors.

The main highways in the Local Study Area are Route 132 (Route Marie-Victorin) along the south shore of the St. Lawrence River, Highway 30 (Autoroute de l'Acier) and Montée Lapierre and Montée de la Pomme-d'Or (collector roads). The Canadian National Railway (CN) passes south of the project area and of the Route 132. The St. Lawrence River, located at the northwestern limit of the project area, is the shipping route.

Indigenous Peoples

The Indigenous peoples likely to be affected by the project or for whom the project area is of interest are the Mohawks, W8banakiak and Huron-Wendats.

The Mohawks of Quebec are established in three communities along the St. Lawrence River, each represented by a Mohawk Council: Kahnawà:ke, Kanesatake and Akwesasne. The Mohawks practice fishing and gathering on their traditional territory, which is not specified but would include the St. Lawrence Valley between the Province of Ontario and the City of Sorel-Tracy, which includes the study area.

The W8banakiak communities of Odanak and Wôlinak are represented by the Grand Conseil de la Nation Waban-Aki, an administrative body that provides services to these two communities. The Nation's ancestral territory (Ndakina) is located east of the Richelieu River and outside the study area. The local and regional study areas have been identified by the Waban-Aki Nation as important locations for the practice of activities such as hunting and fishing.

The chief town of the Huron-Wendat is Wendake and the community is administered by the Council of the Huron-Wendat Nation. The Huron-Wendat consider Nionwentsio to be their traditional territory, which is located outside the study area. According to a survey conducted by the Nation, hunting and fishing activities are practised by respondents in the St. Lawrence Valley, mainly downstream from Sorel-Tracy.

2.3 Project Elements

2.3.1 Project Components

The main project components and activities are listed below and their geographic locations are illustrated in Figure 2.



Approach and Docking Area

- Development by dredging from the St. Lawrence navigation channel;
- Dredging to a depth of 11 metres from chart datum.

Wharf (See Figure 4)

- Length of 675 metres;
- For the mooring of ocean-going ships arriving from downstream;
- Would allow the simultaneous mooring of two ships of 300 metres each, with a capacity of up to 4,200 twenty-foot equivalent units (TEUs);
- Protective boulder upstream of the wharf;
- Steel sheet pile walls.

Transshipment Equipment

- Eight electric rail gantry cranes for loading and unloading ships (four per berth);
- Rail width of 30.48 metres;
- Height of 95 metres when the boom would be raised.

Terminal

- Container yards of about 26 hectares including about 30 electric rail cranes;
- Intermodal yard and marshalling yard of 24 hectares including five electric rail cranes.

Road and Rail Infrastructure

- Traffic routes;
- Truck control area of 1.2 hectares;
- Access road at the eastern end of the territory of the MPA and joining Route 132;
- Railroad tracks;
- Rail spur at the eastern limit of the project area providing access to the CN rail line.

Buildings, Services and Others

- Support buildings: offices and garage;
- Parking;
- Water supply;
- Sanitary network;
- Power supply;

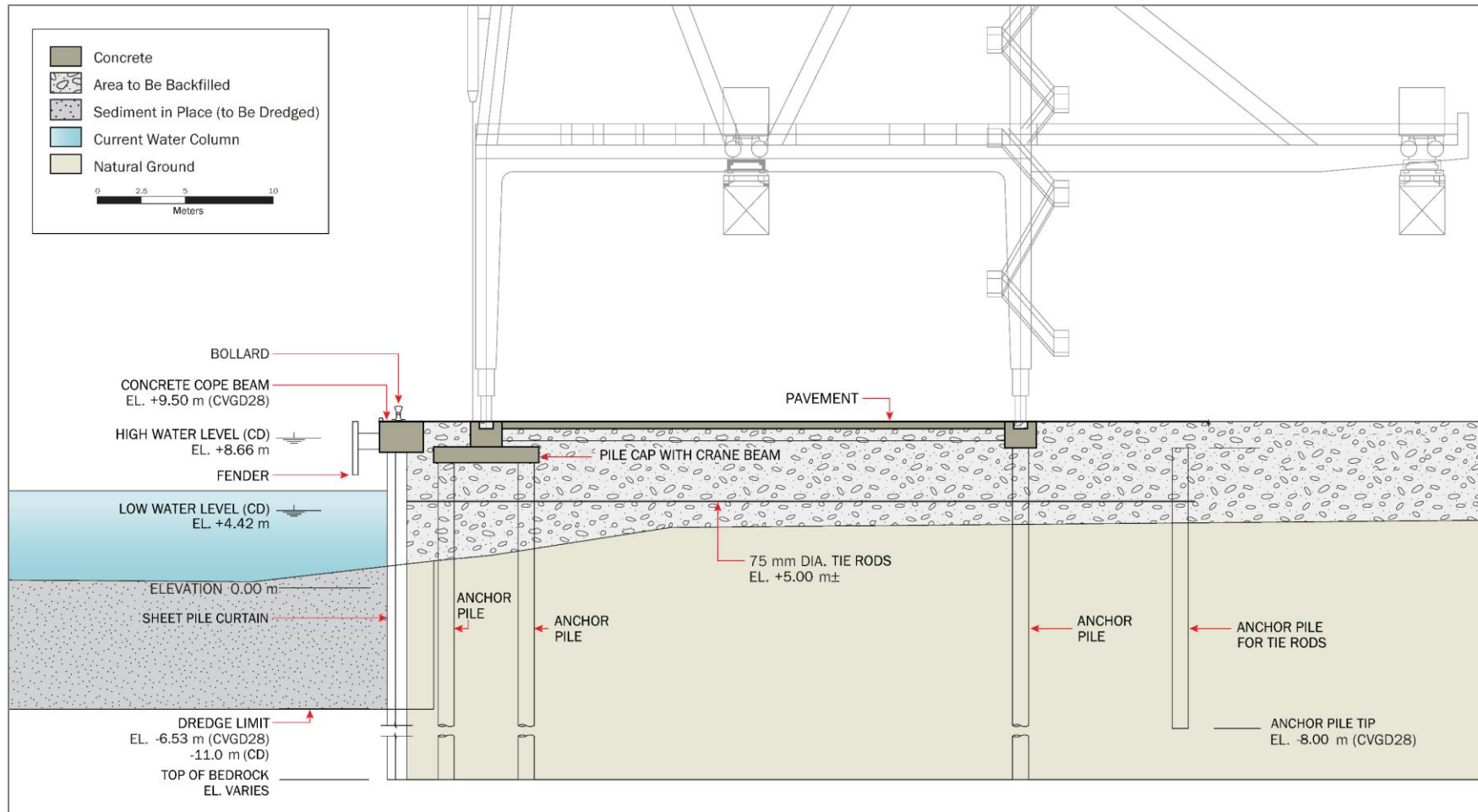


- Drainage ditches and permanent retention basins for drainage water;
- Possibility of a snow depot with water treatment equipment;
- Sound screen wall and vegetated embankment.

Dredged Material Management Area

- Storage areas (Zones 2 and 4) (in the case of mechanically dredged sediments);
- Dredging sludge settling basins (Zone 2) and water sedimentation basins (Zones 4A and 4B) (in the case of hydraulically dredged sediments);
- Temporary sedimentation basins for the treatment of water from dredged sediments.

Figure 4: General Plan of the Wharf



Source: SNC-Lavalin, October 2020

2.4 Project Activities

The activities required to complete the project are described in Table 3 according to the life cycle phases of the project, namely construction and operation.

Table 3: Summary Description of Project Activities

Concrete Activity	Description
Construction Phase – Duration: About 4 Years	
Site Planning and Preparation	• Layout of the access road to the site; • Deforestation and removal of vegetation cover; • Stripping and storage of topsoil; • Excavation, earth moving and grading; • Development of dredged material management areas and sedimentation basins (if applicable); • Development of the drainage network.
Installation of Temporary Facilities	• Access to the site; • Temporary buildings of the construction site trailer type; • Temporary storage areas for materials; • Machinery parking and refuelling areas; • Machinery washing areas; • Water supply; • Temporary sanitary facilities; • Temporary connections to the electrical distribution network.
Sediment Dredging (2 Dredging Options Available)	• Dredging of the approach area along the entire length of the wharf and approximately 30 metres on either side of the wharf. • Dredging would be carried out to a depth of -11.0 metres below Chart Datum (CZ). • Mechanical dredging option: ◦ By means of two clamshell dredgers mounted on a barge; ◦ Dredged material deposited in barges towed by tugs to the wharf for transshipment; ◦ Three to four transshipment areas should be set up at the final wharf. • Hydraulic dredging option: ◦ By means of a suction dredger with disintegrating head; ◦ Transfer of the dredged material to the Zone 2 basin by floating pipelines connected to the dredger and then by onshore pipelines.

Concrete Activity	Description
Management of Dredged Material	• Mechanical dredging option – Different management options available: ◦ Transport and disposal of excavated material to external sites using trucks to valorize them; ◦ Sediment handling at the MPA site using trucks and bulldozers; ◦ Storage on the territory of the MPA in Contrecoeur in the form of fill-in zones 2 or 4 and construction of a vegetated embankment; ◦ Construction of temporary dredging sediment settling ponds. • Hydraulic dredging option: ◦ The decantation of dredging sludge in a basin set-up in zone 2 (primary disposal area); ◦ Drainage of the water accumulated in the zone 2 basin to the sedimentation basins of zones 4B and 4A by means of spillway systems (by gravity or by pumping); ◦ Transport, via trucks, and disposal of decanted sediments to external sites for recovery.
Wharf Construction	• Sheet pile and anchor pile driving; • Installation of tie rods; • Backfilling of the back quay.
Development of Land-Based Facilities	• Installation of mooring and container handling equipment; • Installation of services (electricity, water and sewer); • Surface levelling and paving; • Development of the drainage network; • Construction of railroads and traffic lanes; • Construction of support buildings; • Relocation of a natural gas pipeline owned by Energir and present in the western part of the project area to develop it in the southern right-of-way of Route 132.
Residual Materials Management	• Implementation of management procedures to oversee their sorting, storage and disposal according to the 3RVE approach.
Demobilization	• Circulation of vehicles and equipment; • Demobilization and site redevelopment.
Operational Phase – Duration: Indefinite	
Navigation and Ship Handling	• Total of one to three ships per week; • Docking and docking maneuvers based on simulations performed; • Towing and icebreaking service; • Ships would arrive fully loaded from overseas and leave fully loaded downstream.
Dockside Operations	• Loading and unloading of containers using gantry cranes;

Concrete Activity	Description
	• Refuelling of ships with consumable goods; • If necessary, refuelling of ships with fuel by trucks or tankers; • Ship wastewater management; • Power supply for ships with a system to connect to the power supply; • Few ballasting operations are planned.
Container Storage and Handling Operations	• Container handling by rail-mounted electric overhead cranes; • Containers stacked in blocks according to their origin or destination, as well as according to their characteristics.
Train Loading and Rail Traffic Activities	• 45% of containers would be moved by train; • When the terminal would reach full capacity, 8 to 9 trains per week, from 3,050 metres to 4,267 metres, would be unloaded and then loaded; • The convoy would cross Route 132 at a new crossing and would block traffic on Route 132 and Montée Lapierre for a period of 6 to 9 minutes at each crossing.
Truck Loading Activities and Road Traffic	• 55% of the containers would be transported by truck; • Approximately 1,200 trucks/day (inbound); • Trucking activities from 6 a.m. to 6 p.m. on weekdays, mainly before 3 p.m.; • Truck transit via Highway 30 and Montée de la Pomme-d'Or.
Water Management of Port Facilities	• Sanitary sewage; • Runoff water.
Residual Materials Management	• Domestic waste management (terminal, ships); • Used oil management.
Hazardous Materials Management	• Inventory and location of hazardous materials throughout the port territory; • Control and handling of containers containing hazardous materials (3% of containers); • 1,000 Litres diesel tank for emergency generator supply; • Management of hazardous residual materials according to the <i>Hazardous Materials Regulation</i>.
Management of Used Snow and Abrasives	• Off-site disposal of used snow. Possibility of depositing snow on site; • Storage of ice melters such as de-icing salts in a dome located near buildings.
Maintenance	• Facility Maintenance; • Maintenance dredging (44 to 160 m³), approximately every four years.

3. Consultation Activities and Advice Received

The Agency took into account the comments and knowledge of First Nations and the public in preparing the environmental assessment report. The advice received from experts from the governments of Canada and Quebec provided further guidance and support to the Agency's review of the project.

The Agency, in collaboration with the committee of government experts, carried out consultation activities with the public and First Nations at key stages of the process. These public consultation activities were announced on the Canadian Impact Assessment Registry⁵ and included the following documents:

- The summary of the project description (December 3 to 23, 2015);
- Draft Guidelines for the Preparation of an Environmental Impact Statement (January 15 to February 15, 2016);
- The summary of the proponent's Environmental Impact Statement (February 7 to March 1, 2018);
- The draft environmental assessment report and the potential conditions.

After gathering and considering all comments, knowledge and opinions received, the Agency finalized the environmental assessment report and conditions for submission to the Minister of the Environment and Climate Change for a decision under the *Canadian Environmental Assessment Act* (2012).

3.1 Crown Consultation

3.1.1 Crown Consultation Conducted by the Agency with Indigenous Peoples

The federal government has a duty to consult and, where appropriate, accommodate Indigenous peoples when contemplating decisions that may impact established or potential Aboriginal and treaty rights protected by section 35 of the *Constitution Act, 1982*. Consultation with Indigenous peoples is also conducted in a comprehensive manner as an important element of good governance and informed policy development and decision-making.

For the purposes of the environmental assessment, the Agency acted as the Crown Consultation Coordinator to facilitate a whole-of-government approach to consultation. The First Nations invited to participate in the consultations were those whose established or potential Indigenous or treaty rights were likely to be adversely impacted by the project. They are the following First Nations:

⁵ <https://iaac-aeic.gc.ca/050/evaluations/proj/80116>

- Grand Conseil de la Nation Waban-Aki; (W8banakiak of Wôlinak and Odanak);
- Mohawk Council of Kahnawà:ke;
- Mohawk Council of Kanesatake;
- Mohawk Council of Akwesasne;
- Council of the Huron-Wendat Nation.

Throughout the environmental assessment process, the Agency provided these First Nations with opportunities to communicate their concerns and views on the project through telephone calls, e-mails, letters and meetings (virtual and in-person). In addition, First Nations were invited to participate in the three public consultation activities described above.

The Agency proposed consultation plans to First Nations, detailing the consultation activities at each phase of the environmental assessment. These plans were shared on March 14, 2016, with the Mohawk Council of Kahnawà:ke, the Mohawk Council of Kanesatake, the Mohawk Council of Akwesasne and the Grand Conseil de la Nation Waban-Aki. It was also an opportunity to present the environmental assessment process under CEAA 2012 and the next steps in the assessment of the project. On January 18, 2017, the Agency asked the Huron-Wendat Nation to validate its interest in participating in the consultation related to the environmental assessment of the project. The Huron-Wendat Nation confirmed its interest on February 14, 2017. The same exercise was carried out with the Mohawk Council of Kanesatake on March 10, 2017, which confirmed on April 10, 2017, that it did not wish to participate in consultations on the project. The Mohawk Council of Akwesasne did not return a response to the Agency expressing interest in participating in the project consultations.

Under the Participant Funding Program, the Agency administers funding to support the participation in the environmental assessment process of Indigenous Peoples potentially affected by the project. A total of \$152,639 from the Participant Funding Program was allocated to First Nations, including \$64,020 for the Mohawk Council of Kahnawà:ke, \$58,716 for the Grand Conseil de la Nation Waban-Aki and \$29,903 for the Council of the Huron-Wendat Nation.

Between October 13, 2017, and March 23, 2018, the Agency gathered the concerns of the three First Nations involved regarding the Environmental Impact Statement submitted by the proponent. Between May 30, 2018, and November 13, 2019, the Agency met with these Nations to present them with the methodology of the impact assessment on Aboriginal and treaty rights and to provide them with an update on the project. Throughout the second half of 2020, the Agency carried out a potential rights impact assessment for each of the three Nations by consulting them at different stages. The Agency also obtained their comments on the draft report and potential conditions during the consultation period that took place from November 18 to December 18, 2020.

The main concerns raised by First Nations during the consultation periods and discussions with the Agency are related to the following elements:

- The effects of the project on certain fish species of interest to these Nations, including the copper redhorse, yellow perch and sturgeon;

- The potential impacts of the project on their exercise of rights (with respect to fishing, access to territory, and the transmission of intergenerational knowledge and culture);
- The protection of archaeological and cultural heritage;
- The cumulative effects of the increase in maritime activities resulting from the various port projects on the St. Lawrence River particularly in relation to the erosion of riverbanks and the destruction of wetlands that could result from the development of these projects.

Details of the concerns and comments raised by the First Nations consulted can be found in section 5.8 regarding current use of lands and resources for traditional purposes, and in Chapter 7 regarding impacts on Aboriginal and treaty rights. Appendix D summarizes the comments and concerns raised by First Nations during Crown consultations. All comments were considered in the preparation of this report.

3.1.2 Indigenous Engagement Activities Organized by the Proponent

Information obtained by the proponent regarding current use of lands and resources for traditional purposes by First Nations, as well as the proponent's assessment of the project's potential effects and impacts on Aboriginal and treaty rights, informed the federal government's consultation exercise. Beginning in the fall of 2016, the proponent conducted consultation activities with representatives of the Mohawk Council of Kahnawà:ke and the Grand Conseil de la Nation Waban-Aki to discuss potential issues and concerns. Beginning in March 2017, the proponent included the Huron-Wendat Nation in its consultation process, following the Agency's amendment to the Guidelines for the Preparation of an Environmental Impact Statement, which required the proponent to include this First Nation in its assessment of the project's effects. The consultation activities organized by the proponent included:

- Communications by e-mail, letters and phone calls;
- Virtual and face-to-face meetings and business meetings;
- The sharing of information and documents.

3.2 Public Consultation

3.2.1 Public Consultation Conducted by the Agency

The Agency provided four opportunities for the public to submit comments and concerns directly to the Agency or on the Registry: at the time of the proponent's filing of the project description summary, when the Agency published the draft guidelines for the preparation of an Environmental Impact Statement, following the proponent's filing of the Environmental Impact Statement summary, and upon publication of the draft environmental assessment report and the potential conditions.

The Agency also considered comments received from the public throughout the evaluation process. Individuals and groups who expressed an interest in the project were informed directly by e-mail or



telephone call of consultation opportunities. In addition, an information session on the federal process (February 7, 2018), an open house session (February 27, 2018) and two public sessions with the proponent and experts from the governments of Canada and Quebec with an external moderator (February 28 and March 1, 2018) were held by the Agency during the consultation period on the Environmental Impact Statement. These consultations, which brought together approximately 300 people, were held in the City of Contrecoeur. They were an opportunity for the public to learn more about the environmental assessment process and the project, as well as to comment on the proponent's Environmental Impact Statement. During this period, the Agency received approximately 90 briefs and more than 70 written comments from citizens and various groups.

During this same consultation period, the Agency met on February 22, 2018, with five environmental groups⁶ that had expressed interest during previous consultations. The purpose of the meeting was to introduce the federal environmental assessment process, explain the approach to determining significance, provide information on opportunities to participate in the consultations, and discuss the planned conduct of the open house and public sessions.

During the fourth public consultation period, which focused on the draft environmental assessment report and potential conditions, the Agency held a consultation session on November 30, 2020, with four environmental groups⁷ that expressed interest, and two public sessions on December 2 and 3, 2020. These three sessions were conducted virtually in order to comply with the health guidelines established by the Government of Quebec to fight the Covid-19 pandemic. A total of 19 briefs and 48 comments were sent to the Agency during this last consultation period.

All comments received from the public have been posted on the Canadian Impact Assessment Registry. The main concerns raised during the last two consultation periods were related to the following:

- The project's contribution to the increase in greenhouse gas emissions;
- The effects of increased transportation (road and rail) on safety (emergency vehicles, cyclists, pedestrians) and human health (noise, air quality, quality of life);
- The risk of accidents and malfunctions and the transportation of hazardous materials;
- The effect of dredging (sediment quality) on the aquatic environment (particularly on the copper redhorse) and on the downstream drinking water intake;
- The effect of increased navigation on bank erosion;
- The protection and recovery of special-status wildlife species (notably the copper redhorse and western chorus frog);
- The protection and connectivity of wetlands;
- The protection of the Îles-de-Contrecoeur National Wildlife Area;
- The process and criteria that are considered in the environmental assessment;

⁶ Greenpeace Canada, World Wildlife Fund, Rivers Foundation, WaterCare! Coalition and the Canadian Parks and Wilderness Society (CPAWS).

⁷ Conseil régional de l'environnement de la Montérégie, Société pour la nature et les parcs du Canada, Stratégies Saint-Laurent and Comité ZIP des Seigneuries.

- The effectiveness of the compensation plans (particularly the copper redhorse compensation plan);
- The monitoring and the application of mitigation and follow-up measures;
- The justification, rationale and alternative means of carrying out the project.

Many citizens and interest groups complain that the environmental assessment only addresses Phase 1 of the project and does not sufficiently consider the effects of road, rail and marine transportation outside of the established study areas. Several expressed concerns about the cumulative effects of the project, combined with those of other projects or activities that have been or will be carried out, on the ecological integrity of the St. Lawrence River, and would have liked to have seen the environmental assessment take this into account.

Many organizations also emphasized their support for the project and its socio-economic importance, as well as the proponent's efforts to mitigate the project's environmental effects.

The Agency supported public participation in the environmental assessment of the project through its Participant Funding Program. A total of \$31,220 was awarded to beneficiaries, including \$12,300 to the Comité ZIP des Seigneuries, \$12,285 to the Société pour vaincre la pollution, and \$6,635 to Stratégies Saint-Laurent.

Comments and concerns were considered and have been summarized and incorporated into chapters 5 and 6 on assessing the effects of the project.

3.2.2 Public Engagement Activities Organized by the Proponent

Beginning in the spring of 2014 and continuing through December 2015, the proponent conducted pre-consultation activities through telephone conversations, individual and group meetings, and an open house to introduce the project answer questions from interested parties, and hear community concerns about the project. These activities targeted government authorities, local and regional authorities, interest groups, immediate neighbours, the citizens of Contrecoeur and Verchères, as well as the proponent's clients, tenants and operators. During this period, the proponent's website was modified to include a page presenting information relevant to the project.

Between October 2016 and June 2017, the proponent carried out numerous engagement and communication activities to prepare its Environmental Impact Statement. These activities had the same objectives as the pre-consultation, in addition to gathering information and suggestions from the public and making it possible to better target the valued components. The parties consulted included municipalities, regional county municipalities (RCMs), the Government of Quebec's Ministère de l'Agriculture, des Pêcheries et de l'Alimentation, socio-economic organizations, environmental organizations, citizens (including project neighbours), industries, as well as stakeholders from the logistics chain, transportation and the agricultural community. The consultation methods used included meetings, phone calls, emails, one day of thematic workshops (March 2017) and two days of open houses (May 2017).

The proponent also collaborated in the public sessions conducted by the Agency on February 28 and March 1, 2018.

3.3 Participation of Federal Government Experts

Pursuant to section 20 of CEAA 2012, federal authorities with specialist or expert knowledge or expertise with respect to the project have provided advice for: the project description, the draft guidelines for the preparation of an Environmental Impact Statement, the proponent's Environmental Impact Statement, and the proponent's responses to the Agency's information requests. Government experts were also invited to provide comments and observations on the draft environmental assessment report and potential conditions that will support the Minister's decision on the project.

Experts from the federal government participated in the environmental assessment panel for the project and the topics for which they provided expertise are listed below:

- Laurentian Pilotage Authority: information on marine traffic and pilotage services in the St. Lawrence River;
- Environment and Climate Change Canada: air quality and greenhouse gases, surface and groundwater quality, species at risk (other than fish), migratory birds, wetlands, soil quality, sediment quality, hydrology, weather and climate, and accidents and malfunctions;
- Canadian Coast Guard: ship traffic information, aids to navigation, corridor maintenance and marine incident response;
- Canadian Transportation Agency: support in the event of a dispute between two parties regarding railway infrastructure (access, construction, operation and maintenance);
- Parks Canada: terrestrial and underwater archaeology on federal lands;
- Fisheries and Oceans Canada: Fish and fish habitat, including fish species at risk;
- Natural Resources Canada: information on geological features, groundwater quality, aquifer quality and geological hazards;
- Health Canada: human health effects of the project that may be caused by air, water and soil quality, acoustic environment quality, contamination of traditional foods, and accidents and malfunctions;
- Transport Canada: marine and rail transportation safety, ballast water management, transportation of dangerous goods, and incident prevention and response (inland waterway and dockside).



3.4 Participation of Quebec Government Experts

The Government of Quebec participated in the environmental assessment committee on the same basis as federal experts. It provided advice from experts working within the Ministère de l'Environnement et de la Lutte contre les changements climatiques, the Ministère des Forêts, de la Faune et des Parcs, the Ministère des Transports, the Ministère de la Santé et des Services sociaux, the Ministère de la Culture et des Communications, the Ministère de la Sécurité publique, as well as the Secrétariat aux affaires autochtones.

These various experts provided advice, comments and information, notably on the project's justification and alternatives, as well as on the project's potential adverse effects on the quality of air, water, sediment and soil, as well as on vegetation, wildlife, wetlands and special-status species, hydrology, land use, archaeological, built and landscape heritage, technological risks, and emergency measures.

4. Purpose of the Project and Alternative Means Considered

4.1 Purpose of the Project

Located 1,600 kilometres inland, the Port of Montreal offers the shortest shipping route from Europe and the Mediterranean to markets in central Canada, the northeast and the U.S. Midwest. According to the MPA, despite several investments made in recent years to modernize, develop and optimize its Montreal facilities, these are reaching saturation point. With little room to absorb future growth, new port facilities in a suburban site like Contrecoeur would allow the MPA to increase its storage and transshipment capacity, meet the increased demand for containerized cargo transportation, and strengthen competitiveness and resilience in this sector. The MPA occupies a niche position in Montreal as a "port of destination" and wishes to apply this model to Contrecoeur, in the sense that ships would unload all containers there and leave with a full load.

Based on an independent analysis produced by Ocean Shipping Consultants (OSC, 2017), the proponent states that traffic forecasts, even conservative ones, show that the anticipated growth will support both existing facilities at the Port of Montreal and an expansion to the Port of Contrecoeur (SNC-Lavalin, December 2017b). The growth scenario selected takes into account a set of macroeconomic, economic and qualitative factors, including the competitive dynamics with other ports on the North American east coast.

The proponent estimates that the Contrecoeur project would require a total investment of \$750 to \$950 million, create approximately 5,000 jobs during the construction phase and close to 1,000 direct jobs during the operations phase, in addition to generating considerable economic and fiscal spin-offs in the region, in Quebec and in Canada. The Contrecoeur site would make it possible to meet, in the long term, the additional needs of the MPA, which wishes to develop the site in three phases. The present environmental assessment deals with phase 1. Once all phases are fully developed, the Port of Contrecoeur could accommodate a maximum annual capacity of 3.5 million twenty-foot equivalent units (TEUs) in approximately 60 years.

4.1.1 Comments Received

The Mohawk Council of Kahnawà:ke, the Grand Conseil de la Nation Waban-Aki and the Huron-Wendat Nation would like the proponent to commit to ensuring that their community benefits from the positive spin-offs of this project, notably through collaboration on certain works, through training or supervision, and through employment or contracts. The proponent has made several commitments to this effect in the documents it has filed with the Agency. Numerous organizations emphasized their support for the project and its socio-economic importance, considering it to be structuring, strategic and essential to remain competitive, to meet industry and user demand, and to increase the efficiency of the supply chain. Several of them recognize the proponent's efforts to mitigate the project's effects on the environment.

Environmental organizations believe that the proponent's growth scenario is overly optimistic and that the planned container terminal in Quebec City could adversely affect the one in Contrecoeur. According to one of these organizations, the proponent has not demonstrated that the port facilities in Montreal are fully utilized and optimized. One citizen felt that harbour authorities should work together to establish a single harbour. The latter and a group of citizens questioned the relevance of competing with U.S. ports, considering their direct access to the ocean and their lesser concern for environmental protection. Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques recommended that the proponent conduct a cost-benefit analysis to assess the socio-economic profitability of the project. The analysis provided by the proponent (SNC-Lavalin, August 2020a) in its responses to the Agency's second request for information concludes that the project is socially profitable, with benefits far outweighing costs over the 20 years of operation.

With respect to the purpose of its project, the Agency considers that the proponent has provided the necessary information for the purposes of the environmental assessment. The Agency is also of the view that the proponent's responses to the concerns raised by the various stakeholders, as well as the explanations provided on the context of the project's integration in the Canadian, North American and global port industry are sufficient for the purposes of the environmental assessment of the project under CEAA 2012.

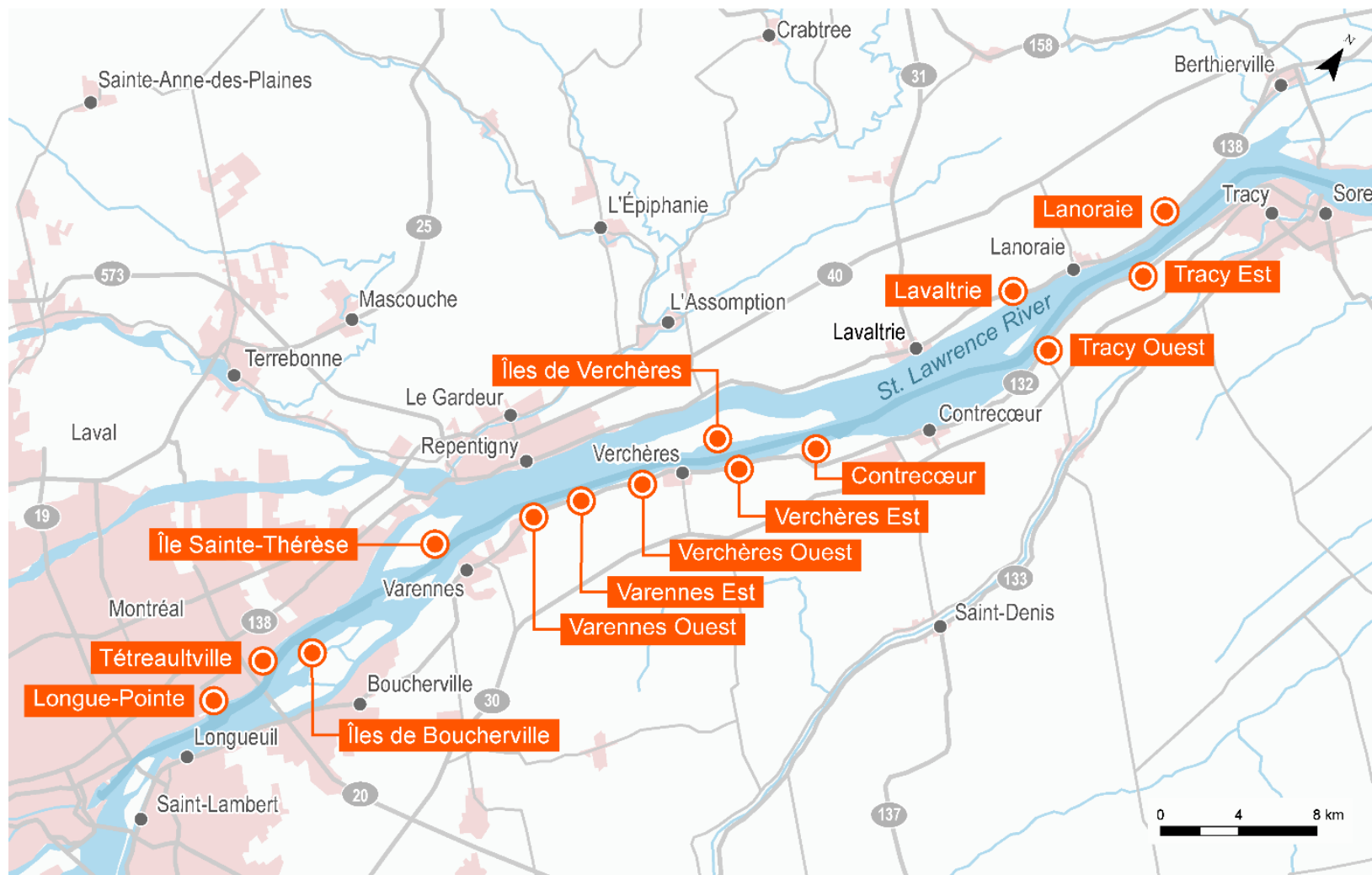
4.2 Alternative Means of Carrying Out the Project

Under CEAA 2012, the environmental assessment of a project must consider technically and economically feasible alternatives and their environmental effects (Agency, 2012). The proponent considered alternatives for the following project components: site location, site area, wharf construction method, wharf alignment, land access roads, dredging method and dredged sediment management.

4.2.1 Site Location

Various studies were carried out during the 1970s and 1980s to identify sites favourable to the expansion of the MPA's activities (Figure 5). Based on various geotechnical, technical, operational and environmental criteria, the proponent concluded that the Contrecoeur site offered the best possibilities for expansion. It also provided a multi-s analysis based on the environmental components of other potential project sites (SNC-Lavalin, April 2019). According to the results of this analysis, the best site is the Varennes West site since it corresponds to the variant that affects the least of all the environmental components. In second place, the Contrecoeur site received the highest score for all components, except for fish habitat in streams other than the St. Lawrence River. However, considering other important issues such as the infrastructure to be relocated, access to the shipping channel, as well as navigation safety, the proponent chose the Contrecoeur site because it considers it to be significantly more advantageous compared to the other sites considered (SNC-Lavalin, April 2019). Other characteristics making the Contrecoeur site a strategic port location include its appropriate form for the operation of a modern container terminal, its proximity to the rail network and major highways (Highway 30 and Route 132), its ability to meet long-term expansion needs, as well as the availability of space for industrial and logistics development. None of the other sites considered present as many favourable characteristics.

Figure 5: Potential Sites for Montreal Port Authority Expansion Activities



Source: SNC-Lavalin, October 2020



4.2.2 Sector of Implementation

Two implementation sectors have been considered at the Contrecoeur site, namely the "east" sector and the "west" sector. The proponent chose the western sector, mainly because of the significant reduction in the effects on the copper redhorse's critical habitat (aquatic grass beds). Criteria such as potential encroachment on wetlands, the area and quality of aquatic grass beds that could be affected, the area to be dredged and the area to be filled supported its comparative analysis (SNC-Lavalin, September 2017). It also assessed the area of shoreline that could be affected (SNC-Lavalin, April 2019).

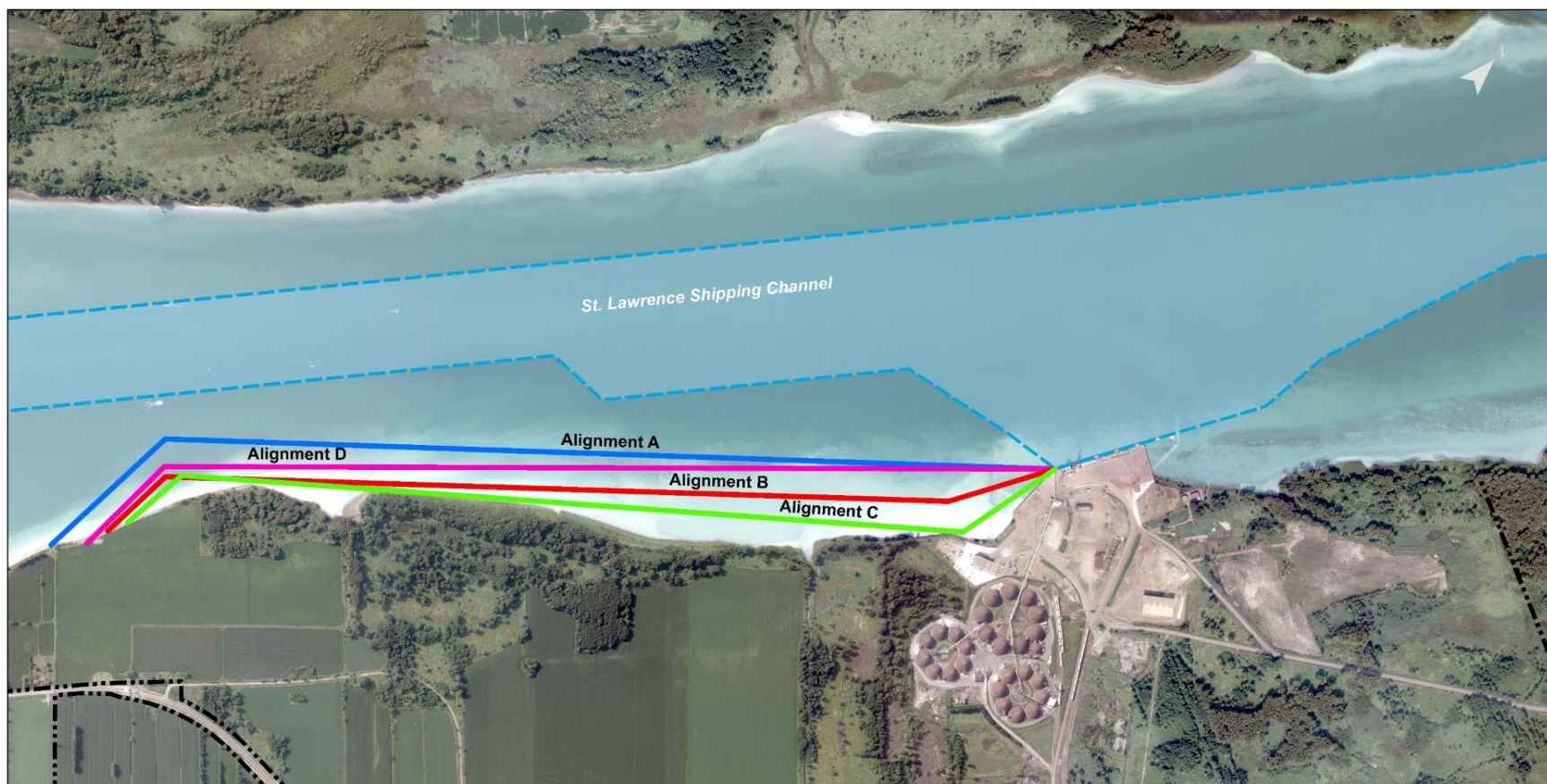
4.2.3 Wharf Construction Method

Three methods of construction for the wharf were analyzed by the proponent: steel sheet pile wharf, piling wharf and concrete caisson wharf. The proponent concluded that the sheet pile wharf was the most advantageous option from an engineering standpoint, in particular because of the stability of the structure and its compatibility with the geotechnical conditions of the site. In addition, this option would require less dredging than the other options.

4.2.4 Wharf Alignment

Four dock alignment options were considered (A, B, C, D) (Figure 6). The analysis considered ship manoeuvring and safety, geotechnical and seismic performance, construction risks, and effects on water levels, current velocities, sedimentation and ice. The analysis also compared the costs related to the various alignment options, including the costs of dock construction, as well as the costs associated with dredging and backfilling for all construction phases (SNC-Lavalin, September 2017, from Moffatt & Nichol, 2013). The proponent selected alignment D, which would reduce the amount of sediment to be dredged, limit the volume of water to be managed, and reduce the area (or encroachment) required for the management of dredged sediments. In addition, this alignment would have little effect on the river currents at this location and would allow for a maximum dock length along the shoreline of 675 metres for the first phase of construction.

Figure 6: Wharf Alignment Options Considered



Source: SNC-Lavalin, October 2020



4.2.5 Land Access Roads

The proponent evaluated two alternatives for land access roads to the Contrecoeur site (SNC-Lavalin, April 2019). These variants differ in terms of their location, geometry, type of crossing, method of operation and effects on public infrastructure (see Figure 1):

- Variant 1 proposes road and rail accesses closer to the proposed terminal and intermodal yard, along the axis of existing road and rail accesses, thus limiting the length of track to be built. However, this proximity means that rail yard switching would significantly impede traffic on Route 132 (more than 1 hour), requiring the construction of a rail bridge over Route 132, which would have to be lowered.
- Variant 2 offers access further from the terminal and intermodal yard, near the eastern limit of the MPA's territory. This distance makes it possible to perform rail yard switching without hindering traffic on Route 132.

The difference between the two variants in terms of greenhouse gas emissions for all phases of the project would be small (SNC-Lavalin, April 2019).

The proponent compared the two variants according to different criteria and informed the Agency on September 9, 2017, that it was opting for Variant 2. Although it requires greater encroachment on the natural environment, it is much less complex and costly (\$1 million instead of \$25 million), does not encroach on the critical habitat and the residence of the western chorus frog, avoids the excavation of a large volume of soil, does not require the installation and maintenance of a pumping system, affects fewer lots (two instead of 12), and requires the relocation of fewer utilities.

4.2.6 Method of Dredging

The proponent provided a comparative evaluation of two dredging methods: the suction dredger with cutter head (hydraulic dredging) and the clamshell dredger with articulated arm (mechanical dredging) (SNC--Lavalin, April 2019 and August 2020b). Although the hydraulic dredge offers more control points for dredging, it would present challenges, particularly with respect to the management of the dredged sediment and the large amount of water resulting from it. The proponent concludes that both techniques could be used while respecting water quality criteria for dredging monitoring and minimizing sediment accumulation rates in the aquatic grass beds located downstream. With the private partner that would be retained for the project, the proponent plans to continue improving work methods in order to find a solution that would further reduce the rates of sediment accumulation in the aquatic grass beds and present the results to the relevant authorities (Fisheries and Oceans Canada in particular). This exercise would be carried out during the permit-application phase under the *Species at Risk Act*, if necessary.

4.2.7 Management of Dredged Sediment

Different dredged sediment management options were evaluated based on environmental quality, physical properties, volumes to be disposed of, technical and environmental constraints, construction



schedule and the linkage with the various phases of the project: open-water discharge, shoreline or riverbank reclamation, containment in a riparian environment, backfilling behind the face of the new wharf, disposal in the Port of Montreal's Vickers Basin, land disposal of the sediment on the territory of the MPA in Contrecoeur (in the case of mechanical dredging), sediment dewatering and water treatment in basins developed on the territory of the MPA in Contrecoeur (in the case of hydraulic dredging) and off-site land disposal of sediment. The proponent wishes to retain the last three options, namely the management of mechanically or hydraulically dredged sediment on the MPA's territory and off-site land disposal. The choice would be defined by the proponent at the design stage and subject to obtaining environmental authorizations and permits (SNC-Lavalin, August 2020).

4.2.8 Comments Received

Members of the public questioned the analysis of the site's location options and the fact that the Bécancour site was not included. One environmental group believes that the Longue-Pointe, Pointe-aux-Trembles, Varennes and Sorel-Tracy sites would have much less effect on the copper redhorse and western chorus frog. The Regional County Municipality of Marguerite-d'Youville emphasizes that through its own observations, and with regard to the various modes of transportation involved in this project, the choice of site is optimal compared to all the others studied and identified in the report. Fisheries and Oceans Canada considers that the proponent's choice to locate the project on the western part of its property substantially reduces the effects on the copper redhorse's critical habitat. It also believes that the proponent has demonstrated that no other site could present the characteristics required for the desired port expansion.

The potential dispersion of suspended solids in the aquatic environment during backfilling behind the sheet piles was also a concern that was raised. Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques, Fisheries and Oceans Canada, and Transport Canada submitted recommendations and questions to the proponent regarding the wharf, more specifically on the importance of ensuring the quality of the backfill material behind the wharf, the construction method and its configuration. The work method for the construction of the wharf is discussed in section 5.3 (Fish and fish habitat).

Regarding land access roads, one citizen favours variant 1 because it includes a railway bridge and avoids a level crossing. The citizen wanted to know the view of Quebec's Ministère des transports on this variant. The Government of Quebec experts requested additional information from the proponent on the proposed alternatives and the proponent provided adequate answers to support its analysis and choice of alternatives.

A private company believes that the suction dredging method (hydraulic) would be more economical and that the clamshell dredging method (mechanical) should be avoided (because of its high rate of sediment dispersion). Another company considers it important not to limit the choice of dredging methods in order to allow the proponent to propose any method that, combined with adequate mitigation measures, would make it possible to limit the re-suspension and dispersion of sediments. According to Fisheries and Oceans Canada, the hydraulic dredging method is generally known to be less likely to generate a significant amount of sediment in the water column. The information presented by the proponent suggests



to Fisheries and Oceans Canada that hydraulic dredging (suction dredge with a disintegrating head) would be less likely to generate resuspension and significant accumulations of sediment on certain parcels of critical habitat (aquatic grass beds) of the copper redhorse. In addition, the proponent points out that the use of a hydraulic dredge offers more control points to modify operations and make corrections during dredging, if necessary. Thus, the hydraulic dredging method appears to Fisheries and Oceans Canada to be a reasonable and less risky alternative to the mechanical dredging method for copper redhorse habitats located downstream of the project. It remains willing to consider, during the review phase of the permit application under the *Species at Risk Act*, any other approach, technology or work method that would minimize the risks of sedimentary effect on the aquatic grass beds located downstream of the work. A citizen and an organization wish that the dredged sediment not be stored on the proponent's land that could have potential for agricultural use. In the event that the dredged sediment is disposed of off-site, the Mohawk Council of Kahnawà:ke fears that this would affect the natural environment and potentially their territory. It suggests that the proponent find innovative solutions to valorize this material. Environment and Climate Change Canada and Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques asked the proponent several questions about the sediment management method, the environmental effects that could be associated with it, and the proposed mitigation measures. The dredging method and the management of the dredged sediment are discussed in more detail in section 5.3 (Fish and their habitat).

4.3 Agency Analysis and Conclusion

The proponent's evaluation of alternatives took into account the cost effectiveness, technical feasibility and reliability of the options, their effects on the selected valued components, as well as comments from the public, First Nations and government experts. The Agency is of the view that the proponent has sufficiently assessed the technically and economically feasible alternatives and their environmental effects under CEAA 2012. With respect to the dredging method and the management of the dredged sediment, the Agency notes that the proponent will improve work methods in order to find a solution that will further reduce the accumulation rates of modelled sediment and minimize the risks of sedimentary effect on the aquatic grass beds located downstream of the work.



5. Predicted Effects on Valued Components

5.1 Transboundary Environmental Effects – Greenhouse Gas Emissions

The project could result in residual transboundary effects through greenhouse gas emissions. However, the Agency is of the view that these effects are not likely to be significant given that the volume of greenhouse gases from the project would contribute little to provincial or national emissions. The total emissions that would be generated annually due to the maximum terminal operating scenario (without the operations of the existing terminal) would be in the order of 39 kilotons (39,000 tons) of carbon dioxide equivalent (CO₂ eq), which corresponds to approximately 0.05% of the total greenhouse gas emissions inventoried in Quebec in 2017 (MELCC, 2019) and 0.005% of the total greenhouse gas emissions inventoried in Canada in 2018 (ECCC, April 2020a).

The following subsections present the information considered by the Agency in its analysis to conclude on the significance of transboundary environmental effects, specifically on greenhouse gas emissions, including the opinions and comments of government experts, First Nations consulted and the public.

5.1.1 Analysis of Potential Effects and Proposed Mitigation Measures

Description of the Valued Component

Greenhouse gases (GHGs) are atmospheric gases that absorb and reflect infrared radiation causing the lower layers of the atmosphere to warm. They are recognized as being one of the causes of climate change that can have various effects on ecosystems and human health. These gases disperse at the global scale and, for the purposes of CEAA 2012, are considered to have transboundary environmental effects. The main GHGs include carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, ozone, hydrofluorocarbons and perfluorocarbons. Greenhouse gas estimates are usually expressed in tonnes of carbon dioxide equivalent⁸ (CO₂ eq) per year.

As of 2017, projects that emit more than 10 kilotonnes of CO₂ eq per year are required to report their emissions to Environment and Climate Change Canada through the *Greenhouse Gas Emissions Reporting Program*. At the provincial level, under the *Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere*, anyone who operates an establishment that releases an

⁸ Greenhouse gas emissions are calculated and expressed in carbon dioxide equivalent to facilitate comparison. The emission rate of each substance is multiplied by its global warming potential relative to that of carbon dioxide.

amount of GHGs into the atmosphere equal to or higher than 10,000 tonnes of CO₂ eq per year is required to report emissions every year.

In 2017, total GHG emissions in Quebec amounted to 78,600 kilotonnes of CO₂ eq and the sector that produced the most GHG emissions was the transportation sector (road, air, marine, rail and off-road), which generated 34,100 kilotonnes of CO₂ eq or 43.3% of total emissions (MELCC, 2019). For Canada as a whole, total greenhouse gas emissions in 2018 amounted to 729,000 kilotonnes of CO₂ eq (MELCC, April 2020a). The oil and gas and transportation sectors together account for 51% of Canada's total emissions, with 193,000 kilotonnes CO₂ eq (26%) and 186,000 kilotonnes CO₂ eq (25%) respectively.

Potential Effects

During the construction phase, the proponent estimates that the main sources of GHGs would come from the combustion gases generated by the circulation of trucks and machinery on the site (equipment mainly with diesel engines) as well as from dredging work on the water by dredgers and tugs. For dredging activities, the proponent estimated GHG emissions according to three management options for dredged sediments, namely permanent storage of sediments in dedicated areas on the site (storage areas 2 and 4), disposal of sediments off-site, or a combination of these two options (see Figure 2). The proponent selected the zone 4 sediment management scenario to estimate the GHGs that would be emitted during the construction phase, as it is the scenario with the highest volume of GHG emissions. The proponent chose the mechanical dredging scenario to make its estimates, but the proponent believes that the concentrations of contaminants in the ambient air from flue gases in a hydraulic dredging scenario would be similar. Based on this scenario, the maximum estimated annual emissions for the construction phase would be 6,800 tonnes of CO₂ eq. Table 4 provides details of the estimated GHG emissions during the construction phase.

Table 4: Estimated GHG Emissions During the Construction Phase

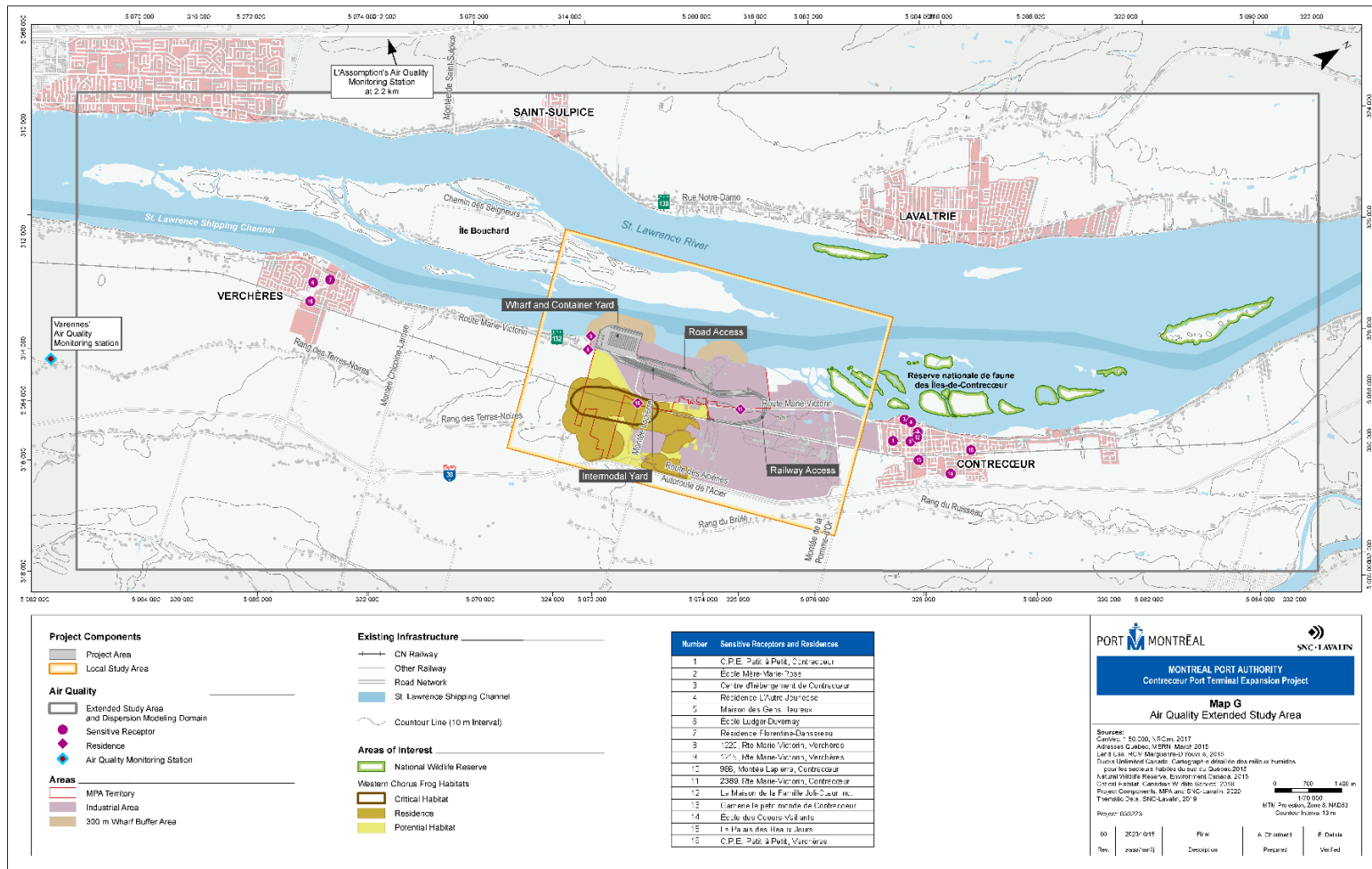
Development and Construction Activity	Emissions by Activity and Year of Construction (Tons of CO ₂ eq.)				Total GHGs for the 4 Years of Construction
	Year 1	Year 2	Year 3	Year 4	Tons of CO ₂ eq.
Site Preparation (Including Deforestation)	x				2,093
Container Yard	x	x	x	x	5,836
Intermodal Court			x	x	1,912
Dredging		x	x	x	7,642
Wharf With 2 Berths	x	x			3,547
Truck Control Area			x		380
Road and Rail Infrastructure			x	x	2,083
Support Buildings	x	x	x		422
Drainage System			x		276
Totals	5,466	5,920	6,800	6,004	24,190



In the operation phase, the terminal's sources of GHG emissions would be almost exclusively related to the transportation and handling of containers. GHGs would come primarily from the combustion of fossil fuels by the engines of trucks and container handling vehicles, locomotive generators, mini generators on railcars and truck-mounted refrigerated containers, and ship engines, generators and boilers.

Based on the proponent's assumptions and estimates, these annual emissions are estimated at 39 kilotonnes of CO₂ eq per year. The proponent notes that the majority of GHG emissions (29 kilotonnes of CO₂ eq) would not be directly related to terminal operations (buildings and handling equipment), but rather to emissions from transport trucks, ships and locomotives in the expanded study area (Figure 7). It should be noted that GHG emissions related to ships were estimated up to a distance of 14 nautical miles downstream from the terminal, which corresponds to the limit of the MPA's water jurisdiction area. Table 5 presents estimates of annual GHG emissions during the operation phase.

Figure 7: Expanded Air Quality Study Area



Source: SNC-Lavalin, October 2020

Table 5: Estimated Annual GHG Emissions for the Operational Phase

Sources	Operation of the New Container Terminal in Phase 1 (2025) (Tons of CO ₂ eq)
Buildings (Boilers and Electricity)	143
Material Handling Equipment (Cranes, Carts, Trucks, Etc.)	6,619
Ships (Cargo, Tugs, Shore Power)	12,001
Road Transport (Site Trucks, Freight Transport)	17,295
Rail Transportation (Terminal Locomotives and CN Locomotives)	3,193
Totals (Tons)	39,251

The Huron-Wendat Nation emphasizes that the proponent should act as a leader in the reduction of GHG emissions and propose reduction targets accordingly.

Several citizens and organizations have raised concerns that the increase in marine, rail and road transportation caused by the project would increase greenhouse gas emissions in the terminal sector and contribute to climate change. Several citizens and organizations also pointed out that the Agency's requirements for the proponent to calculate GHGs are insufficient since there is no requirement to take into account GHGs emitted by freight transportation outside the expanded study area, nor to take into account GHG emissions that could occur in phases 2 and 3 of the terminal development. Electrification of transportation, such as the use of a fleet of electric trucks by the proponent, could help mitigate this negative effect. On the other hand, one organization raised the role that the federal government must play in the fight against climate change by requiring that projects, such as the Contrecoeur project, be carbon neutral. Finally, two organizations argued that the Contrecoeur terminal expansion project would promote the transportation of goods by rail and sea, which are more efficient in terms of GHG emissions than truck transportation.

Proponent's Proposed Mitigation and Follow-up Measures

In order to minimize GHG emissions during the construction and operation phases, the proponent would propose a greenhouse gas management plan and mitigation measures, including available shore power for ships.

Environment and Climate change Canada (ECCC) and Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC) are of the view that the various measures proposed by the proponent are adequate and sufficient to reduce the effects of the project on GHG emissions. Among the proposed measures, some are considered more important for the reduction of GHGs, including the use of local materials, the reclamation and storage of dredged material on site, the electrification of



equipment, the use of electric or hybrid machinery and vehicles, and the optimization of travel on site. In addition, ECCC recommends that the proponent implement the various initiatives it presented in its Environmental Impact Statement and in the response document provided to the Agency in August 2020 (SNC-Lavalin, August 2020a), which includes promoting the use of biofuels, the implementation of an energy efficiency plan and a truck reservation system that reduce waiting time and GHG emissions.

All of the mitigation measures proposed by the proponent are specified in the proponent's Environmental Impact Statement documents, as well as in a compilation of measures and commitments provided by the proponent and published on the Registry (Document No. 145).

Finally, according to the proponent, the operation of the container terminal would promote rail and marine transportation, which are more efficient in terms of GHG emissions.

The proponent proposes to track GHG emissions during the construction and operation phases, and produce an annual balance sheet that would serve as a tool for setting emission reduction targets or emission intensities for different activities. The proponent also indicated that it may consider implementing incentive programs to achieve its targets. Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC) is of the view that a monitoring plan for the project's GHG emissions (direct emissions) would allow the proponent to quantify the emissions generated by the project, evaluate the effectiveness of the mitigation measures put in place and improve them if necessary. The MELCC recommends that this plan be sufficiently detailed and that it includes, among other things, the type of data to be collected (e.g., fuel consumption), the processes and methods for collecting this data, and the frequency of data collection.

5.1.2 Agency Analysis and Conclusions on Residual Effects

Effects Analysis

The operation phase would be the moment where the maximum total emissions would be generated annually and would be in the order of 39 kilotonnes of CO₂ eq. These emissions are equivalent to approximately 0.05% of the total greenhouse gas emissions inventoried in Quebec in 2017 and approximately 0.005% of the total greenhouse gas emissions inventoried in Canada in 2018.

By comparison, in 2018, the ten largest emitters in Canada emitted between 4,785 and 11,783 kilotonnes of CO₂ eq. As for the ten largest emitters in Quebec, they emitted between 763 and 1,187 kilotonnes of CO₂ eq (ECCC, April 2020b).

Based on this information, the Agency considers that the estimated greenhouse gas emissions from the project would be low compared to provincial and national emission levels.

Environment and Climate Change Canada notes that Canada is committed to implementing the *Pan-Canadian Framework on Clean Growth and Climate Change*, strengthening existing greenhouse gas reduction measures and implementing new ones to exceed Canada's emission reduction target by 2030.

As such, any greenhouse gas emissions from the project, despite the measures that would be put in place, could result in a negative residual effect.

Identification of Key Mitigation Measures

The Agency has identified multiple key mitigation measures to reduce the effects of the project on air quality that will also help reduce greenhouse gas emissions (see section 5.6 of this report).

The Agency has determined that, as a key mitigation measure, the proponent provide and maintain, during operation, electrical power so that any ship serving the project that is equipped to plug into land-based electrical power can do so while berthed to reduce the use of diesel auxiliary engines. Considering the project's low contribution to provincial and national greenhouse gas emissions, the Agency has not identified any other key mitigation measures. However, the Agency considers that the proponent must implement all achievable mitigation measures that would reduce the project's contribution to greenhouse gas emissions.

Need for Follow-up and Follow-up Requirements

The proponent proposes to track GHG emissions and produce an annual balance sheet. The Agency also recommends that the following requirements be implemented :

- Develop, in consultation with Environment and Climate Change Canada, Transport Canada and other relevant authorities, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of the greenhouse gas emissions from the project (including those of ships) during construction and during operation. Develop the follow-up program applicable to construction prior to construction and develop the follow-up program applicable to operation at least one year before operation. Implement the follow-up program during construction and operation. In the context of development of the follow-up program, define quantifiable targets for the reduction of greenhouse gas emissions from the project and identify the reduction measures under the proponent's control that will be implemented in order to achieve these targets. As part of the implementation of the follow-up program:
 - Monitor the greenhouse gases emitted by the project during construction and operation at a frequency that accounts for the nature of the activities as part of the project and the representative periods of activities and traffic and compare the results of this monitoring with the targets defined during the development of the follow-up program;
 - Provide, in the annual report, the progress achieved during the reporting year to achieve the targets defined during the development of the follow-up program;
 - Develop and implement modified or additional mitigation measures if monitoring results demonstrate that measures are necessary to mitigate the adverse environmental effects of greenhouse gas emissions coming from the project and to achieve the targets defined during the development of the follow-up program;
 - Update the follow-up program applicable to operation, including the targets defined during the development of the follow-up program, before the end of the third year of

operation and, subsequently according to the schedule determined in each review in consultation with parties consulted for the development of the follow-up program. Implement the updated follow-up program.

The Agency also notes that the proponent will be required to monitor and report its greenhouse gas emissions annually to Environment and Climate Change Canada and to the Government of Quebec if they exceed the reporting threshold of 10 kilotonnes of CO₂ eq per year.

Conclusions

According to the Agency, significant adverse transboundary environmental effects occur when project emissions account for a high level of contribution to provincial or national greenhouse gas emissions. Given the project's low contribution to provincial and national greenhouse gas emissions and the implementation of the mitigation and follow-up measures described above, the Agency is of the view that the project is not likely to cause significant adverse environmental effects in relation to greenhouse gas emissions.

5.2 Wetlands

The project could result in residual effects on wetlands resulting from the destruction of several hectares of wetlands and the fragmentation of other environments. However, the Agency is of the view that these effects are not likely to be significant given the application of the mitigation and follow-up measures recommended in section 5.2.2 as well as the proponent's proposal to use the "avoid-minimize-compensate" sequence when carrying out its project. To determine the significance of the effects on wetlands, the Agency assessed, among other things, whether the project is likely to result in a net loss of wetland functions and whether the affected wetlands are located in an area where the wetlands or their functions require special measures in accordance with the *Federal Policy on Wetland Conservation*.

The following subsections present the information considered by the Agency in its analysis to conclude on the significance of the project's effects on wetlands. The information considered includes the opinions and comments of government experts, First Nations consulted and the public.

5.2.1 Analysis of Potential Effects and Mitigation Measures Proposed by the Proponent

Description of the Valued Component

According to the *Federal Policy on Wetland Conservation: Implementation Guide for Wetland Managers* (Environment Canada, 1996), a wetland is "land where the water table is at, near, or above the surface or which is saturated for a long enough period to promote such features as wet-altered soils and water

tolerant vegetation⁹." The *Federal Policy on Wetland Conservation* (Environment Canada, 1991) has as its main objective to "promote the conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and in the future. Any federal authority is responsible for implementing the Policy on its lands, including the MPA." Strategy 2 of the Policy includes the following: "To commit all federal departments to the goal of no net loss¹⁰ of wetland functions¹¹: (i) on federal lands and waters, (ii) in areas affected by the implementation of federal programs where the continuing loss or degradation of wetlands has reached critical levels, and (iii) in areas where federal activities affect wetlands designated as ecologically or socio-economically important to a region."

The Contrecoeur region is located in an area where "wetland loss or degradation has reached critical levels."

For wetlands located on lands under provincial jurisdiction, the *Act respecting the conservation of wetlands and bodies of water* plans for the application of the "avoid-minimize-compensate" sequence and pushes an approach that ensures the consolidation of functional ecosystems, rather than the restoration of fragmented and degraded environments. The lands where the project is located are not subject to this Act, but the use of the avoid-minimize-compensate mitigation sequence is recommended in the Implementation Guide (Environment Canada, 1996) and was taken into consideration in the environmental assessment of the project.

The proponent analyzed the wetlands in the plant cluster study area, which covers an area of 520 hectares and corresponds to the territory of the Montreal Port Authority as well as part of the ArcelorMittal property (rail access). Wetlands occupy an area of 85.6 hectares, or approximately 16.5% of the total area. The project area (maximum project footprint in Figure 8) of 210.6 hectares is included in the study area and includes 20.9 hectares¹² of wetlands, or nearly 10% of the project area (SNC-Lavalin, April 2019). The types of wetlands found in the project area are detailed in Table 6, while the ecological value of all the wetlands present in this area is presented in Table 7 and Figure 8.

⁹ That which has an affinity for water.

¹⁰ No net loss of wetland function means that unavoidable losses of function must be compensated (Environment Canada, 1996).

¹¹ Natural processes, benefits and values associated with wetland ecosystems, including production of renewable resources, fish and wildlife habitat, organic carbon storage, water supply and treatment, soil and water conservation, and tourism, cultural, recreational, educational, scientific and aesthetic opportunities (Environment Canada, 1996).

¹² A portion (0.7 hectares) of the total 20.9 hectares of wetlands represents the shoreline and provides fish habitat. The 0.7 hectare coastal area is discussed in Section 5.3 (Fish and Fish Habitat).

Table 6: Area and Proportion of Wetland Types Within the Project Area (SNC-Lavalin, April 2019)

Type of Environment	Surface Area (Hectares)	Proportion of Wetland (%)	Proportion Occupied in the Project Area (%)
Marsh	11.8	57	5.6
Tree Swamp	8.2	39	3.9
Shrubby Swamp	0.84	4	0.4
Total	20.9¹³	100	9.9

Table 7: Ecological Value of Wetlands Within the Project Area (SNC-Lavalin, April 2019)

Ecological Value	Area Affected (hectares)	Percentage (%)
Very High	0	0
High	0.33	1.6
Average	5.44	26.0
Low	14.57	69.6
Very Low	0.58	2.8

The wetlands within the project area serve several ecological functions. They all play an important role in "supplying water supplies, reducing and containing flooding, acting as a sink for pollutants, and supplying nutrients."¹⁴ They also all play a minor role in "providing an important source of oxygen and a critical component of evapotranspiration and climate cycles and storing carbon"¹⁵, given the absence of peatland and significant organic layer swamps, on the other hand, play an important role in "conserving soil and water."¹⁶ Three wetland complexes (MH01, MH02 and MH16) contribute significantly to "providing habitat for flora and fauna, providing refuge for rare or endangered species, and conserving biodiversity and species vitality"¹⁷; three complexes (MH01, MH02 and MH04) play an important role in landscape quality, while two complexes (MH28 and MH29) play an important role in "protecting shorelines"¹⁸ (SNC-Lavalin, April 2019; SNC-Lavalin, August 2019). The proponent did not describe the socio-economic functions of the wetlands in the project area. However, ECCC considers that the baseline condition for the "wetlands" valued component is, in general, adequately described for the environmental analysis of the project.

¹³ Including 0.7 hectare of coastline. See previous note for more details.

¹⁴ This is the ecological function of the Federal Policy (Environment Canada, 1991). At the provincial level (*An Act Respecting the Conservation of Wetlands and Water Resources*), this function is translated as follows: "Filter against surface and ground water pollution and regulate water."

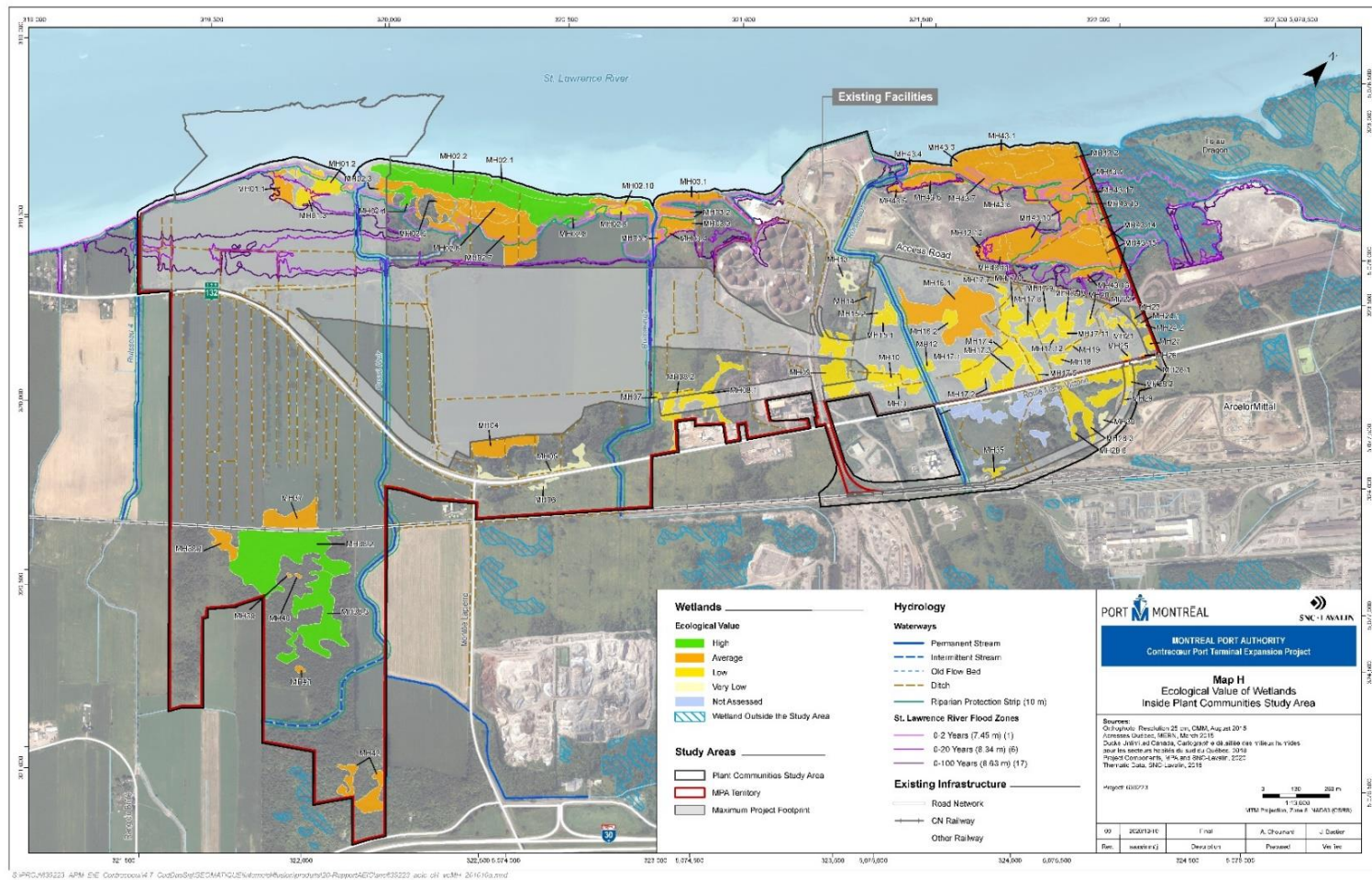
¹⁵ Provincial equivalent: Carbon Sequestration and Climate Change Mitigation.

¹⁶ Provincial equivalent: Sunscreen and natural windbreaks.

¹⁷ Provincial equivalent: Biodiversity Conservation.

¹⁸ Provincial equivalent: Erosion Control.

Figure 8: Ecological Value of Wetlands Within the Vegetation Cluster Study Area



Source: SNC-Lavalin, October 2020



Potential Effects

During the construction phase, project activities that could potentially affect wetlands would include clearing and removal of vegetation, grading, management of residual and hazardous materials, ditch profiling and drainage system installation, potential backfilling and deviation of the Ruisseau 1 creek, backfilling and deviation of the Fossé Noir ditch, wharf development, development of the vegetated embankment and dredged material management areas, and circulation of machinery and heavy vehicles. In addition, riparian wetlands could be affected by planned in-water activities, such as the construction of the wharf, including the installation of the sheet pile wall and backfilling behind the wall, as well as sediment dredging operations.

The proponent estimates that 20.9 hectares¹⁹ of wetlands would be destroyed during the construction phase (SNC-Lavalin, April 2019). A portion (0.7 hectare) of this loss is part of the shoreline and constitutes fish habitat. This loss in the littoral zone would be associated with the backfilling of the land at the location of the proposed wharf and is discussed in section 5.3 (Fish and Fish Habitat) of the report.

Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques considers that the loss of riparian area associated with the backfilling of the Ruisseau 1 creek and the Fossé Noir ditch sections would constitute a loss of function and should be accounted for in the calculation of the area of wetlands that would be destroyed.

Of the 20.9 hectares of wetlands that could be destroyed, 86% are located inland, 10% are within the 2-20 year and the 20-100 year floodplains, and 0.3% are located along the St. Lawrence River shoreline (Figure 8). The wetlands in the project area (20.9 hectares) belong to 26 complexes that are divided into 46 wetlands. Of these, three have a high ecological value (1.6% of the affected area of the project area), five have a medium value (26%), 36 have a low ecological value (69.6%) and two have a very low value (2.8%) (Table 7 and Figure 8). The marsh would be the wetland type most affected by the project (Table 6).

Outside the project area, within the plant cluster study area, no wetlands would be destroyed, but some could be disturbed. Sediment runoff or input of suspended solids could alter the pH, vegetation and the presence of microorganisms in the wetlands. The profiling of ditches, the installation of the drainage system and the deviation of the Fossé Noir ditch and potentially the Ruisseau 1 creek could result in a change in water conditions in these wetlands. Furthermore, according to the proponent, dust deposition would not have any effect on the wetlands, since it would not exceed 100 grams per square metre per year (during construction or operation phase) and would not remain on the vegetation for long periods of time (SNC-Lavalin, August 2020).

During the operation phase, the presence of the wharf would impose a constraint on the water flow pattern compared to natural conditions. The proponent states that the effects of the slight increase in flow

¹⁹ If Storage Area 4 is not retained by the proponent or sediments would be managed off-site and only Storage Area 2 is used, the total wetlands affected would be 12.7 hectares. For the purposes of this report, the scenario with the greatest effect was used.



velocities for a small area of *Spartina* marsh, considered a resilient ecosystem, would be negligible (SNC-Lavalin, April 2019). The riparian wetlands located directly downstream from the future wharf would be little affected by boat-generated waves.

The project could result in the loss of ecological functions among the 26 complexes affected by the loss of wetlands. The main consequences of these losses of functions during the construction and operation phases would be related to a variable decrease (ranging from slight to significant according to the proponent) in water filtration and regulation due to the loss of wetland area. According to the proponent, a small to very small decrease in functions related to biodiversity conservation would be limited to three wetland complexes (MH01, MH02 and MH16). Similarly, a small to very small decrease in functions related to landscape quality (complexes MH01, MH02 and MH04) and erosion control (complexes MH28 and MH29) could also occur. Finally, some wetland complexes would be fragmented, but these have a low ecological value according to the proponent (SNC-Lavalin, April 2019).

Environment and Climate Change Canada is of the view that the proponent has identified the main potential environmental effects of the project on wetlands. It notes, however, that the risk of contamination caused by the use and circulation of machinery on the site constitutes a potential effect on wetlands that has not been assessed, both for the construction and operation phases.

Concerns were raised by the Mohawk Council of Kahnawà:ke regarding the mitigation measures proposed by the proponent, the fragmentation of wetlands, the effects of this fragmentation on wildlife and the loss of wetlands caused by the removal of riparian vegetation and the deviation of watercourses (MCK, 2019). Finally, the Mohawk Council of Kahnawà:ke requests that the proponent make real gains in terms of the quality and functions of the wetlands that would be created to compensate for the areas lost (MCK, 2020).

The Huron-Wendat Nation mentions that the loss of natural habitat, regardless of its size, is significant and should not be minimized. It emphasizes that a wetland restoration program should be considered because of the anticipated effects on herpetofauna.²⁰ Finally, it considers that the monitoring of residual wetlands over a three-year period is not sufficient and should be carried out over a 20-year period (evaluated every three years) (Nionwents'io Office, 2018).

The effects on wildlife that could be caused by the loss or disturbance of wetlands are discussed in sections 5.3 (Fish and Fish Habitat), 5.4 (Birds and their habitat) and 5.5 (Other Special Status Species).

Concerns were also raised by some organizations regarding the compensation measures planned by the proponent due to the lack of detail in the initial documents submitted to the Agency. Among other things, it is hoped that the compensation measure of creating environments (with equal or higher ecological value to the destroyed wetlands) will place those environments close to the project area. Some citizens would like to see the backfilling and construction of port infrastructure on wetlands avoided. One

²⁰ All the reptiles and amphibians of an area (e.g., turtles, snakes, frogs, salamanders).



organization also emphasizes that it will be important that the various local stakeholders as well as the Quebec government be consulted during the development of the compensation plan.

Proponent's Proposed Mitigation and Follow-up Measures

The proponent has planned several mitigation measures as part of its project that would reduce the effects on wetlands and take into account the concerns of First Nations and the public and the advice of government experts. These measures are detailed in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the *Registry* (Document No. 145). Among these measures, several general mitigation measures for good management are planned, such as for refuelling, maintenance and cleaning of vehicles and machinery at more than 30 metres from watercourses and wetlands. Although the proponent does not address the risk of wetland contamination, Environment and Climate Change Canada notes that general prevention and response mitigation measures have been provided for the use and circulation of machinery on the site.

Mitigation measures specific to wetlands are also planned by the proponent. In particular, the proponent plans to implement, when required, a measure to prevent residual wetlands from draining into ditches (the installation of a clay plug is the preferred option) (SNC-Lavalin, April 2019). The proponent also proposes to monitor the drainage conditions of wetlands adjacent to the work area in its natural environment management plan.

The proponent proposes to compensate for the loss of 20.2 hectares²¹ of wetlands (SNC-Lavalin, August 2019). The objective of the compensation plan would be to:

- Fully compensate for the loss of wetland ecological functions (as per the *Federal Policy on Wetland Conservation* [1991], which plans for no net loss of wetland function); and
- Compensate with twice the area of wetland lost, i.e., 40.4 hectares (or 25.4 hectares if sediment management is carried out only in Storage Area 2 or off-site).

The proponent's compensation plan would be based on Environment Canada's Operational Framework for Use of Conservation Allowances (2012). The proponent would carry out its compensation plan with a private or non-profit organization specializing in nature conservation at one of the three potential sites it is considering, either in the Municipality of Verchères, Contrecoeur or Boucherville. Once the partner is selected, field campaigns would be carried out to characterize the potential compensation sites in order to determine the area available for compensation, identify the ecological functions that the environments provide, and evaluate the potential for restoration. The areas and ecological functions would be determined to ensure compensation for the loss of functions related to the project.

Environment and Climate Change Canada considers that compensatory measures are necessary, and that the preliminary compensation plan submitted by the proponent could make it possible to offset the

²¹ This figure excludes the loss of shoreline area (0.7 hectares) that constitutes fish habitat, which is discussed in Section 5.3 (Fish and Fish Habitat) of the report.



net loss of wetland function. However, Environment and Climate Change Canada points out the uncertainties inherent to any wetland compensation project, that it will have to be monitored and that corrective measures may have to be implemented, if necessary.

Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques believes that the compensation project should ideally be carried out in the same watershed, but elsewhere than at the site of the work itself, in order to avoid disturbing the environment twice. It considers that the area of riparian strips that would be lost through the backfilling of the Ruisseau 1 creek and Fossé Noir ditch sections should also be compensated. The MELCC also points out that the riparian strips of a watercourse, considered until now as a ditch in the eastern portion of the MPA's land, should also be included in the loss of wetlands and eventually compensate for the section that would be backfilled for the development of Zone 4 of the dredged material management zone.

A monitoring and follow-up program for the areas dedicated to compensation is planned to ensure that the desired ecological functions are maintained, that the compensated area remains stable and that the wetlands are not altered by external disturbances (SNC-Lavalin, August 2019).

5.2.2 Agency Analysis and Conclusions on Residual Effects

Effects Analysis

The Agency's analysis is based on the proponent's assessment of the effects on wetlands, the comments received from First Nations and the public, as well as advice from Environment and Climate Change Canada (ECCC) and Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC).

According to Appendix 2 of the *Implementation Guide for Federal Land Managers* (Environment Canada, 1996), the project would be located in an area where wetland loss or degradation has reached critical proportions. Although no net loss of ecological function is anticipated by the proponent as a result of the compensation project, the project could result in the destruction of up to 20.9 hectares of wetlands performing different ecological functions, with marsh-type environments being the most affected. To this end, the proponent proposes to fully compensate for the loss of wetland ecological functions and compensate twice the area that would be destroyed.

The water conditions of the wetlands adjacent to the project area could also be modified. The proponent plans measures to maintain the ecological functions of these residual wetlands.

With regard to the various concerns raised about wetlands, the Agency considers that the proponent has integrated these concerns into its project and has clearly detailed the effects of the project on wetlands, in addition to specifying mitigation and compensation measures. The wetland compensation plan must be consistent with the *Federal Policy on Wetland Conservation* and must allow to enhance or create wetland functions.



Taking into account the implementation of the key mitigation measures identified below, the Agency assesses that the residual effects of the project on wetlands would be moderate. The Agency's assessment is based on the environmental effects assessment criteria in Appendix A and the following findings:

- The magnitude of the project's residual effects on wetlands would be **medium**. Although the wetlands in the project area are largely of low ecological value, they are located in an area where wetland loss or degradation has reached critical levels. In addition, the project would result in the destruction of wetlands with different ecological functions, but a compensation project is planned to avoid a net loss of wetland functions;
- Residual effects of the project on wetlands would be limited to the project site (**site specific**) and would be felt over the **long term**;
- The residual effects of the project on wetlands would occur in a **continuous** and **irreversible** manner over time.

Identification of Key Mitigation Measures

The Agency has identified the key mitigation measures required to ensure that the proposed project does not cause significant adverse environmental effects on wetlands. It took into account the mitigation and compensation measures proposed by the proponent, the advice of government experts, as well as the comments received from First Nations consulted and the public. The key mitigation measures are as follows:

- Implement the project in a manner that avoids adverse environmental effects of the project on wetlands and wetland functions. To avoid adverse effects, maintain wetlands and their functions over minimizing adverse effects on wetlands and their functions. When the loss of wetlands and their functions cannot be avoided, mitigate the adverse effects on wetlands and their functions instead of compensating for affected wetlands and their functions;
- In the case of the adverse environmental effects of the project on wetlands and their functions located in the project area that cannot be avoided or mitigated, develop, prior to construction and in consultation with Environment and Climate Change Canada, the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques, the First Nations consulted, and any other stakeholder involved in conservation of the wetlands identified by the proponent, and implement an offsetting plan for wetlands and their functions that seeks to improve or create wetland functions and that complies with the *Federal Policy on Wetland Conservation*. In doing this:
 - Conduct, as part of the development of the offsetting plan, surveys of all the potential sites where the proponent plans to implement the offsetting plan, in order to determine the area, wetland functions and restoration potential of each site.
 - Select, taking account of the results of the surveys carried out, one or more definitive site(s) on which the proponent will implement the offsetting plan. These sites must be located in the southwestern watershed of the St. Lawrence River, as close as possible to the project;



- Submit the results of the surveys conducted, including an explanation of how the definitive site(s) selected will allow the offsetting of all the wetlands and their functions affected by the project to the Agency and the parties consulted for the development of the offsetting plan, no later than 30 days after the completion of the survey report. Submit the definitive offsetting plan to them prior to construction;
 - Implement the offsetting plan at the definitive site(s) selected before the wetlands in the project area are affected, unless this is not technically or economically feasible. If it is not technically or economically feasible to complete the implementation of the offsetting plan before the wetlands in the project area are affected, provide a justification for this to the Agency prior to construction and complete the implementation of the offsetting plan within three years after the start of construction.
- Discuss, as part of the development of the offsetting plan, with each of the First Nations consulted about the opportunities for their participation in the implementation of the plan. Allow the First Nations to participate in the implementation of the offsetting plan;
- Delineate and maintain, during construction, the perimeters of all the residual wetlands in the plant community study area identified in Figure 8 with high-visibility tape, within one metre of the boundary of all the wetlands, and do not undertake any construction or storage activity associated with the project within the delineated areas;
- Delineate and maintain, during construction, the perimeters of all the wetlands in the plant community study area identified in Figure 8 that will be backfilled as part of the project, based on the maximum encroachment distance, using high-visibility tape different from the tape used to identify the residual wetlands to be conserved;
- Install, at the start of construction, sediment barriers to prevent the deposition of sediment from the work sites in the residual wetlands in the plant community study area identified in Figure 8, including by installing a sediment barrier at the base of any backfilled embankment located in or near a wetland. Maintain the barriers functional during construction and remove them manually at the end of construction. When removing the barriers, dispose of any accumulated sediment outside of any watercourse, shoreline, floodplain or wetland;
- Stabilize, during operation, all surfaces located in the plant community study area identified in Figure 8 that are likely to be a source of sediments that could be deposited in residual wetlands;
- Develop, prior to construction and in consultation with Environment and Climate Change Canada, Natural Resources Canada and the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques, measures to prevent the project from causing the drainage, through a drainage ditch associated with the project, of any residual wetland that is in the plant community study area identified in Figure 8. Implement these measures during construction. Provide these measures to the Agency before implementing them;
- Maintain, during construction and operation, the baseline drainage upstream (in terms of inflow) and downstream (in terms of effluent) of residual wetlands located in the plant community study area identified in Figure 8, in order to maintain the wetland functions, unless not technically feasible. If maintaining drainage in accordance is not technically feasible, restore drainage as soon as technically feasible.



Need for Follow-up and Follow-up Requirements

In order to verify the prediction of effects on wetlands and the effectiveness of proposed mitigation measures, the Agency recommends that the follow-up program include the following requirements:

- Develop, prior to construction and in consultation with Environment and Climate Change Canada, the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques and the First Nations consulted, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the environmental effects of the project on residual wetlands and the engineered wetlands and their functions. As part of the implementation of the follow-up program:
 - Monitor, during construction and operation, the wetland functions, hydrological conditions and the presence of invasive alien plant species in the residual wetlands in the plant community study area identified in Figure 8;
 - Monitor wetland functions, the area and the presence of invasive alien plant species in the engineered wetlands at the selected site(s) as part of the implementation of the offsetting plan;
 - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects of the project on wetlands and their functions;
 - Before the end of the fifth year following the implementation of the offsetting plan, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring of the residual or engineered wetlands or their functions is required. If additional monitoring of any of the wetlands is required, update the follow-up program and implement the additional requirements of the follow-up program.

Conclusions

Considering that the proponent intends to use the "avoid-minimize-compensate" sequence in carrying out its project and that the use of this sequence has been demonstrated by the proponent in its Environmental Impact Statement, and taking into account the application of the mitigation and follow-up measures indicated above (including the planned compensation project), the Agency is of the view that the project is not likely to cause significant adverse environmental effects on wetlands.

5.3 Fish and Fish Habitat

The project could result in residual effects on fish and fish habitat from the destruction and alteration of fish habitat and changes to water quality. However, the Agency is of the view that these effects are not likely to be significant given the application of the mitigation and follow-up measures recommended in section 5.3.2 and the implementation of compensation plans. In determining the significance of the effects on fish and fish habitat, the Agency assessed, among other things, whether the effects would hinder: one



or more important phases of fish life cycles; the preservation of the fish population, or; the preservation, management or recovery of special status fish species.

The following subsections present the information considered by the Agency in its analysis, which includes the opinions and comments of government experts, First Nations consulted and the public.

5.3.1 Analysis of Potential Effects and Mitigation Measures Proposed by the Proponent

Description of the Valued Component

This report includes the following in this valued component:

- Fish²² and their habitat²³ as defined in the *Fisheries Act*;
- Benthic fauna²⁴;
- Fish and benthic species listed in Schedule 1 of the *Species at Risk Act* and designated under Quebec's *Act Respecting Threatened or Vulnerable Species*;
- Species for which the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recommends a status under the *Species at Risk Act*; and
- Species likely to be designated as threatened or vulnerable under Quebec's *Act Respecting Threatened or Vulnerable Species*.

The proponent used two spatial boundaries (Figure 9). The local study area was used to assess the effects of the project on fish, benthic fauna and their habitat, and to describe the types of habitats found in the project area. The territory of the Montreal Port Authority (MPA) was used to conduct inventories of the fish and benthic fauna that frequent the MPA territory and its shoreline.

Fish Species and Their Habitat

Based on 2001 sampling data from Quebec's Ministère des Ressources naturelles et de la Faune consulted by the proponent, 53 species of fish were identified in the section of the St. Lawrence River between Montreal and Sorel-Tracy. As part of the project, the proponent conducted experimental fishing on the territory of the MPA and its shoreline in 2008, 2009 and 2016, which resulted in the capture of 1,926 adult and juvenile fish, across 53 species (SNC-Lavalin, September 2017). The majority of the species (38) were caught on the shores of the river or in riverside marshes, seven species were caught only in the streams, ditches and wetlands of the project area, and eight species were caught in the river

²² The fish themselves and their parts, molluscs, crustaceans, marine animals and their parts, eggs, sperm, milt, spawn, larvae, spat and young of the animals.

²³ The waters in which fish live and any area on which fish depend, directly or indirectly, for survival, including spawning grounds, nurseries, rearing, rearing or feeding areas and migration routes.

²⁴ Bottom-dwelling animal species.



and in at least one other of the above-mentioned environments. The riparian marshes to the west of the existing terminal and the shoreline to the east of the existing terminal were the areas that showed the highest diversity.

Among the species listed by Quebec's Ministère des Ressources naturelles et de la Faune in the section between Montreal and Sorel-Tracy, 12 species have a special status under the *Species at Risk Act* (SARA) or Quebec's *Act Respecting Threatened or Vulnerable Species* (ARTVS). The proponent's inventories have identified eight of these species (Table 8).

In terms of fish habitat, the local study area is characterized by the presence of the St. Lawrence River, a complex ecosystem consisting of fluvial lakes and narrow reaches whose physiographic and hydrological characteristics are highly variable in space and time (SNC-Lavalin, September 2017). This natural heterogeneity, coupled with anthropogenic disturbances, greatly influences the diversity of fish found in this area by creating habitats with highly contrasting flow patterns between calm and fast water sectors. Two fish spawning habitats are identified in the riverine zone of the local study area (Figure 9). The floodplain on the south shore of the river opposite the Île au Dragon to the east of the MPA territory (habitat 301) and the large marsh on Île Bouchard located more than 750 metres north of the future terminal (habitat 303) both serve as breeding grounds for northern pike, yellow perch, beaver fish, sunfish, black crappie, central mud minnow, largemouth bass, brown bullhead, golden shiner and carp. The section of the St. Lawrence River between the Robinet Islands (more than 10 kilometres upstream from the local study area) and northeastern of Île Bouchard is recognized as a feeding area for juvenile lake sturgeon (habitat 700). According to the proponent, no spawning areas are present in the project area. Three watercourses cross the territory of the MPA (Ruisseau 1, Ruisseau 2 and Fossé Noir ditch), but they would be of poor quality for fish except at their mouths.

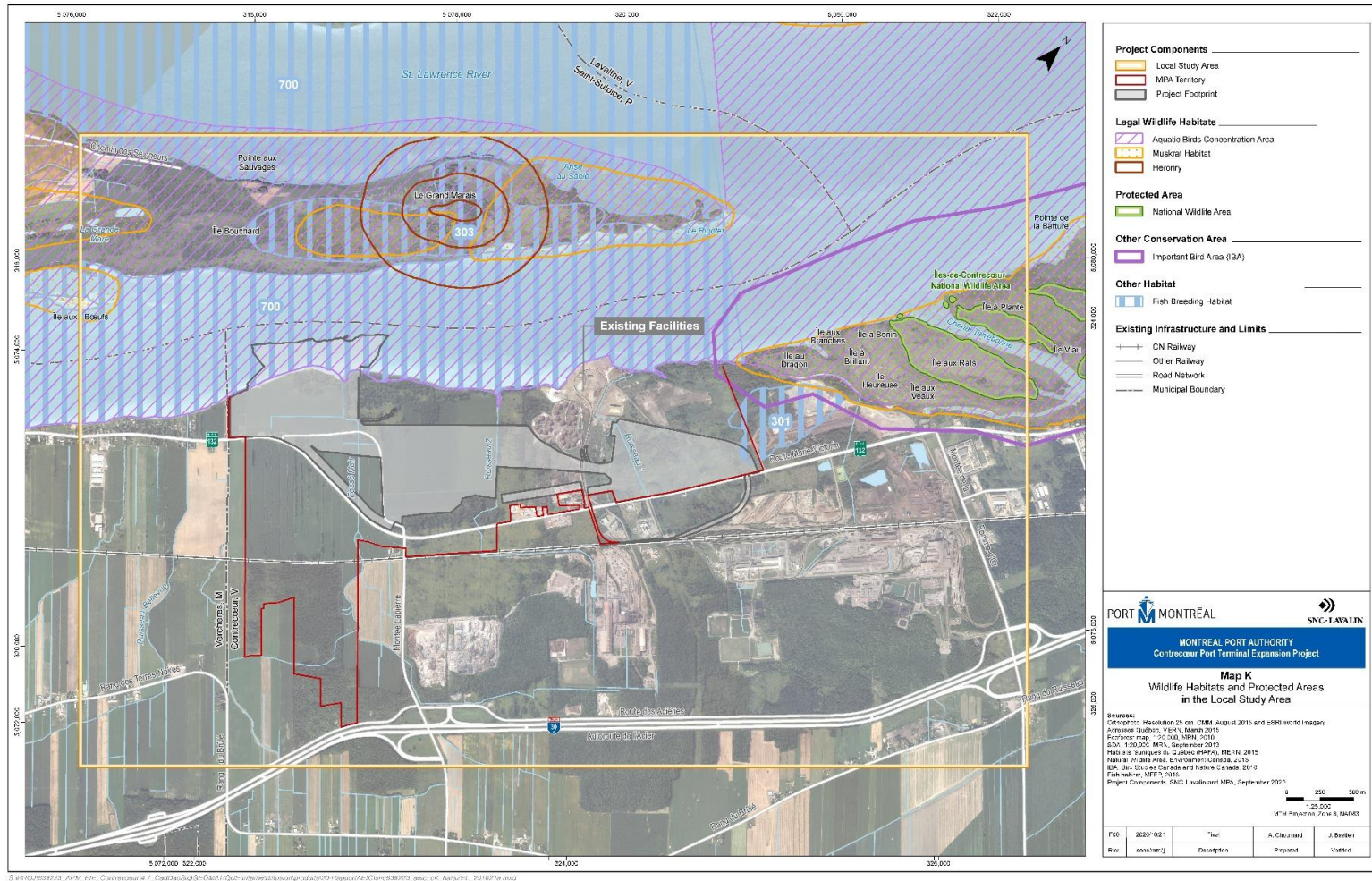
Aquatic grass beds are present along the St. Lawrence River in the river section of the local study area. These beds generally grow between one and three metres in depth, serve as feeding habitat for several fish species and possess critical habitat characteristics for the feeding of adult copper redhorse, an endangered species listed on Schedule 1 of the *Species at Risk Act* (SNC-Lavalin, September 2017). According to Fisheries and Oceans Canada, even if the presence of the copper redhorse has not been confirmed by the proponent's, the aquatic grass beds present in the local study area are usable by the species and probably used by certain individuals (SNC-Lavalin, September 2017 from DFO, 2016a). In addition, the Centre de données sur le patrimoine naturel du Québec database holds records of occurrences of this species in the local study area. The copper redhorse is the only fish with an exclusive range in Quebec (SNC-Lavalin, April 2019). This range is very restricted and is limited to the St. Lawrence River and a few of its tributaries. Currently, the Richelieu River is the only river where breeding activities are confirmed. According to the copper redhorse recovery program, habitat degradation through erosion and increased turbidity resulting from agricultural activities, deforestation and urbanization is one of the main threats to the species.

**Table 8: List of Special Status Fish Species Listed Between Montreal and Sorel-Tracy by the MRNF**

Species		Status of the Species			Observed on the Territory of the MPA
Common Name	Scientific Name	SARA (Schedule 1)	ARTVS	COSEWIC	
American Shad	<i>Alosa sapidissima</i>	Not registered	Vulnerable	Not registered	no
American Eel	<i>Anguilla rostrata</i>	Not registered ²⁵	SDMV ²⁶	Threatened	yes
Cutlip Minnow	<i>Exoglossum maxillingua</i>	Special concern	Not registered	Special concern	yes
Copper Redhorse	<i>Moxostoma hubbsi</i>	Endangered ²⁷	Threatened	Endangered	no
River Redhorse	<i>Moxostoma carinatum</i>	Special concern ²⁸	Vulnerable	Special concern	yes
Eastern Sand Darter	<i>Ammocrypta pellucida</i>	Threatened ²⁹	Threatened	Threatened	no
Rainbow Smelt	<i>Osmerus mordax</i>	Not registered	Vulnerable	Not registered	yes
Lake Sturgeon	<i>Acipenser fulvescens</i>	Not registered ³⁰	SDMV	Threatened	yes ³¹
Channel Darter	<i>Percina copelandi</i>	Special concern	Vulnerable	Special concern	no ³²
Bridle Shiner	<i>Notropis bifrenatus</i>	Special concern ³³	Vulnerable	Special concern	yes
Brassy Minnow	<i>Hybognathus hankinsoni</i>	Not registered	SDMV	Not registered	yes
Rosyface Shiner	<i>Notropis rubellus</i>	Not registered	SDMV	Not registered	yes

²⁵ Under consideration for addition²⁶ Suspected of being designated threatened or vulnerable²⁷ Under consideration for change of status²⁸ Under consideration for change of status²⁹ Under consideration for change of status³⁰ Under consideration for addition³¹ Dead individuals found on the bank of the river³² The Quebec Natural Heritage Data Centre reports that one channel darter was captured in the Study Area in 2015.³³ Under consideration for change of status

Figure 9: Fish Habitats in the Local Study Area



Source: SNC-Lavalin, October 2020

In addition to the copper redhorse, Fisheries and Oceans Canada (DFO, 2020) estimates that the following fish species with a status determined by COSEWIC are also at risk of frequenting or travelling in the project area: lake sturgeon, American eel, bridle shiner, river redhorse and channel darter. Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques estimates that the sand darter could also be present (MELCC, 2020).

Benthic Fauna

The proponent conducted several inventories of benthic fauna along the shoreline of the MPA's territory between 2010 and 2018. These inventories showed little diversity, which, according to the proponent, indicates the absence of high-quality habitats for benthic fauna. The benthic populations inventoried during the sediment inventories were composed mainly of insect species (mostly chironomids), crustaceans and worms. Species of mites and molluscs were also recorded. The benthic fauna associated with the aquatic grass beds was dominated by crustaceans (amphipods) and worms (annelids).

Specific inventories of freshwater mussels (molluscs) have identified ten species on the shoreline of the MPA's territory, including four species of freshwater mussels³⁴ with special status under the *Species at Risk Act* (SARA) or Quebec's *Act Respecting Threatened or Vulnerable Species* (ARTVS) (Table 9), three species less frequent in the area (triangle floater, cylindrical papershell and eastern pondmussel) and three other widely distributed species (eastern elliptio, eastern lampmussel and plain pocketbook).

Table 9: List of Species of Freshwater Mussels With Special Status That Have Been Inventoried on the Shores of the Montreal Port Authority's Territory

Species		Status of the Species		
Common Name	Scientific Name	SARA (Schedule 1)	ARTVS	COSEWIC
Elephant-Ear	<i>Elliptio crassidens</i>	Not registered	SDMV ³⁵	Not registered
Spike	<i>Elliptio dilata</i>	Not registered	SDMV	Not registered
Fragile Leptodea	<i>Lampsilis fragilis</i>	Not registered	SDMV	Not registered
Hickorynut	<i>Obovaria olivaria</i>	Endangered	SDMV	Endangered

Due to the habitat's characteristics, Fisheries and Oceans Canada considers that the Olive Hickorynut is likely to frequent the project site and be affected by the construction work (DFO, September 2020). The introduction of invasive mussels (zebra mussels and quaggas) in the 1980s and 1990s is threatening Olive Hickorynut populations. The decline in the numbers of lake sturgeon, a presumed host fish for the Olive Hickorynut, adds to the threats to this mussel (COSEWIC, 2011).

³⁴ Freshwater Messels

³⁵ Suspected of being designated threatened or vulnerable



Aquatic Environment

Hydrodynamic conditions, the underwater acoustic environment, and the quality of surface water, groundwater, soils and sediments can affect the aquatic environment and the habitat in which fish live, including benthic fauna and special status species.

Although the hydrological regime of the St. Lawrence and Ottawa Rivers are regulated, water levels fluctuate seasonally (SNC-Lavalin, September 2017). Historical minimum and maximum water flows encountered in the river are in the order of 6,000 and 20,000 cubic metres per second. The depth maintained in the navigation channel is 11.3 metres and varies along the south channel, reaching 17 metres in a pit in front of the proposed wharf. The south channel of the river is considered a sediment transit zone (ECCC, October 2020). The suspended sediments transported by the river are the result of the erosion of the banks and river bottoms located upstream.

Underwater ambient noise levels in the study area were not measured, but the proponent indicates that natural sources (wind, precipitation, ice, aquatic fauna and seismic activity) and anthropogenic sources (commercial and recreational marine traffic, commercial fishing, sonar equipment, construction activities, industrial activity, etc.) may contribute to ambient noise in the study area (SNC-Lavalin, September 2017).

The three watercourses on the MPA's site exceed, for certain parameters, the surface water quality criteria of Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC) or the recommendations of the Canadian Council of Ministers of the Environment (CCME). These results can be explained in part by industrial and agricultural activities in the sector. The water quality of the St. Lawrence River, at the sampling stations closest upstream and downstream of the local study area, was classified by the MELCC between 2012 and 2014 as ranging from satisfactory to good for its bacteriological and physicochemical quality. According to the proponent (SNC-Lavalin, August 2020), the water of the St. Lawrence River in the vicinity of the territory of the MPA is qualified as "clear" water, i.e., with ambient suspended solids levels generally below 25 milligrams per litre, according to the criteria defined in the document "Recommendations for the Management of Suspended Solids (SS) during Dredging Activities" (MDDELCC and ECCC, 2016).

Groundwater characterization at the study site showed, for some parameters, exceedances of the MELCC groundwater quality criteria (surface water resurgence) and of the CCME *Interim Federal Guidelines for Groundwater Quality at Federal Contaminated Sites*. Since the observed exceedances are the result of both natural contamination (natural presence of metals in soils) and agricultural activities in the area, the proponent mentions taking action on the source of contamination would be difficult. This is corroborated by the MELCC (2020).

The results of the characterization work carried out on soils on the territory of the MPA exceeded certain criteria of the MELCC intervention guide ³⁶ and certain CCME recommendations (SNC-Lavalin,

³⁶ Intervention guide - Soil protection and remediation of contaminated sites



September 2017) for metals and polycyclic aromatic hydrocarbons. According to the MELCC (2020), the concentration measured in soils is not considered an issue in general.

The sediments located in the waterways of the MPA territory and in the river's shoreline were characterized and concentrations exceeding the criteria of the MELCC Response Guide and those for the assessment of sediment quality in Quebec were observed for certain metals. According to the proponent (SNC-Lavalin, April 2019) and Environment and Climate Change Canada (November 2020), these exceedances would be related to the natural levels found in postglacial clays in the St. Lawrence River.

Potential Effects

The sources of effects likely to affect fish and fish habitat, including benthic fauna and special-status species would be related to the destruction or permanent alteration of part of the fish habitat in the St. Lawrence River and also a portion of the watercourses located in the project area. The modification of water quality could deteriorate the habitat and affect fish species and benthic species, which could also be disturbed by the noise caused by the project.

Habitat Destruction and Alteration

Dock construction, dredging, piping and filling of watercourse sections would result in the loss and alteration of fish and benthic wildlife habitat. According to the most up-to-date data provided by the proponent (SNC-Lavalin, August 2020), the total area of aquatic habitat affected by the project would be 24.6 hectares, including 23.5 hectares in a river environment and 1.1 hectares in the three watercourses in the project area (Ruisseau 1, Ruisseau 2 and Fossé Noir).

In the St. Lawrence River, the installation of the wharf, including the planned riprap upstream from it, would represent a permanent loss of 7.1 hectares of fish and benthic fauna habitat. In addition, 16.3 hectares of aquatic habitat would be disturbed and modified by the dredging planned north of the wharf to create the approach and mooring area. Finally, an area of 0.1 hectare of grassland located downstream of the wharf would be added to the calculation of habitat loss in a river environment. According to the modelling carried out by the proponent, this area could be affected during the operation phase due to modification in the patterns of the currents induced by the presence of the wharf and the approach area, which would increase the speed of the currents to a value greater than 0.5 metres per second in this aquatic grass area.

The installation of the port terminal would modify the site's current drainage system, particularly with respect to the three watercourses. The backfilling of a section of the Fossé Noir ditch and Ruisseau 1 creek and the installation of pipelines in certain sections of the three streams would result in the loss of 1.1 hectares of fish habitat. According to the proponent, the affected sections are not of high value to fish. However, they could provide feeding, growth and breeding habitat for common species of fish in the stickleback and cyprinid family (SNC-Lavalin, September 2017).

To make way for the wharf and container yard, the most upstream point of the Fossé Noir ditch would backfill into its former flow bed. The detour of the Fossé Noir ditch to its original bed is a suggestion made by the Mohawk Council of Kahnawà:ke to mitigate the effects of the project. As well, at the most upstream

point of the section that would be backfilled at Ruisseau 1 creek, the creek would be diverted to create the No. 4 dredged material management zone. Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC) sees the development of these new sections as an opportunity for the proponent to improve the quality of fish habitat over the long term and to restore a more natural character to these waterways.

The presence of a watercourse, considered a ditch up until now, has been located in the eastern portion of the MPA's land, specifically in Zone 4, which could be used for dredged material management. If Zone 4 is used, the proponent committed to map this watercourse and calculate the encroachment that could occur on its shoreline and bank (SNC-Lavalin, August 2020). The MELCC is of the view that the proponent will have to adjust the fish habitat loss balance in the event of encroachment.

With regard to aquatic grass beds, a feeding habitat for the adult copper redhorse considered an essential habitat for the species, a total of 0.9 hectares would be affected, of which 0.8 hectares would be destroyed by the dredging of the approach area during the construction phase and 0.1 hectare could be altered by an increase in the speed of the current (between 0.5 and 0.75 metres per second for a flow rate of 9,500 cubic metres per second) (SNC-Lavalin, August 2020). The destroyed aquatic grass beds would not repopulate the approach area given the deep bottom of 11 metres, the presence of ships and the maintenance dredging planned during the operation phase (SNC-Lavalin, September 2017). The MELCC believes that the areas between the destroyed aquatic grass beds are used by the copper redhorse as travel areas and should be included in the assessment of the copper redhorse feeding habitat losses. It also considers the project could have effects on the movements and the use of habitat by the copper redhorse by modifying the habitats present at the site, by disturbing the habitats downstream from the site and by increasing the level of maritime activity in the sector.

The project affects a small part of the feeding area (habitat 700, Figure 9) of juvenile lake sturgeons occupying a vast stretch of the St. Lawrence River, approximately 15 kilometres long, surrounding the Île Bouchard and covering the width of the St. Lawrence River from the south shore to the north shore. The MELCC considers that the construction work could disrupt the feeding behaviour of a certain part of the sturgeon population. Lake sturgeons are known to use very localized feeding sites. These sites can be used by a very large number of individuals. In addition, the number of known juvenile feeding sites is not very high and there are indications that the population is growing. However, Fisheries and Oceans Canada considers that the portion of the lake sturgeon feeding area affected by the project offers less productive habitat in general for fish, including lake sturgeon, due to the compact clay substrate that predominates. Some small areas where alluvial deposits are observed are covered by aquatic grass beds that are highly favourable to fish, including copper redhorse, but rarely associated with the presence of juvenile lake sturgeon.

In the operation phase, the effects of habitat losses related to the construction work and presence of port infrastructure would continue, as well as habitat modifications associated with maintenance dredging. However, according to the proponent, the approach area and wharf would not impede the free movement of fish and the connectivity between the available habitats would be maintained. The operation of the terminal would not prevent the movement of the copper redhorse (SNC-Lavalin, August 2020).

The number of additional ships in the waters of the St. Lawrence River during the operation phase and dredging activities (construction phase and maintenance dredging) could promote the introduction or spread of invasive exotic species such as zebra mussels, quagga mussels and water milfoil, a species confirmed in the aquatic grass beds along the shoreline of the MPA's territory. Invasive species could harm fish and benthic fauna (especially mussels), including special-status species and their habitat (SNC-Lavalin, September 2017).

The grass minnow, brass minnow and pinkhead minnow, three species of special-status fish, would likely be affected by the loss or modification of fish habitat in small waterways within the territory of the MPA.

The Mohawk Council of Kahnawà:ke is concerned about the direct loss of habitat and the indirect effects of the project on fish habitat and fish health, particularly for lake sturgeon and the copper redhorse. Habitat loss due to the destruction of aquatic grass beds through dredging and bank erosion, as well as the deterioration of fish and benthic wildlife habitat due to changes in surface water quality and the underwater noise environment, are among the concerns raised.

The Grand Conseil de la Nation Waban-Aki hopes that the project will not have a negative effect on species of interest to the Nation present in the local study area—species such as lake sturgeon, walleye, pike, bass and, in particular, yellow perch. Several members of the W8banaki Nation practice controlled fishing in order to promote the renewal of yellow perch and sturgeon stocks.

The Huron-Wendat Nation considers that the loss of aquatic grass beds, an essential habitat for the copper redhorse, constitutes the most significant effect of the project and should be compensated in full, or even by more than twice the surface area. The American eel and lake sturgeon, two species potentially present in the sector, are species of importance for this Nation. Finally, the Huron-Wendat Nation is also concerned about the effects of the project on benthic fauna (freshwater mussels in particular) and on the significant fragmentation of shallow aquatic habitats that could affect the young life stages of various fish.

Citizens and interest groups have raised concerns about the potential effects of the project on fish and fish habitat, and particularly on special status species. The issues raised relate to the destruction and modification of fish habitat and the decrease in habitat connectivity, factors that could hinder the maintenance or recovery of species at risk. Among other comments received from public interest groups regarding the copper redhorse or its feeding habitat (aquatic grass beds), it was pointed out that the project would have greater effects on the species and on aquatic grass beds: the effects of the project on fish habitat and aquatic grass beds appear to have been underestimated because the project assessment is only for Phase 1. Comments were also made that the project should avoid any encroachment and alteration of the copper redhorse's critical habitat, or that the destruction of part of its critical habitat should not be authorized (following the precautionary principle) as long as the copper redhorse is designated "endangered" or "threatened." Some organizations mention that the construction and operation of the future terminal could increase the risk of introducing invasive alien species if specific measures are not taken by the proponent at the beginning of the project.



Change in Water Quality

Site preparation work, installation of the drainage system, construction of the wharf, dredging work, management of dredged sediments, and concreting are the main activities that could increase the input of suspended solids and contaminants into the river and the three waterways and thus affect the quality of surface water and, incidentally, fish, benthic fauna and their habitat (SNC-Lavalin, September 2017).

During the construction phase, these different activities could generate suspended solids that could interfere with biological activities, for example, affecting respiration in fish and growth rate in mussels. The rosyface shiner, a special status species that has been recorded in large numbers in the Ruisseau 2 creek, would be particularly sensitive to turbidity.

In addition, the increase in suspended solids in the aquatic grass beds could alter the feeding characteristics of the copper redhorse, in particular by favouring the burial of the molluscs it feeds on.

The habitats located downstream of the construction site are mainly feeding areas. Potential spawning areas for common species (longnose gar and carp) were also located at the mouth of Ruisseau 2 creek and this area is potentially used as a nursery area. The increase in suspended solids could result in species avoiding this spawning area during the construction work and reduce the survival of the larvae and young of the year present.

Contaminants, other than suspended solids, that may be found in surface water during the construction phase are petroleum hydrocarbons from the fuels used, alkaline residues from the concreting activities and substances derived from water treatment additives, should these be used by the proponent to promote the settling of hydraulically dredged sediments.

During the operation phase, maintenance of the drainage system, de-icing and snow waste management, as well as the discharge of runoff could affect the water quality of the three streams and the St. Lawrence River, and lead to a degradation of benthic wildlife and fish habitat. Maintenance dredging, navigation and approach maneuvers in river areas could lead to the re-suspension of sediments in the water. The presence of the wharf could alter the currents and sediment supply to the aquatic grass beds downstream of the structure.

Ice melters, such as de-icing salts used in the maintenance of roads, railways and wharf areas, could be found in runoff, increase chloride concentrations at discharge points in the environment, and be harmful to freshwater plants and fish, as well as other organisms that are not adapted to life in salt water. Petroleum hydrocarbons from fuels used in operations could also end up in surface waters. Two interest groups deplore the fact that the supervision of new systems for washing ships' chimneys with seawater (or fresh water) is not taken into account in the environmental assessment of the project because these systems are too recent.

The proponent believes that the increase in commercial navigation associated with the project is expected to have a negligible effect on bank erosion (a source of suspended solids) in the study area because it would represent a fraction of commercial navigation on the St. Lawrence River and because there would be no cabotage (SNC-Lavalin, April 2019). In 2000, the marine industry adopted a voluntary commercial



ship speed reduction measure in four areas between Sorel-Tracy and Montreal, including the study area, to mitigate erosion caused by the beating of waves generated by ships on the shoreline. Compliance with this voluntary measure is estimated to be approximately 99% since 2016 (SNC Lavalin, August 2020).

A portrait of the situation of bank erosion on the St. Lawrence River carried out by the St. Lawrence Action Plan (Richard, 2010) suggests that wakes caused by navigation and water level fluctuations are major factors in the rate of bank erosion. Fluctuating water levels would be the main cause and would influence the speed of currents, clay drying phenomena, and the freeze-thaw cycles of clays. With respect to navigation, it was possible to act by imposing on the marine industry a voluntary measure to slow down the speed of commercial ships in the St. Lawrence River. However, the river's water regime is poorly controllable and difficult to predict. According to the same document, due to climate change, significant variations in water levels are to be expected, creating an alternation between periods of low and high rates of erosion throughout the St. Lawrence River. Also, according to a status report on the copper redhorse by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC, 2014), the declining water level trends in the St. Lawrence River and the acceleration of shoreline erosion due to wave action, resulting from increased traffic by commercial ships and recreational boaters, are also disrupting aquatic ecosystems.

Citizens and interest groups add that bank erosion on the shores and islands of Verchères and Contrecoeur, which could increase as a result of the project, and the increase in sediment in the portion of the river downstream from the project during construction and operation (bailing caused by ships and tugs) could greatly affect water quality, aquatic grass beds and the fish species that benefit from them. Environmental groups would like to see the voluntary ship speed reduction program become mandatory and believe that the proponent should put in place compensatory measures and new mitigation measures if the planned shoreline monitoring shows increased erosion.

Several citizens and interest groups expressed concerns about the quality of the sediments that would be dredged, particularly with regard to a contaminant, butyltin, which would be present in St. Lawrence River sediments at several sites in the region and which could cause effects on the natural environment (aquatic species including the copper redhorse and protected areas). Environment and Climate Change Canada is of the opinion that the proponent has provided adequate and sufficient information to establish a reliable and complete baseline regarding the nature and quality of the sediments to be dredged and that the contamination of the sediments to be dredged is low, and that the metal contents (including chromium and nickel) measured in the postglacial clays are within the natural normal range for this type of geological formation.

Underwater Acoustic Environment

During the construction phase, ramming of sheet piles and support sections and sediment dredging would be the main sources of underwater noise and could modify fish behaviour.

The construction method planned for the marine terminal involves the driving of sheet piles and H-sections as load-bearing elements, by vibration or ramming, along the shoreline. The proponent favours vibratory

pile driving. If this technique cannot be used without the risk of liquefying the clay in the soil, the sheet piles will be driven by ramming (SNC-Lavalin, August 2020).

Fisheries and Oceans Canada considers that the proposed activities during the construction phase would not be likely to result in fish injuries or mortalities given their generally known sound characteristics, the mitigation measures that can be applied (e.g. phasing in activities to encourage fish to leave the work area) and the timing of the work. With respect to the latter, the late fall timing of in-water work precludes the presence of particularly sensitive fish life stages (e.g., eggs and larvae) in the work environment. Although the disturbance of juvenile and adult fish cannot be totally excluded, the fish have the mobility to temporarily move to alternative habitats nearby.

In the operation phase, the noise of ships carrying the containers (one to three per week) would be the main source of underwater noise. In the absence of evidence, Fisheries and Oceans Canada cannot comment on the effects of ship noise on fish. These effects would depend, among other things, on the characteristics of the ships, their power and speed, and the environment in which the sound present in the area is propagated. However, Fisheries and Oceans Canada believes that the effect is less on fish than on marine mammals. According to the proponent, maintenance dredging would also generate noise and could cause disturbance at a very low frequency, i.e., over a period estimated at a few days every four years.

Proponent's Proposed Mitigation and Follow-up Measures

In order to mitigate the effects of the project on fish and fish habitat, including benthic fauna and special-status species, the proponent proposes several mitigation measures for the construction phase.

The proponent plans to carry out the work in water outside of the fish reproduction period and after October 1. At the request of Fisheries and Oceans Canada, the proponent has indicated that it will consider the possibility of carrying out the work in fish habitat as late as possible in the fall, preferably from November 1 (until March 31) in order to minimize the effects of the sediment supply on the aquatic grass beds located downstream. The objective is to undertake this work as much as possible outside the growing period of the aquatic grass beds and their use by the copper redhorses for feeding. In the event of an inability to do so, certain targeted work could be permitted starting October 1 if it is demonstrated to Fisheries and Oceans Canada that the work methods selected would have little effect.

Other measures that the proponent plans to put forward to avoid or mitigate the project's effects on aquatic wildlife include the identification of habitats to be protected around the periphery of the work and the removal or relocation of fish before undertaking certain work; the installation of a containment device to prevent material, debris or garbage from falling into fish habitat; the capture and relocation of mussels located in work areas; and the deviation of the Fossé Noir into its natural drainage channel. The proponent is also planning several measures to limit the release of suspended solids into the water column, notably during wharf construction, backfilling of the back wharf, dredging operations and the management of dredged material. The concentration of suspended solids would be monitored at the outlet of watercourses, retention and sedimentation basins, and at various locations in the river downstream of these works.

The proponent proposes to use a 27.7 hectare reserve habitat created between 2008 and 2012 on the Boucherville Islands to compensate for the loss and modification of 24.6 hectares of fish habitat. Details of this compensation plan can be found in the response to comment 2-23 and map c23-1 of Addendum 4 of the proponent's impact study (SNC-Lavalin, August 2020b).

The proponent proposes various compensation avenues so that the residual effects of the project do not jeopardize the survival or recovery of the copper redhorse. The proponent's main measure is to restore and improve 1.8 hectares of aquatic grass beds in a sector located downstream from the current wharf and of a quality at least equivalent to the aquatic grass beds that would be destroyed by the project in order to compensate for the loss of 0.9 hectares of critical habitat used for feeding by the adults of the copper redhorse. The choice of site is not yet final and the development concept could be adjusted following future discussions with Fisheries and Oceans Canada, the Quebec's Ministère des Forêts, de la Faune et des Parcs, and First Nations. Additional details on the aquatic grass beds compensation plan are presented in section 3.4 of the response to comment 2-23 and map c23-2 of addendum 4 of the proponent's impact study (SNC-Lavalin, August 2020b).

The proponent also plans to carry out other actions beneficial to the copper redhorse in order to complete its compensation plan. These additional measures aim to reduce the effect of known threats to the survival or recovery of the copper redhorse and are as follows:

- Improve water quality in sub-basins of the Richelieu River by modifying agricultural activities (notably by reducing certain contaminants that can interfere with the reproductive process of the species);
- Participate in research efforts concerning artificial reproduction in order to support the species' population;
- Participate in research efforts on the subadults (100-500 mm) of the population in order to fill the lack of knowledge on this stage of the copper redhorse's life cycle;
- Raise awareness among river users (boaters, fishermen, etc.) whose activities are likely to disturb the habitats present (banks, aquatic grass beds, etc.) or capture individuals.

If the project is approved under the *Canadian Environmental Assessment Act* (2012), a review phase of activities that may affect fish habitat and critical copper redhorse habitat will follow. Fisheries and Oceans Canada will then conduct a detailed assessment of the activities affecting fish habitat, the proposed mitigation measures, and the plan to compensate for the loss of fish habitat under the *Fisheries Act*, and issue an authorization (if required). The Department will also analyze in detail the activities that may affect critical copper redhorse habitat (aquatic grass beds), the proposed mitigation measures and the plan to compensate for the loss of aquatic grass under the *Species at Risk Act*, and will issue a permit (if required).

The Mohawk Council of Kahnawà:ke considers the proponent's proposed erosion control measures and programs submitted by the proponent to compensate for the loss of fish habitat, including critical copper redhorse habitat, to be inadequate. Several interest groups questioned the feasibility of the projects proposed by the proponent to compensate for the losses of fish habitat and critical habitat (aquatic grass beds) for the copper redhorse.

A citizen and an environmental group pointed out the uncertainty as to the effectiveness of the measures proposed to compensate for the losses of fish habitat. Some interest groups are concerned that the compensation measure for the loss of aquatic grass beds may not be sufficient to limit the negative effects of the project on the copper redhorse and other species of interest (e.g. Olive Hickorynut).

For the operation phase, in order to limit the input of suspended solids and thus reduce the effects on fish and their habitat, the proponent would implement the measures presented to preserve surface water quality. It proposes a program to monitor, on a yearly basis, the progress of the aquatic grass beds and potential modifications to habitats following the construction of the facilities. It would set up a monitoring program for fish species in the streams and along the shoreline of its territory. The proponent commits to involving First Nations in follow-up programs related to fish and fish habitat whenever possible and according to their jurisdiction.

With respect to limiting the project's effects on bank erosion, the proponent plans to continue raising awareness among users of the St. Lawrence River of the importance of observing speed reduction measures. It would also require that berthing manoeuvres at the wharf be performed by experienced pilots and supported by the services of at least one tugboat. Finally, the proponent proposes a shoreline erosion monitoring program (see key mitigation measures in section 5.3.2).

All of the mitigation measures for the construction and operation phases are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the Registry (Document No. 145).

5.3.2 Agency Analysis and Conclusions on Residual Effects

Effects Analysis

The Agency's analysis is based on the proponent's assessment of the effects on fish and fish habitat, including benthic fauna and special-status species, as well as comments received from First Nations and the public, and on advice from Fisheries and Oceans Canada, ECCC and the MELCC.

The Agency considers that the proponent has adequately identified and documented the effects of its project on fish and fish habitat, including benthic fauna and special-status fish species. In its analysis of the effects of the project, the Agency took into account the fact that fish frequenting the local study area move and may be affected outside the study area.

Loss of fish and benthic wildlife habitat caused by the project would total 8.3 hectares (from backfilling and channelization), while 16.3 hectares of aquatic habitat would be degraded by dredging. According to Fisheries and Oceans Canada, the project would cause habitat losses for several fish species, including the copper redhorse, northern pike, walleye, sauger, smallmouth and largemouth bass, and yellow perch. Thus, the proponent will have to request an authorization, under paragraphs 34.4(2)(b) and 35(2)(b) of the *Fisheries Act*, from Fisheries and Oceans Canada, which could issue such an authorization if it

considers that the project's losses of fish habitat have been sufficiently avoided, mitigated and compensated. Taking into account the value, nature and extent of the habitats that would be affected by the project, Fisheries and Oceans Canada determined that the losses of fish habitat that would occur would be compensable under the *Fisheries Act*. Considering the information available and based on the proponent's assessment of the losses, Fisheries and Oceans Canada evaluates that the reserve habitat project on the property of the MPA located in the Boucherville Islands archipelago would have sufficient habitat credits to compensate for the habitat losses that would occur on the Contrecoeur site for species other than the copper redhorse. The MELCC adds that compensation for the loss of fish habitat should be carried out on the territory of the Port Authority in Contrecoeur or nearby when possible.

The project could also result in the loss of approximately 0.9 hectares of aquatic grass beds that constitute the essential habitat of adult copper redhorse. Fisheries and Oceans Canada and the MELCC consider the proponent's intention to develop copper redhorse feeding areas (aquatic grass bed areas) of a greater size (twice as much) and of a quality at least equivalent to those that would be destroyed or permanently modified by the project to be a priority and necessary so that the proposed activity does not jeopardize the survival or recovery of the copper redhorse. Fisheries and Oceans Canada is of the view that compensation for a larger area is necessary, particularly in cases where the effectiveness of a portion of the developments is not demonstrated (e.g., special hydraulic conditions or increased presence of aquatic invasive species). At this stage, the proponent's target herbarium restoration site east of the existing terminal would be relevant. Based on the available information, Fisheries and Oceans Canada believes that the objective of developing feeding areas for the copper redhorse is technically feasible and that follow-ups would be required to assess the quality of the developments.

Fisheries and Oceans Canada believes that the other beneficial measures for the species presented by the proponent (e.g. improvement of the quality of sub-basins of the Richelieu River) are relevant and complementary, and would reduce the overall risk of the project on the copper redhorse.

The loss of the copper redhorse's critical habitat and the proposed compensation plan will require proponents to submit an application for a permit from Fisheries and Oceans Canada under the *Species at Risk Act*. This application will also have to cover the olive hickorynut, an endangered mussel species that would be affected by habitat losses related to the project and that would be the subject of a search and relocate campaign prior to the work.

The Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques du (MELCC) recommends that the mussels search area also include the project's risk and influence zones in order to avoid effects on native mussels that could be found there. It also recommends that more than one mussel relocation campaign be carried out, considering that the construction work would be spread over four years. The MELCC invites the proponent to verify with Quebec's Ministère des Forêts, de la Faune et des Parcs whether an application for a SEG³⁷ permit is required for this type of activity. Finally,

³⁷ Special permit issued by the Quebec's Ministère des Forêts, de la Faune et des Parcs for the capture of wildlife for scientific, educational or wildlife management purposes.



the MELCC believes that the proponent should validate the effectiveness of the mussel relocation measures through a follow-up program.

According to Fisheries and Oceans Canada, carrying out work in fish habitat as much as possible outside of the growth period of the aquatic grass beds and their use by the copper redhorse for food is a key measure to minimize negative effects on the species.

According to Fisheries and Oceans Canada, the proponent plans to use several work methods, work sequences and credible mitigation measures to reduce the risks of effect on species at risk and their habitats, particularly during the construction of the wharf and backfilling of the back wharf. The MELCC recommends that efforts be made by the proponent during detailed engineering to further limit backfilling in fish habitat and to demonstrate that all scenarios for avoiding and minimizing effects on downstream aquatic grass beds have been evaluated. It considers that the follow-up program for downstream aquatic grass beds should be improved to better assess the effects of the project.

Despite the documentation provided by the proponent, Fisheries and Oceans Canada believes that uncertainties remain regarding the effects on the aquatic grass beds downstream from the work area, which are important for the copper redhorse. The increase in turbidity in the water column and the deposition of suspended solids in the aquatic grass beds located downstream could disturb the feeding of this fish (including the benthic fauna it feeds on) and the habitats on which it depends. Adapted mitigation measures and adequate monitoring with adjustments to work methods, if necessary, could avoid most of the sedimentary effects. These details will be refined by the proponent during the review phase of an application for a *Fisheries Act* authorization and a *Species at Risk Act* permit application that will follow if the project is approved under the *Canadian Environmental Assessment Act (2012)*.

Fisheries and Oceans Canada considers that the implementation of the wharf in the western part of the territory of the Montreal Port Authority rather than in its eastern part (see details in section 4.2.2) makes it possible to substantially reduce the effects on the copper redhorse's critical habitat (aquatic grass beds).

The MELCC is of the view that the proponent should select the dredging method that allows for the greatest reduction of effects on fish habitat downstream of the project, including critical copper redhorse habitat. Fisheries and Oceans Canada believes that hydraulic dredging (suction dredging with a disintegrating head) is a reasonable and less risky solution than mechanical dredging, since it would be less likely to generate resuspension and significant accumulations of sediment on certain parcels of critical copper redhorse habitat (aquatic grass beds) located downstream from the project and would provide more control points for modifying operations and making corrections during dredging. Fisheries and Oceans Canada confirms that it would be willing to consider, during the review of the application for a permit under the *Species at Risk Act*, any other approach, technology or work method that would minimize the risks of sedimentary effect on the aquatic grass beds located downstream of the work.

Fisheries and Oceans Canada does not anticipate that activities that may generate underwater noise (sheet pile installation and dredging) could cause significant adverse effects on fish. During the review of permit and authorization applications, it will be possible for Fisheries and Oceans Canada, if required, to recommend more appropriate mitigation measures.

Environment and Climate Change Canada (ECCC) believes that mechanically dredged sediments would be less likely to re-suspend in dewatering waters, thereby facilitating their management. ECCC believes that the hydraulic dredging method poses increased risks in terms of managing dredged sludge, which would be produced in larger volumes. The management and dewatering of these large volumes of sludge would require a lot of space and large settling ponds, which could, in the event of failure, cause significant adverse effects on the aquatic environment. To avoid these effects, ECCC emphasizes the importance of the proposed systems having the capacity to handle the volumes of dredged sludge generated and to ensure that structures to manage this sludge are safe.

The Laurentian Pilotage Authority (LPA) notes the concerns raised by the public and the First Nations regarding bank erosion that could be accentuated by the passage of ships associated with the project, despite the implementation of speed reduction rules and the rate of adherence obtained. The LPA suggests that other actions be carried out by the proponent to explain the voluntary speed reduction measures (and other aspects of the marine industry if necessary) and offers its support.

The Agency is of the opinion that reducing the speed of project-related ships in circulation between Sorel-Tracy and Contrecoeur and the use of tugboats are the main measures to mitigate the project's navigation-related effects (ship wakes and erosion). Also, Fisheries and Oceans Canada considers the proponent's approach to documenting the state of the banks and aquatic grass beds during the project's operation phase to be relevant.

The Mohawk Council of Kahnawà:ke is of the opinion that the measures proposed by the proponent will not mitigate the effects of the project on the copper redhorse during the operation phase. In order to verify the prediction of the effects as well as the effectiveness of the proposed mitigation measures, the Agency recommends that the follow-up program include the monitoring of aquatic grass beds, fish, hydrodynamic and hydrosedimentary conditions, bank erosion, stream and effluent water quality (see follow-up requirements below). It also recommends that the proponent implement adaptive measures, if required.

Taking into account the application of the key mitigation measures identified below, the Agency evaluates that the residual effects of the project on fish and fish habitat, including benthic fauna and special status species, would be moderate. The Agency's assessment is based on the Environmental Effects Assessment Criteria in Appendix A and the following findings:

- The magnitude of the project's residual effects on fish and fish habitat, including benthic fauna and special-status species would be **moderate** since effects are expected on certain species (more precisely on the copper redhorse) and their habitat, but mitigation measures and compensation plans would be put in place in order to avoid affecting the maintenance, management or recovery of these species;
- The project would result in residual effects on fish and fish habitat, including benthic fauna and special status species, over a **local** and **long-term range**;
- The residual effects of the project on fish, including benthic fauna and special-status species would be **continuous** and **partially reversible** over time and would be **continuous** and **irreversible** on their habitat.

Identification of Key Mitigation Measures

The Agency has identified the key mitigation measures required to ensure that the project does not cause significant adverse environmental effects on fish and fish habitat, including benthic fauna and special-status species. It took into account the mitigation and compensation measures proposed by the proponent, the advice of government experts, as well as the comments received from the First Nations consulted and the public. The Agency also ensured that measures consistent with any recovery strategy were taken to avoid, or mitigate and monitor adverse effects on species at risk, should the project proceed. Key mitigation measures include the following:

Measures Related to Dredging and Management of Dredged Sediments

- Conduct construction activities in the aquatic environment outside the growing period of the aquatic grass beds and their use for food by the copper redhorse. In doing so, determine, to the satisfaction of Fisheries and Oceans Canada, the start and end dates of these periods for any year during which construction activities in the aquatic environment take place, and notify the Agency of the dates before undertaking these activities.
- Perform the dredging required for the construction by using a dredging method or methods with the least effect to reduce emissions of suspended solids in the water column and reduce potential sediment depositions in the aquatic grass beds located downstream from the project. Submit the following information to the Agency and relevant authorities before construction, and any update to that information during dredging:
 - The total volume of sediment that will be dredged;
 - The dredging method(s) approved by Fisheries and Oceans Canada, including, if more than one method is approved, the areas in which each method will be used and the dredging schedule for each area;
 - The manner in which the targeted dredging method(s) will make it possible to meet the technical, economic and environmental requirements of the project and the dredging criteria established during the environmental assessment while minimizing the sediment accumulation rates in the aquatic grass beds; and
 - The dredged sediment management methods and the water management methods resulting from the dredged sediments, developed in consultation with relevant authorities, that will be implemented by the proponent in view of the method(s).
- Delineate, prior to dredging required for the construction, areas in the aquatic environment within which access is prohibited, unless required for safety reasons, and require and ensure that any person associated with the project abides with this prohibition. In doing so, delineate the perimeter of all aquatic grass beds located between the planned terminal and the existing terminal with buoys.
- Delineate, before construction, the perimeters of all areas in which dredging required for construction will be undertaken. Do not undertake dredging outside these areas, except if required for safety reasons, and require and ensure that every person associated with the project comply with this prohibition.

- If hydraulic dredging is used to perform all or part of the dredging required for construction, opt for a hydraulic dredging method with the lowest acoustic power technically feasible. When a dredging method or methods is chosen, submit to the Agency a justification explaining how the chosen hydraulic dredging method meets this requirement and how it compares with other existing methods.
- If additives for water treatment (flocculants and/or coagulants) are added to any sediment dredged by hydraulic dredging, opt, in consultation with relevant authorities, for an additive that is the least likely to produce adverse environmental effects on fish and fish habitat and human health. When an additive is selected, submit to the Agency a justification explaining how the chosen additive meets this requirement and how it compares with other existing additives.
- If mechanical dredging is used to perform all or part of the dredging required for construction or maintenance dredging, install, before dredging begins, a transshipment flap, or any equivalent device, between the barge and the wharf and eliminate barge overflow during dredging or transportation of sediments.
- Conduct, prior to construction and in consultation with relevant authorities, tests to improve the work methods (including the management of the sediments dredged as part of the project), so as to mitigate the adverse environmental effects on fish and fish habitat. Submit to the Agency, prior to construction, the test results, including a justification explaining how these results will be taken into account in the development and implementation of any component or activity of the project associated with the management of the dredged sediments. As part of the tests, validate:
 - The lime concentrations and the dewatering periods necessary to obtain the cohesion values required to ensure the long-term stability of the works associated with the management of the dredged sediments; and
 - The concentrations of suspended solids and contaminants likely to be found in the dewatering and runoff water of the sediment management areas and the treatment process required so that the dewatering and runoff water meets the applicable water quality standards.
- Develop, prior to the first maintenance dredging required for the project, a protocol for characterizing and managing the sediments to be dredged during maintenance dredging. As part of the development of the protocol:
 - Identify how the in-situ characterization of the sediments will be carried out to determine the levels of contamination;
 - Determine the management and disposal methods for sediments, dredged material and dewatering water that will be implemented during dredging, taking into account the results of the characterization; and
 - Submit the protocol to the Agency prior to the first maintenance dredging.
- Characterize, before each period of maintenance dredging required for the project, the sediments to be dredged. Select and implement methods for managing and disposing of sediments, dredged material and dewatering water, taking into account the characterization results, in order to mitigate environmental effects on fish and fish habitat from maintenance dredging.

Measures to Control the Input of Suspended Solids or Any Other Contaminant to the Aquatic Environment

- Minimize vegetation clearing, including clearing on both sides of the high-water line, and any other activity required for site preparation of the project to the lowest technically feasible extent. Provide to the Agency, before construction, a justification explaining how the projected extent for these activities meets this requirement. Conserve the plant cover in the project area as long as possible.
- Do not release any material, rubbish or debris within the natural high-water line, including through the installation of retention devices, and immediately remove any material, rubbish or debris deposited accidentally within the natural high-water line.
- Develop and implement measures to manage job site and runoff water to prevent erosion in the project area and limit the inflow of suspended solids into the aquatic environment, including the St. Lawrence River. Take into account flood, heavy precipitation and frost periods when it develops and implements the measures and maintain these measures regularly to repair any damaged measure as soon as technically feasible. These measures include:
 - Installing, from the start of construction, and maintain, depending on the progress of the construction work, a drainage system for runoff water;
 - Developing permanent retention ponds and temporary sedimentation ponds;
 - Installing hydrodynamic separators, or any equivalent device, at the discharge points to the water system; and
 - Deploying sediment barriers, or any other equivalent equipment, over a sufficient distance and at the locations considered necessary, including along watercourses and ditches, on the periphery of work areas, at the bottom of embankments and around piles of unconsolidated materials, so as to capture all the runoff water during all phases of the project.
- Store any pile of unconsolidated material at least 30 metres of any water body, unless such material is used for site consolidation, in which case it must be stabilized.
- Maintain a vegetated strip along any water body located on Montreal Port Authority territory, with the exception of the locations of the components required for the project (including erosion and sedimentation control measures). Take into account Quebec's *Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains* when establishing and maintaining the vegetated strip. Carry out work or activity within the vegetated strip only if necessary for safety reasons or to implement and maintain any component of the project.
- Proceed with washing of cement mixers outside of Montreal Port Authority territory, at an authorized location, unless it is not technically or economically feasible. If the washing of cement mixers must proceed on Montreal Port Authority territory, implement measures to prevent the wash water from entering the aquatic environment, including by neutralizing it before releasing it into the drainage system or, if it is not neutralized, by disposing of it outside Montreal Port Authority territory, at an authorized location. Neutralize the alkaline curing water coming from the concreting work before its release into the aquatic environment at an authorized location, on the project site or off-site.

- Stabilize any temporary structure or facility required for construction and located on the edge of or downstream from any body of water so that it withstands the floods that may occur during construction.
- Develop, prior to construction, and implement, measures to stabilize, during any scheduled temporary suspension of construction, bare soils which pose a risk of erosion and sediment transport of suspended solids to the aquatic environment on Montreal Port Authority territory. In doing this:
 - Take into account the conditions in the work area, the possible duration any work stoppage and the time of year at which work stoppage may occur when developing the stabilization measures. Submit the stabilization measures to the Agency prior to construction and indicate how the criteria have been considered in the development of these measures; and
 - Implement the stabilization measures upon the cessation of work and ensure their good working order and effectiveness throughout the period of suspension of work.

Measures Related to the Construction of the Wharf

- For the backfilling of the area behind the wharf associated with the project:
 - Manage the water coming from inside the area behind the wharf before it is released into the aquatic environment, in order to limit the inflow of suspended solids; and
 - Use only clean backfill materials free of fine sediments and other contaminants.
- Capture, to the satisfaction of Fisheries and Oceans Canada, any fish that are trapped in any confined area of the project area and immediately relocate them to an area outside the confined area in a manner consistent with the *Fisheries Act* and its regulations, and the *Species at Risk Act*.

Measures for Driving Piles or Sheet Piles

- Install the piles and sheet piles required for the project in the aquatic environment in a way to mitigate the adverse environmental effects on fish and fish habitat. In doing this:
 - Recover drilling muds and dispose of this material on land;
 - Use vibratory sheet pile driving instead of pile driving, unless it is not technically feasible; and
 - Gradually increase the power of the pile driving and sheet piling equipment at the beginning of any pile driving period that is preceded by a period of at least 20 minutes during which pile driving was not carried out.

Species-at-Risk Specific Measures

- Develop, before construction and to the satisfaction of Fisheries and Oceans Canada and in consultation with the Quebec's Ministère des Forêts, de la Faune et des Parcs and the First Nations consulted, and implement a capture and relocation plan for the hickorynut and any other freshwater mussel that could be negatively affected by construction. As part of the development

of the plan, develop measures to be implemented if it detects alien freshwater mussels during the survey to avoid spreading them in another body of water. Provide the approved plan to the Agency before implementing it. As part of the implementation of the plan:

- Conduct, at the beginning of each year during which construction activities in the aquatic environment are held, a survey in the areas of the project in which the hickorynut and any other freshwater mussel that could be adversely affected by construction is likely to be present; and
 - If individuals are detected during any surveys, collect these individuals and relocate them outside these areas, in habitat areas favourable for the species, prior to the beginning of the construction activities in the aquatic environment, or if they are alien freshwater mussels, implement the measures included in the plan for alien freshwater mussels.
- Develop, before construction and to the satisfaction of Fisheries and Oceans Canada and in consultation with the Quebec's Ministère des Forêts, de la Faune et des Parcs, the Mohawks of Kahnawà:ke First Nation and the Indigenous Community of Odanak and Wôlinak, and implement an offset plan for the purpose of offsetting the losses of aquatic grass beds constituting the critical habitat for feeding of adult copper redhorse. Submit the offsetting plan approved by Fisheries and Oceans Canada to the Agency before implementing it.
 - Discuss, prior to implementing the offset plan, with the Mohawks of Kahnawà:ke First Nation and the Indigenous Community of Odanak and Wôlinak about the possibilities of their participation in the implementation of the offset plan, and allow their participation in implementation.

Fish Habitat Measures

- Develop, prior to construction and to the satisfaction of Fisheries and Oceans Canada and in consultation with the Quebec's Ministère des Forêts, de la Faune et des Parcs, the Mohawks of Kahnawà:ke First Nation and the Indigenous Community of Odanak and Wôlinak, and implement an offsetting plan related to fish and fish habitat. Submit the offsetting plan approved by Fisheries and Oceans Canada to the Agency before implementing it.
 - Discuss, prior to implementing the offsetting plan, with the Mohawks of Kahnawà:ke First Nation and the Indigenous Community of Odanak and Wôlinak about the possibilities of their participation in the implementation of the offsetting plan, and allow their participation in implementation.
- For any fish habitat offset measure proposed in any offsetting plan that could result in adverse environmental effects that were not taken into account in the environmental assessment, develop and implement, after consulting the Mohawks of Kahnawà:ke First Nation, the Indigenous Community of Odanak and Wôlinak, and relevant authorities, measures to mitigate these effects. Provide these measures to the Agency before implementing them.
- Realign the Fossé Noir in a way to mitigate the adverse environmental effects of the project on fish and fish habitat and any other wildlife species, including by realigning it in its natural channel bed.

- Maintain the passage of fish in the channel beds of the streams located on Montreal Port Authority territory, downstream from the pipes required for the project.
- Undertake the progressive reclamation of the areas disturbed by the project in the aquatic environment, including the areas disturbed by the deployment of the pipes and culverts associated with the project.

Measures Related to Surface Water Quality

- If it is necessary to manage waste snow in Montreal Port Authority territory, build, at the start of construction, and maintain, during construction and operation, a snow dump in a manner compliant with applicable standards and legislated requirements, including the pollution prevention dispositions of the *Fisheries Act*, the *Environment Quality Act* and the *Canadian Environmental Protection Act*, while taking into account the *Guide d'aménagement des lieux d'élimination de neige* (Guide to development of snow disposal sites) of the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques and the *Code of practice: road salts environmental management* of Environment and Climate Change Canada.
- Develop, prior to construction, and implement, during construction and operation, measures to mitigate the adverse environmental effects on fish and fish habitat caused by the use of de-icing salts as part of the project, so as to comply with the standards and legislation in form in the matter of storage of road salts, including by storing salt in a closed dome. Provide these measures to the Agency before implementing them.

Measures Related to Soil Quality

- Develop, prior to construction, and implement measures to manage soil excavated as part of the project to mitigate the adverse environmental effects on fish and fish habitat, including by applying the principle of non-degradation of soil to all reused soils and by managing soils that present potential for contamination so that they do not constitute a new source of contamination for the environment. In doing this:
 - Perform, prior to construction, a characterization of the soils situated in the final footprint of all the infrastructures built as part of the project, including the soils of the soil and sediment storage areas;
 - Compare the results of the characterization with the concentrations present in the soil on which the sediments will be deposited and with the *Canadian Environmental Quality Guidelines* and the *Canada-Wide Standard for Petroleum Hydrocarbons (PHC) in Soil* of the Canadian Council of Ministers of the Environment and, for soil disposed of off-site, the generic soil criteria established in Annex 2 of the *Guide d'intervention – Protection des sols et réhabilitation des terrains contaminés* (Intervention Guide – Soil Protection and Contaminated Sites Rehabilitation) of the Quebec's Ministère de l'Environnement et de la Lutte contre les Changements climatiques;
 - Submit to the Agency, prior to construction, the results of the characterization and the measures developed for the management of the characterized soils, and indicate how

the comparisons have been taken into account in the development of these measures; and

- Dispose of any soil that requires off-site disposal at a site authorized for this purpose and manage any soil that must be stored temporarily in the Montreal Port Authority territory before being transported off-site so that it does not adversely affect the aquatic environment.
- Maintain, during construction, a materials tracking system allowing tracing of the origin or destination of any material required or generated as part of the project, particularly excavated soil, to ensure it is managed in a manner compliant with applicable rules and requirements.
- If sediment amendments are to be added for the terrestrial management of the sediments, identify and use, in consultation with Environment and Climate Change Canada and the province, amendments that are the least likely to affect adversely the soils and biological receptors that could be in contact with the amended sediments.

Need for Follow-up and Follow-up Requirements

To verify the predicted effects on fish and fish habitat, including benthic fauna and special status species, and the effectiveness of proposed mitigation measures, the Agency recommends that the follow-up program include the following requirements:

- Develop, prior to construction and in consultation with Fisheries and Oceans Canada, Environment and Climate Change Canada and the Quebec's Ministère des Forêts, de la Faune et des Parcs, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on fish and fish habitat of suspended solids generated by dredging associated with the project. Take into account for the *Recommandations pour la gestion des matières en suspension (MES) lors des activités de dragage* (Recommendations for the management of suspended solids during dredging) of the Quebec's Ministère de l'Environnement et de la Lutte contre les Changements climatiques and Environment and Climate Change Canada when developing and implementing the follow-up program. As part of the implementation of the follow-up program:
 - Verify, before the beginning of dredging, that the correlation curve between the turbidity values and the concentrations of suspended solids is representative of the real conditions at the time dredging will take place;
 - Monitor regularly, during dredging, the ambient concentrations of suspended solids and the mean concentrations of suspended solids 100 metres and 300 metres from the dredge;
 - Review the methodology applied to the monitoring depending on the progress of dredging (including for the number, frequency and collection times of the surface water samples) and apply the revised methodology, as applicable, for any subsequent monitoring;
 - If the results of the monitoring demonstrate that the mean concentrations of suspended solids increase by more than five milligrams per litre relative to the ambient concentrations 300 metres from the dredge, develop and implement modified or

additional mitigation measures so that the increase does not exceed five milligrams per litre relative to the ambient concentrations at this location; and

- If the results of the monitoring demonstrate that the mean concentrations of suspended solids increase by more than 25 milligrams per litre relative to the ambient concentrations 100 metres from the dredge, temporarily stop dredging and develop and implement, in consultation with the parties consulted for the development of the follow-up program, modified or additional mitigation measures. Do not resume dredging as long as the mean concentrations, accounting for the implementation of the modified or additional mitigation measures, increase by more than 25 milligrams per litre relative to the ambient concentrations at this location. Notify the Agency as soon as technically feasible of any temporary stop of dredging.
- Develop, prior to construction and to the satisfaction of Fisheries and Oceans Canada and in consultation with the Quebec's Ministère des Forêts, de la Faune et des Parcs and the First Nations consulted, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of the dredging required for construction of the project and the maintenance dredging on the aquatic grass beds. Implement the follow-up program during construction and for at least the first 20 years of operation. As part of the implementation of the follow-up program:
 - Monitor, annually during the first five years of monitoring, the delineated aquatic grass beds;
 - Before the end of the fifth year of monitoring, review, according to the results of the monitoring, the frequency at which the subsequent monitoring must take place and, if it is determined that a lower frequency can be applied for any subsequent monitoring, apply this revised frequency for the subsequent monitoring;
 - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are necessary to mitigate the adverse environmental effects on the aquatic grass beds, in order to preserve the quality of the habitat; and
 - Before the end of the twentieth year of operation, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program.
- Develop, prior to construction and in consultation with Fisheries and Oceans Canada, the Quebec's Ministère des Forêts, de la Faune et des Parcs and the First Nations consulted, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of the project on fish and fish habitat. Implement the follow-up program during construction and for at least twenty years after the end of construction. As part of the implementation of the follow-up program:
 - Monitor the use by the different fish species of the streams and shoreline of the Montreal Port Authority territory;

- Update, every five years, the follow-up program;
 - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are necessary to mitigate the adverse environmental effects on fish and fish habitat; and
 - Before the end of the twentieth year after the end of construction, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program.
- Develop, prior to construction and in consultation with Fisheries and Oceans Canada, Environment and Climate Change Canada and the Quebec's Ministère de l'Environnement et de la Lutte contre les Changements climatiques, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on fish and fish habitat of changes to the hydrosedimentary and hydrodynamic regime caused by the building of the new wharf and the dredging required for construction. Implement the follow-up program for at least three years after the end of construction of the new wharf and the end of the dredging. As part of the implementation of the follow-up program:
 - Monitor the speed of the currents, the turbidity and the degree of erosion in the sector between the new wharf and the existing wharf by means of appropriate equipment and depending on the type of substrate;
 - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are necessary to mitigate the adverse environmental effects on fish and fish habitat of changes to the hydrosedimentary and hydrodynamic regime; and
 - Before the end of the third year after the end of construction of the new wharf and the end of the dredging work, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program.
- Develop, prior to construction and in consultation with the Canadian Space Agency, Public Works and Procurement Canada, Environment and Climate Change Canada, the Quebec's Ministère de l'Environnement et de la Lutte contre les Changements climatiques and the First Nations consulted, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of shore erosion in the project's zone of influence on fish and fish habitat and on species at risk and their habitat. Implement the follow-up program during construction and during the first 20 years of operation. As part of the implementation of the follow-up program:
 - Monitor, during construction and during the first five years of operation at sites located in the project's zone of influence, including the shores of the Îles de Contrecoeur National Wildlife Area, and at control sites on which the project should not have an effect, the evolution over time of the riparian environment, including turbidity, the shoreline,

evolution of the aquatic grass beds, marshes, terrestrial vegetation and land use, and augment the information collected in the field with additional information obtained by means of earth observation technologies;

- Before the end of the fifth year of operation, and every five years thereafter, update the follow-up program and implement the revised follow-up program requirements until the end of the twentieth year of operation. In updating the follow-up program, determine how the information collected in the field can be augmented with additional information obtained using similar or comparable technologies to the earth observation technologies;
 - Develop and implement modified or additional mitigation measures that are under the proponent's control if the information and the results of the monitoring demonstrate that modified or additional mitigation measures, particularly protective measures for sensitive areas, are necessary to mitigate the adverse environmental effects of shore erosion in the project's zone of influence on fish and fish habitat and on species at risk and their habitat; and
 - Before the end of the twentieth year of operation, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program.
- Develop, prior to construction and in consultation with Fisheries and Oceans Canada, Environment and Climate Change Canada, Health Canada, the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques and the First Nations consulted, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of effluents from the sedimentation and holding ponds associated with the project on fish and fish habitat and species at risk and their habitat. As part of the development of the follow-up program, identify the contaminants that will be monitored. As part of the implementation of the follow-up program:
 - Monitor, during construction, the quality of the effluents of the sedimentation and retention ponds;
 - Monitor, during operation, the quality of the effluents of the retention ponds;
 - Review, every two years, the methodology applied to the monitoring of effluent quality (including for the sampling frequency) and apply the revised methodology, as applicable, for all subsequent monitoring; and
 - Develop and implement modified or additional mitigation measures if the results of the monitoring of effluent quality demonstrate that modified or additional mitigation measures are necessary to mitigate the adverse environmental effects of effluents of the sedimentation and holding ponds on fish and fish habitat and species at risk and their habitat.
- Develop, prior to construction and in consultation with Fisheries and Oceans Canada, Environment and Climate Change Canada, Health Canada, the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques and the First Nations

consulted, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of changes to surface water quality caused by the project in the watercourses and ditches upstream and downstream from the project area on fish and fish habitat and species at risk and their habitat. As part of the development of the follow-up program, identify the contaminants that will be monitored. As part of the implementation of the follow-up program:

- Monitor surface water quality during construction and operation;
- Review, every two years, the methodology applied to the monitoring of surface water quality (including for the sampling frequency) and apply the revised methodology, as applicable, for all subsequent monitoring; and
- Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are necessary to mitigate the adverse environmental effects of changes to surface water quality caused by the project on fish and fish habitat and species at risk and their habitat.

The monitoring of the plan to compensate for the loss of aquatic grass beds is not part of the monitoring requirements presented above, as this monitoring would be included in the conditions of the permit that could be issued by Fisheries and Oceans Canada under the *Species at Risk Act*.

Conclusions

Based on the application of the mitigation and follow-up measures identified above, the Agency is of the view that the project is not likely to cause significant adverse environmental effects on fish and fish habitat, including benthic fauna and special status species.

5.4 Birds and Their Habitat

The project could result in residual effects on birds and their habitat resulting from the loss, disturbance and fragmentation of suitable habitat, as well as the incidental capture and disturbance of birds, their nests or eggs. However, the Agency is of the view that these effects are not likely to be significant given the application of the mitigation and follow-up measures recommended in section 5.4.2. In determining the significance of the effects on birds and their habitat, the Agency will consider, among other things, whether the effects of the project would result in a significant adverse effect on one or more important phases of their life cycle, on the maintenance of their populations, or on the maintenance, management or recovery of species of special status.

The following subsections present the information considered by the Agency in its analysis, including the opinions and comments of government experts, First Nations consulted and the public.



5.4.1 Analysis of Potential Effects and Mitigation Measures Proposed by the Proponent

Description of the Valued Component

The project's effects on birds would affect migratory and non-migratory birds, their eggs, nests and habitats, including bird species listed in Schedule 1 of the *Species at Risk Act* (SARA), those designated under Quebec's *Act Respecting Threatened or Vulnerable Species*, species for which the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recommends a status under SARA, as well as species likely to be designated as threatened or vulnerable under SARA. Migratory birds are defined as birds listed in the schedule section of the *Migratory Birds Convention Act, 1994*.

The proponent used two main spatial boundaries. The local study area (Figure 10) was used to analyze the effects of the project on birds and to identify existing protected habitats, while the territory of the Montreal Port Authority was used to conduct bird inventories.

Habitats

Protected habitats straddle the St. Lawrence River section of the local study area. The Îles de Contrecoeur National Wildlife Area, located approximately two kilometres to the east (Figure 10), is a protected habitat under the *Canada Wildlife Act* which aims to conserve a collection of submerged and surface aquatic grass beds and islands with high nesting potential for waterfowl.³⁸

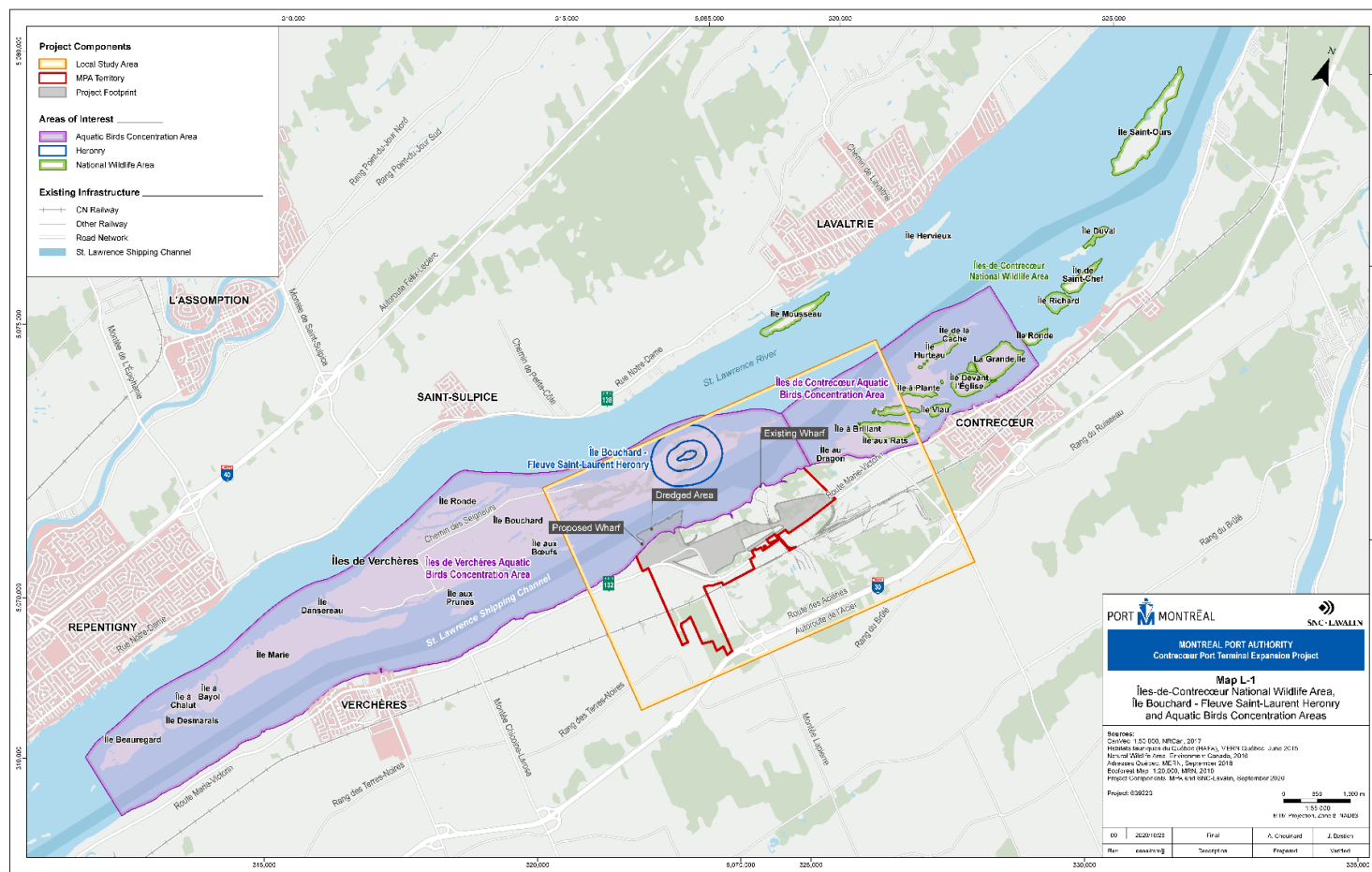
Two aquatic bird staging areas are also present, namely the Verchères Islands and the Contrecoeur Islands (Figure 10). An aquatic bird staging area is a wildlife habitat protected under the Quebec government's *Natural Heritage Conservation Act*. It consists of a marsh or floodplain and is frequented by Canada geese, snow geese or ducks during nesting or migration periods. According to Quebec's Ministère de l'Environnement et de la Lutte contre les Changements climatiques (MELCC), more than 500 aquatic birds per kilometre of shoreline frequent the Îles de Verchères Aquatic Bird Concentration Area, which represents a high density.

A heronry, a wildlife habitat also protected under the Government of Quebec's *Natural Heritage Conservation Act*, is located on Île Bouchard about 1 kilometre north of the project (Figure 10). It contained 86 great blue heron nests in 2017, according to data from Quebec's Ministère des Forêts, de la Faune et des Parcs (SNC-Lavalin, April 2019).

The territory of the MPA is composed of a mosaic of habitats favourable to the migration and nesting of birds using aquatic, riparian and wetland environments. The presence of woodlands also increases the diversity that can be supported by the present habitat (SNC-Lavalin, September 2017).

³⁸ <https://www.canada.ca/fr/environnement-changement-climatique/services/reserves-nationales-faune/existantes/iles-de-contrecoeur.html>

Figure 10: Protected Habitats Adjacent to the Project



Source: SNC-Lavalin, October 2020



Birds Observed by Periods

It is estimated that approximately 145 species of birds nest in the section of the St. Lawrence River between Varennes and Contrecoeur, including the islands in this sector (SNC-Lavalin, September 2017). After consulting the *Étude des populations d'oiseaux du Québec* (ÉPOQ) and eBird databases, the proponent drew up a portrait of 120 species that can be observed during migration periods in the region. The ÉPOQ database covers the sector between Verchères and Île Saint-Ours (Contrecoeur Islands), via Lavaltrie and Saint-Sulpice (including Île Bouchard), and the eBird database covers the Regional County Municipality of Marguerite-D'Youville, D'Au-tray and L'Assomption.

114 bird species were identified during inventories conducted by the proponent between 2008 and 2016 on the territory of the MPA during the spring and fall migration periods and during the nesting period. The proponent conducted an additional inventory on its territory in 2018 to define the composition, abundance and distribution of terrestrial and aquatic bird species during the spring and fall migration and nesting periods.

Wintering

For the winter period, the proponent did not conduct an inventory, but consulted the ÉPOQ and eBird databases and inventories from the *Regroupement Québec Oiseaux* (Greater Montreal area only) and the National Audubon Society (Contrecoeur area only). A total of 140 species, including 41 aquatic species, 23 species of birds of prey and 76 terrestrial species, were observed during the winters from 2017 to 2019 (SNC-Lavalin, April 2019). These observations were made over an area that extends beyond the local study area. The proponent estimates that 48 of the 140 species are likely to appear regularly in winter in the local study area given the habitats present on the site. Of the species identified, eight have a special status, including the bald eagle and the peregrine falcon, which, according to the proponent, are the only two species likely to occasionally visit the territory of the MPA during the winter to feed.

Spring Migration

The spring migration begins in March and runs until early June. Of the 86 species of land birds identified by the proponent in 2018, 70 were observed during spring migration (SNC-Lavalin, April 2019). Among these species, six have a special status: eastern wood-pewee, bank swallow, barn swallow, Canada warbler, bobolink and rusty blackbird. For both migratory periods (spring and fall), wooded areas (including hardwoods and treed swamps), open areas (including marshes, wastelands and grasslands) and agricultural areas are the most visited habitats. In spring, the most observed species are the song sparrow, red-winged blackbird, American robin, bank swallow and yellow warbler.



The 2018 spring inventory also targeted aquatic birds, including waterfowl³⁹, that use the study area as a staging area or for early nesting. The inventory routes covered the shores and open water portions of the St. Lawrence River and also included all the different open environments, such as agricultural fields, wastelands and wetlands present in the study area. Nineteen species were inventoried, including nine duck species, five shorebird species⁴⁰, one goose and four other aquatic species. The Canada goose was the most numerous species observed, followed by the mallard. Agricultural fields and the St. Lawrence River were the environments where aquatic birds were most abundant. No special-status aquatic bird species were included in the 2018 inventory, but one species, the least bittern, was identified in a 2019 inventory.

Fall Migration

The fall migration generally takes place from August to early December. Some shorebirds may even begin their migration as early as July. Of the 86 species of land birds recorded in 2018, 71 were observed during fall migration (SNC-Lavalin, April 2019). Among these species, three have a special status: eastern wood pewee, wood thrush and rusty blackbird. In the fall, the greatest number of mentions from open environments is explained by the observation of large groups of birds, such as red-winged blackbirds and european starlings. The other most observed species are the song sparrow, black-capped chickadee and American robin.

Inventories conducted in 2018 for fall migrating aquatic birds were concentrated on riverbanks and open water, as well as on fallow grounds and open wetlands. Agricultural fields that were farmed at that time were excluded. 20 species were identified, including five duck species, seven shorebird species, two goose species and six other aquatic species. No special-status aquatic species were included among them. The Canada goose was the most numerous species observed, followed by the ring-billed gull and brant goose.

Nesting

The inventory conducted in 2018 established the number of breeding pairs by species and habitat type (SNC-Lavalin, April 2019). A total of 34 landbird species were counted. Twenty-seven species nested in wooded areas (yellow warbler, veery and catbird being the most abundant), 23 species in open areas (American robin and yellow warbler being the most abundant), ten species in industrial areas (American robin and yellow warbler being the most abundant), eight in agricultural environments (yellow and common yellowthroat being the most abundant), two in scrubland (song sparrow and catbird) and two in shrubby swamps (northern waterthrush and common yellowthroat). The wooded area is the only habitat where species at risk have been identified (eastern wood-pewee).

³⁹ Refers to wild waterfowl, such as ducks, geese and geese.

⁴⁰ Long-legged birds that frequent wetlands.



As for aquatic birds, six species were considered probable or confirmed breeders on the territory of the MPA in 2018. These species were the Canada goose, the gadwall, mallard, the Wilson's snipe, the killdeer and the spotted sandpiper.

Special Status Bird Species

Twelve species of special-status birds are likely to be found in the local study area or on the territory of the MPA, both during nesting and migration periods (Table 10) (SNC-Lavalin, April 2019).

Table 10: Special-Status Bird Species Potentially Present on Montreal Port Authority Territory or in the Local Study Area

Species		Status of the Species			Confirmed Presence
Common Name	Scientific Name	SARA (Schedule 1)	ARTVS	COSEWIC	
Common Nighthawk	<i>Chordeiles minor</i>	Threatened	SDMV	Concerned	No
Peregrine Falcon	<i>Falco peregrinus anatum</i>	Concerned ⁴¹	Vulnerable	Not at risk	Yes (power only) ⁴²
Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened	Not registered	Threatened	Yes
Wood Thrush	<i>Hylocichla mustelina</i>	Threatened	Not registered	Threatened	Yes
Short-Eared Owl	<i>Asio flammeus</i>	Concerned	SDMV	Concerned	No
Bank Swallow	<i>Riparia riparia</i>	Threatened	Not registered	Threatened	Yes
Barn Swallow	<i>Hirundo rustica</i>	Threatened	Not registered	Threatened	Yes
Chimney Swift	<i>Chaetura pelagica</i>	Threatened	SDMV	Threatened	No
Least Bittern	<i>Ixobrychus exilis</i>	Threatened	Vulnerable	Threatened	Yes
Eastern Wood-Pewee	<i>Contopus virens</i>	Concerned	Not registered	Concerned	Yes
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Not registered	Vulnerable	Not at risk	Yes (power only)
Eastern Meadowlark	<i>Sturnella magna</i>	Threatened	N/A	Threatened	Yes

Although all of these species are likely to find potential habitat on the territory of the MPA, the proponent deems the potential for the common nighthawk, short-eared owl, chimney swift and eastern meadowlark to be low to non-existent. No critical habitat for birds at risk is present in the project area (ECCC, November 2020).

⁴¹ Under review for change of status.

⁴² Absence of structures conducive to nesting.



Eight colonies of bank swallows have been identified in the local study area, including three at the location of the proposed wharf, three east of Montée Lapierre (land occupied by Harsco), one on Île aux Bœufs (Verchères Islands) and one west of the access road leading to the MPA bulk terminal (Figure 11) (SNC-Lavalin, April 2019). This species digs burrows, particularly in the upper part of steep slopes overhanging the banks or in piles of sand, gravel or other loose material. According to the Government of Canada's Species at Risk Public Registry, the main threats to the bank swallow are the loss of breeding and feeding habitat caused by erosion control projects, flood control projects (dams), aggregate management activities, conversion of pasture to cropland, and forest tree planting.

Potential Effects

Effects likely to affect birds, including special status species, would be related to the loss, deterioration or fragmentation of their habitat, destruction of nests and colonies, disturbance by noise, vibration and increased ship traffic, and incidental capture resulting from collision with infrastructure or vehicles (SNC-Lavalin, April 2019).

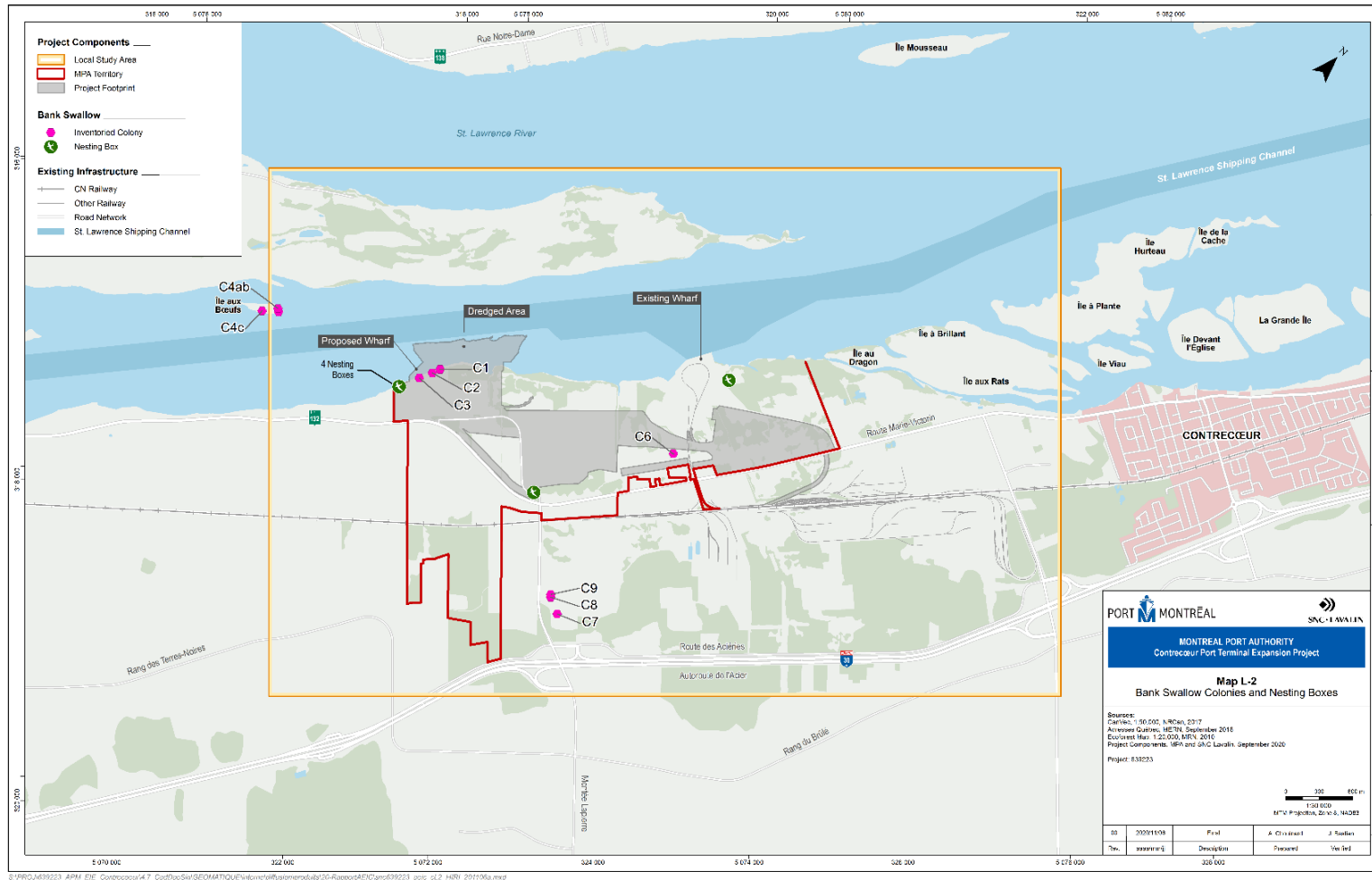
Habitat Destruction and Alteration

Potential habitat, consisting of forest, fallow grounds, wetland and riparian areas, would be lost during clearing, brush clearing and mowing, and dock construction in the project area (SNC-Lavalin, September 2017, April 2019 and August 2020). Clearing would be carried out in winter and could force some resident birds associated with hardwood forests, such as the black-capped chickadee and downy woodpecker, to relocate (SNC-Lavalin, April 2019).

The construction of the wharf as well as the dredging work would affect 0.9 hectares of aquatic grassland and could indirectly affect aquatic birds that feed on the benthic invertebrates found in this environment. The habitat losses incurred on the river and its banks would result in an encroachment into the Îles de Verchères Aquatic Bird Concentration Area bordering the project and could affect aquatic birds. The loss of riparian wetlands for the construction of the terminal could affect the waterfowl and shorebirds that frequent these environments. No additional loss of habitat is anticipated during the operation phase of the project (SNC-Lavalin, September 2017).

Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC) considers that the construction of the wharf would result in a permanent loss of 7.1 hectares in the Îles de Verchères Aquatic Bird Concentration Area and that dredging would cause a degradation of the quality of the habitat by destroying the aquatic grass beds. This represents less than 1% of the area and suitable sites remain available for aquatic birds in the area (Île Bouchard, Îles de Contrecoeur National Wildlife Area and other riparian habitats). However, the MELCC believes that the project should not result in any net loss of wildlife habitat in the aquatic bird concentration area, according to the Guidelines for the Conservation of Wildlife Habitats of Quebec's Ministère des Forêts, de la Faune et des Parcs (2015). The Huron-Wendat Nation considers it relevant that compensation for the loss of habitat for shorebirds (type of waterfowl bird) be carried out prior to the start of construction and that specific monitoring of shorebirds be carried out to ensure the effectiveness of this compensation measure.

Figure 11: Bank Swallow Colonies Found in the Local Study Area



Source: SNC-Lavalin, October 2020



The most critical period for birds is during forest nesting (SNC-Lavalin, April 2019). During this period, birds are vulnerable to nest destruction and disturbance that may increase the risk of predation on eggs and young or contribute to reduced reproductive success. This period varies by species. For species nesting on the territory of the MPA, it can start as early as April 1st for Canada geese, mallards and red-tailed hawks. It can also extend until September for later nesting species, such as the American goldfinch and the cedar waxwing.

Site preparation work (excavation, earthwork and grading) at the proposed dock site would destroy the nesting habitat of three colonies of bank swallows. In addition, the use of piles of stored land as nesting sites during construction could be an ecological trap for this species. River erosion can create scouring in riparian areas and create suitable nesting environments for bank swallows. Conversely, erosion can also be harmful to the species when the phenomenon occurs during the breeding season (late May to early August), causing the destruction of nests.

The public has expressed concern about the loss of breeding habitat for bank swallows, a loss that is in addition to those that have occurred over the past 30 years. The public would like the proponent to avoid this loss, which they feel is a quality habitat that would allow the maintenance of a large colony.

ECCC recommends that there be no net loss of habitat for bank swallows, as they are highly dependent on the availability of nesting sites to build their nests and can return to them each year to breed.

Concerns have been raised by the public about shoreline erosion in the Îles de Contrecoeur National Wildlife Area, which could lead to habitat loss for breeding birds. This is because shoreline erosion could affect islands that act as wave barriers and protect aquatic grass beds, as well as wetlands that play an important role as rearing areas for waterfowl. A citizen claims that boat waves are destroying shore swallow habitat on the Verchères islands.

Deforestation could cause the loss of wooded areas suitable for nesting eastern wood pewee and wood thrush. Deforestation would also contribute to the fragmentation of forests and promote the predation, by the brown-headed cowbird, of wood thrush nests nesting near forest edges (SNC-Lavalin, April 2019).

ECCC notes that recovery documents for eastern wood pewee, wood thrush, bobolink, bank swallow and barn swallow identify habitat loss or degradation on breeding grounds as a potential threat to the recovery or maintenance of these species.

Depending on the area and timing of the work, stripping and excavation activities could lead to both the destruction and creation of potential habitat for the common nighthawk, which can nest on most bare surfaces (SNC-Lavalin, April 2019). The peregrine falcon would not be likely to nest on the Port Authority's territory given the lack of suitable structures. Clearing, brushing and mowing could potentially destroy the nests of ground-nesting species, such as Canada geese and mallards. The killdeer, which also nests on the ground on bare surfaces, could undergo nest destruction during the construction and operation phases.

According to the proponent, no bird species would suffer losses of unique habitats, as species affected by habitat loss or degradation would have abundant residual habitat in the local study area.



ECCC states that losses of nesting and feeding habitat can have potential effects on breeding pairs that will have to relocate to similar habitats nearby. When these similar habitats become scarcer, an increase in the density of birds in the same habitat could occur, leading to resource depletion and increased predation. Some species that are more vulnerable to the disturbance of their breeding habitat, competition or predation may then experience a decline. In order to compensate for the loss of forest habitats, particularly for the eastern wood pewee and the wood thrush, the Huron-Wendat Nation would like the proponent to become involved in projects to protect nearby terrestrial habitat. These projects would also have positive repercussions for chiropterans, air quality and citizens.

The Huron-Wendat Nation questions the compensation measures for the least bittern. However, according to the inventories conducted by the proponent and mentions from other sources, the species has been observed outside and to the east of the project area. Therefore, the project would not encroach on the potential habitat of the least bittern, which would be located outside and near the eastern limit of the territory of the Montreal Port Authority (Map A2-101-16 of Addendum 2 of the proponent's impact study) (SNC-Lavalin, August 2019).

Collisions

The increase in road traffic during construction could increase the number of collisions with vehicles (SNC-Lavalin, April 2019). Bank swallows are prone to collisions with vehicles because of their social behaviour. Bank swallows are attracted to the dead bodies of other swallows and sometimes attempt to mate with the bodies of other swallows lying on the road, which can lead to them being struck by other vehicles.

Considering that the barn swallows that are likely to frequent the project area would essentially be in flight to feed, the probability of collisions is considered low. Peregrine falcons, which hunt in a wide variety of habitats for food, could be injured or killed by moving vehicles. Males of the common nighthawk may be struck by automobile while resting on gravel roads.

The risk of collisions with infrastructure during migration can be increased by nighttime lighting on site during the operation phase, especially in foggy conditions. Most land birds migrate at night and are vulnerable to collisions with transmission antennas, power lines or certain buildings. Due to the low height of the proposed infrastructure (three stories for the administrative building), the probability of collisions of migratory birds with the infrastructure is considered low by the proponent. Mobile cranes would be excluded from the structures at risk since they are not identified in the scientific literature as problematic.

Disturbances

Birds may be disturbed by the noise and vibrations generated by construction work and may not frequent habitats near noisy areas of the construction site (SNC-Lavalin, September 2017 and April 2019).

During the operation phase, noise generated by the terminal's operations could disturb birds in nearby habitats. Since container handling and the loading and unloading of ships and trains will occur 24 hours a day, birds may avoid areas near port facilities (SNC-Lavalin, September 2017).



Noise can also alter the reproductive success of species and lead to changes in communication between species (SNC-Lavalin, April 2019).

Noise could be a potential factor in the decline of wood thrush and could harm the species. Noise could also affect other special status endangered species, such as the bobolink, eastern meadowlark, least bittern and bald eagle. According to the proponent's noise modelling, the noise level in the potential habitat of these species would not exceed 50 decibels, which is the threshold of disturbance for migratory birds in the natural environment and recommended by the Government of Canada (SNC-Lavalin, April 2019). Bald eagles could also be disturbed by vibrations and avoid feeding habitats near the construction site.

The Île Bouchard heronry, located approximately one kilometre north of the project, is at a distance greater than those recommended as safe in the literature, which vary from 50 to 1,000 metres, depending on the intensity of human activity (SNC-Lavalin, April 2019). Herons in this area could be disturbed by noise from construction and operation activities. The installation of sheet piling for the construction of the wharf is the activity that would cause the highest noise level with sudden noises. Noise levels could reach 67 decibels, but would be brief, infrequent and of moderate intensity given their short duration (SNC-Lavalin, August 2020). During the operation phase, the loudest sudden noise perceived in the colony would be that of containers, which could reach 58 decibels.

Noise from the proposed terminal would not disturb birds in the Îles de Contrecoeur National Wildlife Area and the Contrecoeur Islands' aquatic bird staging areas, as the noise level would be fewer than 40 decibels (SNC-Lavalin, April 2019).

ECCC reminds the proponent to consider the *Migratory Bird Risk Reduction Guidelines* to prevent adverse effects on migratory birds, their nests and eggs.

Human presence can also modify the behaviour of certain species of birds that may avoid busy areas. The Eastern meadowlark, whose habitat is adjacent to the territory of the MPA, may be sensitive to human presence and disturbance, particularly during nesting, when the female may abandon her nest after being disturbed. The presence of humans on foot, rather than vehicles, could disturb bald eagles feeding in the river corridor. Bank swallows are generally tolerant of human disturbance near nests.

The proponent estimates that the disturbance of birds by maritime traffic associated with the project would be low, as the terminal would accommodate approximately 156 ships per year when the proposed container terminal would be at full capacity, an increase of about 6% compared to maritime traffic in the area, including ships serving the existing bulk terminal in Contrecoeur.

The Ndakina Office of the Grand Conseil de la Nation Waban-Aki hopes that the project will not have a significant direct or cumulative adverse effect on migratory bird populations valued for hunting and that the project will not cause a displacement of non-native hunting stress.

Vigie Citoyenne Port de Contrecoeur is concerned about the disturbance caused by noise and vibrations that the birds may experience during the construction and operation phases (with the 24-hour operation of the terminal), which could keep the birds away from the area and influence the breeding success and communication between species.



Proponent's Proposed Mitigation and Follow-up Measures

In order to mitigate the effects of the project on birds and their habitat, including special-status species during the construction phase, the proponent proposes, as an overall measure, to carry out clearing, brushing and mowing outside the bird nesting period, between September 1st and April 1st to avoid the destruction of nests, eggs and young (SNC-Lavalin, April 2019). ECCC is of the view that this measure should apply to all phases of the project for all activities that could come into conflict with bird nesting, including the destruction of vertical slopes suitable for bank swallow nesting.

ECCC points out that it is possible that, locally, the nesting period may begin before April 1st and end after September 1st due to microclimatic conditions specific to certain locations, or due to annual climate variations (e.g., early spring, cold and rainy summer). ECCC recommends that nesting periods specific to each species at risk be taken into account and that activities that may harm these species during these periods be avoided.

If deforestation occurs during the nesting season, ECCC recommends that active nest searches be avoided to avoid disturbing or stressing nesting birds and that the use of non-intrusive monitoring methods (e.g., listening stations) be considered. If nests are found in the work area, ECCC recommends that a protection zone be established around the nest until nesting is complete. The protection distance should be established by taking into account the species, intensity of activity, duration, frequency and proximity of the activity, as well as the cumulative effect of activities in the vicinity of the nest.

The proponent undertakes to plant two trees for each tree cut (SNC-Lavalin, April 2019) and to develop a reforestation program to this effect that would include the monitoring of the plantations (SNC-Lavalin, September 2017).

The proponent proposes several measures for the bank swallow. To compensate for the loss of breeding sites for three colonies of bank swallows at the site of the proposed wharf, the proponent installed three artificial nesting boxes in April 2019 in the sector of the future Contrecoeur port terminal (Figure 11) (SNC-Lavalin, August 2020). The nesting boxes were positioned in open areas outside the projected work area, near existing colonies and in a flight corridor used by the colonies or near the St. Lawrence River, above which the swallows feed. The proponent installed three additional nesting boxes in September 2020 as an extension of the one installed near the river in 2019. All six artificial nesting boxes with sand walls and concrete walls include 1,200 cavities available for nesting bank swallows. The results of the 2019 follow-up show that 80% of the burrows were used.

The proponent plans to maintain these artificial nesting boxes in order to keep them functional. To prevent bank swallow colonies from reusing the nests during excavation work at the site of the proposed wharf, the proponent will cover the existing embankments (SNC-Lavalin, April 2019). It would also ensure that the slope of piles of material (topsoil, soil or sediment) stored and not used for more than 48 hours on the site would be maintained at an angle of less than 70% to limit the attractiveness to swallows. During the operation phase, the quality of the surrounding environment in which the artificial nesting boxes could be located is a concern for an environmental group.



According to the proponent, the habitats created in the natural wildlife area of the Boucherville Islands would constitute replacement habitat to compensate for the loss of riparian habitat caused by the construction of the wharf in the Îles de Verchères Aquatic Bird Concentration Area (SNC-Lavalin, August 2020). These habitats could be used by waterfowl and other aquatic birds during migration for feeding or nesting. The MELCC is of the view that the habitats created on the Boucherville Islands are probably an improvement for the region's waterfowl. The information provided by the proponent does not allow the MELCC to compare the area of habitat lost to that of the replacement habitat. The MELCC would like to be consulted by the proponent during the final development of the compensation plan so that it can contribute its expertise. An environmental group is concerned about the effects of the project on birds and their habitat, particularly with regard to the waterfowl concentration area, and would like the Ministère des Forêts, de la Faune et des Parcs du Québec, First Nations and other local stakeholders to be consulted during the final development of the plan to compensate for the loss of aquatic habitats and during the monitoring of the compensation measures that would be put in place.

During the construction phase, the proponent plans to monitor aquatic bird use of the aquatic bird's concentration area during the spring and fall migration periods. The MELCC considers that the proposed monitoring area does not adequately verify the disturbance caused by the work (sheet piling and dredging). ECCC considers this monitoring to be relevant as long as the methodology, effort and duration of the inventory are adequate. ECCC recommends that the proposed monitoring also cover the period of operation.

The proponent also proposes measures to reduce the noise level, notably through the choice of equipment, its location, the maintenance carried out, the mode of operation and the speed limit on the construction site.

A follow-up of the noise level at the heronry site would be carried out by the proponent to verify the absence of high impulsive noise during the construction phase. It would also conduct visits (including photographs with a drone) in order to inventory the nests, measure the occupancy rate and verify if there are any changes in the behaviour of herons or young in the nest. The MELCC expressed reservations about the proponent's monitoring method, which could lead to the disturbance of the colony. The MELCC believes that monitoring should also be carried out during the operation phase due to the sudden and irregular noises from containers approaching the recommended threshold that could be a source of disturbance and lead to the abandonment of nests.

Since vibratory sheet pile driving can be used without the risk of liquefying the clay in the soil at the location of the proposed wharf, this technique would be preferred to pile driving in order to reduce the noise level. Measures to reduce the effects of light are also planned in order to limit collision with the infrastructure of migrating birds.

The voluntary ship speed reduction measure adopted by the marine industry would help mitigate erosion caused by bailing and limit the effects on waterfowl habitat.

The MELCC suggests that the proponent attract falcons to favourable locations by installing artificial nesting boxes that are not in conflict with workers or port activities.



All of the mitigation measures proposed by the proponent for the construction and operation phases are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the Registry (Document No. 145).

5.4.2 Agency Analysis and Conclusions on Residual Effects

Effects Analysis

The Agency's analysis is based on the proponent's assessment of the effects on birds and their habitats (including special status species), as well as on the comments received from First Nations and the public, and on advice from the ECCC and the MELCC.

The Agency considers that the proponent has adequately identified and documented the effects of its project on birds and their habitat, including special status bird species.

By carrying out deforestation activities outside the birds' nesting period, the proponent significantly reduces the adverse effects on the birds, their nests and eggs. Environment and Climate Change Canada recommends that this mitigation measure be extended to any activity that may destroy nests or interfere with nesting, to adjust to nesting periods that may be different for some birds, to avoid searching for nests and to take special precautions when a nest is discovered. Furthermore, the Agency believes that the proponent's commitment to plant two trees for every tree cut would reduce the effects of habitat loss for birds, habitat fragmentation and increased predation caused by deforestation. To mitigate these effects, the proponent would be required to plant trees, but without damaging or altering habitats of importance to other bird species or species at risk and outside of areas likely to be deforested, as part of potential development projects in the region.

Although the proponent's proposed plan to mitigate habitat loss in the Îles de Verchères Aquatic Bird Concentration Area is limited, the Agency considers that the proposed replacement habitat on the Boucherville Islands is a relevant avenue that should be explored further.

The proponent has submitted a compensation plan to offset the destruction of the three bank swallow colonies located at the site of the proposed wharf. ECCC is satisfied with the proponent's addition of three artificial nesting boxes for bank swallows, which should meet the principle of no net loss of habitat. By implementing the compensation measure before habitat loss occurs, the proponent would ensure the presence of quality breeding habitat for this species from the start of construction work. The proponent shall ensure the sustainability of these artificial facilities for the nesting of the species by carrying out annual maintenance of the nesting boxes.

The proponent also submitted several measures that the Agency considered key to minimizing disturbance by noise, vibration and increased marine traffic, as well as fatalities from collisions with infrastructure or vehicles. The proposed follow-up measures—including measuring noise levels at the

heronry and monitoring the use of artificial nesting boxes by bank swallows, the use of the Îles de Verchères Aquatic Bird Concentration Area by aquatic birds, and the evolution of bird populations in natural environments on the territory of the MPA and its shoreline—will prove essential to assess the project's effects on birds and their habitat and the effectiveness of the proposed mitigation measures.

Taking into account the application of the key mitigation measures identified below, the Agency considers that the residual effects of the project on birds and their habitats, including species of special status, would be moderate. The Agency bases its assessment on the environmental effects assessment criteria in Appendix A and the following findings:

- The magnitude of the project's residual effects on birds and their habitats, including special status species, would be **medium**, since the effects could affect one or more important phases of the birds' life cycle, but without affecting the preservation of populations. In the case of special status bird species, such as the bank swallow, effects are expected, but compensation or protective measures would be put in place so as not to adversely affect their maintenance, management or recovery;
- The project would result in residual effects on birds and their habitats, including special status species, over a **local** and **long-term range**;
- The residual effects of the project on birds and their habitats, including special status species, would be **continuous** and **partially reversible** over time and would be **continuous** and **irreversible** on their habitat.

Identification of Key Mitigation Measures

The Agency has identified the key mitigation measures required to ensure that the project does not cause significant adverse environmental effects on birds and their habitat, including special status species. It took into account the mitigation measures proposed by the proponent, the advice of government experts, as well as the comments received from the First Nations consulted and the public. The Agency also ensured that measures consistent with any recovery strategy were taken to avoid, or mitigate and monitor adverse effects on species at risk should the project proceed. Key mitigation measures include the following:

- Minimize vegetation clearing, including clearing on both sides of the high-water line, and any other activity required for site preparation of the project to the lowest technically feasible extent. Provide to the Agency, before construction, a justification explaining how the projected extent for these activities meets this requirement. Conserve the plant cover in the project area as long as possible (also included in section 5.3.2).
- Carry out the project in a manner that protects migratory birds and avoids harming, killing or disturbing them or destroying, removing or disturbing their nests or eggs. For this purpose, meet Environment and Climate Change Canada's Avoidance Guidelines in order to reduce the risk to migratory birds. Actions when carrying out the project shall comply with the Migratory Birds Convention Act, 1994, the Migratory Birds Regulations and the Species at Risk Act.



- In reference to birds other than migratory birds, undertake no activity associated with the project that could hinder their nesting, in order to avoid the destruction of nests, eggs and chicks. In doing so:
 - Determine the dates of the nesting periods for every year during which activities associated with the project that could hinder nesting of birds are carried out and submit these dates, including a justification for these dates, to the Agency before carrying out any activity;
 - If it is not technically feasible to carry out any activity that is potentially harmful to nesting outside the nesting periods determined during a given year, submit a justification to the Agency and develop and implement additional mitigation measures to avoid the adverse effects on birds during nesting. Submit these measures to the Agency before implementing them.

Measures to attenuate noise and vibration

- Implement measures to mitigate noise and vibration attributed to the project at all phases of the project, including (these measures are also included in other sections of the report, including sections 5.3.2, 5.5.2 and 5.6.2):
 - Vehicles and equipment operated by the proponent for the project must be equipped with broadband backup alarms that meet safety standards;
 - Use programmed deceleration lifting beams;
 - Operate vehicles and equipment equipped with anti-noise and anti-vibration systems and keeping these systems in good working order through a regular inspection and maintenance program;
 - Install the generators and compressors required for the project away from biological receptors likely to be affected by noise and vibrations;
 - Establish speed limits not exceeding 30 kilometres/hour on the roadways on Montreal Port Authority territory and require and ensure that all persons abide by these speed limits;
 - Use vibratory driving of sheet piles instead of pile driving, unless it is not technically feasible;
 - Establish a speed limit for trains not to exceed 15 kilometres/hour within Montreal Port Authority territory and requiring and ensuring that all trains abide by this speed limit.

Measures to Reduce the Effects of Lighting

(Measures also included in sections 5.5.2 and 5.9.2)

- Develop, prior to construction, and implement, during construction and operation, mitigation measures that take into account the Bureau de Normalisation du Québec standard 4930-100/2016 entitled *Éclairage extérieur – contrôle de la pollution lumineuse* regarding the quantity of light emitted, its direction, spectral composition and duration of use, for the lighting fixtures

used for the project, in order to mitigate the adverse environmental effects of the project while complying with operational health and safety requirements. As part of these measures:

- Direct lighting fixtures toward active construction zones during construction and toward port infrastructures during operation;
- Install and maintain, during construction and operation, exterior lighting fixtures with a correlated colour temperature in the 3000-Kelvin range;
- Use LED-type lighting on high masts and roadway light fixtures to limit light pollution;
- Reduce lighting after 11:00 p.m. in parking lots and around the perimeters of buildings associated with the project to the lowest intensity possible while meeting the operational safety requirements for the project.

Offsetting Measures

- Install, prior to construction and in consultation with Environment and Climate Change Canada and the Quebec's Ministère des Forêts, de la Faune et des Parcs, artificial nest boxes in Montreal Port Authority territory to offset the loss of nesting sites for bank swallows at the location of the proposed wharf. Perform maintenance on the nest boxes annually and maintain their accessibility and integrity during construction and operation;
- Develop, in consultation with the Quebec's Ministère des Forêts, de la Faune et des Parcs, and implement a plan to compensate habitat losses for waterbirds attributed to the project in the Îles de Verchères Aquatic Bird Concentration Area. Submit the definitive plan to the Agency no later than one year after the decision statement is issued and implement it according to the schedule established. As part of the development of the compensation plan:
 - Take into account the *Lignes directrices pour la conservation des habitats fauniques* of the Quebec's Ministère des Forêts, de la Faune et des Parcs;
 - Establish a schedule for the implementation of the plan;
 - Demonstrate how offsetting measures implemented under the plan will compensate losses in the Concentration Area, in terms of the area affected by the project and the habitat functions lost or degraded.
- Develop, prior to construction and in consultation with the First Nations consulted and relevant authorities, and implement a plan to compensate the losses of forested bird habitat caused by the project. Conduct the reforestation required as part of the implementation of the plan outside of areas likely to be deforested as part of other future potential projects in the region and in areas that maintain connectivity with habitat not affected by the project. Maintain the reforested areas during construction and operation.

Need for Follow-up and Follow-up Requirements

In order to assess the effects on birds and bird habitat, including special status species, and the effectiveness of proposed mitigation measures, the Agency recommends that the follow-up program include the following requirements:

- Develop, prior to construction and in consultation with Environment and Climate Change Canada, Quebec's Ministère des Forêts, de la Faune et des Parcs and the First Nations consulted, and implement, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of mitigation measures implemented by the proponent to avoid adverse environmental effects to birds (including migratory birds) that frequent the territory of Montreal Port Authority, the heronry on Île Bouchard and the Îles de Verchères Aquatic Bird Concentration Area. As part of the development of the follow-up program, identify the bird species to be monitored, including valued and special status species. As part of the implementation of the follow-up program:
 - Monitor noise levels (including impulse noises) in the heronry on Île Bouchard. In doing this:
 - Perform this monitoring before construction, during construction when sheet piles are deployed and for at least 10 years after the start of operation;
 - If high impulse noises are measured in the heronry between April and August, monitor the use of the heronry by birds to determine if this noise is adversely affecting it.
 - Monitor the use by bank swallows of the study area for the follow-up on the bank swallow described in Appendix L of the Response to Information Request Round 2 from the Agency (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136), including the use of the nest boxes installed. Carry out this monitoring annually during construction and during the first three years after the end of construction and then every five years thereafter during operation;
 - Monitor, in spring and fall migration periods during construction and for at least 10 years after the start of operation, the use by waterfowl of the portion of the Îles de Verchères Aquatic Bird Concentration Area included in the zone to be surveyed indicated in Figure 3.4 of the document of recommendations from the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (Canadian Impact Assessment Registry Reference Number 80116, Document Number 152);
 - Monitor the integrity and use by waterbirds of the compensation measures implemented as part of the compensation plan developed to compensate habitat losses for waterbirds attributed to the project in the Îles de Verchères Aquatic Bird Concentration Area.
 - Monitor, from the beginning of reforestation and for at least three years following the end of any reforestation, the integrity and use by forest birds of the areas reforested as part of the compensation plan developed to compensate the losses of forested bird habitat caused by the project;
 - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the environmental effects of the project on birds (including migratory birds), their eggs and their nests;



- Before the end of the tenth year of operation, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program.

Conclusions

Based on the application of the mitigation and follow-up measures identified above, the Agency is of the view that the project is not likely to cause significant adverse environmental effects on birds and their habitat, including special status species.

5.5 Other Special Status Species

The project could result in residual effects on other special status species other than those described in sections 5.3 (Fish and fish habitat) and 5.4 (Birds and their habitat) due to the destruction or alteration of the habitat of these species. However, the Agency is of the view that these effects are not likely to be significant given the application of the mitigation and follow-up measures recommended in section 5.5.2. In determining the significance of effects on special status species, the Agency assessed, among other things, whether compensation or protective measures can be put in place so as to not adversely affect the maintenance, management, or recovery of one or more of these species.

The following subsections present the information considered by the Agency in its analysis, including the opinions and comments of government experts, First Nations consulted and the public.

5.5.1 Analysis of Potential Effects and Mitigation Measures Proposed by the Proponent

Description of the Valued Component

Special status species include species that benefit from legal protection under federal (*Species at Risk Act*) and Quebec (*Act Respecting Threatened or Vulnerable Species*) legislations as well as species for which the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recommends a status under the *Species at Risk Act*. For the Contrecoeur project, at least four special status plant species⁴³ were observed and several special status wildlife species belonging to different classes (herpetofauna⁴⁴, mammals, insects) are likely to frequent the area.

⁴³ Plant species

⁴⁴ All the reptiles and amphibians of an area (e.g., turtles, snakes, frogs, salamanders).



The local study area was selected by the proponent to assess the effects of the project on special-status flora or fauna, while the plant community study area (which includes the territory of the Montreal Port Authority and the rail access portion of the ArcelorMittal property) (Figure 1) were used to conduct species inventories and to describe habitats.

Flora

Throughout the MPA's territory, the proponent observed four special status species during its field inventories: the northern maidenhair, the Canadian wild ginger, the ostrich fern and the Canadian bloodroot.⁴⁵ These four species are designated as vulnerable to harvesting⁴⁶ in Quebec under the *Act Respecting Threatened or Vulnerable Species* (ARTVS) and have no status under the *Species at Risk Act*. According to the proponent's analysis, 25 other special status plant species, other than those mentioned above, could be present on the territory of the MPA because of their overlap with their range. However, only 16 of these species could find potential habitat, four of which have a status in Schedule 1 of the *Species at Risk Act* (Table 11).

Herpetofauna

The proponent observed two special-status herpetofauna species during its inventories on the MPA's territory, while four other species have the potential to be found there (Table 12).

The western chorus frog, found in the Contrecoeur area, is at the northeastern limit of its range in Quebec, and is designated as threatened under the *Species at Risk Act* and vulnerable under the *Act Respecting Threatened or Vulnerable Species* (SNC-Lavalin, September 2017). This species is found in a wide variety of habitats, especially in open fields and clearings in dry and wet areas, and prefers locations where vegetation provides sufficient cover and moisture. This frog has not been observed in the project area, but its presence has been confirmed by inventories on the territory of the MPA, as well as outside of it (see occurrences in Figure 12). Environment and Climate Change Canada specifies that the frog population of Contrecoeur is isolated by 22 kilometres from the nearest population by mostly unsuitable habitat. Any natural influx of new individuals, through emigration, to increase the metapopulation of Contrecoeur is impossible. Several elements indicate that this metapopulation is in a precarious state.

⁴⁵ The proponent mentions that no potential habitat is present for this species, but it was observed during surveys in 2017.

⁴⁶ A species is considered vulnerable to harvest when harvesting puts pressure on its survival because of its commercial value in the food and horticulture markets.

Table 11: Floristic Special Status Species Present or Potentially Present on the Territory of the Montreal Port Authority

Species		Status of the Species		
Common Name	Scientific Name	SARA (Schedule 1)	ARTVS	COSEWIC
Northern Maidenhair Fern	<i>Adiantum pedatum</i>	Not registered	Vulnerable to harvest	Not registered
Wild Leek	<i>Allium tricoccum</i>	Not registered	Vulnerable	Not registered
Putty Root	<i>Aplectrum hyemale</i>	Not registered	Threatened	Not registered
Green Dragon	<i>Arisaema dracontium</i>	Not registered	Threatened	Concerned
Canada Wild Ginger	<i>Asarum canadense</i>	Not registered	Vulnerable to harvest	Not registered
Two-Leaved Toothwort	<i>Cardamine diphylla</i>	Not registered	Vulnerable to harvest	Not registered
Large Toothwort	<i>Cardamine maxima</i>	Not registered	Vulnerable to harvest	Not registered
False Hop Sedge	<i>Carex lupuliformis</i>	Endangered	Threatened	Endangered
False Mermaidweed	<i>Floerkea proserpinacoids</i>	Not registered	Vulnerable	Not at risk
American Ginseng	<i>Panax quinquefolius</i>	Endangered	Threatened	Endangered
Rush With Acuminate Tepals	<i>Juncus acuminatuss</i>	Not registered	Threatened	Not registered
Lizard's Tail	<i>Saururus cernuus</i>	Not registered	Threatened	Not registered
Mauve Spleekwort	<i>Liparis liliifolia</i>	Threatened	SDMV ⁴⁷	Threatened
Canada Lily	<i>Lilium canadense</i>	Not registered	Vulnerable to harvest	Not registered
Ostrich Fern	<i>Matteuccia struthiopteris</i>	Not registered	Vulnerable to harvest	Not registered
Butternut	<i>Juglans cinerea</i>	Endangered	Not registered	Endangered
Switch Grass	<i>Panicum virgatum</i>	Not registered	SDMV	Not registered
Broad Beech Fern	<i>Phegopteris hexagonoptera</i>	Not registered	Threatened	Concerned
Bloodroot	<i>Sanguinaria canadensis</i>	Not registered	Vulnerable to harvest	Not registered
Amberique-Bean	<i>Strophostyles helvola</i>	Not registered	SDMV	Not registered

Source: SNC-Lavalin, September 2017, April 2019 and August 2020

⁴⁷ SDMV: Suspected of being designated threatened or vulnerable



The western chorus frog is the subject of a federal recovery strategy and a provincial recovery plan. A total of 208.9 hectares of critical habitat⁴⁸ has been identified by the Government of Canada in the local study area (Government of Canada, 2018) (Figure 12). The Minister issued a Ministerial Order in 2018 to protect this critical habitat on federal lands. The residence⁴⁹ occupies an area of 297.04 hectares in the local study area, including 101.60 hectares on the territory of the MPA (Figure 12).

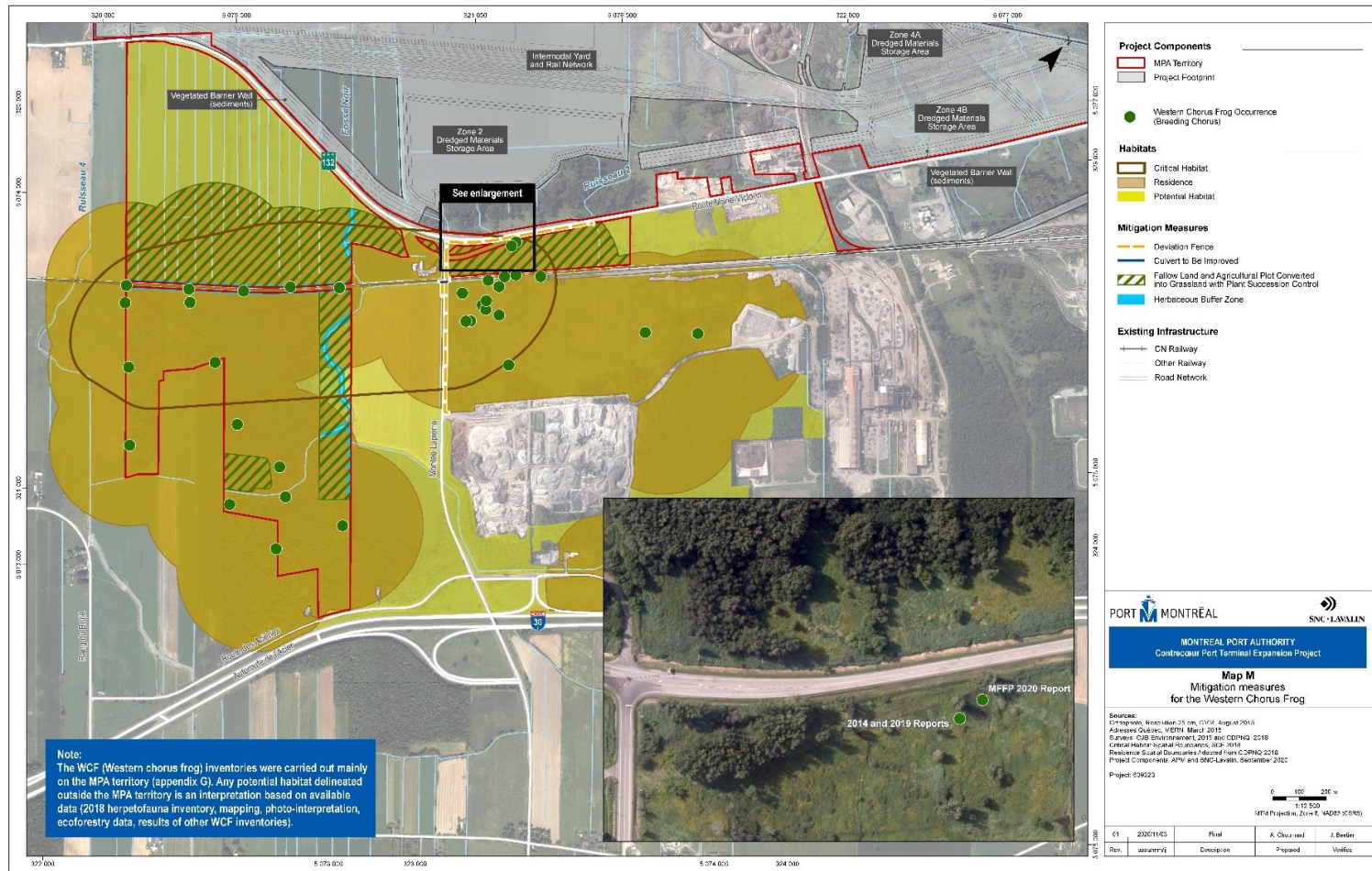
Two species of turtles, which are considered species of special concern in Schedule 1 of the *Species at Risk Act*, could be encountered on the territory of the MPA. These are the snapping turtle, which was observed during inventories, and the northern map turtle, which was identified by the Quebec Natural Heritage Data Centre. Egg-laying on the territory of the MPA has been confirmed for the snapping turtle. Both species seek a weak current, muddy bottoms and an abundance of aquatic vegetation. The midland painted turtle was also identified during the inventories and is considered of special concern according to the COSEWIC (Table 12).

Three species of snakes with special status may be present on the territory of the MPA, particularly in open environments located on the edge of wooded areas. Only one of these, the eastern milksnake, is listed under the *Species at Risk Act*, but the proponent deems the possibility of it being found on site to be very low since the territory of the MPA is located north of the northern limit of the species' range and no incidental observations have been made. The two other snake species likely to be designated threatened or vulnerable by the Government of Quebec have a potential presence deemed average by the proponent since habitats are present and the range overlaps the territory of the MPA (SNC-Lavalin, April 2019). No snakes were observed by the proponent during the inventories.

⁴⁸ As defined in the *Species at Risk Act*, habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species.

⁴⁹ As defined in the *Species at Risk Act*, a dwelling-place, such as a den, nest or other similar area or place, that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding or hibernating.

Figure 12: Critical Habitat and Residence of the Western Chorus Frog in the Local Study Area



Source: SNC-Lavalin, October 2020

**Table 12: Special-Status Herpetofauna Present or Potentially Present on Montreal Port Authority Territory**

Species		Status of the Species		
Common Name	Scientific Name	SARA (Schedule 1)	ARTVS	COSEWIC
Northern Ring-Necked Snake	<i>Diadophis punctatus edwardsii</i>	Not registered	SDMV	Not registered
Eastern Milksnake	<i>Lampropeltis triangulum</i>	Special concern	SDMV	Concerned
Smooth Green Snake	<i>Liochlorophis vernalis</i>	Not registered	SDMV	Not registered
Western Chorus Frog	<i>Pseudacris triseriata</i>	Threatened	Vulnerable	Threatened
Northern Map Turtle	<i>Graptemys geographica</i>	Special concern	Vulnerable	Special concern
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	Not registered ⁵⁰	Not registered	Special concern
Snapping Turtle	<i>Chelydra serpentina</i>	Special concern	Not registered	Special concern

Source: SNC-Lavalin, September 2017 and April 2019

Mammals

Throughout the territory of the MPA, the proponent observed five species of mammals with special status during its inventories, with three other species having the potential to be found there (Table 13).

The presence of the silver-haired, hoary and red bats, as well as the little brown bat and tri-colored bat, was confirmed by the proponent in the local study area by two acoustic inventories completed in 2016 and 2018 (SNC-Lavalin, April 2019). The northern bat has not been inventoried in the area, but potential habitats are present. A daytime resting or mothering site was identified in a hollow tree for the silver bat on the territory of the MPA (SNC-Lavalin, April 2019). It should be noted that the populations of little brown bats, northern bats, and tri-colored bats frequenting the northeastern part of North America are affected by a fungal infection (white snout syndrome), which is a threat to the integrity of these populations. For this reason, the Government of Canada added these three species as endangered species to Schedule 1 of the *Species at Risk Act* in 2014 . Approximately 100 hectares of potential foraging habitat and 37 hectares of potential resting habitat would be present in the project area for these three species.

⁵⁰ At the time of writing (September 2020), the federal government was considering adding this species to Schedule 1 of the *Species at Risk Act* with a status of special concern.



Although the southern bog lemming was not observed during the small mammals inventory conducted in the sector in 2008⁵¹ (CJB Environment, 2009a), the territory of the MPA would contain 38.55 hectares of potential habitat for this species, 11.83 hectares of which would overlap the project area.

Table 13: Special-Status Mammals Present or Potentially Present on the Territory of the Montreal Port Authority

Species		Status of the Species		
Common Name	Scientific Name	SARA (Schedule 1)	ARTVS	COSEWIC
Southern Bog Lemming	<i>Synaptomys cooper</i>	Not registered	SDMV	Not registered
Silver-Haired Bat	<i>Lasionycteris noctivagans</i>	Not registered	SDMV	Not registered
Hoary Bat	<i>Lasiurus cinereus</i>	Not registered	SDMV	Not registered
Northern Bat	<i>Myotis septentrionalis</i>	Endangered	Not registered	Endangered
Eastern Small-Footed Bat	<i>Myotis leibii</i>	Not registered	SDMV	Not registered
Eastern Red Bat	<i>Lasiurus borealis</i>	Not registered	SDMV	Not registered
Little Brown Bat	<i>Myotis lucifugus</i>	Endangered	Not registered	Endangered
Tri-Colored Bat	<i>Perimyotis subflavus</i>	Endangered ⁵²	SDMV	Endangered

Source: SNC-Lavalin, September 2017 and April 2019

Insects

No specific inventory was conducted for the monarch (*Danaus plexippus*), but incidental observations of caterpillars and butterflies were made within the project area (SNC-Lavalin, April 2019). The monarch has a status of special concern⁵³ under Schedule 1 of the *Species at Risk Act* and an endangered status with COSEWIC. It is found mainly in fallow fields, roadsides and open spaces.

⁵¹ The proponent explains that the standardized protocol of Quebec's Ministère des Forêts, de la Faune et des Parcs was not followed during this inventory and could explain the lack of mention of this species.

⁵² Under review for change of status.

⁵³ Under review for change of status.



Potential Effects

Flora with Special Status

A total of 124.8 hectares of vegetation⁵⁴ potentially hosting special-status species would be lost due to deforestation, removal of vegetation, and heavy machinery and vehicle traffic. The presence of the facilities would prevent the resumption of vegetation thereafter.

According to the proponent's inventories, at least six colonies of ostrich fern and two colonies of bloodroot from Canada would be affected by the construction and operation phases. The Northern maidenhair fern and wild ginger, listed within the plant community study area, have not been inventoried within the project area and, according to the proponent, would therefore not be affected by the project (SNC-Lavalin, April 2019). Vegetation in the plant community study area could still be disturbed by dust raised by machinery and vehicle traffic on unpaved roads during construction, reducing the photosynthesis capacity of vegetation near the work site (SNC-Lavalin, September 2017).

The removal of vegetation would increase the proportion of edge habitats, which could encourage the introduction and spread of invasive plant species. The most significant invasive floristic species in the project area is reed canary grass. The proponent has mentioned this threat to native vegetation as a whole, but it could also affect habitats suitable for special-status species. The circulation of machinery and vehicles, as well as the transportation of granular materials, could contribute to the introduction and spread of these species in the work areas and thus adversely affect the quality of environments favourable to special-status species.

Some environmental organizations have expressed concern about the possible introduction of invasive species on the territory and are asking that measures be put in place as soon as construction begins, particularly with regard to the reuse of excavated soil that may contain problematic species.

Additionally, the Huron-Wendat Nation is concerned about the effects of the project on the wild ginger, the ostrich fern and the bloodroot (Nionwentsio Office, 2018). It considers that special attention should be paid to these species and that habitat protection or restoration should be carried out by the proponent.

Herpetofauna – Western Chorus Frog

According to the proponent's information, no encroachment into the critical habitat and residence of the western chorus frog is anticipated during construction (SNC-Lavalin, April 2019).

Nevertheless, during the construction and operation phases, the proponent believes that an increase in the frog's mortality rate would be possible, though marginal, due to the risk of collision with vehicles on Montée Lapierre, which crosses the critical habitat and residence of the western chorus frog (SNC Lavalin, August 2019). According to the proponent, only one breeding site has been identified near the

⁵⁴ These losses exclude wetland losses, which are discussed in the next section.



southern edge of Route 132 since 2014 (SNC-Lavalin, August 2020). The proponent estimates that a very small number of individuals could cross Route 132. The species is considered to be not very mobile and the road would act as a semipermeable barrier (SNC-Lavalin, September 2017 and April 2019). During the construction phase, the risk of collision would be avoided with the installation of a bypass fence (SNC-Lavalin, August 2020). Regarding truck noise, the proponent mentions that there would be no disturbance to the habitat of the western chorus frog during the construction and operation phases (SNC-Lavalin, August 2019).

The proponent does not anticipate any effect from the deposition of dust generated during the construction and operational phase due to the low deposition expected (SNC-Lavalin, August 2020). Environment and Climate Change Canada (ECCC) considers that, during the construction phase, the project is likely to result in dust deposition in wetlands, including in the western chorus frog's habitat. Furthermore, ECCC points out that some scientific studies have shown that de-icing salts can be found in wetlands located up to one kilometre from the application site. According to the proponent, breeding habitats would not be affected by the contaminants and de-icing salts that would be leached in the ditches along Montée Lapierre since they are located at least 30 metres east of this road (SNC-Lavalin, April 2019). In addition, the proponent does not plan to use any additional de-icing salts for this road during the construction phase. Construction work would be limited to a minimum during the winter.

As for the construction of the new rail access, the proponent mentions that the right-of-way would be limited to 15 metres on either side of the centre of the rail line and that the rail access would be located more than 200 metres from the residence of the western chorus frog.

With respect to the relocation work on a gas pipeline owned by Energir, the proponent does not anticipate any effect on the western chorus frog. The proposed route would be located in the existing road right-of-way of Route 132, on the south side and at the bottom of a ditch, which has the smallest footprint on the existing natural environment.

During the operation phase, the proponent estimates that the western chorus frog population could experience a marginal disturbance (approximately 15 minutes per day) of its reproduction due to noise from rail traffic created by the additional passage of one to two trains per day (8 to 9 trains per week), at the maximum capacity of the terminal (SNC-Lavalin, August 2019).

The project's proximity to the habitat of the western chorus frog has raised many concerns among government experts, First Nations and the public.

ECCC had pointed out to the proponent that the modification of the drainage and some watercourses in the project area (including the Fossé noir ditch) could affect the hydroperiod⁵⁵ of the vernal ponds⁵⁶ where the western chorus frog breeding residences are located. To look into this, the proponent has conducted a hydrological analysis and states that the project is not expected to have any effect on the hydrology of

⁵⁵ The duration of variations in intensity and frequency of water levels in the system annually.

⁵⁶ Small, shallow water bodies that appear in the spring following snowmelt and dry out completely during the summer (MFFP, 2015).



the wetlands where the critical habitat and the residence of the western chorus frog are located, south of Route 132 (SNC-Lavalin, August 2019).

The Mohawk Council of Kahnawà:ke has expressed concern about the effects of increased noise, air pollution, light, vehicle activity, stream deviations or channelization, as well as the sealing of surfaces adjacent to the critical habitat of the western chorus frog. The Huron-Wendat Nation requested that the proponent refine its inventories on the western chorus frog to ensure there would be no effect.

Several environmental organizations are concerned about the project's potential effects on species at risk, including the western chorus frog and its habitat. Also, some citizens and municipalities have expressed concerns about the project's effects on special-status wildlife species and their habitat, particularly in relation to the potential increased risk of accidents related to the transportation of dangerous goods.

Herpetofauna – Other Special Status Species

For special-status turtle species, the main effects during the construction phase would be related to the loss of aquatic and terrestrial habitats (including egg-laying habitats) due to the proposed wharf, the approach area, the backfilling of the entrance of the Fossé noir ditch and the deviation of this watercourse. Effects on these species would also be related to the increased risk of mortality and injury resulting from the increased collision potential and the reduction in potential movement between downstream and upstream habitats due to the barriers created by the development of the approach area and the area to be filled (SNC-Lavalin, April 2019). The snapping turtle would be a particularly vulnerable species to road collisions during nesting periods.

In the operation phase, the main effects on turtles would be: (1) a loss of function and modification of aquatic habitat due to the approach area, wharf and bailing, (2) a small potential increase in the number of fatalities or injuries due to the increased risk of ship collisions (one to three ships per week at the maximum capacity during the operation phase in approximately 25 years), (3) a terrestrial and aquatic (semipermeable) barrier effect due to the new port area, and (4) access to sedimentation ponds that may contain contaminants.

ECCC estimates that the amount of turtle habitat destroyed by the project would be greater than what was mentioned by the proponent. Additional functional losses of habitat would be expected since certain sectors of the project would no longer be accessible to turtles, notably the portion of the Fossé noir ditch upstream of the canalized section (for the map turtle) and the potential egg-laying site upstream of Ruisseau 1 creek (for the painted turtle and the snapping turtle). ECCC added that the effect of dredging in the fall and winter periods on turtles is not sufficiently documented. Dredging could result in mortality if individuals were to overwinter in the work area. This risk is greater for the map turtle, which generally hibernates in groups, and could affect the local population.

The main effects of the project on special-status snake species would be a loss of habitat of 41.36 hectares for the milksnake and 53.19 hectares for the smooth green snake, the addition of physical obstacles (e.g., train loading areas) affecting movement and access to sites of interest such as



hibernacula⁵⁷ (SNC-Lavalin, April 2019), and increased risk of injury and mortality due to vehicle and machinery collisions and burial during clearing and grading operations. The proponent does not anticipate any effect on the northern garter snake since its potential habitats are not found in the project area.

Mammals with Special Status

For the six special-status bat species, the destruction of resting, potential nursery and feeding habitats caused by deforestation and site development would be the main effect (SNC-Lavalin, April 2019). The proponent believes that the significance of the project's potential effects would be strong on the tri-colored bat, little brown bat and northern bat, which form colonies composed of several reproductive and juvenile females grouped together in the same shelter (SNC-Lavalin, April 2019). Of the 158 trees considered to have a high potential for shelter for these bats on the territory of the MPA, 37 trees are located in the portions that would be deforested. Approximately 120 hectares of feeding habitat and 37 hectares of resting habitat would be removed in the project area (including dredged sediment management areas).

Depending on the species, artificial lighting could positively or adversely affect feeding behaviour and night-time movements. Tri-colored bats, grey bats and red bats may benefit from certain types of lighting (e.g., blue and white spectra) that attract the insects they feed on. Slow-flying or low-flying species, such as the tri-colored bat, northern bat, little brown bat and silver-haired bat, would be more likely to collide with moving vehicles at night during feeding time due to the attraction behaviour generated by artificial lighting, increasing the risk of mortality. Conversely, artificial lighting could induce avoidance behaviour for light-sensitive species, such as the little brown bat and the northern bat. The effect of artificial lighting would be greater during the operating period, as terminal operation would require continuous artificial lighting (SNC-Lavalin, April 2019).

Noise from the construction site (during the construction phase) could disturb species, including the northern bat, which could avoid the area. During the operation phase, noise would be generated mostly during the day (no trucking at night), which could lead to avoidance behaviour by bats near noise-generating activities.

The Mohawk Council of Kahnawà:ke noted the lack of information in the Environmental Impact Statement regarding compensation for lost habitat for these species. In the additional information provided, the proponent proposes measures that are detailed later in this section.

For the southern bog lemming, 11.83 hectares of habitat would be lost due to deforestation and vegetation removal, and mortality could occur due to vehicle, truck and machinery traffic (both under construction and in operation). Finally, construction activities could disturb individuals, resulting in the displacement of individuals and their increased vulnerability to predation.

⁵⁷ Place where the snakes will pile up in winter (rock falls, crevasses, abandoned burrows).

Insects

The proponent mentions that approximately 26.6 hectares of herbaceous wasteland, that could potentially be used by the monarch, would be lost during the construction work. The monarch could, however, find replacement habitats on the territory of the MPA and in the region in general. The proponent believes that there would be no effect during the operation phase.

Proponent's Proposed Mitigation and Follow-up Measures

The proponent proposes several mitigation measures to reduce the effects on special-status species. These measures are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the Registry (Document No. 145). These measures include, but are not limited to, the following:

- For the flora—transplants of colonies of ostrich fern and bloodroot would be carried out in order to preserve these colonies which are vulnerable to harvesting in Quebec;
- For the western chorus frog—bypass fences would be installed along Montée Lapierre and Route 132 to direct the frogs towards the culvert and thus avoid potential deaths of individuals crossing Route 132 northward and ending up in the work area. The projected location of these fences is shown in Figure 12. The proponent also mentions that the project has been optimized to avoid overlapping the project area with the residence and critical habitat of the western chorus frog;
- For turtles—devices to prevent egg-laying would be put in place on the shore where the wharf would be built, and a capture-relocation campaign would be carried out prior to the work to be carried out in Ruisseau 1 and 2, the Fossé noir and the ditches in order to avoid the mortality of individuals that could be found there;
- For bats—two condominiums would be installed along the edge of riverside woodlands to compensate for the loss of potential resting habitats for cave bats⁵⁸;
- For the monarch—a ProMonarch seed mix, including milkweed seed, would be sown in suitable areas at the end of the work to create favourable breeding and feeding habitat.

The proponent is also planning mitigation measures to reduce the risks of introducing or spreading invasive alien plant species that could harm special-status species, including a sequence of works to manage these species (windrowing of invasive species, no reuse of these soils, inspection of excavated material, etc.).

⁵⁸ Living in natural cavities

5.5.2 Agency Analysis and Conclusions on Residual Effects

Effects Analysis

The Agency's analysis is based on the assessment of the effects on special status species carried out by the proponent, on comments received from First Nations and the public, as well as on advice from ECCC and the MELCC.

Citizens and an interest group are concerned about the direct and indirect effects that the project could have on biodiversity, endangered species, the loss of habitat for several species at risk, and the quality of the natural environment.

Three endangered plant species (butternut tree, American ginseng and false hop sedge) and one threatened species (purple twayblade) under Schedule 1 of the *Species at Risk Act* could find potential habitat on the territory of the MPA, but were not observed during the inventories conducted by the proponent. The Agency considers that effects on these species are unlikely. Four species that are vulnerable to harvesting under Quebec's *Act Respecting Threatened or Vulnerable Species* (northern maidenhair fern, wild ginger, ostrich fern and bloodroot) have been identified on the territory of the MPA. The northern maidenhair fern and wild ginger have not been identified in the project area and would therefore be unlikely to be affected by the project. Since deforestation, removal of vegetation and circulation of machinery in the project area could affect the colonies of ostrich fern and bloodroot, the Agency is of the view that the project could have adverse effects on them and their habitat. However, the proponent proposes to transplant the colonies in a suitable environment. The Agency considers this measure sufficient.

The description of residence, as defined by the *Species at Risk Act*, was used by the proponent to delineate the residence of the western chorus frog in the local study area. According to the Recovery Strategy for the species (Environment Canada, 2015b), the loss and degradation of suitable habitat caused by residential, commercial or industrial development would be responsible for the majority of the observed decline. The increase in linear infrastructure (e.g., roads, rights-of-way) is also a threat to the species. Considering that the increase in road and rail traffic related to the project could cause disturbance or mortality to the species, the MELCC recommends that the proponent ensures that truckers comply with the measures planned by the proponent (preferred traffic routes) during the construction and operation phases and that these measures are sufficient.

The western chorus frog population in Contrecoeur is isolated from the main range of the species, representing a particular interest for the regional biodiversity and genetic diversity of the species. The Agency is aware of the level of public and First Nations sensitivity regarding this species. The Agency notes that the proponent has made several modifications to its project in order to avoid adverse effects on this species and encroachment on its habitat and residence. ECCC considers that avoiding work in the habitat of the frog is the best mitigation measure. ECCC and the MELCC are satisfied with the proponent's demonstration that the project was planned in such a way as to avoid the destruction of the



critical habitat and residence of this species. Given that the critical habitat and residence of this species would be avoided by the project and that the proponent proposes to implement several mitigation measures to ensure the protection of this species, the Agency is of the view that the project is unlikely to cause adverse effects on the western chorus frog, its habitat and residence.

According to the management plans for map turtles and snapping Turtles (Environment and Climate Change Canada, 2019 and February 2020), their late maturity and potential threats to their habitat make these species vulnerable to population decline. Threats include direct mortality from motor boat collisions, road mortality on roads adjacent to wetlands, habitat loss and degradation, and bycatch in commercial fisheries. Thus, the management objectives for these species are to maintain and, where possible, increase population distribution and abundance by reducing the major threats.

Given that potential habitats for these species could be affected by the project and that their presence was detected by the proponent during the inventories (or by the Centre de données sur le patrimoine naturel du Québec), the Agency is of the view that the project could cause adverse effects on these species and their habitat. The Agency considers that the measures proposed by the proponent (exclusion fences, devices to prevent egg-laying and capture-relocation) would reduce the effects on these turtles. The Huron-Wendat Nation considers that the proponent should compensate, as close as possible to the territory, the area of hibernation and breeding habitat for the snapping turtle that would be lost. The snapping turtle is of major cultural importance (mythology and cosmogony) for this Nation. The Agency supports the opinion of Environment and Climate Change Canada to the effect that the measures proposed by the proponent (exclusion fences, devices to prevent egg-laying, aquatic barriers, awareness, capture-relocation, improvement of egg-laying sites and follow-up) are key measures to minimize the effects of the project on the three turtle species. The Mohawk Council of Kahnawà:ke considers the mitigation and follow-up measures presented by the proponent to be adequate.

The MELCC considers that the proposed positioning of the fences does not seem sufficient to prevent the turtles from reaching Zone 4B and the truck control area during the construction phase (Map 52-1 of Addendum 4). The MELCC recommends that the proponent prevent turtle access to these areas by installing barriers in order to redirect the turtles to an adequate natural environment. The MELCC points out that the snapping turtle settles in ponds, marshes, peat bogs, shallow bays, along river and lake shores, in slow-moving streams and in swamps and that movements of more than 500 metres on land between two aquatic environments have been reported in the snapping turtle. For this reason, it recommends to the proponent that the mitigation measures related to potential egg-laying sites be applied to all potential habitats, including watercourses, marshes and swamps located in the eastern portion of the MPA's territory as well as at the level of the Fossé noir watercourse and Ruisseau 2 up to the railway.

Potential habitats for the milksnake and the smooth green snake are present in the project area and could be affected by the project. However, the potential presence of the milksnake is considered very low. As such, the Agency is of the view that the project could result in adverse effects on the smooth green snake and its habitat, although no individuals have been observed to date. The proponent does not plan any specific mitigation measures for that species, but the rock backfills that would be created as part of the project (culverts, railway tracks) could provide new habitats for the smooth green snake. The Agency



considers this measure sufficient. As for the garter snake, no favourable habitat is present in the project area.

According to the recovery strategy for the little brown bat, the northern bat and the tri-colored bat (ECCC, 2018), designated as endangered in Canada under the *Species at Risk Act*, white snout syndrome is the main threat to these three species. Other threats include residential and commercial development, use of biological resources, human intrusion and disturbance, alteration of natural systems, and pollution. Given that potential habitats (resting, nursing and feeding) for these species could be affected by the project, that other disturbances could affect them (light, noise, collision), and that their presence was detected by the proponent during the inventories (with the exception of the northern bat), the Agency is of the view that the project could have adverse effects on the little brown bat, the northern bat and the tri-colored bat. To compensate for the effect of the loss of resting habitat for these three species, the proponent plans to develop two bat condominiums on the edge of riparian woodlands and to maintain wooded linear areas. ECCC is of the view that the mitigation measures proposed by the proponent are relevant. It adds that deforestation outside of the breeding period and the maintenance or reforestation of wooded linear woodlands is particularly important to maintain connectivity between habitats.

The Agency considers the following information from ECCC regarding cumulative effects on bats to be important for the analysis of this component. ECCC considers that the use of condominiums by bats is highly variable and that the success of this measure is not guaranteed. Compensation for the loss of resting habitat or maternity colonies through two large condominiums appears risky to ECCC because, should the population using these structures be exposed to a threat, a large number of individuals could be affected. To mitigate this risk, ECCC recommends rigorous monitoring of this measure in order to evaluate its effectiveness and to be able to quickly put in place corrective measures in the event that success is not achieved.

Furthermore, ECCC considers that the creation of wooded areas conducive to bat breeding and resting would take several decades before mature trees provide a sufficient number of suitable cavities for these species. Thus, the two condominiums that would temporarily fulfill these functions would have to be maintained in place and in good working order until the wooded linear structures created provide adequate and sufficient habitats for the reproduction and resting of these species. ECCC also notes that one of the condominiums and some of the wooded linear structures are planned to be installed in the sector where phases 2 and 3 of the port terminal expansion project are planned and could be destroyed if these two phases are completed. In order not to affect the success of the compensation, ECCC recommends that the compensation measures be implemented in a location where they will not be compromised in the medium or long term.

The southern bog lemming has no status at the federal level and is likely to be designated as a threatened or vulnerable species in Quebec. Quebec has little data about it and studies are needed to determine its status and to identify the threats it's facing.⁵⁹ The Agency considers that the effects of the project are

⁵⁹ Species sheet available online on the website of Quebec's Ministère des Forêts, de la Faune et des Parcs.



unlikely to affect the lemming's population dynamics given the small area of habitat that would be destroyed by the project, compared to its range.

According to the monarch's management plan (Environment and Climate Change Canada, 2016), the threats to this species are mainly related to its wintering grounds in Mexico, which are degrading or disappearing. The increased use of herbicides and associated declines in milkweed, which is the exclusive food source of the butterfly's caterpillars, are a threat throughout its range. Forest harvesting (mainly hardwood) and human disturbance are also among the threats to this species. In order to substantially reduce the risk of extinction, the long-term objective is to protect the monarch's migration, which takes place in three countries (Canada, United States and Mexico). The monarch has an important ecosystem role as a pollinator. Considering that the proponent would plant seeds adapted to the monarch during landscaping at the end of the work and that the threats to the monarch are more related to wintering areas, the Agency is of the view that the project is unlikely to cause adverse effects on this species.

Taking into account the application of the key mitigation measures identified below, the Agency assesses that the residual effects of the project on special status species would be **moderate** based on the environmental effects assessment criteria in Appendix A and the following findings:

- The magnitude of the project's residual effects on special-status species would be **medium**, since effects are expected on certain species (floristic as well as bat, turtle and snake species) and their habitat. However, compensatory or protective measures would be put in place so as not to adversely affect the maintenance, management or recovery of these species;
- The project would result in residual effects on a **local** and **long-term** scale;
- The residual effects of the project on special-status species would occur in a **continuous** and **partially reversible** manner over time and would be **continuous** and **irreversible** on their habitat.

Identification of Key Mitigation Measures

The Agency has identified the key mitigation measures required to ensure that the proposed project does not cause significant adverse environmental effects on species of special status. It took into account the mitigation measures proposed by the proponent, the advice of government experts, as well as the comments received from First Nations consulted and the public. The key mitigation measures are as follows:

Floristic Species

- Delineate, prior to the start of tree clearing, the areas in the project area where tree clearing will take place and not undertake any tree clearing outside these areas, unless required for health and safety reasons.
- Delineate, prior to construction, the areas colonized by invasive alien plant species.



- Develop, prior to construction, measures to limit the introduction and spread of invasive alien plant species in Montreal Port Authority territory, including the residual wetlands, and implement them during construction, including by:
 - Requiring third-party contractors associated with the project to use granular backfill materials from sources that are free of invasive alien plant species;
 - Cleaning the machinery used in areas colonized by invasive alien plant species delineated in washing stations that are located in sectors not conducive to the germination of invasive alien plant species and that are 30 metres or more from any wetland or watercourse before using this machinery outside these habitats; and
 - Eliminating all visible invasive alien species at the work site of the designated project by burying them in a ditch, at least two metres deep and under at least 1 metre of clean materials or, if on-site burial is not technically or economically feasible due to the burial depth recommended for a given species, disposing of this species off-site in a technical landfill site operated pursuant to the *Environment Quality Act*.
- Transplant, at the beginning of construction, colonies of ostrich fern and bloodroot found in Montreal Port Authority territory to an area not affected by the project located outside of the critical habitat of the western chorus frog. In doing so:
 - Transplant the plants to areas containing the species' preferred habitat; and
 - Maintain the transplanted colonies during construction and operation.

Western Chorus Frog and Turtles

- Carry out the construction work associated with the addition of rail access to the project outside the breeding season for the western chorus frog.
- Install, to the satisfaction of Environment and Climate Change Canada and in consultation with the Quebec's Ministère des Forêts, de la Faune et des Parcs, and maintain, from the start of construction diversion fencing on the south side of Route 132, between Stream 2 and Montée Lapierre, and on the east and west sides of Montée Lapierre, as indicated by the proponent on Map 551 submitted in response to Information Request CEAA-2-55 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136), to prevent movements by the western chorus frog toward the project area and to encourage movements by the western chorus frog toward the culvert indicated in Map 551. In doing so:
 - Take steps, prior to construction, to obtain authorization from the owners of the lots adjacent to Montée Lapierre to install the diversion fencing on their lots and inform the Agency of the results of these efforts prior to construction;
 - Ensure the diversion fencing remains functional at all times during the period between freeze and thaw;
 - Ensure the diversion fencing remains clear of any vegetation so as to prevent the western chorus frog from crossing the fence; and

- Assess, before the end of construction, if the diversion fencing must be maintained in whole or in part to prevent the movements of the western chorus frog toward the project area and encourage its movements toward the culvert during operation and, as applicable, maintain the diversion fencing in whole or in part during operation. If it is determined that the diversion fence may be removed in whole or in part at the end of construction, submit a justification of this determination to the Agency before the end of construction.
- Install, at the start of construction and to the satisfaction of Environment and Climate Change Canada, and maintain, during construction and operation, structures allowing maintenance of water levels on the breeding sites of the western chorus frog located on Montreal Port Authority territory during the critical life stage of the species.
- Install, at the start of construction and to the satisfaction of Environment and Climate Change Canada, and maintain, during construction and operation, links between the breeding sites of the western chorus frog in order to encourage movements of the species on Montreal Port Authority territory, including by the implementation of sills and buffer zones along the watercourses.
- Develop and implement measures, in consultation with Environment and Climate Change Canada and the Quebec's Ministère des Forêts, de la Faune et des Parcs, to reduce mortality risks to the northern map turtle, midland painted turtle and snapping turtle caused by the project in terrestrial and aquatic habitats. Provide these measures to the Agency before implementing them. In doing this:
 - Install and maintain, during any activity associated with the project likely to result in mortality of the northern map turtle, midland painted turtle or snapping turtle, exclusion fences to prevent individuals from accessing the work areas and bare ground areas associated with the project area;
 - Install, at the start of construction of the wharf associated with the project, and maintain, during wharf construction, an aquatic barrier to prevent the northern map turtle, midland painted turtle and snapping turtle from accessing the work area; and
 - Periodically inspect the exclusion fences and aquatic barrier and repair any damaged portion of the fencing or barrier as soon as technically feasible.
- Develop and implement, prior to any construction activity in Streams 1 and 2, the Fossé Noir, ditches (areas 4A and 4B) and the backfilled area of shoreline near the wharf, a capture and relocation program to remove all northern map turtles, midland painted turtles and snapping turtles observed in any of these areas and relocate them, before the onset of hibernation and pursuant to wildlife care protocols, to a suitable habitat determined by the proponent in consultation with the Quebec's Ministère des Forêts, de la Faune et des Parcs, taking into account the habitat requirements necessary for each species to complete its biological cycle (including feeding, hibernation and egg laying).
- If a northern map turtle, midland painted turtle or snapping turtle is observed inside any exclusion area surrounded by exclusion fencing or an aquatic barrier, capture the turtle as soon as technically feasible and relocate it in accordance with the relocation requirements and determine

how the turtle accessed the exclusion area and, as soon as technically feasible, implement any corrective measure required to prevent future access.

- Maintain, during operation, the integrity and accessibility of the remaining egg-laying sites used by the northern map turtle, midland painted turtle and snapping turtle in Montreal Port Authority territory, including by limiting the spread of invasive alien plant species in egg-laying sites.
- Offer, at least annually, to all employees and contractors associated with the project during construction and operation of the project, awareness training on the measures to be taken to protect the northern map turtle, midland painted turtle and snapping turtle, including the reporting of all turtle observations on Montreal Port Authority territory. Document the participation of employees and contractors to the training.
- Implement and maintain, during operation, structures to deter the northern map turtle, midland painted turtle and snapping turtle from laying their eggs in areas that pose a risk to turtles, located in Montreal Port Authority territory. Ensure that the structures remain functional at all times and repair any defective layout as soon as technically practicable.

Bats

- Control the lighting required for the project activities, including its direction, duration of use, intensity, spectrum colour and glare, so as to mitigate the adverse environmental effects on the northern myotis, little brown myotis and tri-colored bat of sensory disturbances due to light, while complying with operational health and safety requirements.
- Develop, prior to construction and in consultation with Environment and Climate Change Canada and the Quebec's Ministère des Forêts, de la Faune et des Parcs, measures to offset potential habitat losses for the northern myotis, little brown myotis and tri-coloured bat caused by the project, and implement these measures. Provide these measures to the Agency before implementing them. In doing so:
 - Install, before the start of tree clearing required for the project, and maintain, during construction and operations, bat condominiums on the Montreal Port Authority territory; and
 - Establish, before operation, and maintain, during operation, linear woodlands in Montreal Port Authority territory.
- Establish speed limits not exceeding 30 kilometres/hour on the roadways on Montreal Port Authority territory and require and ensure that all persons abide by these speed limits.

Monarch

- Delineate, at the beginning of construction, areas of potential habitat for the monarch butterfly in Montreal Port Authority territory outside the work site and shall not undertake any construction activity within the delineated areas.
- Undertake the progressive reclamation of areas disturbed by the project. For the revegetation efforts involved in progressive reclamation, use plant species that support the creation of



breeding and feeding habitats for the monarch butterfly, including milkweeds and native deciduous species.

Need for Follow-up and Follow-up Requirements

In order to verify the predicted effects on special status species and the effectiveness of proposed mitigation measures, the Agency recommends that the follow-up program include the following requirements:

Floristic and Monarch Species

- Develop, prior to construction, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures related to the progressive reclamation of areas disturbed by the project. The proponent shall implement the follow-up program during construction and during at least the first 5 years of operation. As part of the implementation of the follow-up program:
 - Monitor annually, at the end of the growing season, the establishment (including in terms of area occupied and mortality) of the plant species used to revegetate areas where progressive reclamation has been carried out, including species that support the creation of habitats for the monarch butterfly, including milkweeds and native deciduous species;
 - Monitor annually, at the end of the growing season, the establishment of invasive alien plant species in areas where progressive reclamation has been carried out;
 - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required; and
 - Before the end of the fifth year of operation, determine, based on the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program.
- Develop, prior to construction, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on the ostrich fern and the bloodroot, particularly the transplanting performed.

Western Chorus Frog

- Develop, prior to construction and in consultation with the First Nations consulted, Environment and Climate Change Canada and the Quebec's Ministère des Forêts, de la Faune et des Parcs, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on the western chorus frog caused by the project. Implement the follow-up program during construction and operation. As part of the implementation of the follow-up program:

- Monitor annually, every spring, the hydroperiod and water quality in the breeding sites of the western chorus frog identified during the development of the follow-up program;
- Monitor the presence of the western chorus frog in the Montreal Port Authority territory and, every year in spring, monitor the breeding activities of the western chorus frog at the breeding sites of the western chorus frog identified during the development of the follow-up program;
- Monitor annually the quality of terrestrial habitat, including plant succession and the presence of invasive alien plant species, for the western chorus frog on Montreal Port Authority territory, including in the buffer zones and the revegetated strip; and
- Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects of the project on the western chorus frog, including to ensure that breeding sites retain sufficient water levels for tadpole metamorphosis and to maintain the open herbaceous habitats preferred by the species.

Turtles

- Develop, prior to construction and in consultation with the First Nations consulted, Environment and Climate Change Canada and the Quebec's Ministère des Forêts, de la Faune et des Parcs, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on the northern map turtle, midland painted turtle and snapping turtle caused by the project. Implement the follow-up program during construction and operation. As part of the implementation of the follow-up program:
 - Monitor, during the egg-laying periods of the northern map turtle, midland painted turtle and snapping turtle, turtle mortality on the roadways in Montreal Port Authority territory;
 - Monitor the egg-laying activities of the northern map turtle, midland painted turtle and snapping turtle on the residual egg-laying sites and in the areas that pose a risk to turtles in Montreal Port Authority territory;
 - Monitor, outside the egg-laying periods of the northern map turtle, midland painted turtle and snapping turtle, the use by turtles, particularly juveniles, of the Montreal Port Authority territory;
 - Before the end of the fifth year of operation, review, according to the results of the monitoring, the frequency at which the subsequent monitoring must take place and, if it is determined that a lower frequency can be applied for any subsequent monitoring, apply this revised frequency for the subsequent monitoring; and
 - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects attributed to the project on the northern map turtle, midland painted turtle or snapping turtle.

Bats

- Develop, prior to construction and in consultation with the First Nations consulted, Environment and Climate Change Canada and the the Quebec's Ministère des Forêts, de la Faune et des Parcs, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on the northern myotis, little brown myotis and tri-colored bat caused by the project. Implement the follow-up program before construction, during construction and during at least the first 6 years of operation. As part of the implementation of the follow-up program:
 - Monitor the use by the northern myotis, little brown myotis and tri-colored bat of the installed bat houses, including during the breeding season for bats;
 - Conduct acoustic inventories within a radius of no more than one kilometre from the project area identified by the proponent in Map 59-1 submitted in response to Information Request CEAA-2-59 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136). Conduct the acoustic inventories at a minimum of four recording stations, on at least 20 nights at each station, to be divided between bats' breeding and migration periods;
 - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects of the project on the northern myotis, little brown myotis and tri-coloured bat; and
 - Before the end of the sixth year of operation, determine if additional monitoring is required, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program.

Conclusions

Based on the application of the mitigation and follow-up measures identified above, the Agency is of the view that the project is not likely to cause significant adverse environmental effects on special-status species (other than fish and birds discussed in the previous sections).

5.6 Human Health (Physical and Psychological)

The project could result in residual human health effects (physical and psychological), including First Nations' health, related to deteriorating air quality, increased noise, and contamination of water or fish that may be consumed. However, the Agency is of the view that these effects are not likely to be significant given the application of the mitigation and follow-up measures recommended in section 5.6.2. To determine the significance of the effects on human health, the Agency assessed whether any residual effects of the project would persist on the quality of life or on the quality of air, acoustic environment,



water, soil or food despite the proposed contaminant management measures and mitigation measures (including those for which there are no thresholds). In addition, the Agency assessed whether the potential effects on physical health would be related to exposure to contaminant levels that exceed applicable standards and criteria for the protection of physical health or to high levels of nuisance (noise, light, vibration, odour, dust). In the case of psychological health, the Agency assessed whether individuals and social groups affected by the project would perceive a high risk to their health or safety that could be caused by project-related changes to the environment and for which no mitigation or compensation measures could be put in place.

The following subsections present the information considered by the Agency in its analysis, including the opinions and comments of government experts, the First Nations consulted and the public.

5.6.1 Analysis of Potential Effects and Mitigation Measures Proposed by the Proponent

Description of the Valued Component

For the purposes of the environmental assessment, the effects of the project on human health (physical and psychological) result from changes to the environment that would pose risks to human health (e.g., changes to air quality, increased exposure to light and noise, and contamination of food resources due to changes in water quality).

Project's Implementation Environment

The project would be located on the territory of the City of Contrecoeur, approximately 2 kilometres west of the urban core of the city. The project site would be adjacent to the Municipality of Verchères, and located approximately 5 kilometres east of the urban core of this municipality. According to information provided by the proponent, approximately ten permanent residences would be located near the proposed project. Three of these residences would have been recently acquired by the proponent (one would be in the process of being acquired) and one of them would be currently uninhabited. Among the other residences, the closest would be located 140 metres west of the project area along Route 132. Other sensitive human receptors⁶⁰, such as schools, daycare centres and seniors' residences, would be located more than three kilometres from the project site and would be located in the municipalities of Contrecoeur and Verchères (see Figure 7 in Section 5.1.1).

The project would be located approximately 60 and 100 kilometres respectively from the Odanak and Wôlinak reserve territories. The Mohawk communities of Kahnawà:ke, Kanésatake and Akwesasne would be relatively far from the project insertion zone, the community of Kahnawà:ke being the closest,

⁶⁰ Some human receptors are considered "sensitive" because they may be more sensitive to exposure to a contaminant or nuisance for a variety of reasons, including physiology (e.g., newborns), health status (e.g., immunocompromised individuals), behaviour (e.g., time spent outdoors) or lifestyle (e.g., smoking).



at a distance of approximately 80 kilometres upstream from the project. The Huron-Wendat Nation Reserve would be located more than 200 kilometres downstream from the project.

The St. Lawrence River and a few streams occupy approximately 25% of the local study area of the project. The terrestrial environment of this area is mainly dedicated to industrial and agricultural uses. The Contrecoeur industrial zone, located in the local study area, includes several private companies such as ArcelorMittal, Harsco Minéraux and Grantech Inc.

With respect to food resources harvested in or near the local study area, the proponent mentioned that, although recreational fishing and waterfowl hunting are practised in the region, they would have little presence in the local study area. The preferred locations for these activities would be mainly downstream of the project, around the Îles de Contrecoeur area. Nevertheless, as mentioned in section 5.8.1 of this report, the Grand Conseil de la Nation Waban-Aki indicated that fishermen from the communities of Odanak and Wôlinak travel to the Montreal-Sorel regional study area to catch several species of fish, including yellow perch, walleye, bass, sturgeon and pike. Fishing would take place in the local study area year-round, although more intensively between May and November. The Mohawk Council of Kahnawà:ke mentioned that its members use the Montreal-Sorel regional study area for sturgeon fishing in particular, and the local study area for copper redhorse fishing in particular.

Air Quality

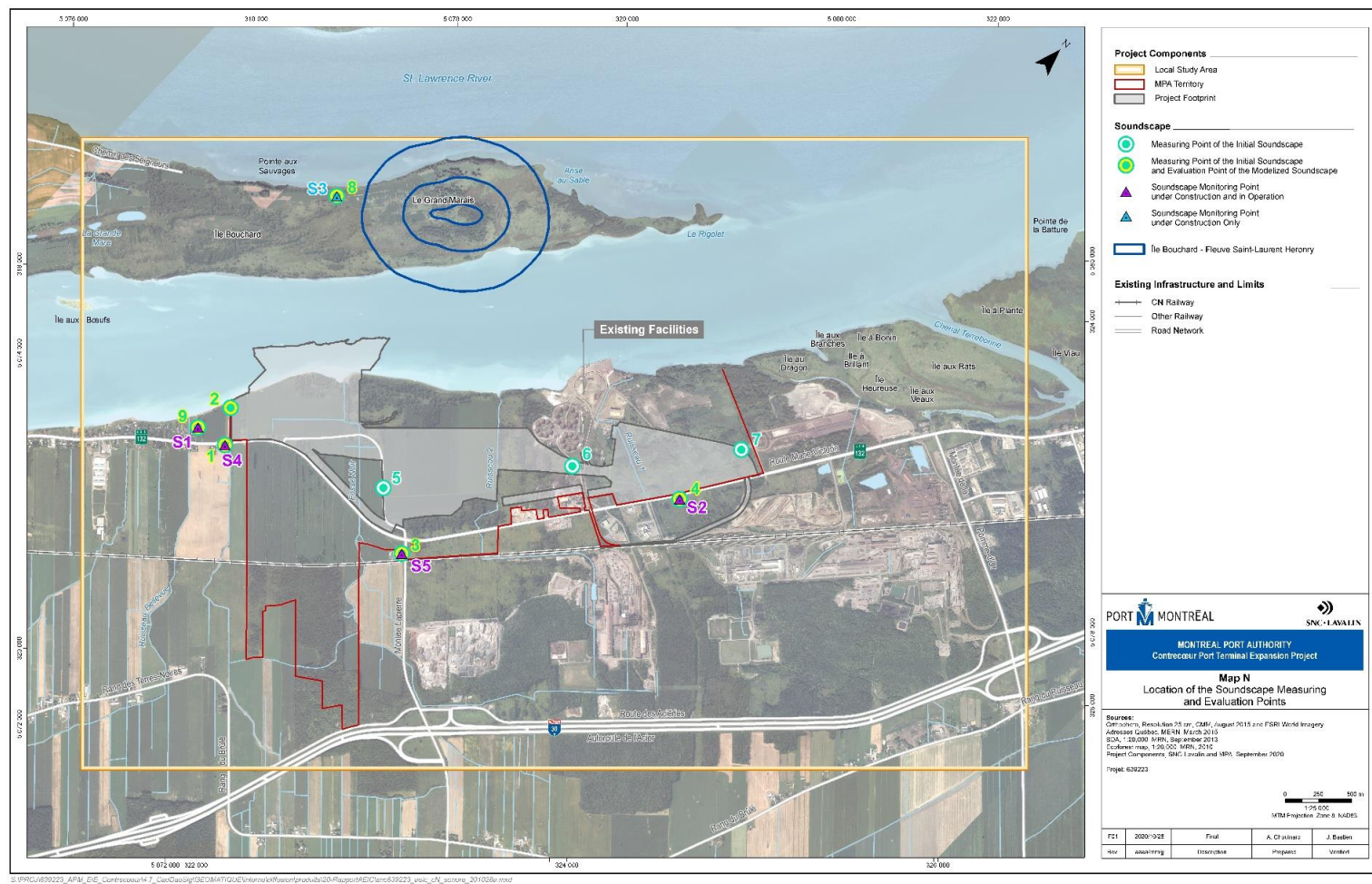
The proponent indicated that air quality in Contrecoeur is not subject to any regular government monitoring program. The description of the air quality in the project area was made by referring to data from air quality measurement stations that are located nearby or that are representative of conditions in the project area.

In general, the data collected at the various stations showed that the ambient air met the federal and provincial standards and criteria for gaseous contaminants and particulate matter, with the exception of ozone (O₃) and fine particulate matter (PM_{2.5}), for which some exceedances would have been observed during the 2013–2016 period.

Light Conditions and Acoustic Environment

The proponent conducted a characterization of the initial acoustic environment in the local study area using noise inventories conducted from October 25 to 27, 2016 and May 23 to 24, 2017. The noise inventories were designed to determine the initial day and night noise levels prior to project implementation. The measurement points were located at the residences closest to the project and at three other points located within the MPA's territory. The position of the measurement points is identified in Figure 13. According to the information provided by the proponent, the inventories showed that the initial acoustic environment was already very close to or could even exceed, at certain times (or locations), the acceptability limits set out in the *Lignes directrices relativement aux niveaux sonores provenant d'un chantier de construction industriel* (MDDELCC, 2015) and in the *Note d'instructions 98-01 sur le bruit* (MDDELCC, 2016). Depending on the location of the measurement points, the noise sources came mainly from road traffic on Route 132 and from industrial sector plants.

Figure 13: Location of Acoustic environment Measurement Points



Source: SNC-Lavalin, October 2020



The light conditions of the study area and the effect of the project on this component was assessed through the potential effects of the project on the landscape, and the information is presented in section 5.9 of this report. Government experts, First Nations and the public did not express any concerns regarding the effects of the project in relation to the light conditions and its potential effects on human health.

Surface and Ground Water Quality and Soil and Sediment Quality

With respect to human health, the potential effects of the project on the quality of drinking water and water in contact with recreational users in the area were considered. According to the proponent, there are no groundwater supply wells on the study site since the local hydrogeology and poor groundwater quality would be unfavourable to the establishment of private or commercial wells. Natural Resources Canada supports the proponent's conclusion and is also of the view that the groundwater in the area is not potable due to its poor quality (brackish water).

The City of Contrecoeur's drinking water supply is provided through a surface water intake, located on the St. Lawrence River, approximately 5 kilometres downstream from the project site, near the municipal wharf and City Hall (see Figure 16, in section 6.1.1).

The baseline condition for surface and groundwater quality is presented in section 5.3.1 of this report. The quality of soils and sediments present in the local study area could also have an indirect effect on human health through its potential effects on surface and groundwater quality. The baseline condition for soils and sediments is also presented in section 5.3.1 of this report.

Potential Effects

Air Quality

The proponent used a dispersion model to predict how emissions from stationary and mobile sources from the project, during the construction and operation phases, would be dispersed throughout the study area. The results of this modelling were compared to the *Canadian Ambient Air Quality Standards* (CAAQS⁶¹) and the air quality standards of Quebec's *Clean Air Regulations* (CAR⁶²).

Following comments from government experts on the initial air quality studies, the proponent revised its atmospheric dispersion study (SNC-Lavalin, April 2019 and August 2020a). Among the modifications made, the air quality study area was expanded (see Figure 7 in section 5.1.1) so that the modelling domain fully includes the municipalities of Contrecoeur and Verchères and their sensitive human receptors. Also, emissions from the existing bulk terminal in Contrecoeur as well as those from trucking,

⁶¹ <http://airquality-qualitedelair.ccme.ca/en/>

⁶² <http://legisquebec.gouv.qc.ca/en/ShowDoc/cr/Q-2,%20r.%204.1>



rail and marine transport throughout the expanded study area were considered in the various modelling scenarios.

The main air contaminants that were considered by the proponent in the atmospheric modelling are the three categories of particulate matter (total particulate matter [TPM], particulate matter PM₁₀ and fine particulate matter PM_{2.5}), nitrogen dioxide (NO₂), carbon monoxide (CO), sulphur dioxide (SO₂) and ammonia (NH₃). The dispersion study also looked at some toxic contaminants including volatile organic compounds such as benzene, metals (mercury, lead, nickel, etc.) and polycyclic aromatic hydrocarbons (PAHs), a complete list of which can be found in the dispersion study report (SNC-Lavalin, April 2019). Air emission concentrations were modelled by considering initial concentrations, i.e., the concentrations of contaminants found in the ambient air prior to project implementation. For NO₂, SO₂, CO, TPM, PM₁₀ and PM_{2.5}, these concentrations were defined based on observations from government air quality monitoring stations deemed representative. For metals and toxic organic compounds, the default values mentioned in the CAR were used.

During the construction phase, the activities likely to produce effects on air quality are site preparation activities including the use of machinery and the circulation of machinery, which are sources of contaminants such as dust and combustion gases (diesel engine equipment). Dredging works, dredges and tugboats are also sources of combustion gases, while wind erosion of materials exposed to the wind is a source of dust emissions. ECCC notes that, although the construction phase lasts years, the period selected by the proponent for modelling (years 2 and 3) would represent the period when air contaminant emissions would be highest due to the large quantities of granular material to be transported and dredging activities.

According to the most up-to-date modelling results provided by the proponent for the construction phase (SNC-Lavalin, August 2020a), only NO₂ and particulate matter would exceed the standards. For NO₂, the annual CAAQS standards for 2020 and 2025 would be met, as well as the 24-hour and annual CAR standards. The maximum terminal contribution scenario would be below the 1-hour CAR and CAAQS standard in effect since 2020, but would exceed, at the project site, the 1-hour CAAQS standard that will be in effect from 2025.⁶³ However, for NO₂, there would be no exceedances of the 2020 or 2025 CAAQS 1-hour standards at the sensitive human receptors and residences identified in Figure 7. In this regard, the proponent concludes that there would be no significant health effects. However, this conclusion is not supported by Health Canada, which points out that compliance with standards and criteria (provincial or federal) for non-threshold substances such as PM₁₀, PM_{2.5} and NO₂ does not ensure the absence of health risk. As concentrations approach the standard, more stringent measures should be put in place (Health Canada, 2016).

For particulate matter, different scenarios were evaluated by the proponent in its modelling: (1) a comparison of the contribution of the project alone compared to the inclusion of the initial concentrations of contaminants already present in the ambient air (the initial concentration) and (2) different levels of dust attenuation on roads and for wind erosion. ECCC and Health Canada consider the scenario that

⁶³ 1-hour CAAQS standards for NO₂ since 2020: 113 µg/m³; From 2025 onwards: 79 µg/m³

provides 75% effectiveness in controlling dust emissions on unpaved roads and 50% effectiveness for wind erosion to be the most realistic. For this reason, only the results of this scenario are discussed in this report. With respect to TPM, taking into account the initial concentrations, exceedances of the 24-hour CAR standards could be observed at the four nearest⁶⁴ residences, but it should be noted that only two of these residences are currently inhabited and a third has been acquired by the proponent. Depending on the residence, exceedances could occur from two to 46 times per year. For inhalable particles PM₁₀ and fine particulate matter PM_{2.5}, exceedances of the 24-hour standards of the CAR and CAAQS⁶⁵ could also be observed, especially when initial concentrations are taken into account. Exceedances would be more frequent for PM₁₀ than for PM_{2.5}, particularly at the same four residences (up to a maximum of 68 exceedances per year for the most affected residence).

During the operation phase, the sources of emissions likely to affect air quality would be related to the transport and handling of containers and bulk, in particular: (i) fugitive emissions of particulate matter through the suspension of materials from paved surfaces due to road transportation activities, bulk handling and wind erosion; (ii) combustion of fossil fuels by engines of trucks and container handling vehicles, generators of locomotives, mini-generators of refrigerated containers on railcars or truck and generator and boiler engines on ships. Various modelling scenarios for the analysis of the operation phase results were considered by the proponent, taking into account the periods, the activities related to the ships (at the dock and on the move) and whether or not the initial concentration was considered. The contaminants emitted during the operation phase are the same as those observed during the construction phase. According to the most up-to-date modelling results provided by the proponent for the operation phase (SNC-Lavalin, August 2020a), only NO₂ and particulate matter would exceed the standards and criteria.

For NO₂, the annual CAAQS standard of 2025 as well as the 24-hour and annual CAR standards would be met. The maximum terminal contribution scenario would remain below the CAR standard, but would exceed the 2020 and 2025 CAAQS 1-hour standard at the project site. There would also be potential exceedances of the 2025 CAAQS 1-hour standard at five human receptors, including two residences near the site and a daycare in Verchères (see receptors 8, 9, 10, 11, and 16 in Figure 7 of Section 5.1.1). The majority of exceedances of the NO₂ 1-hour standard would be located in the local study area, with the exception of a corridor of potential exceedances along the railway track, to the west of the local study area, going towards Verchères.

Since the 1-hour NO₂ exceedances would be primarily due to emissions from ship and locomotive engines, the proponent also considered the hypothesis that emissions from ship and locomotive engines in container convoys would meet the new engine emission standards for nitrogen oxides, i.e., the International Maritime Organization (Stage 3) standards for ships and the federal standard for locomotive

⁶⁴ The four residences are the 8-9-10-11 receptors identified in Figure 7 in Section 5.1 of this report.

⁶⁵ There are no formal standards for PM₁₀ at the CAR or CAAQS level. However, the proponent compared its results to a 24-hour standard that was proposed for the CAAQS but never endorsed (60 µg/m³).



emissions (Stage 4). In this scenario, no exceedances of the 1-hour CAAQS standards would be observed at sensitive human receptors and the nearest residences.

With respect to particulate matter, the proponent also considered several scenarios in its modelling. For all scenarios, the operation of the new terminal in combination with the existing bulk terminal could result in an increase in the concentration of TPM, PM₁₀ and PM_{2.5} in the atmosphere above the applicable standards at the project site. However, for human receptors, only one exceedance per year of the 24-hour standards would be observed for a residence for TPM and PM₁₀, and up to four exceedances per year of the 24-hour standards would be observed for a residence for TPM.

Several citizens and organizations have raised concerns about the effect of the increase in marine, rail and road transportation related to the project and its effect on air quality, particularly the increased presence of fine particulate matter and its potential effects on human health. Several citizens expressed particular concern about the additional dust that would result from the project due to the increase in truck traffic in the area, particularly on Montée de la Pomme-d'Or.

Acoustic Environment

The proponent used modelling to assess the potential effects of the project on the acoustic environment for measurement points that represent human receptors (residences). Modelling results were compared to the acceptability limits set out in the guidelines for noise, *Lignes directrices relativement aux niveaux sonores provenant d'un chantier de construction industriel* (MDDELCC, 2015), for the construction phase, and the *Note d'instructions 98-01 sur le bruit* (MDDELCC, 2016) for the operation phase.

During the construction phase, the sources of noise likely to affect the acoustic environment would be site preparation work, dredging of the approach area and sediment management, as well as infrastructure development. According to the proponent, the projected noise level without mitigation measures would exceed Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC) acceptability limits for the nearest residences. The proponent has therefore conducted modelling that takes into account mitigation measures (presence of a sound screen) and for various scenarios of storage locations for dredged material on the site. The projected noise levels in this scenario would be within the MELCC's acceptability limits, although very close to them for several measurement points. With these results, the proponent has determined the percentage of the population that is highly annoyed (% HA). Health Canada suggests that mitigation measures be proposed if the % HA, for a given human receptor, increases by more than 6.5% between baseline and noise levels during the construction and operation phases (Health Canada, 2017). According to the proponent, the increase in % HA would be less than 6.5% for all measurement points.

During the operation phase, noise-generating activities would be related to the movement of trucks and trains on site, ships, transshipment and container handling between the wharf, container yard and intermodal yard. The sources of noise during these activities would be ships, wharf cranes, gantry cranes, container refrigeration units, terminal transport vehicles moving back and forth between the different areas of the terminal, train and yard activities, and trucks entering or leaving the terminal. The proponent stated that loading and unloading of ships and trains and handling of containers would be done on a 24/7 basis,



but that the level of activity would be reduced at night, as off-site trucking would be done during the day only. According to Health Canada, although noise levels generated from the project area were modelled, impulsive noises may not have been considered (e.g., coupling of railcars, back-up alarm at night, other industrial sounds). These noise sources may increase discomfort and potentially cause sleep disturbance depending on their location and time of day. The noise monitoring program should take this into account. According to the proponent, the projected noise level would be 1 decibel higher than the MELCC acceptability criteria set for the night at one of the inhabited residences, located west of the terminal (point 9 on Figure 13). At the other residences, the noise level would be compliant, although close to the acceptability criteria. The increase in % HA would be fewer than 6.5% at all measurement points.

Finally, according to the proponent, the increase in trucking during the construction and operation phases would not result in a significant increase in noise levels for the residence located near the project, along Highway 132 between Montée Lapierre and Montée de la Pomme d'Or, or for the residences located in the local study area, near Highway 30.

Several concerns have been raised by citizens and municipalities in the area regarding increased noise levels in the vicinity of the project area during the construction and operation phases. The significant increase in the volume of trucks transiting the arteries near the project area and residential areas, particularly on Montée de la Pomme d'Or and Highway 30, would be the main source of concern. Many questioned the route chosen by the proponent for the passage of trucks and the Agency's ability to require the proponent to implement mitigation measures that will reduce noise outside the project area.

Surface and Groundwater Quality

According to the proponent, a thick layer of impermeable clay is found under the entire territory of the MPA, which suggests a low vulnerability of groundwater to potential contamination from surface works. The proponent has therefore concluded that the implementation of the terminal would have no significant effect on groundwater.

For surface water that could be used as a source of drinking water or for recreational purposes, the activity of greatest concern would be dredging during the construction phase that would generate suspended solids. The proponent's modelling results show that the effect of dredging work on water quality would be greatest near the dredging area and up to the existing wharf at the Contrecoeur terminal, over a distance of about two kilometres, and would then decrease downstream. However, no significant increase in suspended solids should be observed at the City of Contrecoeur's drinking water intake, which is located in the Terrebonne channel, about 100 metres behind the filtration plant and 6.12 kilometres from the dredging area. Furthermore, the dredging would take place mainly during a period that is not very busy for recreational use (boaters, kayakers, etc.), which reduces the likelihood that users in the area would be in contact with water that has been contaminated by project activities.

During the operation phase, the proponent stated that the municipal water intake would remain untouched by maintenance dredging due to its distance from the new terminal and the small amounts of sediment to be dredged. In addition, runoff from the site would be treated to ensure its quality before discharge to the St. Lawrence River.



Members of the public and the City of Contrecoeur expressed concerns about the potential effects of dredging activities on the quality of water drawn by the city downstream of the project, and the importance of providing appropriate mitigation measures to protect the water intake.

Quality of Food Resources⁶⁶ Harvested in the Local Study Area

The proponent stated that no contaminants of potential concern have been identified in relation to the project. The food resources likely to be contaminated would be limited to fishery resources, mainly fish. Their potential contamination would essentially involve the risk of spills of hydrocarbons or hazardous materials in surface water that would have variable effects depending on the quantity and nature of the contaminant. The mitigation measures proposed by the proponent to reduce the potential effects of this type of incident are indicated in chapter 6.1 of this report. The proponent also noted that farmers currently producing grain corn, soybeans and wheat on a rental basis in the project area would not be exposed to potential contamination from the project.

Health Canada, has recommended that an inventory of all potential contaminants and an analysis be conducted to determine whether project activities would result in transport pathways for contaminants to traditional foods. Health Canada notes that, although the proponent commits to meeting aquatic life protection criteria for surface water, this does not guarantee the protection of human health for traditional foods, as some contaminants, particularly metals, are bioaccumulative. However, according to Health Canada, all of the information provided in the Environmental Impact Statement and related documents led to the conclusion that the baseline conditions were sufficient. In this regard, the proponent noted that it does not expect metals to be dissolved in the waters of the sedimentation and retention ponds or in the surface waters of the study area. Health Canada recommends that further analysis be undertaken if contaminants of potential concern are identified during effluent monitoring.

With respect to the quality of fish that may be harvested for consumption, the Mohawk Council of Kahnawà:ke stressed that Indigenous fishermen would not harvest or use fish if they have suspicions of contamination.

Safety and Quality of Life of the Population and First Nations

The sources of effect identified by the proponent with respect to the safety of the population during the construction phase are related to vehicle and machinery traffic on the site and on the local road network, dredging operations, and the handling and storage of hydrocarbons and hazardous materials for construction purposes. During the operation phase, potential sources of effect would be related to the transportation of hazardous materials, freight transshipment operations and truck and train traffic.

According to the proponent, during the construction and operation phases, trucking and road traffic would increase the risk of collisions on the local network and would have the effect of reducing the population's

⁶⁶ The term "food resources" used in this report refers to any food that could potentially be harvested in the local study area, including traditional foods that could be harvested and consumed by First Nations.



feeling of safety when transiting the project area, more particularly in the Contrecoeur industrial zone. The effect would be felt primarily by those who travel on Route 132 between Verchères and Contrecoeur.

With respect to the project's potential effects on the quality of life of the population, the proponent points out that the latter could be affected because of harm caused to certain valued components of the environment such as air quality, acoustic and visual environment, public safety, public infrastructure and equipment, recreational and tourism activities, and economic benefits.

Several citizens and organizations have raised concerns about the effect of the project on the citizens' safety and quality of life. The significant increase in the number of trucks that would travel in the project area raises concerns about road safety for road users as well as cyclists and pedestrians. Several citizens and a group of citizens point out that the increase in rail, road and marine transportation will inevitably affect the quality of life of the area's residents given the potential effects of this increase on noise levels, vibrations, as well as water and air quality. Many citizens argue that trucks should use Montée Lapierre instead, an option that, in their opinion, would have much less effect on the quality of life of the sector's residents. Concerns were also raised about the fact that the Agency's assessment of the project's potential effects on human health focuses mainly on activities in the project area and therefore does not take into account several issues raised by the public, such as the frequency and length of trains that could inconvenience people's sleep or road travel.

According to the proponent, given the project's distance from the First Nations consulted, the First Nations would not have to deal with the direct effects of the project on safety and quality of life during the construction and operation phases. However, if members of these First Nations live near the project, they could experience the same effects as the population living near the study area.

The proponent pointed out that the social determinants of health for Indigenous peoples are not necessarily the same as for the general population and, to this end, presented a qualitative assessment of the project's potential effects on social determinants proposed by the National Collaborating Centre for Indigenous Health⁶⁷ (NCCIH, 2009). According to the proponent's assessment, the project would not have adverse effects on these determinants. Health Canada points out in this regard that health effects, through social or economic determinants of health, can be felt at a distance.

The Mohawk Council of Kahnawà:ke expressed concerns about the proponent's assessment of the project's potential effects on the social determinants of First Nations' health, noting that it disagreed with the proponent's conclusions that the project could have positive economic effects on First Nations and contribute to the alleviation of food insecurity. The Grand Conseil de la Nation Waban-Aki welcomes the proponent's initiative to consider social determinants in the analysis of the project's potential effects on the health of First Nations, but argues that the analysis presented by the proponent is too limited and is not based on evidence and proven methodology.

⁶⁷ For example, the NCCIH proposes that various elements such as health behaviours, education, food insecurity and access to health care are social determinants of Indigenous health that need to be considered.



The Mohawk Council of Kahnawà:ke also noted that although their community is not located in close proximity to the project site, an increase in traffic on Highway 30 could, in the long term, affect the health, safety and quality of life of their community members as it would cumulatively contribute to increased road and rail traffic on their traditional territory.

Proponent's Proposed Mitigation and Follow-up Measures

Air Quality

During the construction phase, the proponent proposed, among other things, regular watering of unpaved roads with water or authorized dust suppressants, regular cleaning of paved roads and the installation of truck washing stations. During the operation phase, measures related to the maintenance and use of paved and unpaved access roads and those related to maintenance dredging sediment would still be applicable. In addition, the proponent plans to reduce its atmospheric emissions by opting for equipment (cranes, locomotives and handling equipment) that generates fewer atmospheric contaminants, among other things by using electrically powered equipment. The proponent has also proposed to implement devices allowing the electrical connection of ships at the wharf, for ships allowing this type of connection.

The Huron-Wendat Nation pointed out that, since there is currently no regular government follow-up and monitoring program for air quality in Contrecoeur, a program should be developed and implemented by the proponent.

The proponent has in fact developed an air quality monitoring and follow-up program and a dust management plan. The air quality parameters that would be monitored continuously are TPM, PM₁₀, PM_{2.5}, NO₂ and dust deposition. All mitigation measures to reduce particulate matter can be found in the dust management plan. The proponent commits to implement these programs at the start of construction activities. The proponent noted that these two tools would be optimized for new activities during the construction and operation phases, if necessary, and by adding adaptive management measures as required. A permanent station continuously measuring TPM, PM₁₀ and PM_{2.5} is already in place at the existing facilities and the proponent commits to install three new stations to monitor particulate matter (TPM, PM₁₀ and PM_{2.5}) and dust deposition. NO₂ and meteorological parameters would be monitored at the station west of the site. The latest update of these programs is available in the documents filed by the proponent with the Agency in August 2020 (SNC-Lavalin, August 2020a).

Acoustic Environment

To mitigate the potential effects of the project on the acoustic environment during construction and operation phases, the proponent proposed to install, at the southwestern edge of the site and at the beginning of construction work, a sound barrier wall. The structure would take the form of a four-metre-high embankment topped by a sound barrier. The proponent also indicated that the installation of the sheet piles by vibratory driving would be the preferred method and that if this technique could not be used for technical reasons, the installation method by pile-driving the sheet could be used with additional mitigation measures such as the installation of a sound barrier near the sheet piling driving equipment. In



addition, other generic measures would be included in a noise management plan to control noise from construction activities. This program would include, among other things, the selection of equipment that incorporates acoustic measures into its design and minimizes noise and vibrations.

A noise monitoring and follow-up program for the closest human receptors is planned by the proponent during the construction and operation phases to verify compliance with noise standards. According to the proponent, should noise standards be exceeded as a result of the terminal's activities, sources would be identified and corrective measures would be applied. According to Health Canada, this process should also be undertaken in the event of a complaint and should make it possible to identify the nature of the noise (type, duration, etc.).

Surface Water Quality

The proponent undertakes to inform stakeholders and recreational water users on a timely and regular basis of project activities that could have potential effects on water quality and municipal infrastructure, including the drinking water intake. It also provided for the protection of water intakes (municipal and industrial) during dredging activities by monitoring water quality in real time during the work and providing for additional mitigation measures as required. The proponent has planned to put in place a complaint management plan with Indigenous and non-Indigenous stakeholders. Other mitigation measures specific to surface water quality are presented in chapter 5.3 of this report.

As part of the project's environmental follow-up program, the proponent undertakes to regularly monitor the concentration of suspended solids and various metals during the construction and operation phases.

Quality of Food Resources Harvested in the Local Study Area

The proponent did not propose any specific mitigation and follow-up measures for this component. Since fish represent the main food resource that could be potentially affected by the project due to a degradation of surface water quality, the Agency is of the view that the mitigation measures mentioned in chapters 5.3 and 6.1 of this report would mitigate the potential risks to human health, including First Nations' health.

Safety and Quality of Life of the Population and First Nations

The proponent noted that several of the mitigation measures contained in its management plans, including its environmental and social management plan and its emergency prevention and response plan, would help reduce the risks associated with accidents and malfunctions, improve public safety and reduce potential effects on human health.

Regarding road safety, the proponent proposed mitigation measures such as the development of a traffic plan with preferred trucking periods and the installation of signs on Route 132 and Montées Lapierre and de la Pomme-D'Or. Regarding boating safety for boaters, notices to the population would be issued during the construction of the wharf and during dredging periods.



With respect to the quality of life of the local population and First Nations, the proponent is of the view that the mitigation measures proposed for each of the valued components assessed would contribute to reducing the potential effects of the project. Also, the proponent proposes to implement a communication program with stakeholders and to involve and meet with First Nations on a regular basis to discuss issues related to the project, including quality of life (see section 5.8.1 of this report for more details).

All of the mitigation measures proposed by the proponent for air quality, acoustic environment, water quality as well as the measures specific to First Nations for the construction and operation phases are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the Registry (Document No. 145).

5.6.2 Agency Analysis and Conclusions on Residual Effects

Effects Analysis

The Agency's analysis is based on the proponent's assessment of the effects on human health (physical and psychological), the comments received from First Nations and the public, as well as advice from Health Canada, ECCC, Natural Resources Canada and the MELCC.

Air Quality

The Agency is of the view that the proponent took into account the various comments made by government experts during the review of its Environmental Impact Statement, and ECCC notes that the choice of scenarios can influence the results of the modelling. ECCC adds that for certain aspects, "optimistic" assumptions were considered and retained by the proponent to assess the residual environmental effects. ECCC notes that the activities likely to affect air quality would be primarily related to construction activities and that the effects would be low during the operation phase.

Health Canada points out that the criteria selected by the proponent for the main air contaminants are adequate except for PM₁₀ and PM_{2.5}. Indeed, for the PM₁₀ 24-hour standard, the proponent could have used the most recent recommendations of the World Health Organization. For PM_{2.5}, the CAAQS 24-hour standard in effect since 2020 would not have been used in all analyses. For these reasons, Health Canada expects that there are potentially more exceedances than what the proponent presented in its last update (SNC-Lavalin, August 2020a).

Health Canada is of the view that contaminants other than particulate matter and NO₂ have been adequately considered by the proponent in its various documents. If the contaminant concentrations measured in the field during the construction and operation of the terminal expansion are similar to the concentrations modelled (SNC-Lavalin, 2020a), the latter should not lead to adverse effects on the health of neighbouring populations. However, Health Canada is of the view that the predicted increase in NO₂ and particulate matter concentrations in some of the modelling scenarios presented by the proponent

could result in adverse health effects. Health Canada notes that short-term exposure to particulate matter would be associated with a variety of cardiovascular and respiratory effects, an increase in medical and hospital visits for cardiorespiratory causes, and an increased risk of premature mortality (Health Canada, 2012). NO₂ is also thought to affect asthma, bronchial disorders, lung inflammation and impaired lung function (WHO, 2018). For these reasons, Health Canada recommends that best mitigation practices be rigorously implemented by the proponent to control and reduce these contaminants to the lowest possible level.

The Agency notes that the 1-hour exceedances of the CAAQS 2025 standard for NO₂ west of the local study area would be mainly due to the occasional passages of CN trains to Verchères. Although emissions from trucking, rail and marine transportation throughout the extended study area were included in the air quality modelling, these activities are beyond the control of the proponent. In addition, ECCC confirmed to the Agency that the proponent used a recognized atmospheric contaminant dispersion model and that, based on the available information, the potential environmental effects on air quality were adequately and sufficiently described. The proposed mitigation and follow-up measures would limit NO₂ emissions and allow for the verification of the actual levels associated with project activities.

ECCC is of the view that the mitigation measures proposed by the proponent, including those in the latest update of the air quality monitoring and follow-up program and the dust management plan, are adequate and sufficient to reduce the effects of the project on air quality. However, ECCC is of the view that the analysis of the proponent's residual environmental effects should also have taken into account less optimistic scenarios, in addition to those deemed realistic by the proponent. Also, ECCC recommends that a follow-up of NO₂ concentrations be carried out throughout the construction phase and not only during the first two years. ECCC, Health Canada and the MELCC also recommend that NO₂ monitoring be added to the air quality monitoring program for the operation phase. ECCC emphasizes that the proponent's commitment to implement all of the proposed mitigation measures should limit the magnitude of the residual environmental effects on air quality. Rigorous implementation of the mitigation measures and follow-up on these measures would allow the proponent's conclusions regarding residual effects to be confirmed or corrective measures to be taken if necessary.

Health Canada notes that compliance with the CAAQS in the operation phase beyond 2025 is based on the proponent's assumption that all ships and locomotives will meet the new engine emission standards for nitrogen dioxide. Health Canada is of the view that this assumption is ambitious and uncertain and recommends that a management strategy for nitrogen oxide, with mitigation or risk management measures specific to this contaminant, be developed and shared with the relevant authorities for comment. Health Canada supports the proponent's commitment to implement its dust management plan and is of the view that this is an approach that would reduce particulate matter emissions and verify the predictions of the environmental assessment, provided that the location of measurement stations is representative of potentially affected human receptors and that meteorological conditions are measured in parallel. With respect to the air quality monitoring program, in the absence of Canadian standards for PM₁₀, Health Canada recommends that the proponent use the most recent World Health Organization (WHO) 24-hour guideline (50 µg/m³).



Finally, the MELCC emphasizes that for the project to be acceptable in Quebec, it will have to meet Quebec's air quality standards.

Acoustic Environment

Health Canada indicates that there remains uncertainty as to the technical feasibility of installing sheet pile using a quieter approach (vibratory driving) and that a noisier pile-driving installation was not considered in the proponent's modelling. In the event that the pile-driving approach is chosen, Health Canada recommends the use of any method that is technically and economically feasible (e.g., the use of an acoustic wall around the equipment) to mitigate the potential effects of the project on the acoustic environment.

The proponent did not assess the effects of the project on sleep disruption. Health Canada is of the view that effects on sleep could occur at the closest human receptors even if the MELCC noise limits are met overall and the % HA is less than 6.5% for the construction and operation phases. To this end, Health Canada suggests limiting the change in the adjusted % HA to less than 6.5% in combination with proactive community consultation.

Health Canada notes that the proponent has proposed a variety of mitigation measures, ranging from source control of noise to a complaint management program, which, if combined and implemented, should have a noise reduction effect. Health Canada recommends that the planned complaint management program be timely, implemented over the life of the project and promoted to residents. In addition, if any activities are to take place at night or during rest days or holidays, they should be communicated to residents in advance and the proponent should solicit potentially affected parties in its communications plan.

Health Canada recommends that a more detailed follow-up and monitoring plan for noise be shared with the relevant authorities to ensure that it allows for the verification of the accuracy of predictions, the presence of impulsive noises and the effectiveness of the mitigation measures proposed by the proponent.

Water Quality

Natural Resources Canada and ECCC support the proponent's conclusion that the project would not adversely affect groundwater quality.

For surface water that could be used as a source of drinking water or for recreational purposes, the activity of greatest concern would be dredging that would generate suspended solids. The proponent mentioned that the results of the modelling show that no significant increase in suspended solids should be observed at the City of Contrecoeur drinking water intake for the construction and operation phases.

Health Canada does not consider the effects of ingestion or skin contact with water potentially altered by mechanical dredging during the construction phase to be of concern. However, Health Canada points out that, should the use of hydraulic dredging methods involve the addition of substances to the water for



treatment, the effects on water quality and human health should be assessed if a change in water quality is anticipated. Also, Health Canada supports all measures by the proponent to inform affected stakeholders in advance of the project's activities and potential effects on water quality, particularly during construction dredging.

Quality of Fish Harvested as a Food Resource in the Local Study Area

Health Canada concludes that in the absence of a human health risk assessment, the proponent's proposal to follow up on copper, selenium, lead and zinc in the aquatic environment will be very important. In addition, adequate mitigation measures should be rigorously implemented in order to avoid or minimize any input of metals to the receiving environment. Finally, if the hydraulic dredging method is chosen and if it involves adding substances to the water for its treatment, the effects on water quality and the quality of traditional foods should be evaluated.

The Agency is of the view that the mitigation and follow-up measures mentioned in chapters 5.3 and 6.1 of this report for fish and surface water would have the effect of mitigating the potential risks to human health, including that of First Nations, related to the potential contamination of fish.

Safety and Quality of Life of the Population and First Nations

The Agency agrees with the proponent that the mitigation measures proposed for each of the valued components assessed would help reduce the project's potential effects on the safety and quality of life of the local population and First Nations. Also, the proponent proposed a communication program with stakeholders and to involve and meet with First Nations on a regular basis. These initiatives would make it possible to discuss the various issues related to the project, including quality of life.

Taking into account the application of the key mitigation measures indicated below, the Agency is of the view that the project's residual effects on human health (physical and psychological), including First Nations' health, would be moderate. Its conclusion is based on the environmental effects assessment criteria presented in Appendix A and the following findings:

- The magnitude of the project's residual effects on physical health would be **medium**, since contaminant management and mitigation measures would keep exposure to airborne contaminant levels below the applicable standards and criteria for the majority of the population. Some individuals could experience moderate levels of nuisance and health effects (sleep disturbance) related to noise, vibration and dust. In the case of psychological health, some individuals who would be affected by the project would perceive a risk to their health or safety that could be caused by changes to the project-related environment, but mitigation measures would be put in place;
- The project would result in residual human health effects (physical and psychological) over a **local** and **long-term** range. The residual effects of the project on human health (physical and psychological) would occur in a **continuous** and **partially reversible** manner over time.



Identification of Key Mitigation Measures

The Agency has identified the main mitigation measures required to ensure that the project does not cause significant adverse environmental effects on human health (physical and psychological), including that of First Nations. It took into account the mitigation and compensation measures proposed by the proponent, the advice of government experts, as well as the comments received from the First Nations consulted and the public. The key mitigation measures are as follows:

Air Quality

- Identify, prior to construction and in consultation with relevant authorities, the human receptors likely to be affected by the environmental effects on human health from air-quality changes caused by the project. Submit the list of human receptors to the Agency prior to construction.
- Implement, during all phases of the project, measures to reduce dust emissions attributed to the project. Take into account whether current weather conditions are conducive to dust emissions (including drought or sustained winds) when implementing these measures. As part of these measures:
 - Temporarily halt all activities associated with the project when weather conditions are conducive to dust emissions, including drought and sustained winds that may move dust from activities toward human receptors likely to be affected by air quality changes. Resume activities when permitted by weather conditions.
 - Minimize vegetation clearing, including clearing on both sides of the high-water line, and any other activity required for site preparation of the project to the lowest technically feasible extent. Provide to the Agency, before construction, a justification explaining how the projected extent for these activities meets this requirement. Conserve the plant cover in the project area as long as possible.
 - Implement measures to reduce dust emissions from piles of unconsolidated materials located on Montreal Port Authority territory that are unused for over 48 hours;
 - Favour, during construction, the use of paved roadways to access the project area;
 - Maintain the riprap along unpaved roadways in the project area;
 - Regularly clean and/or wet surfaces in the project area in order to reduce dust emissions from surfaces;
 - Use dust suppressants that comply with standard NQ 2410- 300 of the Bureau de Normalisation du Québec [Quebec Standards Bureau];
 - Establish speed limits not exceeding 30 kilometres/hour on the roadways on Montreal Port Authority territory and require and ensure that all persons abide by these speed limits;
 - Establish wheel-washing stations at the exits of sediment management areas and require and ensure that truck operators use them;
 - Ensure that open loads of granular material are covered during transport and that sediments are hauled in leakproof dump trucks;

- Implement dust control measures during any activity likely to emit dust (including drilling and boring).
- Implement measures to mitigate airborne emissions, including greenhouse gas emissions, caused by the project during all phases of the project, including by:
 - Developing the project area and optimizing activities associated with the operation of the project so as to minimize equipment movements and the time and distances required to travel between the different sites;
 - Using, during construction, zero-emission vehicles and equipment or, if a zero-emission vehicle or piece of equipment is not available or its use is not technically or economically feasible, providing the Agency with the justification for this determination and using an equivalent vehicle or piece of equipment that uses diesel or a fuel with low carbon content and that complies with at least the Group 4 emissions standards;
 - Reducing the size, power and time of use of the equipment required for construction to the lowest technically and economically feasible size, power and time of use;
 - Employing, during operation, ship-to-shore gantry cranes, rail-mounted travelling cranes, electric rail-mounted cantilevered cranes, tractor trucks, horizontal transport vehicles, stacking cranes and forklifts for empty containers that are electric or, if a given piece of equipment or vehicle is unavailable in electric mode or its use is technically or economically impractical, providing the Agency with a justification for this determination and using at least hybrid equipment or vehicles;
 - Minimizing container loading and unloading time during operation;
 - During construction and operation, implementing a policy forbidding engine idling in mobile equipment and road vehicles in the project area and requiring and ensuring all persons to comply with this policy, except in the case of health- and safety-related constraints;
 - Requiring that the shunting locomotive operators who handle trains on Montreal Port Authority territory use locomotives that satisfy at least the Group 4 emissions standards, in accordance with the *Locomotive Emissions Regulations*, and which are maintained in accordance with the engine maintenance instructions provided by the manufacturer in order to remain at least compliant with the Group 4 emissions standards;
 - Encouraging the operators of trains with automatic stop-start systems serving the project to use these systems when they are in the Montreal Port Authority territory, except in the case of health and safety-related constraints.
- Service all vehicles and equipment operated by it as part of the project in accordance with the manufacturer's maintenance guidelines to keep them in good working order. Ensure that emission control technologies are not removed from the vehicles and equipment, unless their removal is required for repair and maintenance activities, in which case the technologies shall be reinstalled or replaced before the vehicle or equipment is returned to service.
- Provide and maintain, during operation, electrical power so that any ship serving the project that is equipped to plug into land-based electrical power while berthed can do so.

- Implement, during operation, monitoring and communications practices to notify ships serving the project that are releasing excessive amounts of smoke, including in terms of colour of the smoke and the duration of the smoke occurrence. Document all observed smoke occurrences and any action taken in response to each smoke occurrence.

Acoustic Environment

- Identify, prior to construction and in consultation with relevant authorities, the human receptors likely to be affected by the environmental effects on human health from exposure to noise and vibrations caused by the project. Submit the list of human receptors to the Agency prior to construction.
- Do not exceed the noise limits set out in the Lignes directrices relativement aux niveaux sonores provenant d'un chantier de construction industriel and the Note d'instructions 98- 01 sur le bruit of the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques during, respectively, construction and operation.
- Implement, during construction, measures to mitigate noise and vibrations caused by the project that take into account for the mitigation measure described in Appendix H of the Health Canada document Guidance for Evaluating Human Health Impacts in Environmental Assessment:
 - Vehicles and equipment operated by the proponent for the project must be equipped with broadband backup alarms that meet safety standards;
 - Use programmed deceleration lifting beams;
 - Operate vehicles and equipment equipped with anti-noise and anti-vibration systems and keeping these systems in good working order through a regular inspection and maintenance program;
 - Install the generators and compressors required for the project away from human receptors likely to be affected by noise and vibrations;
 - Establish a speed limit for trains not to exceed 15 kilometres/hour within Montreal Port Authority territory and requiring and ensuring that all trains abide by this speed limit;
 - Prohibit banging of the rear panels of trucks when unloading materials;
 - Develop, from the start of construction, and maintain, during operation, a vegetated slope on the northern edge of Route 132 within the boundaries of the Montreal Port Authority territory, and on the eastern edge of Stream 4, between Route 132 and the St. Lawrence River, except for a portion on the side of Route 132 east of Montée Lapierre, as indicated by the proponent on Map 57-2 submitted in response to Information Request CEAA-2-57 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136), and at the road and rail access points associated with the project.
 - Mount the vegetated slope with a curtain wall on the eastern side of Stream 4, between Route 132 and the St. Lawrence River. Determine the size and location of the curtain wall prior to construction and provide to the Agency, prior to construction, the proposed size and location and a justification (using acoustic modelling) demonstrating how the proposed size and location will mitigate the

adverse environmental effects of changes in the acoustic environment caused by the project on the human health of the human receptors likely to be affected by noise and vibrations.

- Limit pile-driving activities and any other activity associated with the project that causes tonal or pulsing sounds to Mondays through Fridays during the day (7:00 a.m. to 7:00 p.m.), except if this is not technically or economically feasible. If any pile-driving activity or any other activity that causes tonal or pulsing sounds must be done from Mondays through Fridays in the evening or at night (7:00 p.m. to 7:00 a.m.), or on Saturdays, Sundays or statutory holidays, notify the community before carrying out the activity, in accordance with the communications plan;
- If sheet pile placement is to be accomplished by hammering rather than vibration, develop and implement modified or additional mitigation measures to ensure that noise levels remain the same as those projected by the proponent for construction (Appendix C of the response to the first round of Information Request, Canadian Impact Assessment Registry Reference Number 80116, Document Number 126).

Water Quality

Key mitigation measures to protect surface water quality are presented in section 5.3.2 of this report. Key mitigation measures for water quality in relation to potential human health effects are as follows:

- If additives for water treatment (flocculants and/or coagulants) are added to any sediment dredged using hydraulic dredging, select, in consultation with the relevant authorities, a type of additive that is least likely to cause adverse environmental effects on human health. At the time of choosing the additive, submit to the Agency, a justification explaining how the selected additive meets this requirement and how it compares to other existing additives;
- Inform stakeholders of any activity that may adversely affect water quality and municipal infrastructure, including the City of Contrecoeur's drinking water intake.

Quality of Food Resources Harvested in the Local Study Area

Fish represent the main food resource that could be potentially affected by the project due to a possible degradation of surface water quality. Key mitigation measures to protect fish, presented in section 5.3.2 of this report, would mitigate the project's effects on the health of First Nations in relation to the quality of fish that could be consumed.

Safety and Quality of Life of the Population and First Nations

The Agency is of the view that all of the key mitigation measures proposed in this chapter and in the other sections of the report would also contribute in mitigating the project's potential adverse effects on safety and quality of life and thus on human health, including that of First Nations. In addition, the Agency recommends, as key mitigation measures, the implementation of the following measures at the start of construction activities:

- Develop, prior to construction and in consultation with the potentially affected parties, a protocol for receiving complaints as it pertains to exposure to noise and vibrations and to air-quality changes caused by the project. Implement the protocol during construction and operation. Prior to construction, submit the protocol to the Agency and the parties consulted for the development of the protocol. As part of the implementation of the protocol:
 - Communicate the details of the protocol, including the method for submitting a complaint, to the parties consulted for the development of the protocol;
 - Take note of any complaint attributable to the project as quickly as possible, or within 48 hours of receiving the complaint, and implement any corrective measure under the control of the proponent as soon as technically feasible in response to any complaint received, which may include modified or additional mitigation measures;
 - Account for the results of the follow-up program on noise or the follow-up programs on air quality when it determines if any corrective action is necessary;
 - Submit a summary report each quarter of the complaints received during the quarter and any corrective action taken to the Agency and to the parties potentially affected (including the time interval taken to take note of any complaint received and the time interval taken to implement any corrective action).

Need for Follow-up and Follow-up Requirements

In order to verify the prediction of human health effects (physical and psychological) and the effectiveness of proposed mitigation measures, the Agency recommends that the follow-up program include the following requirements:

Air Quality

- Develop, prior to construction and in consultation with Environment and Climate Change Canada and Quebec's Ministère de l'Environnement et Lutte contre les changements climatiques, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to environmental effects of airborne particulate emissions on human health. As part of the development of the follow-up program, develop the method to be applied to determine, in consultation with the parties consulted for the development of the follow-up program, if the project is the source responsible for any exceedances of air quality criteria in relation to particulate emissions observed during the implementation of the follow-up program. As part of the implementation of the follow-up program:
 - Install, prior to construction and taking account of the *Lignes directrices concernant les stations de surveillance de la qualité de l'air* of Quebec's Ministère de l'Environnement et Lutte contre les changements climatiques and the Canadian Council of Ministers of the Environment's *Ambient Air Monitoring Protocol for PM_{2.5} and Ozone*, at least three new sampling stations on Montreal Port Authority territory in order to monitor emissions from the project to human receptors likely to be affected by air-quality changes, including one station that can be used to monitor climate;

- Monitor, prior to construction and during construction and operation, the concentrations of fine particulate matter (PM_{2.5}), inhalable particulate matter (PM₁₀) and total particulate matter (PMT) and the dust falls at the existing sampling station and at the new stations;
 - Compare the results of the monitoring with the values established in *Quebec's Clean Air Regulation* or, for inhalable particulate matter (PM₁₀) and fine particulate matter (PM_{2.5}), the following alert thresholds:
 - Guidelines for inhalable particulate matter (PM₁₀) recommended by the World Health Organization (24-hour mean) of 50 µg/m³; and
 - the 24-hour standard for fine particulates (PM_{2.5}) specified in the *Canadian Ambient Air Quality Standards* for 2020 by the Canadian Council of Ministers of the Environment of 27 µg/m³.
 - If any comparison made demonstrates an exceedance of values or alert thresholds, determine, in consultation with the parties consulted for the development of the follow-up program, if project is the source of the exceedance. If the project is the source of the exceedance, develop and implement modified or additional mitigation measures to mitigate the adverse environmental effects of airborne particulate emissions on human health.
- Develop, prior to construction and in consultation with Environment and Climate Change Canada and the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to environmental effects of nitrogen dioxide emissions on human health. As part of the development of the follow-up program, determine the frequency of monitoring and develop the method to be applied to determine, in consultation with the parties consulted for the development of the follow-up program, if the project is the source responsible for any exceedances of air quality criteria for nitrogen dioxide observed during the implementation of the follow-up program. As part of the implementation of the follow-up program:
 - Monitor the nitrogen dioxide concentrations at one or more sampling station(s) located so as to capture the nitrogen dioxide emissions coming from the project. Perform this monitoring during construction, in the first year of operation, and subsequently at a frequency that accounts for the nature of the activities carried on under the project and the representative periods of activities and traffic;
 - Compare the results of the monitoring with the *Canadian Ambient Air Quality Standards* for nitrogen dioxide of the Canadian Council of Ministers of the Environment that are applicable at the time monitoring is conducted;
 - If any comparison made demonstrates an exceedance of the standards, determine, in consultation with the parties consulted for the development of the follow-up program, if the project is the source of the exceedance. If the project is the source of the exceedance, develop and implement modified or additional mitigation measures to mitigate the adverse environmental effects on human health of nitrogen dioxide emissions.



Acoustic Environment

- Develop, prior to construction and in consultation with Health Canada and other relevant authorities, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of changes in the acoustic environment on human health (including sleep) caused by the project. In determining the information for the follow-up program, take account the dredging method(s) chosen. As part of the implementation of the follow-up program:
 - Monitor noise levels, using sonometers equipped with windscreens, during construction and operation, including noise levels in real time felt by the human receptors likely to be affected by noise and vibrations, pulsing sounds and low-frequency noises;
 - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects of changes in the acoustic environment on human health (including sleep) caused by the project.

Water Quality

- Develop, prior to construction and in consultation with relevant authorities, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on human health of water-quality changes caused by the project. As part of the implementation of the follow-up program:
 - Regularly monitor, during dredging, ambient concentrations of suspended solids and average concentrations of suspended solids upstream from the drinking water intake for the city of Contrecoeur;
 - Monitor, on a regular basis, the concentrations of suspended solids and other contaminants as specified in the follow-up programs in section 5.3.2 of this report;
 - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects on human health of water-quality changes caused by the project.

Conclusions

Taking into account the application of the mitigation and follow-up measures indicated above, the Agency is of the view that the project is not likely to cause significant adverse environmental effects on human health (physical and psychological), including that of First Nations.

5.7 Effects on Socio-Economic Conditions

The effects on the socio-economic conditions of the First Nations and the population are assessed based on the changes to the environment caused by the project. The project could result in residual effects on socio-economic conditions due to the establishment of port infrastructure, changes in land use and increases in marine, road and rail traffic. However, the Agency is of the view that these effects are not likely to be significant given the application of the mitigation measures recommended in section 5.7.2. To determine the significance of the effects on socio-economic conditions, the Agency assessed whether the residual effects would result in changes in the behaviours required for the practice of all activities by the First Nations and the population of the region. Primarily in recreational tourism, sport fishing, traditional, contemporary or commercial fishing or any other traditional or contemporary activity (e.g., agriculture, hunting).

The following subsections present the information considered by the Agency in its analysis, including the opinions and comments of government experts, First Nations consulted and the public.

5.7.1 Analysis of Potential Effects and Mitigation Measures Proposed by the Proponent

Description of the Valued Component

The project would be integrated into the socio-economic environment of the Marguerite-D'Youville Regional County Municipality, in the Montérégie region, where the economic activities are mainly industrial, agricultural and touristic. Considering the character of the effects on socio-economic conditions, the proponent examined the potential effects within the local study area and the expanded study area which consists of the municipalities of Contrecoeur and Verchères, as well as the Indigenous communities of Kahnawà:ke, Kanesatake, Akwesasne, Odanak, Wôlinak and Wendake.

Recreation and Tourism Activities and Access to the River

The main recreational and tourist activities practised in the expanded study area include nautical activities (boating, kayaking) between May and October and wildlife-related activities (fishing, hunting and wildlife watching). There are numerous non-Indigenous fishermen that travel to fish around the Contrecoeur Islands, especially during the summer months (from April 1st to July 31st). In the local area, on the shore near the project, the muskellunge is also fished. In the sector of the Contrecoeur Islands National Wildlife Area and near the banks of the MPA property, hunting, mainly for waterfowl, is carried out from September to December (SNC-Lavalin, September 2017). In addition, during the hunting season, one group of hunters meets annually between the existing wharf and proposed wharf. Located approximately 6 kilometres from the project site, there are two marinas, the nautical park (non-profit marina) and the port de plaisance, both of which are open from May to October and provide access to the river, thereby facilitating recreational boating in the area (SNC-Lavalin, September 2017).



Other activities are also practised near the project site. These include cycling (Route verte bicycle path and scenic Route 132), a heritage circuit for cultural sightseeing of Contrecoeur and a golf park. Motorized rides are permitted on the snowmobile and quad trail that runs along Highway 30, on the southern side of the local study area.

The current use of lands and resources for the three First Nations consulted in this environmental assessment, namely the Mohawks of Kahnawà:ke First Nation, the W8banaki Nation and the Huron Wendate Nation, is discussed in section 5.8 of this report.

Economic Activities

The project would be integrated into an industrialized environment. In Contrecoeur, the industrial sector occupies 1,315 hectares and provides 3,000 direct jobs (SNC-Lavalin, September 2017). Companies located in the area operate in the fields of industrial ecology, environmental technology, high-precision mechanical engineering and transportation. The Contrecoeur industrial park is primarily intended for businesses and would potentially include a logistics hub. The rest of the territory, approximately 185 hectares, is mostly rented to farmers. There are two parcels of land currently being used for agricultural purposes on the proponent's property. These are located to the south of Highway 132 and on the northern sector planned for the project's new facilities; these parcels are currently rented by two commercial farms: Ferme Ménanmar Inc. and Ferme M. Messier Inc. (SNC-Lavalin, September 2017). Any future land developments that would accompany the port project would have to comply with the 1978 Quebec *Act respecting the preservation of agricultural land and agricultural activities*, which delimits a permanent agricultural zone, an area that is now adjacent to the industrial zone and the urbanized sector of the city of Contrecoeur.

Commercial fishing is practically non-existent in the local study area. According to the data obtained by the proponent from Quebec's Ministère de l'Agriculture, des Pêcheries et de l'Alimentation, only one carp fisher has been practising commercial fishing activities in the last five years between April 1st and June 30th (SNC-Lavalin, September 2017). The fishing area in which the latter travels is located between Lanoraie (north shore of the river) and the current wharf of the MPA, the fisher also travels north of the seaway near Saint-Sulpice. As commercial fishing is controlled, the fisher uses specific fishing areas principally near the islands in the sector (Île Saint-Ours, Îles de Contrecoeur, Île Bouchard).

For the Mohawks of Kahnawà:ke, the St. Lawrence River is a source of food and economic survival. In the past, the Nation has practised fishing that allowed for a form of commercial exchange with other Indigenous and non-Indigenous communities. Among other things, the Mohawks fished commercially for copper redhorse, which was in great demand at that time. Today, their ability to practise subsistence fishing has been greatly reduced because of the degradation of fish populations in the St. Lawrence River. That said, the Mohawks hope to continue to exercise their right to fish as before (places and fish of interest) when the resources are sufficiently restored to support sustainable harvesting for both commercial and personal consumption (MCK, 2019).

The Huron-Wendat Nation asserts that its members have traditionally used the Grande Rivière (St. Lawrence River) for commercial and diplomatic purposes and is concerned about the effects (e.g.



restricted access, quality and abundance of resources available in the St. Lawrence River) that this project could have on the exercise of its commercial activities.

Land Circulation

Located within the local project area, there is Route 132 (Marie-Victorin), Montée Lapierre, Montée de la Pomme-d'Or, a portion of the Autoroute de l'acier (Highway 30) and a portion of the railway line owned by Canadian National (CN). The trucks transiting to the terminal would come from the Montée de la Pomme-d'Or.

There is currently approximately one train per day passing through the Local Study Area and, based on 2014 data from the Ministère des Transports du Québec provided by the proponent in its documents (SNC-Lavalin, April 2019), the annual average daily traffic flow on the main roads in this area is as follows:

- Route 132 (between the urban cores of Verchères and Contrecoeur): 3,700 vehicles;
- Montée Lapierre (between Highway 30 and Route 132): 820 vehicles;
- Montée de la Pomme d'Or (between Autoroute 30 and Route 132): 2,700 vehicles;
- Highway 30 (between Montée Lapierre and Montée de la Pomme d'Or): 15,100 vehicles.

Potential Effects

The potential effects identified by the proponent on socio-economic conditions during the construction phase, would come mainly from preparative work (e.g., deforestation), the installation of infrastructure, dredging activities, and increased road and rail traffic. In the operation phase, the effects would come from the increase in marine and land traffic. These effects could disturb the recreational, touristic and economic activities of the public and First Nations.

Recreational Activities

During the construction phase, effects on recreational and touristic activities would include changes to nautical activities, such as boating and kayaking, and wildlife activities, including fishing, hunting, and wildlife watching.

With respect to nautical activities, the proponent indicated that the work to establish the port infrastructure on the shore could encourage boaters and kayakers to divert their route away from the construction site and could reduce interest in the area. As a result, the construction site would have potential effects on the quality of the shoreline landscape for cruise ships and boaters on the river. However, these effects would not be noticeable from the nautical park or marina located to the east of the future port facilities. The effects of the project on landscape quality are presented in section 5.9 of this report. These issues are also of concern to W8banakiak, who claims that the privatization of land along the water banks restricts access to the river on both sides. Dredging, which would be carried out in the last quarter of the second year of construction, would have fewer effects on boaters since some of the dredging would be carried out off-season (SNC-Lavalin, September 2017).



As for recreational fishing, with the exception of dredging work, activities near the Contrecoeur Islands would barely be affected since the work is planned outside of fishing periods (SNC-Lavalin, September 2017). On the other hand, the MELCC mentioned to the proponent that the extent of the effects of the proposed dredging would be regional. The comments received from the First Nations consulted in relation to the project's potential effects on socio-economic activities include the effects of increased navigation on subsistence fishing, hunting and gathering. Construction activities could disrupt Indigenous boat fishing and present a risk to fish populations and their habitat as discussed in sections 5.3 and 5.8 of this report.

With respect to hunting, the proponent mentioned that, given the distance of the Contrecoeur Islands to the project site, this development would have no effect on the activities carried out there. However, the group of hunters that meet between the existing wharf and the future wharf would have to find a new area to meet as soon as the construction phase begins, because of the new facilities and the minimum safe distances that need to be respected (SNC-Lavalin, December 2017a). That said, access to the territory of the MPA is prohibited at all times.

Bird observation mainly takes place near the Contrecoeur Islands, downstream from Île Bouchard. According to the proponent, work at the project site should not disturb these activities, due to the distance between these sites.

The project could affect the Route verte, which allows for motorized and bicycle rides. Construction work and machinery traffic could reduce user interest in the site. New road and rail access infrastructure would not generate a detour, but users of the bicycle paths, Route 132 and snowmobile or quad trails would potentially have to be more vigilant due to the increase in road traffic (trucks and workers).

During the operation phase, the proponent believes that the effects on recreational and touristic activities would be similar to those identified and described during the construction phase, with the exception of effects from increased marine and land traffic (road and rail) and maintenance dredging.

The seaway would experience an increase in ship traffic that would affect recreational and tourism activities in the project area, for example by obliging small boats to change routes. Based on the Ocean Shipping Consultants' growth forecast (2017), the project would lead to an increase in commercial marine traffic of around 6%, including ships serving the existing bulk terminal, when the proposed container terminal will be at full capacity. Once the terminal is operating at its maximum capacity (in approximately 25 years), this increase would be equivalent to approximately 150 more ships a year on the St. Lawrence River, which would stop and leave from Contrecoeur. The proponent also estimated that there would be an increase in the size of container ships on the river.

The Mohawk Council of Kahnawà:ke has expressed concerns over the continuity of their recreational use of the River, including the potential hazards caused by the project (MCK, 2015). A citizen and the Fondation Rivières are concerned about the effects that the project and related ships could have on the quality of recreational boating activities on the Route bleue (Fondation Rivières). The Stratégies Saint-Laurent group and the Comité ZIP des Seigneuries have expressed to the proponent that they are concerned about the continuity of access to the river and potential detours on the Route bleue. In their

view, means must be implemented to guarantee free access to the riverbanks and its waters for the entire population, particularly in the fluvial portion of the St. Lawrence. These organizations also indicated that the proponent's analysis overlooks the fact that the project would lead to an increase in marine transportation that would create more conflicts between recreational activities and marine transportation (SNC-Lavalin, April 2019).

According to the proponent, recreational boaters and other users of the Route bleue would feel the effects of the project on their trips when ships are in proximity to the docks completing their arrival and departure manoeuvres (approximately 30 minutes on arrivals and departures). These effects would include a deviation of their route during these manoeuvres, which would accentuate the need for a detour when using the Route bleue. This would force kayakers to travel a greater distance along the Île Bouchard rather than the south shore before reaching the Terrebonne channel north of Rats Island (Îles de Contrecoeur). The anticipated increase of ships would require an increased vigilance by river users over a period of 1 hour per week, spread over several days, since the ships would remain docked for about two to three days on average (SNC-Lavalin, September 2017). However, according to the proponent, paddlers generally travel in the Contrecoeur Islands sector, where the waters are calmer, or in the Verchères Archipelago (SNC-Lavalin, April 2019). Transport Canada maintains that the increase in marine traffic, particularly in the wharf area, would cause more than a simple detour on the Route bleue, but would prevent nautical traffic. To avoid accidents, non-commercial marine traffic should be restricted in the vicinity of the new facility, particularly during loading and unloading operations.

With respect to effects on fishing during the operation phase, the proponent indicated that the project would have little interference with recreational or Indigenous fishing activities (SNC-Lavalin, December 2017a). In its view, few people fish along the shoreline because of the prevailing winds (offshore to shore); fishing typically takes place in the vicinity of the Contrecoeur Islands. However, if these fishermen wish to do so, they would be able to continue their activity near the wharf, while respecting the minimum distance established according to port operations. Yet, the project could cause changes or losses of aquatic habitats, riparian wetlands or modify the landscape or the wind regime, which would consequently affect fish and their habitat as well as air and water quality. These changes could have repercussions on the socio-economic conditions of First Nations and the population of the region, particularly on access to recreational tourism activities (swimming, water sports, etc.), to traditional or contemporary sports fishing activities or to any activity practised by the First Nations or the population of the region. First Nations fishing activities are presented in section 5.8 of this report. Regarding fish species of interest to First Nations, the information is discussed in sections 5.3 and 5.8 (SNC-Lavalin, August 2020b).

Due to the increase in road and rail traffic during the operation phase, the project would affect the Route verte, which could further reduce user interest in this section of the path. Among other things, increased truck traffic on the Montée de la Pomme-d'Or could slow down the passage of ATVs and snowmobiles, which would potentially have to adapt their driving to be more vigilant to the new traffic conditions. Members of the public have raised concerns about the effect the project may have on safety levels on the Route verte, particularly on the axis of the scenic route (Route 132).



Economic Activities

During the construction phase, agricultural activities in the project area could be affected due to the work site preparation. This includes deforestation and land grading, as well as the loss of agricultural land due to encroachment of the new facilities. The new infrastructure would result in the parcelling of 111.36 hectares of land that is currently being used for agricultural purposes. This parcelling would lead to 47.8 hectares to become unavailable for lease to farmers, leaving only a 53.10 hectare portion between Highway 132 and the CN railway that would remain available to tenants. The lease agreements specified that the main purpose of the MPA's land would continue to be the consolidation of its activities and, therefore, the development of new port projects.

Concerns have been raised regarding the potential disruption of the harvest season in agricultural areas by traffic generated during the construction phase (particularly during dredging work, if the spoil is managed off-site) and the effect of the passage of trains for the use of Montée Lapierre by agricultural producers, particularly during periods of high agricultural activity. Citizens of Contrecoeur and the Conseil régional de l'environnement de la Montérégie have highlighted concerns about the long-term protection of agricultural land, on and near the territory of the MPA, that is surrounded by a growing industrial zone. Concerns raised include contamination of agricultural soils, effects on environmental biosecurity and the introduction of invasive species. The proponent noted that farmers in the project area would not be exposed to potential contamination from the project (SNC-Lavalin, December 2017b).

As commercial fishing is almost non-existent in the project area and is practised outside of the dredging periods, the proponent did not identify any effect on this activity. However, like recreational fishing, commercial fishing could be influenced by the project's effects on fish and fish habitat.

During the operation phase, the proponent stated that the presence of the wharf, the container storage area and the transportation infrastructure (i.e., intermodal yard, railroads and road accesses) would affect land use on the future project's site. The availability of leased land for agricultural activities would be reduced. However, certain areas between Highway 132 and the CN rail line, described in the construction phase section, would continue to be available for agricultural activities. According to the MELCC, the land on the site that would be used to store the dredged material could potentially be used for agricultural purposes once the surfaces are re-naturalized.

Land Circulation

The construction phase would lead to an increase in road traffic to and from the construction site, composed of heavy vehicles, but also construction workers.

According to the proponent, the largest quantities of heavy vehicles would be generated during earthmoving (April to December – approximately 150 trucks/day) and dredging (last quarter – approximately 350 trucks/day) if off-site management of dredged material is the chosen option. This option would represent the worst-case scenario in terms of heavy vehicle traffic (SNC-Lavalin, December 2017b).



In the operation phase, the proponent recognized that there would be an increased pressure on the road and rail networks through truck, worker vehicle and train traffic, as well as an increase in residential needs in Contrecoeur and on the public infrastructure of neighbouring towns (SNC-Lavalin, December 2017a). Up to 1,200 trucks per day would travel to the terminal when it is operating at full capacity. Rail traffic would then be one train/day (SNC-Lavalin, September 2017). For the Mohawks of Kahnawà:ke, the effects of rail and road transportation remain a concern despite the distance between their community and the project. The Mohawk Council of Kahnawà:ke deplores the fact that the effects of ground transportation have been strictly measured in the project area and remains particularly concerned about the increase in transportation on Highway 30, which has a section that is located in proximity to their community (SNC-Lavalin, September 2017).

The public has raised concerns related to the decline in quality of life. Citizens of Contrecoeur, Verchères, Sorel-Tracy and interest groups (Stratégies Saint-Laurent, the Comité ZIP des Seigneuries, Fondation rivières, comité Sécurité ferroviaire Rive-Sud, Nature Québec) have raised concerns about the capacity of rail and road infrastructure to support traffic increases. An environmental group and a citizen are concerned about the increase in road traffic that could prematurely deteriorate the local road infrastructure, damage cars, disrupt driving, increase the risk of accidents (cars, cyclists and pedestrians) and increase the frequency of infrastructure maintenance and repair work. Citizens in neighbouring municipalities have expressed concern about the project's effect on Highways 20 and 30 and Route 132. The proponent also mentioned public concerns about increased traffic, the traffic jams it could generate and public safety (see section 5.6 of this report).

Transport Canada points out that rail traffic and volume vary and fluctuate over the years between Contrecoeur and Saint-Bruno, but that the number of additional trains anticipated as a result of the project would have little effect on the railway infrastructure. The Regional County Municipality of Marguerite-d'Youville agrees. However, Transport Canada points out that the frequency and number of trains could increase depending on demand from railway customers. In this event, the current regulations call for additional inspections.

Citizens of Contrecoeur and Verchères also raised concerns about the effects on the property assessment of their residences and the benefits of the project for citizens. Citizens and the Municipality of Verchères expressed concern about the effects on residents who live near the future port: specifically, regarding their quality of life when a stopped train blocks the municipality's only intersection (railway crossing). A temporary blockage of Montée Lapierre and of Route 132 would affect residents' access to services located on the other side of the railway (SNC-Lavalin, September 2017). The MELCC shares the concerns of citizens and the Municipality of Verchères regarding the increase in rail transportation which, combined with the length of the trains, could result in more obstructions at railway crossings in cities located in the rail corridor and thus cause potential safety issues. In this regard, the MELCC recommends that the proponent set up a neighbourhood committee that would involve CN, municipal representatives and the emergency services concerned. This committee could examine various types of issues, including those related to security and cohabitation with freight convoys.



Proponent's Proposed Mitigation and Follow-up Measures

In order to mitigate adverse environmental effects on socio-economic conditions and to limit the disruption of recreational and agricultural activities, the proponent has committed to implement mitigation measures during the construction and operation phases.

Among other things, the proponent proposed to inform stakeholders, such as boaters and the city of Contrecoeur, in advance of the project's activities and progress, including the work schedule and temporary bans on passage that could have a temporary effect on recreational and tourism activities.

To mitigate the effects on nautical activities, the proponent proposed to make boaters and paddlers aware, through user associations or groups, of the presence of port facilities and cargo transshipment operations. It also proposes to make river users aware of the presence of voluntary speed reduction zones through the Canadian Coast Guard and Notices to Shipping.

Since no effects were noted on wildlife activities such as fishing, hunting and bird-watching, no separate mitigation measures were proposed by the proponent. However, mitigation measures specific to the protection of natural resources including wetlands, fish and their habitat, and birds and their habitat are presented respectively in sections 5.2, 5.3 and 5.4 of this report, while those aimed at mitigating the effects on Indigenous fishing practices are discussed in section 5.8.

The proponent also proposed measures to mitigate the effects on the Route verte, including the possibility of integrating a bicycle path on the vegetated slope along Route 132 (SNC-Lavalin, April 2019). In order to mitigate the effects of transportation on the road network, the proponent committed to respecting the speed limits on its site and the previously defined trucking hours, to get involved with the relevant authorities in prioritizing the use or improvement of existing roads, and to ask them to install hazard and adapted traffic signs on Route 132, on Montée Lapierre and Montée de la Pomme d'Or.

To mitigate the effects on farming activities during the construction phase, the proponent has committed to inform affected farmers in a timely manner of the loss and unavailability of rental farmland, and to continue to lease spaces where possible. During the operation phase, the proponent would ensure that limited space would be made available for farming activities on its property where possible.

The proponent has proposed a stakeholder communication management plan that includes a commitment to establish a committee of territorial stakeholders, local organizations and residents. The role of this committee would be to enable the transmission of information and to identify actual or potential neighbourhood issues between the new terminal and neighbouring communities. Although issues related to off-site road and rail transportation are outside the scope of the project and therefore beyond the proponent's control, the Agency is of the view that such a committee could also be used to discuss issues related to the project, including those related to road and rail transportation. The proponent confirmed that such a committee already exists for its operations in Montreal and that CN has committed to participate in the one to be set up for the Contrecoeur terminal. In order to inform and listen to First Nations, the proponent would meet with them on a biannual basis during the construction phase and



annually during the operation phase to share an overview of port operations and discuss issues of concern to them. (SNC-Lavalin, September 2017).

Sécurité Ferroviaire Rive-Sud citizen's committee is pleased with the promoter commitment to set up a committee to share information and identify actual or potential issues between the new terminal and neighbouring communities and welcomes CN's commitment to participate.

The proponent has also made commitments regarding the economic benefits of the project to address public and First Nations concerns.

All of the mitigation measures proposed by the proponent for the construction and operation phases are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the Registry (Document No. 145).

5.7.2 Agency Analysis and Conclusions on Residual Effects

Effects Analysis

The Agency's analysis is based on the proponent's socio-economic impact assessment, comments received from First Nations and the public, as well as advice from Transport Canada and the MELCC.

The Agency considers that the proponent has adequately identified and documented the effects of its project on the socio-economic conditions of the population and First Nations, including recreational and tourism activities, wildlife activities and economic activities. The practice of recreational activities, including nautical ones, could be temporarily disrupted but not interrupted during construction work or in the presence of ships while stationed at the wharf or during docking or departure manoeuvres. During the operation phase, the risk that the frequency of ships expected at the project site would disrupt nautical activities is low since the area is already frequented by commercial ships. Hunting and bird-watching activities, mostly practised near the Îles de Contrecoeur National Wildlife Area, would be barely affected by the project due to the distance separating them from the project. Recreational and commercial fishing would also be barely affected by dredging activities since these would be carried out during the last quarter and therefore mainly outside the period of these activities.

The Agency is of the view that the construction and operation of the project could force boaters and kayakers who frequent this portion of the St. Lawrence River to make detours, for example, by crossing the Seaway to reach Île Bouchard to pursue their activities. However, a decrease in user traffic is not expected, since users are accustomed to the presence of commercial ships in these waters and the increase in the frequency of passages resulting from the project would be small, thus limiting disturbance. Mitigation measures are also planned to ensure the safety of boaters and kayakers. The project's effects on snowmobilers and their safety would also be limited, since the proponent has committed to ensuring that adapted hazard and traffic signs are installed on Route 132, Montée Lapierre and Montée de la



Pomme-d'Or. In addition, the Agency considers that the implementation of mitigation measures designed to inform aquatic and terrestrial users of the project's construction and operation activities, such as the establishment of a communications plan prior to the start of work, could reduce safety risks around the project site.

As for issues related to the increase in road and rail traffic outside the project site, they are considered by the Agency to be outside the scope of the project and beyond the control of the proponent. However, the implementation by the proponent of a committee involving various neighbourhoods and First Nations stakeholders could serve as a discussion forum to find solutions.

The Agency notes that the experience of water and outdoor enthusiasts (hunting, fishing, and recreational tourism) could be affected by changes to the environment, particularly the landscape (see section 5.9 on physical and cultural heritage). Since these activities are already practised in a highly industrialized environment, the Agency believes that these activities could continue to be practised, with occasional adaptations. The Agency considers that the implementation of a communications plan to disseminate information about the project could reduce the disruption to the quality of life by allowing users in the sector to adapt their practices, in both nautical and terrestrial environments.

The Agency also considers that the implementation of mitigation measures designed to reduce the effects of the project on natural resources, such as wetlands, fish and their habitat (section 5.2) and birds and their habitat (section 5.3), as well as on noise (section 5.6) could help preserve, to the extent possible, the experience of outdoor and water sports enthusiasts.

Despite the mitigation measures proposed by the proponent, the Agency is of the view that the project would reduce the availability of rental space for agricultural purposes due to fragmentation and loss of land.

Taking into account the application of the mitigation and follow-up measures identified below, the Agency assesses that the residual effects of the project on socio-economic conditions would be moderate. Its assessment is based on the environmental effects assessment criteria in Appendix A and the following findings:

- The magnitude of the project's residual effects on socio-economic conditions would be **medium**. The effects would lead to changes in the behaviours necessary for the practice of certain activities, such as recreational, touristic and agricultural activities, but provided that these mitigation measures would be put in place, then the practice of these activities would not be compromised;
- The extent would be **local** as some residual effects would extend into the local study area, including those on aquatic users, and would be felt over the **long term** on the Route bleue;
- The residual effects of the project on socio-economic conditions would occur **once** for the loss of agricultural land and **intermittently** for recreational activities depending on dredging activities and the to-and-fro movement of ships. Socio-economic activities would **partially recover** over time.



The Agency also notes various concerns raised by the public, First Nations and government experts in relation to the economic spin-offs of the project. These comments have been addressed in the proponent's Environmental Impact Statement and are posted on the Registry. However, they are outside the scope of the environmental assessment of this project.

Identification of Key Mitigation Measures

The Agency has identified the key mitigation measures required to ensure that the proposed project does not cause significant adverse environmental effects on socio-economic conditions. It took into account the mitigation measures proposed by the proponent, the advice of government experts, as well as the comments received from the public and the First Nations consulted. The key mitigation measures are as follows:

- Implement the mitigation measures on wetlands (section 5.2), fish and their habitat (section 5.3), birds and their habitat (section 5.4), acoustic environment (section 5.6), current use of lands and resources for traditional purposes (section 5.8) and physical heritage (section 5.9) provided in this report.

Communication With Stakeholders

- Identify, prior to construction, the parties that may be potentially affected by the project or by any environmental effect of the project, which shall include parties representative of local and municipal governments, nearby residents and users of the immediate surroundings and community, environmental, recreation and tourism, and economic development organizations. Provide a list of the potentially affected parties, including their contact information, to the Agency prior to construction and provide an updated list to the Agency upon request during any phase of the project;
- Develop, prior to construction and in consultation with the First Nations consulted and the potentially affected parties, a communication plan to share information related to the project. Determine, during the development of the communications plan, procedures for disseminating information related to the project. Implement the communications plan and keep it up to date during construction and operation. Disseminate the following information as part of the communications plan:
 - The project schedule, and a description of all activities associated with the construction of the project and their progress, including:
 - Any activity that could impede or restrict temporary or permanent access to the road or rail networks or the aquatic environment, including roads providing public access to the St. Lawrence River;
 - Any activity carried out between Monday and Friday between 7:00 p.m. and 7:00 a.m., on the weekend, or a statutory holiday;

- Any activity that could adversely affect water quality and municipal infrastructures (including the drinking water intake for the municipality of Contrecoeur).
- The manner in which the proponent will inform the community if it must carry on activities associated with the project during the evening, at night, on the weekend or on a statutory holiday;
- The schedule for any activity associated with the operation of the project, including:
 - the schedule of the trains serving the project;
 - the schedule of docked ships and loading and unloading activities.
- Any information related to pleasure boating, including any information about water quality and any information about temporary and permanent restrictions, and navigational tools and measures implemented during construction or operation to take account of the project (including the restricted navigation areas);
- A summary of the results of air, noise and water quality monitoring programs;
- Any other information of interest to the First Nations consulted and the potentially affected parties identified during the development of the communications plan.
- Develop, prior to construction and in consultation with the First Nations consulted and potentially affected parties, a community liaison protocol. Implement the community liaison protocol during construction and operation. As part of the development and implementation of the protocol:
 - Develop a mechanism for parties consulted for the development of the protocol to provide feedback to the proponent about any adverse environmental effect caused by any component of the project and the associated issues and for the proponent to respond to the feedback received in a timely manner (including by the implementation of modified or additional mitigation measures);
 - Establish communication methods for sharing any information relevant to the project with the community, including the information referred to in the communications plan implemented and the details of the feedback mechanism, including the way to submit feedback;
 - Document any feedback received and how the proponent responded to this feedback, including the implementation or anticipated implementation of any modified or additional mitigation measure by the proponent, or the proponent's justification for not requiring a modified or additional mitigation measure in order to respond to the feedback.

Aquatic Environment

- Maintain restricted navigation areas to ensure safe navigation in the river study area identified in Figure 1, including:
 - A security perimeter around work sites in aquatic environments during construction;
 - A restricted navigation area around the ship loading and unloading area during operation.



- Implement measures to raise awareness with the operators of ships serving the project of the importance of observing the voluntary ship speed reductions in force between Sorel-Tracy and Contrecoeur.

Terrestrial Environment

- Participate, at the request of a relevant authority during any phase of the project, in the implementation of any technically and economically feasible measure or development under its responsibility related to road safety on Route 132, Montée Lapierre and Montée de la Pomme-d'Or;
 - Collaborating to install hazard and traffic signs adapted to Route 132 and Montée Lapierre and Montée de la Pomme d'Or;
 - Collaborating to ensure the presence of traffic control persons during the construction phase of the project for the circulation of vehicles and machinery.
- Notify, prior to construction, the operators of rented farmland located on Montreal Port Authority territory, of the loss and unavailability of this land during construction and operation. Should some farmland become available again after the end of construction, the proponent shall offer additional land rental opportunities.

Need for Follow-up and Follow-up Requirements

The Agency has not identified a follow-up program specific to the effects on socio-economic conditions to verify the effects predictions and the effectiveness of the proposed mitigation measures. Follow-up programs relevant to the socio-economic context were identified for other valued components analyzed in the environmental assessment, including wetlands, fish and their habitat, birds and their habitat, human health, and physical and cultural heritage.

Conclusions

Taking into account the application of the mitigation and follow-up measures indicated above, the Agency is of the view that the project is not likely to cause significant adverse environmental effects on socio-economic conditions, including those of First Nations.

5.8 Current Use of Lands and Resources for Traditional Purposes by Indigenous Peoples

The project could result in residual effects on the current use of lands and resources for traditional purposes and, more specifically, on the fishing activities practised by the W8banaki Nation, the Mohawk First Nation of Kahnawà:ke and the Huron-Wendat Nation. The project could have effects on the copper redhorse numbers, a fish species (see section 5.3) of interest to these First Nations and that the project



activities could limit access to and limit use of lands and resources for traditional purposes. However, the Agency is of the view that these effects are not likely to be significant given the application of the mitigation measures recommended in section 5.8.2. In determining the significance of effects on the current use of land and resources for traditional purposes by Indigenous peoples, the Agency assessed, among other things, whether the effects would alter the conditions of traditional practices or certain behaviours, and whether current use would be impaired.

The following subsections present the information considered by the Agency in its analysis, including the advice and comments of government experts, First Nations consulted and the public.

5.8.1 Analysis of Potential Effects and Mitigation Measures Proposed by the Proponent

Description of the Valued Component

For the purposes of federal environmental assessment, current use of lands and resources for traditional purposes is defined as any practice or activity that is part of the distinctive culture of the Indigenous group and that has been commonly practised by that group over a period of time (from the recent past to the present). The use of lands has been determined on a case-by-case basis, and depends on the specific practice or activity. Examples include activities such as hunting, fishing, trapping, cultural and other traditional uses of the land, such as gathering medicinal plants or using sacred sites. These current uses need not be recognized as Aboriginal or treaty rights. The Agency will consider uses that may have ceased due to external factors if there is a reasonable expectation that they will resume once conditions are restored.

The expanded study area was selected by the proponent to assess the effects of the project on the current use of land and resources and includes the Mohawk First Nation of Kahnawà:ke, the Mohawk First Nation of Kanesatake, the Mohawk First Nation of Akwesasne, the W8banaki Nation and its communities of Odanak and Wôlinak and the Huron-Wendat First Nation (Map 5.22 of the proponent's impact study).

Description of the Uses Practised by the W8banaki Nation

To describe the uses of the W8banaki Nation, the proponent relied on documents, studies and inventories provided by and through exchanges with representatives of the Ndakina office of the Grand Conseil de la Nation Waban-Aki (GCNWA). The project is located just outside of the Ndakina, the ancestral territory as currently defined by the W8banaki Nation. The land use and occupancy study carried out by the GCNWA identify the locations where members of the Nation use the resources and the territory in the Montreal-Sorel Regional Study Area (RSA) and the Local Study Area (LSA). The GCNWA affirms that the local study area of the Contrecoeur project and the Montreal-Sorel regional study area are frequented by W8banakiak on a regular basis. Some members of the W8banakiaban-Aki Nation practice swimming, landscape observation, boat travel, waterfowl hunting (snow geese, ducks and geese) and fishing in the local study area. The GCNWA explains that the Contrecoeur Islands are frequented and used as a fjord



fishing site (tidal flats of Île Devant l'Église and Île Viau). The surroundings of Lake Saint-Pierre and the Sorel Islands are also important sites for traditional activities, especially waterfowl hunting.

GCNWA states that fishing is common in the local study area year-round, but more intensely between May and November. Fishing areas in the local study area are reportedly used about 30 times per year. The community fishes several species of fish including yellow perch, walleye, bass, sturgeon and pike. The proponent indicates the Ndakina office is especially interested in the issue of yellow perch, especially in Lake St. Pierre. The Grand Conseil de la Nation Waban-Aki (GCNWA) wishes to protect this resource, because yellow perch fishing is a right of the members of the Nation. They also fish for bullhead, catfish, quaique, loach, carp, white perch and tomcod. The sector of the Sorel Islands is prized for walleye, bass and sturgeon. Walleye, bass and sturgeon are part of the emblems of the Odanak community and are of cultural importance for the W8banaki Nation. In addition, it seems that fishing is practised by the Abenakis who have sufficiently large boats along the navigation channel. Lake Saint-Pierre and its archipelago are an important place for the Abenakis. The south shore of the lake is particularly popular; sometimes visited on a daily basis by some fishermen, due to its proximity and accessibility. However, the north shore is no less important to the Abenaki. The Ndakina office indicates that its members also hunt migratory birds, such as geese, ducks (especially black and wood ducks) and white geese on the tidal flats of the river and its islands. The privatization of land along the banks of the river restricts Abenaki access on both sides of the St. Lawrence River.

Waterways and water are of great importance to the Nation, as many traditional fishing and hunting activities depend on them. The importance of being able to travel on the waterways of Ndakina goes beyond the need for food. A land use and occupancy study prepared by the Waban-Aki Grand Conseil de la Nation Waban-Aki demonstrates the contemporary importance of land use and occupancy activities in the W8banakiak way of life. These practices play an essential role in subsistence, social relations and the consolidation of social ties, the transfer of knowledge, and the construction of identity. The W8banakiak practise several activities—hunting, fishing, trapping and gathering of various species, particularly in the Lake Saint-Pierre region including the Sorel Islands. The gathering of sweetgrass and ash for basketry represents a distinct cultural identity activity for the Nation in addition to being an activity linked to its socio-economic survival.

The Ndakina office has identified several issues that need to be considered in assessing the effects of a project on the current use of land and resources by their members, with particular attention to certain elements, including effects on wildlife and plant habitats. The detailed characterization of the anticipated effects on the river and the species found in it, the anticipated effects on Lake Saint-Pierre and on essential habitats is necessary to understand the effects that the project could have on current use. The Ndakina Office was particularly concerned about the effects on wetlands as well as the cumulative effects of human activities on the river ecosystem.



Description of the Current Uses by the Mohawk First Nations of Kahnawà:ke, Kanesatake and Akwesasne

The information used by the proponent to describe the uses of the Mohawk Nations of Kahnawà:ke, Kanesatake and Akwesasne comes mostly from available resources (documents and websites) as well as from meetings with the Kahnawà:ke community. According to the proponent, most of the traditional activities of the Mohawks of Kahnawà:ke and Kanesatake take place near the reserves and on the territory of Tioweró:ton, but this information could not be validated. Based on a community survey on land use published in the *Tioweró:ton Newsletter* in May 2017, the proponent indicates that the use of this territory is high, particularly in the summer season between June and October, for hunting, fishing and trapping activities as well as social, cultural and recreational activities. According to the proponent, the territory of Tioweró:ton, a Mohawk hunting territory, is located at a great distance from the project site, but this does not prevent the Mohawks from being concerned about environmental issues affecting the St. Lawrence River as a whole, especially considering the presence of migratory fish species.

The proponent explains that in the context of the port terminal expansion project in Contrecoeur, the Mohawks did not share specific information regarding the current uses of the members in the study area, fearing that the information might be misinterpreted. However, the Mohawks have indicated that they are exercising their rights protected by section 35 (1) of the *Constitution Act, 1982*. These rights include, among others, fishing rights, hunting rights, harvesting rights (particularly of medicinal plants), commercial rights, cultural rights (including archaeological heritage) and *environmental* stewardship rights. The Mohawks allege that these rights apply at the project site under study.

The Mohawk Council of Kahnawà:ke asserts that the land use description provided by the proponent as part of the project impact study is inaccurate. The Council points out that the Mohawks of Kahnawà:ke use the river at multiple locations upstream and downstream from Kahnawà:ke and carry out traditional activities at different locations within the traditional territory. The Mohawk Council of Kahnawà:ke emphasized the importance of the river and its resources to Mohawk identity and culture. In addition to being a source of food and economic survival for members of the Nation, the direct relationship with the St. Lawrence River defines Mohawk culture and language. The Mohawk Nation asserts itself as the protector of the Eastern Gateway and assumes a role in protecting the river ecosystem as a whole.

The Mohawk Council of Kahnawà:ke is particularly concerned about the cumulative effects on the river caused by increased human activities, including maritime traffic, the effects of erosion of the river banks and its islands, and the destruction of aquatic habitats, particularly copper redhorse habitats in the project's extended study area (MCK 2018).

Description of the Current Uses by the Huron-Wendat Nation

In a letter addressed to the CEAA, the Huron-Wendat Nation acknowledged that the project is not located in the Nionwentsio, its main customary territory, but indicates that the Huron-Wendat sometimes frequent the portion of the river between Montreal and Quebec City.



According to the Council of the Huron-Wendat Nation, traditional activities continue to be practised by its members in the downstream portion of the river. Several species are fished in the vicinity of Quebec City and in the St. Lawrence River, such as bass, striped bass, bullhead, brill, pike, walleye, sturgeon, brook trout and Atlantic salmon. The Huron-Wendat also practise migratory bird hunting on the banks of the river, as well as recreational activities and navigation.

In 2018, the Council of the Huron-Wendat Nation conducted a complementary study on the customary and contemporary activities of its members. From this analysis, the Council was able to learn that certain members navigate the study area, fish downstream from the project (particularly in the Sorel-Tracy area), and hunt ducks and deer on the Sorel Islands.

The Nation emphasizes that the protection or restoration of habitats for aquatic and terrestrial species of interest is essential. The Council requests that threatened species be studied throughout the expanded study area with particular attention to the presence of special-status plant species. The Council of the Huron-Wendat Nation is also interested in the potential effects of the project on the American eel, lake sturgeon and western chorus frog. The Council is concerned about shoreline erosion and restoration, as well as the protection and restoration of wetlands and aquatic habitats. In addition to being concerned about air quality and greenhouse gas emissions, the Council of the Huron-Wendat Nation believes that the cumulative effects of the various harbour projects must be studied and documented by the federal government.

In addition, the Council explains that members of the Nation have historically used the banks of the St. Lawrence River for the practice of traditional activities. Consequently, the Council is concerned about the archaeological potential that could be found on the project site and in the surrounding islands. The Council also says it wants to be involved in all the work specifically related to the archaeological aspect.

Potential Effects and Proposed Mitigation Measures

In its Environmental Impact Statement, the proponent states that the components valued by First Nations were determined following the concerns expressed during the consultations. The valued components for current uses of lands and resources for traditional purposes are Indigenous fisheries, waterfowl hunting, and species of interest, as well as the use of lands and resources for traditional purposes.

The proponent believes that all the activities that could affect the quality of surface water—the construction of the wharf, the noise caused, as well as the dredging of sediments—could be a source of effects on species of interest for the Indigenous fishery during the construction phase. It considers that all the activities carried out during the construction phase would have effects on the use of the territory.

The proponent assesses that the following project activities (taking place during the operation phase) will be associated with effects on Indigenous fisheries and fish habitat: the physical presence of the wharf, maintenance dredging, maintenance of the drainage system, navigation and ship manoeuvring, runoff discharge, icebreaking and snow waste management. The proponent believes that land use could be altered by noise disturbance from activities at the terminal and from truck, train and machinery traffic, as well as the installation of a fence around the site (SNC-Lavalin, 2017).



Indigenous Fisheries and Fish of Interest

The proponent is of the view that the work during the construction phase would have negligible effects on Indigenous fisheries and fish of interest. The proponent indicates that the project site would be little used for fishing and that no spawning areas are present in the project area. The water quality of Lake Saint-Pierre and its archipelago would therefore not be affected, and there would be no loss of habitat or effects on fish populations. In addition, yellow perch habitat, a concern for the Abenakis, would not be affected. However, the proponent specifies that dredging would increase sediment in the river locally and temporarily, and although temporary and rapidly dissipated, could interfere with the biological activities of fish, mainly respiration.

The Mohawks claim that the people of Kahnawà:kerô:non (Kahnawà:ke) are resuming hunting and fishing, but that this resumption is threatened by the degradation of habitats for prized species, such as the copper redhorse and sturgeon. As for the W8banaki Nation, the Environment and Land Offices of the Councils of Odanak and Wôlinak have carried out projects to monitor, protect and restore certain fish populations and their habitat. The members of the Nation participate in the management of resources through the choice of the location of their fishing activities. In addition, a portion of the members voluntarily impose catch restrictions in order to promote the renewal of yellow perch and sturgeon stocks. The Huron-Wendat Nation, for its part, indicated that some of its members fish downstream from the project site, including in Lake Saint-Pierre and at the mouth of the Bastiscan River. The Nation reiterates the importance of the availability of culturally significant species, such as the American eel and lake sturgeon. With respect to the Kanesatake and Akwesasne First Nations, neither the proponent nor the Agency were able to obtain information regarding traditional use by their members. If these two First Nations practice fishing for species that frequent the project study area, the project would potentially have an effect on their uses. Based on the current state of the information available, the Agency is not in a position to confirm this information.

The proponent believes that the area that would be affected represents a sector that is not very significant for so-called migratory species. Although the section of the St. Lawrence River along the shoreline of the Contrecoeur terminal is identified as a juvenile feeding area for lake sturgeon, only a small portion of this habitat would be affected by the project, and other similar habitats are located nearby. There is no specific eel and yellow perch spawning habitat at the proposed site.

The proponent considers that particular effects on eel, yellow perch and sturgeon—species of particular concern to the First Nations consulted—are not anticipated. The proponent considers that the significance of the effect on Indigenous fisheries and species of interest would be negligible.

The proponent proposes several mitigation measures to reduce the effects of the project on biological components. These measures are summarized in sections 5.2.1, 5.3.1, 5.4.1 and 5.5.1 of this report and would mitigate the effects on the use of land and resources for traditional purposes by First Nations. The proponent plans to meet twice a year with each of the First Nations during the construction phase in order to keep them informed of the planned work and the progress of the project. During the operation phase, the meetings would take place annually. They would allow the proponent to present an annual report on port operations at the site, and give each stakeholder an opportunity to discuss issues of concern.



The proponent indicates that if additional inventories of species present in the project's study area are required, First Nations could take part in them. In addition, the proponent commits to involving Indigenous peoples in follow-up programs related to fish and fish habitats, to the extent possible and according to their jurisdiction. The proponent undertakes to involve them in the biological follow-up program for wildlife species on its territory in Contrecoeur, as well as in the follow-up program for aquatic grass beds and copper redhorse habitat. Should modified or additional mitigation measures be required based on the observed results, the proponent would inform the First Nations and involve them as well, to the extent possible. The same applies in the event that compensation projects need to be improved. Finally, the proponent would inform the MCK if the project to improve water quality and copper redhorse habitat in the Richelieu River watershed, which is still under discussion, goes ahead.

Land Use, Access and User Experience

The proponent also believes that the effects would be negligible on the use of lands and resources for traditional purposes. Some species and habitats would be affected by construction activities in the project area, but the project would not have direct effects on the day-to-day use of lands and resources by Indigenous groups. The proponent indicates that the project would not interfere with recreational boating on the St. Lawrence River.

With respect to the use of lands and resources for traditional purposes during the operation phase of the terminal, the proponent anticipates that the effects would come from noise disturbance generated by activities at the terminal and from truck, train and machinery traffic, as well as from the installation of the perimeter fence. The proponent indicates that certain species and habitats could be affected by the operating terminal, but the terminal would not have direct effects on the use of land and resources by Indigenous groups. According to the proponent, the residual effects on Indigenous land use during construction and operation would be negligible.

The Grand Conseil de la Nation Waban-Aki indicates that lack of accessibility, anthropization of the shoreline and territory, recreational and commercial boating, the presence of other fishermen and hunters, as well as environmental changes all contribute to limiting the fishing, migratory bird hunting, socio-cultural and intergenerational knowledge transmission activities of the Nation's members. The GCNWA explains that, for the practice of fishing activities, the success of its members depends largely on their mobility in the privileged zones according to the species of fish sought.

The proponent believes that the effects on migratory birds and migratory bird hunting would be felt locally. The proponent anticipates that during the construction phase, waterfowl would avoid the work area due to noise and light and would move to other riparian environments. The proponent specifies that the work would not directly affect the breeding sites listed for certain species in the study area, such as on Île Bouchard or in the cattail marsh located at the limit of the Montreal Port Authority's territory. During the operation phase, container handling and the loading and unloading of ships and trains would be carried out 24 hours a day, and the facilities would be lit at night, which could cause birds to avoid areas near port facilities.



The Mohawk Council of Kahnawà:ke considers that the activities generated by the harbour could have effects on the ability of its members to engage in traditional, spiritual and recreational activities such as gathering, fishing, swimming, boating and paddling, as the increased number of ship passages would limit access and safe use of the river for these activities. The Mohawk Council of Kahnawà:ke believes that project activities could limit access to the river from the Recreation Bay and North Wall access points due to the danger created for its users by the increase in boat traffic, but also by the degradation of access points and sites of importance through erosion caused by boat traffic. The promoter proponent indicated that the maritime traffic generated by the project would stop at the port of Contrecoeur and then proceed downstream. The passage of ships would not take place in front of the Kahnawà:ke reserve.

The Council of the Huron-Wendat Nation indicated that some of its members practice navigation activities in the regional study area, as well as fishing and hunting activities in the vicinity of Lake Saint-Pierre and the Sorel Islands. The Council is of the opinion that any activity practiced downstream of the project in the St. Lawrence River by members of the Huron-Wendat Nation is likely to be affected by the increase in maritime traffic as a result of the expansion of the Contrecoeur terminal. This increase in marine traffic could have repercussions on the experience and safety of users and result in a decrease in the practice of these activities. The Council asserts that the contemporary use of the territory is, for the Huron-Wendat, the main vector of transmission of territorial knowledge. A diminished use is equivalent to a reduction in transmission, which is vital to the exercise of their territorial rights and the sustainability of their culture.

To reduce the effects of the project, the proponent has made a commitment to involve the Wolînak and Odanak First Nation through the Grand Conseil de la Nation Waban-Aki, the Mohawks of Kahnawà:ke First Nation and the Huron-Wendat First Nation of Wendake, including for various environmental and archaeological works. The proponent will meet individually with each of the Indigenous communities twice a year to keep them informed of the planned work and the progress of the project. During construction, the proponent will carry out environmental follow-ups as required by the relevant authorities, and the Indigenous peoples mentioned above would be invited to accompany the MPA team in carrying out these follow-ups. During the operation phase, the proponent will meet with these same First Nations on an annual basis, but would remain available at all times to discuss issues related to the future terminal's operations.

5.8.2 Agency Analysis and Conclusions on Residual Effects

Effects Analysis

As noted in section 5.3, the Agency assesses that the level of residual effects of the project on fish and fish habitat, including benthic fauna and special status species, would be moderate. Fisheries and Oceans Canada indicates that the proponent is considering implementing several mitigation measures to avoid or mitigate the risk of effects on aquatic wildlife. With respect to the effect that its project would have on the increase in scour as well as bank erosion and sediment transport in the aquatic grass beds, the proponent pointed out that the terminal, once at full capacity, would generate an increase in the order of



six percent in the number of merchant ship passages in the river section related to the project (including ships serving the existing bulk terminal at Contrecoeur). Approximately four percent of the aquatic grass beds in the sector could be affected by boats due to their proximity to the navigation channel (less than 300 metres). The proposed measures are related to the period when the work would be undertaken, the methods for limiting the input of suspended matter into the water during the work, the removal or relocation of fish before undertaking certain work, the delimitation of the habitats to be protected in the periphery of the work site, ship speed and several monitoring and follow-up measures, including a bank erosion monitoring measure. In addition, a compensation plan is proposed by the proponent to offset the loss of fish habitat related to the project.

Fisheries and Oceans Canada is of the opinion that the proponent should have better highlighted the possibility that its construction work could disturb the habitats (aquatic grass beds), which are important for the copper redhorse, located downstream from the work. Fisheries and Oceans Canada remains concerned about the areas of aquatic grass beds that would be subjected to increased sediment deposition and that would be more significant in the presence of mechanical dredging. Fisheries and Oceans Canada notes, however, that most of the sedimentary effects that would be observed in the aquatic grass beds located downstream of the work could be avoided or mitigated by using adapted work methods and mitigation measures.

The Agency considers that the key mitigation and follow-up measures detailed in section 5.3, related to the construction phase, could mitigate the potential effects of the project on fish and fish habitat, including the copper redhorse, and thus reduce the effect on Indigenous fisheries. In addition, the proponent proposes an appropriate compensation plan to offset habitat losses that would occur during the construction phase.

The proponent commits to restore and improve an area of grassland representing twice the area that would be destroyed by the project (0.9 hectare) and which constitutes the essential feeding habitat for the adults of the copper redhorse. It also plans to carry out various actions beneficial to the copper redhorse in order to complete its compensation plan (e.g., improving water quality in sub-basins of the Richelieu River).

The implementation of follow-up meetings twice a year during the construction phase and the continuation of an annual meeting as well as the proponent's openness to discuss operation issues during the operation phase would allow the proponent and the First Nations to discuss the different stages of the project and the concerns of the members of the various communities in a spirit of collaboration.

For the operation phase, the Agency is also of the view that the proponent's analysis and conclusions are adequate with respect to the effects caused by the disturbance and noise generated by the activities of the terminal and land use by First Nations, particularly with regard to hunting and fishing activities. The Agency is of the view that the key mitigation measures concerning the operation phase, identified in section 5.3, could reduce the risks of effect on fish and fish habitat, which would lessen the repercussions on indigenous fishing. The increase in marine traffic generated by the project could cause additional disruption to the use of members' land within the local study area.



During the operation phase, meetings between the First Nations and the proponent would be held annually. These would allow the proponent to present an annual report on port operations at the site, as well as allow each stakeholder to discuss their issues of concern.

The Agency also considers that the key mitigation measures presented in sections 5.2.2 (wetlands), 5.4.2 (birds and their habitat) and 5.5.2 (other species with special status) make it possible to reduce the effects on the components valued by the First Nations, and mitigate the repercussions on the use of the territory by Indigenous peoples (e.g. social activities and intergenerational knowledge transmission, hunting, boating and gathering).

The Agency is of the view that the project could have effects, in the local study area, on fishing practices and the resulting uses by First Nations due to the project's moderate residual effects on fish and fish habitat. Thus, the Agency is of the view that the project could modify the conditions of traditional practices—as well as the activities and customs surrounding the practices of fishing and hunting, community sharing or the intergenerational transmission of values and practices—in the following manner for each of the Nations:

- The W8banaki Nation: activities and customs related to migratory bird hunting, fishing for yellow perch, walleye, bass, sturgeon and pike;
- Mohawk First Nations and more specifically the Kahnawà:ke First Nation: all activities and customs surrounding the copper redhorse and sturgeon fishery;
- The Huron-Wendat Nation: activities and customs related to waterfowl and deer hunting, as well as to the fishing of American eel, sturgeon, walleye, pike and bass.

Fisheries and Oceans Canada notes that the effects of the project on fish and fish habitat could have effects of varying intensity on these populations of fish that are valued and fished by First Nations, and consequently have repercussions on the practice of fishing activities as well as on the activities and customs surrounding this practice. Taking into account the application of the key mitigation measures identified below, the Agency evaluates that the residual effects of the project on the current use of lands and resources for traditional purposes by Indigenous peoples would be moderate. The Agency's assessment is based on the Environmental Effects Assessment Criteria in Appendix A and the following findings:

- The magnitude of the effects of the project would be **medium** as some behaviours would be changed, but the current use would not be compromised;
- The project would result in effects that are **local in extent**. The effects, which would extend beyond the project site, but within the local study area, **would have a long-term duration**;
- The adverse effects would be **continuous** as they would be felt throughout the operation phase of the project and would be **partially irreversible**.

Identification of Key Mitigation Measures

The Agency has identified the main mitigation measures likely to mitigate the potential effects of the project. To identify the key mitigation measures, the Agency took into account the mitigation measures proposed by the proponent, the advice of government authorities, as well as the comments received from the First Nations consulted and the public. In addition to the key mitigation measures identified in section 5.3.2 regarding fish and fish habitat, of those identified in sections 5.2.2 (wetlands), 5.4.2 (birds and their habitat), 5.5.2 (special status species) and 5.6.2 (human health - acoustic environment) and key measures related to accidents and malfunctions in section 6.1.2, the proponent shall implement the following key mitigation measures:

- Develop, prior to construction and in consultation with the First Nations consulted, a communication protocol for sharing information related to the project with the First Nations and to receive and respond to any feedback from the First Nations concerning the project or any environmental effect of the project. Implement the communication protocol and keep it up to date during construction and operation. The communication protocol shall specify procedures, including a timetable, for sharing information on the following elements:
 - The timetable and location of each activity associated with the construction and operation of the project in the terrestrial and aquatic environments that could affect the practice of the First Nations' traditional activities;
 - The means for the First Nations to provide feedback to the proponent about the project or any environmental effect of the project and the means for the proponent to respond to any feedback received in a timely manner.

Need for Follow-up and Follow-up Requirements

To verify the predicted effects on the current use of lands and resources for traditional purposes by Indigenous peoples and the effectiveness of proposed mitigation measures, the Agency recommends that the follow-up program include the following requirements:

- Develop, prior to construction and in consultation with the First Nations consulted and relevant authorities, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects caused by the project on the traditional fishing and hunting activities of the First Nations and any other complementary activity. Implement the follow-up program during construction and operation;
- Where consultation with First Nations is a requirement of a follow-up program, discuss the follow-up program with each Nation and determine, in consultation with each Nation, opportunities for participation in the implementation of the follow-up program, including the conduct of monitoring, the analysis and reporting of follow-up results and whether modified or additional mitigation measure(s) are required.

Conclusions

Based on the application of the mitigation and follow-up measures identified above, the Agency concludes that the project is not likely to cause significant adverse environmental effects on the current use of lands and resources for traditional purposes by Indigenous peoples.



5.9 Physical and Cultural Heritage

The project could result in residual effects on physical heritage due to the installation of port infrastructure such as wharf cranes, container yard, marshalling yard and railroad tracks, support buildings, as well as the degree of luminosity generated by the project. The project could also result in residual effects on cultural heritage related to the deforestation, earthmoving, dredging, transportation, transshipment and on-site sediment management. However, the Agency is of the view that these effects are not likely to be significant given the application of the mitigation and follow-up measures recommended in section 5.9.2. In determining the significance of the effects on physical and cultural heritage, the Agency assessed, among other things, whether the residual effects of the project would result in preventing user access to, or use of, a physical or cultural heritage feature or a structure, site or thing of historical, archaeological, paleontological or architectural significance.

The following subsections present the information considered by the Agency in its analysis, including the opinions and comments of government experts, First Nations consulted and the public.

5.9.1 Analysis of Potential Effects and Mitigation Measures Proposed by the Proponent

Description of the Valued Component

Physical and cultural heritage, particularly archaeological heritage, was identified as a valued component by the public and First Nations. The term heritage is inclusive and is associated with important elements of human history and culture (Agency, March 2015a). For the purposes of this report, physical and cultural heritage includes buildings, sites or things of historical, archaeological, paleontological or architectural significance. A land or resource (e.g., an artifact, object or place) that is considered as being an element of physical or cultural heritage is distinguished from other elements by the value attributed to it (Agency, March 2015a).

For the purposes of the environmental assessment, the effects of the project on physical and cultural heritage result from a change to the environment (e.g., soil disturbance, effects on underground construction, and demolition or construction of buildings).

Physical Heritage

The proponent commissioned a study in 2013 on the visual effects of the project on the landscape and conducted new visual inventories in 2016 and 2017, as well as an Impact Study on lighting in 2017 (SNC-Lavalin, September 2017). The landscape study area was expanded to include all locations where the terminal project is likely to affect the landscape and includes the urban cores of Verchères and Contrecoeur, the municipalities of Saint-Sulpice and Lavaltrie on the north shore, and île Bouchard. The study area is divided into five types of landscape units: urban (urbanized areas of the cities of Lavaltrie, Verchères and Contrecoeur), agricultural (fields north of Highway 138 and those adjacent to Highway 132



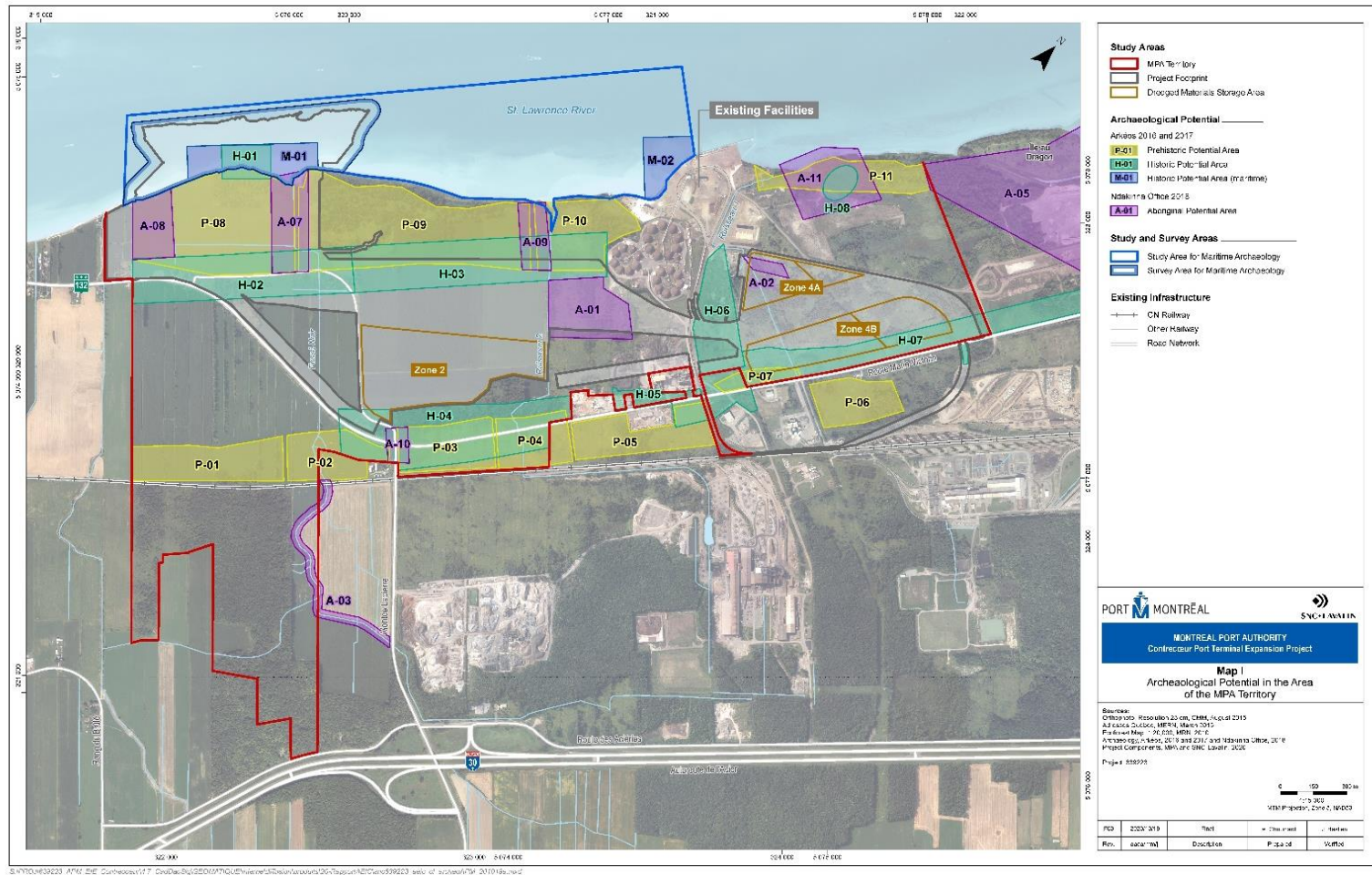
and the Terres Noires range), islands (Ronde, Bouchard, Marie and de Contrecoeur islands, including the Îles de Contrecoeur national wildlife reserve), river (St. Lawrence River) and industrial (industrial zone directly west of the urbanized sector of the city of Contrecoeur). Except for the urban agglomerations, the project site is mainly observed from the curbs of roads 138 and 132, located on both sides of the river and from the roads that crisscross the agricultural territory. The flat topography of the study area, combined with the agricultural fields and the visual clearing of the St. Lawrence River, allows for wide and deep views at several locations (SNC-Lavalin, September 2017). The project would also be visible to users of the river, including on cruise ships, people practising recreational and sports activities (fishing and boating), as well as First Nations members who fish, hunt and engage in social and cultural activities that are complementary to these practices (SNC-Lavalin, April 2019).

Cultural Heritage

The proponent has hired the firm Arkéos to assess the archaeological potential in terrestrial (2016) and underwater (2017) environments (SNC-Lavalin, September 2017). It also mandated the Grand Conseil de la Nation Waban-Aki to conduct a study in 2018 on the use and occupation of the territory by First Nations (SNC-Lavalin, April 2019), which included paleo-historical and historical research, the identification of areas of archaeological potential and the proposal of an archaeological intervention and management strategy. The Mohawk Council of Kahnawà:ke and the Huron-Wendat Nation also provided the proponent with a document that comments on and complements the information presented by the Grand Conseil de la Nation Waban-Aki and the 2016 Arkéos study.

Arkéos' land-based study regarding the archeological potential revealed the existence of 11 areas with prehistoric potential (mainly related to the former shores of the St. Lawrence River and the current shoreline of the river) as well as eight areas with historic potential (mainly related to former road and range alignments, as well as two former lighthouses) on the MPA territory (Figure 14).

Figure 14: Areas of Archaeological Potential on the Montreal Port Authority Territory in Contrecoeur

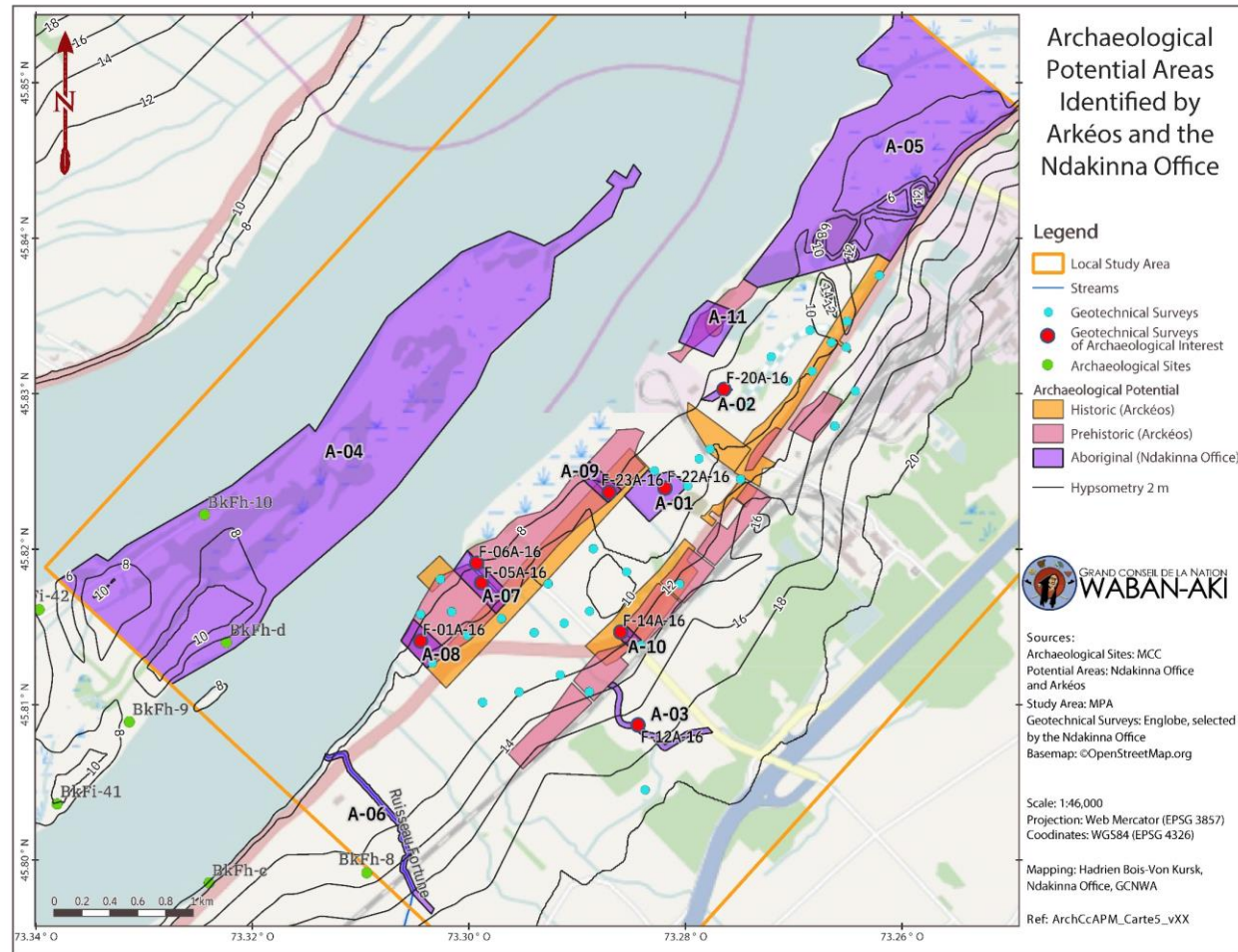


Source: SNC-Lavalin October 2020



There are no known or documented archaeological sites on the MPA territory, but two known archaeological sites are present in the local study area (specifically on Île Bouchard) and 13 other sites are located nearby (north and south shores of the river and Île Bouchard) (SNC-Lavalin, September 2017, Map 5.20). The land use and occupancy study identified 11 areas of Indigenous archaeological potential in the local study area, several of which overlap with the areas identified by the Arkéos study (Figure 15) (GCNWA, 2018).

Figure 15: Potential Archaeological Areas in the Local Study Area



Source: SNC-Lavalin, October 2020



The underwater archaeological potential was assessed within the aquatic study area shown in Figure 15. Prehistoric underwater potential would be low in the project study area, but artifacts may remain. The entire aquatic study area is considered to have historical potential and two zones (M01 and M02) have been identified as potentially containing remnants (SNC-Lavalin, September 2017).

At this time, no wreck sites have been discovered along the shoreline of the aquatic study area. However, the importance of navigation in this area, as well as the sinking of the steamer *cultivator* in the vicinity of Verchères in 1900, are indications of the potential for the presence of wrecks or remnants of wrecks in the aquatic study area. The presence of the former Fiset wharf and historical information indicate a strong potential for underwater archaeological sites in the M01 area. Zone M02, located in the area of the existing terminal, is an area of interest even if it has been disturbed by industrial activities.

Potential Effects

Physical Heritage

The main port infrastructure of the project likely to have an effect on the landscape and perceptible to various observers include: (1) the wharf cranes (eight cranes with a maximum height of 95 metres when the boom would be raised); (2) the container yard; (3) the gantry cranes in the intermodal yard; (4) the marshalling yard and the railway tracks; (5) the dredged material management areas; (6) the support buildings; (7) the light generated by the project.

The MPA has prepared visual simulations of the project during the operation phase, in the winter and fall periods, from different points of view in land (Route 132) (SNC-Lavalin, 2017) and river (SNC-Lavalin, April 2019) environments. The proponent compared these visual simulations (without the integrated mitigation measures) with current landscapes.

The presence of the port infrastructure would significantly and permanently modify the landscape and would simultaneously affect both fixed and mobile observers. In general, the dockside cranes would be visible to the mobile observers from the various viewpoints along Route 132 throughout the year. On the other hand, the deciduous trees present at certain observation points would limit the view to other lower infrastructure (container yards, gantry cranes, marshalling yard, etc.) during the summer and fall periods. The fixed observers in nearby dwellings would be particularly affected by the visual effect of the project. From the north shore of the river, some visual access to the south shore would allow fixed and mobile observers to have a view of the project (the wharf cranes in particular) (SNC-Lavalin, September 2017).

The Vigie Citoyenne Port de Contrecoeur group believes that the project would considerably modify the landscape and habitats of this sector (wetlands, banks, aquatic grass beds, river sediments) which are already under a lot of pressure and which are already quite artificial. Some entities have expressed concerns to the Agency about the effects of the project on the waterfront landscape and nautical activities that could be impeded by increased ship traffic. According to the proponent, the visual effect for users of the river would be generated mainly by the sight of dock cranes over long distances from the river (SNC-Lavalin, April 2019). From the shipping channel and at the height of the existing terminal, the visual effect would be more pronounced because of the direct view of the port infrastructure (wharf cranes, wharf and docked ships in particular), which are part of a landscape where the maritime, port and industrial



character are already present. The proponent does not anticipate that the presence of the terminal would compromise the recreational activities currently practised on the St. Lawrence River.

During the construction phase, temporary adverse effects on landscapes are anticipated depending on the equipment used, the type of work carried out and its duration (SNC-Lavalin, September 2017). These effects would be felt by mobile observers using Route 132 in both directions and by residents of the homes closest to the work (winter period only).

Another concern raised was about the light pollution that would be emitted by the intensive lighting of the site from streetlamps up to 30 metres high. The proponent has proposed several mitigation measures to reduce the effects of light on the quality of life of the population (SNC-Lavalin, April 2019).

Cultural Heritage

During the construction phase, the sources of effects likely to affect prehistoric and historic archaeological artifacts, both land and marine, would be site mobilization and preparation, clearing and removal of vegetation, grading (stripping, excavation, grading and compaction) and dredging, transport/transshipment and management of sediments on site (SNC-Lavalin, September 2017 and April 2019).

NHW considers that the residual effects of the project could prevent its members from having access to their cultural heritage.

During the operation phase, various project activities such as maintenance dredging, mooring, use of the container yard and maintenance activities are unlikely to affect any prehistoric or historic archaeological artifacts that may remain within the project's boundaries. Also, considering that all areas of archaeological potential affected by the construction activities will have been inventoried and documented beforehand, the proponent believes that the project would not affect the archaeological heritage during the operation phase.

Proponent's Proposed Mitigation and Follow-up Measures

Physical Heritage

To limit the project's visual effect on the environment, the MPA is proposing mitigation measures that would considerably reduce the visibility of the planned infrastructure in certain areas (SNC-Lavalin, September 2017). These measures are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the Registry (Document No. 145). These measures include the use of a neutral colour for the wharf cranes, the installation of a visual barrier along the northern edge of Route 132 and at the western limit of the MPA's territory, the planting of conifers and the protection of existing trees. The proponent also proposes several measures to reduce the effects associated with light pollution.



Cultural Heritage

The proponent proposes several mitigation measures to avoid adverse and irreversible effects on the archaeological heritage. These measures are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the Registry (Document No. 145). In the terrestrial part of the project area, the proponent has committed to conducting an archaeological survey in the areas of prehistoric and historic archaeological potential identified by the Arkéos study (2016) and the Grand Conseil de la Nation Waban-Aki (2018) (SNC-Lavalin, August 2020). The proponent plans to apply other mitigation measures if artifacts are discovered during the terrestrial survey and during the construction phase (e.g., excavation and measures related to the management and conservation of artifacts).

In an underwater environment, the proponent plans to hire a specialized firm to conduct an archaeological survey of the area to be dredged and the area to be backfilled in an aquatic environment (future wharf), including a 50-metre buffer zone (SNC-Lavalin, August 2020). The proponent proposes additional measures in the event that potential strong and medium targets were identified during the survey and would conduct archaeological monitoring of the dredging work (construction phase) for targets that could not be previously inspected.

Archaeological surveys in terrestrial and underwater environments would be carried out several months before the start of project construction (SNC-Lavalin, April 2019). In this regard, the MELCC believes that the proponent would allow only a very short delay in the event of archaeological discoveries. Furthermore, the MELCC emphasizes that underwater archaeological interventions cannot generally be carried out during winter and that terrestrial interventions, although possible in winter, require complex logistics.

Since non-surveyed archaeological heritage can be directly threatened during the implementation of projects because it is often buried, little known, vulnerable and fragile, Parks Canada specifies that the archaeological interventions that are currently missing (surveys and excavations, where applicable) must be carried out several months before the project's implementation phase, in accordance with archaeological standards and principles and with the recommendations of a professional archaeologist (land or marine, depending on the environment). In addition, the long-term conservation of archaeological documentation and collections (including laboratory conservation treatments, if necessary) must be ensured prior to field work.

The Mohawk Council of Kahnawà:ke, the Grand Conseil de la Nation Waban-Aki and the Huron-Wendat Nation have expressed a great deal of interest in the archaeological work that the proponent plans to carry out prior to construction, the discoveries that could be made, as well as the management of any archaeological heritage that could result from it.

The proponent committed to involving First Nations in the archaeological surveys, keeping them informed in the event of chance discoveries and giving them the opportunity to review the draft reports produced.

Parks Canada considers that the areas of archaeological potential in the terrestrial environment, for the period of occupation of the territory by Euro-Canadians (Arkéos 2016 study), are clearly indicated by the proponent, but are vast and therefore not very precise. As proposed by the proponent, Parks Canada deems it necessary to use digital technologies, such as Lidar, and a more precise knowledge of cadastral



occupations in order to facilitate and ensure the quality of the survey work in the field despite the extent of the areas of potential to be covered. It adds that remains of several old farms could be hidden under the soil surface of these areas. The MELCC is of the view that the survey methodology presented for all the areas of archaeological potential is satisfactory.

Parks Canada considers that the preservation of notes and other field notes must be ensured, much like the preservation of archaeological collections, for future generations, by a publicly accessible agency. Ideally, field data should be kept with archaeological collections. The proponent plans to formalize an agreement with a first museum that can ensure the conservation of Indigenous archaeological collections and a second agreement with another museum for the conservation of non-Indigenous collections in the near future. Further details are provided in the response to question AEIC-2-30 of Addendum 4 of the proponent's impact study (SNC-Lavalin, August 2020a).

The MELCC highlights that artifacts found in a water environment must be turned over to the Government of Quebec under section 75 of the *Cultural Heritage Act*.

5.9.2 Agency Analysis and Conclusions on Residual Effects

Effects Analysis

The Agency's analysis is based on the assessment of the effects on physical and cultural heritage carried out by the proponent, on the comments received from First Nations and the public, as well as on the advice of Parks Canada and the Ministère de la Culture et des Communications (Government of Quebec).

Observers travelling along Route 132 or on the river and residents in nearby homes could be affected by the view of the construction zone and equipment used during the construction phase. During the operation phase, the new port infrastructure, including the wharf cranes, would significantly and permanently alter the landscape and could affect mobile observers and residents in the vicinity of the project. These effects would be felt to a lesser extent during the summer in areas where the presence of hardwood trees would limit the view towards the terminal. The project would be located in an area where port industries and infrastructure are already present. Light pollution is another landscape feature that could affect residents of the area and has been a concern.

The project area does not include any recognized physical and cultural heritage features. Neither do adjacent areas contain any physical heritage features, but 15 known paleohistoric sites are located in the project vicinity (within a radius of less than 5 kilometres). The proponent's assessment of the archaeological potential in terrestrial and underwater environments indicates that archaeological resources are likely to be present in the project area and could be affected or destroyed during the construction phase activities if no mitigation measures are put in place. However, it is unlikely that these archaeological resources would be affected during the operation phase given the nature of the activities carried out. The Grand Conseil de la Nation Waban-Aki points out that erosion on île Bouchard related to wakes generated by ships could have an effect on the archaeological heritage.



Taking into account the application of the key mitigation measures identified below, the Agency assesses that the residual effects of the project on physical and cultural heritage would be moderate. The Agency's assessment is based on the environmental assessment criteria in Appendix A and the following findings:

- The magnitude of the residual effects of the project on physical and cultural heritage would be **medium**, since access to or use of a physical or cultural heritage feature, building, site or thing would be altered, but would not be compromised for users;
- The project would result in residual effects on physical and cultural heritage on a **local** and **long-term** basis;
- The residual effects of the project on physical heritage would be **irreversible** and **partially reversible** with respect to cultural heritage. In the latter case, the evidence of the existence of archaeological resources would be preserved through the measures proposed by the proponent, which undertakes to conduct a survey of areas of archaeological potential in the project area and to excavate, document, analyze and ensure the conservation, where possible, of any discoveries;
- The effects would occur **continuously** over time for physical and cultural heritage. In the latter case, archaeological resources would be affected prior to the construction phase (surveys and excavations) and could be affected during the construction phase in the event of a chance discovery.

Identification of Key Mitigation Measures

The Agency has identified the key mitigation measures required to ensure that the project does not cause significant adverse environmental effects on physical and cultural heritage. It took into account the mitigation measures proposed by the proponent, the advice of government experts, as well as the comments received from the First Nations consulted and the public. These measures are as follows:

- Paint the dock cranes associated with the project in colours that harmonize with the adjacent environment of the project.
- Develop, from the start of construction, and maintain, during operation, a vegetated slope on the northern edge of Route 132 within the boundaries of the Montreal Port Authority territory, and on the eastern edge of Stream 4, between Route 132 and the St. Lawrence River, except for a portion on the side of Route 132 east of Montée Lapierre, as indicated on Map 57-2 submitted in response to Information Request CEAA-2-57 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136), and at the road and rail access points associated with the project.
 - Mount the vegetated slope with a curtain wall on the eastern side of Stream 4, between Route 132 and the St. Lawrence River. Determine the size and location of the curtain wall prior to construction and provide to the Agency, prior to construction, the proposed size and location and a justification (using acoustic modelling) demonstrating how the proposed size and location will mitigate the adverse environmental effects of changes in the acoustic environment caused by the project on the human health of the human receptors likely to be affected by noise and vibrations.
- Develop, prior to construction, and implement, during construction and operation, mitigation measures that take into account the Bureau de Normalisation du Québec standard

4930-100/2016 entitled *Éclairage extérieur – contrôle de la pollution lumineuse* [exterior lighting – control of light pollution] regarding the quantity of light emitted, its direction, spectral composition and duration of use, for the lighting fixtures used for the project, in order to mitigate the adverse environmental effects of the project while complying with operational health and safety requirements. As part of these measures:

- Direct lighting fixtures toward active construction zones during construction and toward port infrastructures during operation;
 - Install and maintain, during construction and operation, exterior lighting fixtures with a correlated colour temperature in the 3000-Kelvin range;
 - Use LED-type lighting on high masts and roadway light fixtures to limit light pollution; and
 - Reduce lighting after 11:00 p.m. in parking lots and around the perimeters of buildings associated with the project to the lowest intensity possible while meeting the operational safety requirements for the project.
- Submit to the Agency, before the beginning of the surveys, a letter confirming the proponent's commitments to provide third-party bodies with all archaeological documentation or collections of Indigenous and non-Indigenous origin generated or discovered during the surveys and during the implementation of the project for conservation and public presentation purposes. Inform the Agency, on an annual basis, of the steps taken by the proponent during the reporting year to meet its commitment and of any conservation or presentation measures implemented by the third-party bodies.
- Conduct, in consultation with the First Nations consulted and relevant authorities, an archaeological survey in the terrestrial areas with archaeological potential identified in Figure 15 of the environmental assessment report and on Île Bouchard. Survey in priority, prior to construction, the areas in the project area and complete the survey of the other areas, including Île Bouchard, in the 5 years after the beginning of construction. Assign the responsibility for conducting the survey to a qualified person who is a professional terrestrial archaeologist. As part of the conduct of the survey:
 - Discuss, before the survey begins, with each First Nation about opportunities for their participation in conducting the survey and allow them to participate in the survey, including the evaluation of the survey results;
 - Define, before the survey begins, the plots where the survey will be conducted by using digital technologies and taking into account past land occupation in the project area;
 - Implement the survey methodology developed in consultation with the Indigenous Community of Odanak and Wôlinak as part of the environmental assessment, including the use of visual surveys, georadar (including for the shoreline terraces), core sampling, shovel sampling and the establishment of test trenches;
 - Assess, in consultation with the First Nations consulted, the survey results;
 - Should any artifact be discovered during the survey, carry out an archaeological dig at the location of the discovery and implement measures, in consultation with the First Nations consulted and relevant authorities, involving the management and conservation of any artifact discovered; and

- Submit, within 30 days following the completion of the survey report for each area, including Île Bouchard, the survey results to the Agency and the parties consulted for the archaeological survey, including the results of any archaeological dig conducted and the details of any measure implemented relating to the management and conservation of any artifact discovered.
- Conduct, prior to construction and in consultation with Parks Canada, the Quebec's Ministère de la Culture et des Communications, the First Nations consulted and any other stakeholder in the heritage field identified by the proponent, an archaeological survey of the maritime archaeological survey area identified on Map C11-1 submitted in response to Comment 211 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136). Assign the responsibility of conducting the survey to a qualified person who is a professional maritime archaeologist. As part of the conduct of the survey:
 - Discuss, before the survey begins, with each First Nation about opportunities for their participation in conducting the survey and allow them to participate in the survey, including the evaluation of the survey results;
 - Conduct a visual inspection of the surface and underwater area;
 - Provide side-scan sonar and a high-resolution multibeam sonar coverage and, if recommended by the qualified person conducting the survey, high-resolution marine magnetometer coverage to identify any anomaly with archaeological potential in the area where the survey is being conducted;
 - Inspect, unless it is not technically or economically feasible, all the anomalies with archaeological potential identified by using a subaquatic investigation method recommended by the qualified person and document the heritage value of each anomaly; and
 - Submit, at least 90 days before the start of construction, the survey results to the Agency and the parties consulted for the archaeological survey, including any additional measure recommended by the qualified person to be implemented as part of the project in connection with any anomaly with archaeological potential that cannot be investigated.
- Implement any additional measure recommended by the qualified professional, including archaeological monitoring during dredging, to investigate any anomaly with archaeological potential that cannot be inspected with a subaquatic investigation method.
- Develop, in consultation with Parks Canada, the Quebec's Ministère de la Culture et des Communications and the First Nations consulted, and implement a chance-find procedure that must be implemented in the event of a chance discovery during construction, of any structure, site or thing of historical, archaeological, paleontological or architectural significance previously unidentified by the proponent or reported to the proponent by a First Nation or other party. As part of the chance-find procedure:
 - Immediately halt work at the location of the discovery;
 - Delineate an area of at least 30 metres around the discovery as a no-work zone. The no-work requirement shall not apply to actions required to be undertaken to protect the integrity of the discovery;



- Give a qualified person, who is an archaeologist, the responsibility for conducting an assessment at the location of the discovery in accordance with Quebec's *Cultural Heritage Act*;
 - Inform the First Nations consulted within 24 hours of the discovery and allow the First Nations to monitor the archaeological works; and
 - Consult Parks Canada, the Quebec's Ministère de la Culture et des Communications, the First Nations consulted on all applicable legislative or legal requirements and associated regulations and protocols with respect to the discovery, recording, transferring and safekeeping of structures, sites or things of historical, archaeological, paleontological or architectural significance, and comply with them.
- Assign the responsibility of monitoring all excavation activities undertaken by the proponent in the terrestrial environment during construction to a qualified person who is a professional archaeologist. If any structure, site or thing of historical, archaeological, paleontological or architectural significance is discovered during the excavation, implement the chance-find procedure.

Need for Follow-up and Follow-up Requirements

In order to verify the prediction of effects on physical and cultural heritage and the effectiveness of proposed mitigation measures, the Agency recommends that the follow-up program include the following requirements:

- Develop, prior to construction, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of changes to the environment on physical heritage caused by the project. As part of the implementation of the follow-up program:
 - Monitor the growth, composition and abundance of the vegetation on the vegetated slope. Carry out this monitoring on at least a monthly basis during the first year after the development of the slope, at least every two months during the second year after the development of the slope and on a semi-annual basis at a minimum during the third, fourth and fifth years after the development of the slope; and
 - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects of changes to the environment on physical heritage caused by the project.

Conclusions

Based on the application of the mitigation and follow-up measures identified above, the Agency is of the view that the project is not likely to cause significant adverse environmental effects on physical and cultural heritage.



6. Other Effects Considered

6.1 Effects of Accidents or Malfunctions

Accidents and malfunctions are likely to occur during all phases of the project. Fuel spills, for instance, could arrive following a ship collision or during ship fuelling operations. Other events involving a containerized hazardous material could also have adverse effects on the project and the surrounding environment. However, the Agency is of the view that these effects are unlikely to be significant given the application of the mitigation and follow-up measures recommended in section 6.1.2. To determine the probability that an accident or malfunction will occur, as well as in determining the significance of the effects related to accidents and malfunctions, the Agency considered the protective measures, response protocols and preliminary contingency plans proposed by the proponent.

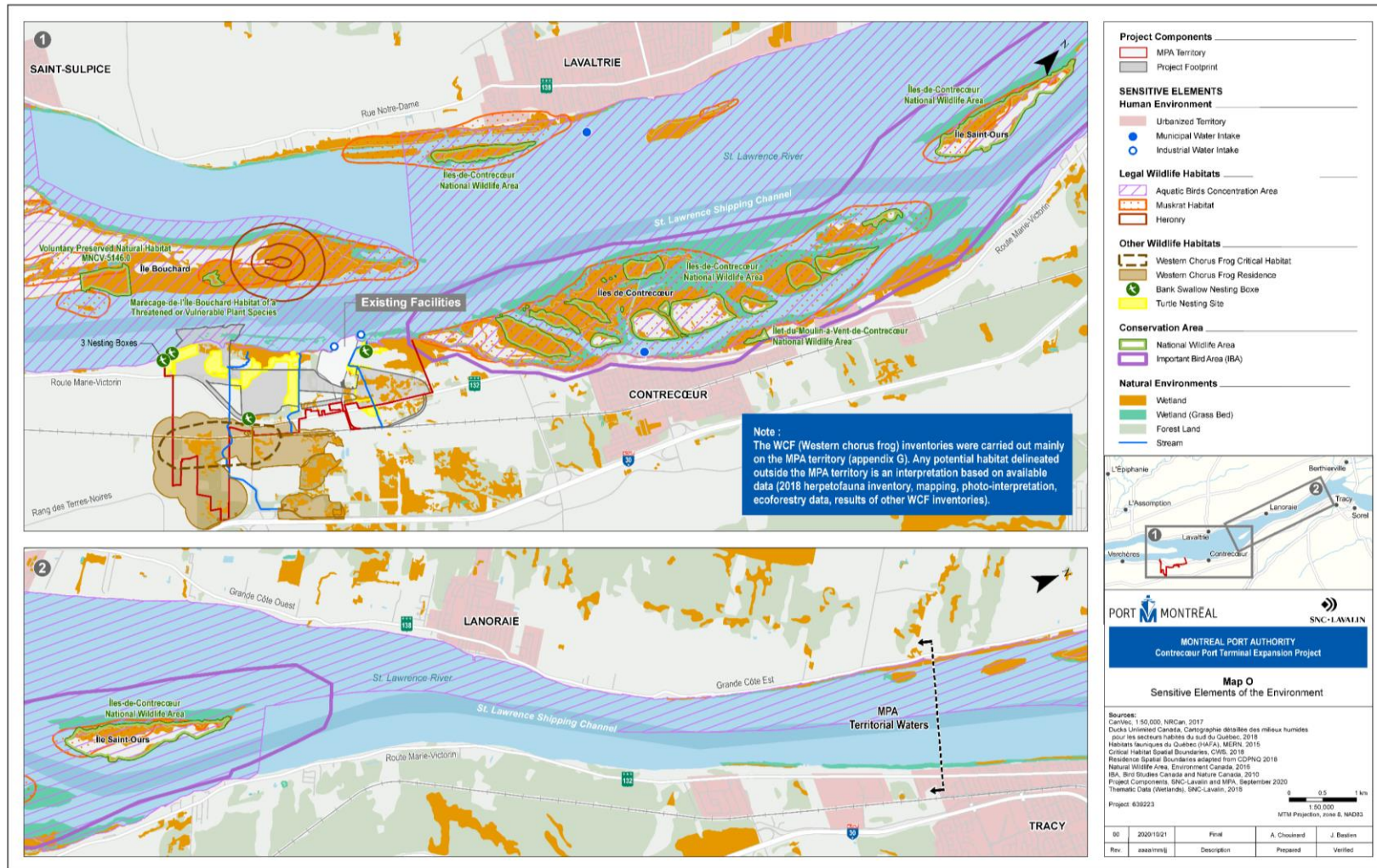
The following subsections present the information considered by the Agency in its analysis, including the advice and comments of the expert departments, First Nations consulted and the public.

6.1.1 Analysis of Potential Effects and Mitigation Measures Proposed by the Proponent

Identification of Risks of Accidents and Malfunctions

The environmental assessment takes into consideration the environmental effects of the project, including those caused by accidents or malfunctions that may occur. The valued components, in terrestrial or aquatic environments, that could be affected by accidents or malfunctions are: wetlands and riparian areas, fish and their habitat, birds and their habitat, special-status species and their habitat, legally protected wildlife habitats, conservation areas and natural environments, current use of lands and resources for traditional purposes by Indigenous peoples, socio-economic conditions, physical and cultural heritage, and human health (for residents and workers in other industries in the vicinity of the project) (Figure 16). It should be noted that the residences closest to the proposed facilities are located approximately two kilometres away, with the exception of four residences, two of which are uninhabited and located directly on the edge of the project site. Environmental factors may also damage the project's terrestrial and aquatic infrastructure and increase the probability of an accident or malfunction. These factors are discussed in section 6.2.

Figure 16: Sensitive Environmental Elements for the Contrecoeur Project



Source: SNC-Lavalin, October 2020



For the purposes of environmental assessment, an accident is described as a sudden and unexpected event involving project mechanisms or activities that result in damage to valued components. A malfunction, on the other hand, is defined as the failure of a piece of equipment or a system to function as intended, resulting in damage to valued components. Accidents and malfunctions are likely to occur at all phases of the project.

The proponent carried out a technological risk analysis that enabled it to identify several potential accident scenarios by reviewing the various components of the project. This includes marine activities at the wharf and the transportation of goods by rail and road. The proponent analyzed these scenarios by using probability levels recommended by the Council for the Reduction of Major Industrial Accidents (CRAIM) and severity levels recommended in the September 29, 2005, order put forth by the Ministère de l'Écologie et du Développement durable of France (SNC-Lavalin, September 2017). The severity levels of the ministerial order were preferred to those recommended by the CRAIM because of their higher-calibre definition of the effects on the environment and workers (SNC-Lavalin, April 2019).

This risk analysis identified three potential accident scenarios that could have the most significant consequences, namely:

- An event involving a containerized hazardous material;
- A fuel spill into the river from a ship;
- A fuel spill during the bunkering operations of a ship.

These scenarios and other types of potential accidents are detailed in section 8.6 of the proponent's Environmental Impact Statement (SNC-Lavalin, September 2017). ECCC is of the view that the proponent has adequately presented the analysis of the risks of accidents and malfunctions using an internationally recognized standard method, HAZID (Hazard Identification).

Potential Effects

Events Involving a Containerized Hazardous Material

The proponent estimates that approximately 3% (in terms of tonnage) of the goods transported by containers to the new facility would be classified as hazardous, a ratio corroborated by studies from the Regional County Municipality of Marguerite-d'Youville. The latter also believes that the measures that the proponent intends to take to prevent or address an accident involving hazardous materials meet or exceed the usual standards.

A leak, spill or explosion of a containerized hazardous material could be caused by a variety of natural phenomena (e.g., earthquake, high winds, rain, snow, ice or fog) or anthropogenic activity (e.g., improper stacking of a container causing a fall, an overturned container caused by a collision of a ship with the dock or a collision of a ship by another ship, a container dropped or struck by a crane or mobile handling equipment, vandalism or terrorism). The potential consequences range from an explosion to oil slick fires, torch fires and the formation and dispersion of a toxic gas cloud.



The containerized hazardous materials that would have the greatest potential consequences in the event of major accidents are chlorine, ammonia and anhydrous hydrogen fluoride, which could form toxic clouds if accidentally released (SNC-Lavalin, April 2019). The dispersion level of these materials would highly depend on the weather conditions. For chlorine, the most credible worst-case scenario retained by the proponent would be a leak at the wharf due to a broken valve on a chlorine cylinder caused by a physical shock or a fall of the cylinder, causing the cylinder to completely empty itself in 60 minutes. For ammonia and hydrogen fluoride, the most credible worst-case scenario is a leak with a diameter equivalent to one inch (25.4 millimetres) in diameter due to a rolling machine hitting a tank (SNC-Lavalin, April 2019). As for flammable gases, LPG (Liquefied Petroleum Gas – a mixture of hydrocarbons consisting primarily of propane and butane) is the most likely substance to be transported. This gas has the potential to cause a BLEVE (Boiling Liquid Expanding Vapor Explosion) if the tank container is exposed to the heat of a nearby fire. This would be the accident with the most significant consequences in the event of an explosion – for this reason, it was included in the assessment.

If a toxic gas cloud is released, an evacuation or temporary containment may be required for residents on Route 132 southwest of the port facilities, at the intersection of Montée Lapierre and Route 132, on Rang des Terres-Noires to the south and at Île Bouchard. The distance between the new port facilities and the agglomerations of Contrecoeur, Verchères, Saint-Sulpice and Lavaltrie (5 kilometres or more) means that they would not be significantly affected by an accident. However, in the case of a major toxic gas leak (class 2.3) during adverse weather conditions, the residents of these agglomerations could experience minor and temporary effects (e.g., irritation, odour).

Given the western chorus frog's special status, the proponent provided more details on the effect a toxic cloud or explosion may have on this species. The accidental release of toxic gas or vapour could affect the individuals, and to a lesser extent their habitat (apart for exceptional cases where the substance vapours attack vegetation during a short exposure). The extent of the affected area and the severity of injuries (ranging from mild to fatal) would depend on the toxicity of the substance involved, the quantity spilled, the duration of the event, and the wind speed and direction (a strong wind promotes dispersion and helps to reduce concentrations on the ground). An explosion would generate overpressures (shock waves) that could damage habitat and injure individuals of the western chorus frog near the site of the explosion.

In the event of an accident resulting in a toxic cloud, all the sensitive elements (biological and human) that could be affected by chlorine (leak from a cylinder), ammonia (leak from a tank container) or hydrogen fluoride (leak from a tank container) are presented in maps 62-1 to 62-3 of Addendum 4 of the proponent's Environmental Impact Statement (SNC-Lavalin, August 2020). In the case of an explosion, the information on effects is contained in Table 68-1 of Addendum 4 (response AEIC-2-68) of the same report. It indicates the maximum distance of effect of a BLEVE from an LPG tank container (heat load). Table 68-2 of Addendum 4 (response AEIC-2-68) presents the maximum distance of effect of a BLEVE from an LPG tank container (overpressure). These distances are illustrated in Map 67-1 (response AEIC-2-67).

In the case of a hazardous material spill in an aquatic environment, the mortality risks are generally increased, on and above water, in the event of an explosion or fire in the water table, but also under water



in the event of contamination by a water-soluble substance. For a spill of hazardous material on land, the effects on mammals, birds and herpetofauna would vary between contamination, injury and mortality. Additional details on the type of effects for each potentially affected species provided by the proponent can be found in section AÉIC-2-62 of Addendum 4 of the proponent's environmental impact study (SNC-Lavalin, August 2020).

Fuel Spill

The proponent presented simulations of oil spills in the St. Lawrence River during the construction and operation phases. Possible causes for a fuel spill from a ship into the river include a collision with the wharf or with another ship, a grounding, a mechanical malfunction, vandalism or terrorism. Spills could also occur, for example, during fuelling operations of a ship that is overfilled during bunkering by a barge or tanker truck. A spill could also be caused by a mechanical breakage in a transfer hose or other transfer equipment. Potential consequences include minor or major fuel slicks in the river and water contamination, ignition and slick fire on the water, a fuel spill on the dock, or the formation of a cloud of flammable gas. Credible worst-case scenarios related to navigation would be a spill when bunkering a ship at the dock or an offshore spill in the seaway after a collision with a ship (SNC-Lavalin, April 2019). The proponent modelled and analyzed a wide range of scenarios, including credible worst-case scenarios, the largest being a spill of 4,600 cubic metres into the River. It also considered lesser scenarios that could occur at higher frequencies while considering various weather conditions. ECCC points out that the proponent modelled a wide range of scenarios in order to modulate its response to accidents or malfunctions. However, ECCC notes that it would have been appropriate for the proponent to consider a broader range of substances, such as hydrogen chloride and sulphur dioxide, in its worst-case scenario analysis.

For all types of potential spills, aquatic and semi-aquatic fauna could be affected if a spill reached the river, mainly in the case of fuels and containerized liquid materials (SNC-Lavalin, September 2017). The effects would vary depending on the reaction time and the type of accident. Spring, summer and fall would be the most critical seasons for most sensitive elements. In addition, potential indirect effects on the human population could occur if a spill in the river reached the drinking water intake of the Contrecoeur filtration plant, which is located approximately 5 kilometres downstream (SNC-Lavalin, September 2017). To this effect, in the event of an accidental spill that affects drinking water intakes, Health Canada advises that it would be important that the relevant emergency measures include an alert mechanism to contact municipal authorities. This same mechanism should also make it possible to notify neighbouring industrial owners whose water intakes could also be affected. For emergency preparedness purposes, Health Canada adds that these water intakes and their usage should be identified and mapped to assure a timely notification to the owners in relation to the use of this water. Finally, in the event of an accidental spill that could affect private wells supplying residences with drinking water, these wells should also be identified and mapped in order to facilitate, if necessary, the implementation of emergency measures. Certain activities such as recreational and commercial fishing could also be affected in the event of a major spill in the river. The proponent mentions, however, that the probabilities are very low considering the nature of the fuel tanks and their arrangement on ships (SNC-Lavalin, April 2019).



More specifically in relation to spills directly into the river, the plumes calculated for the credible scenarios cover, in the majority of cases, the entire downstream section. According to the proponent, the uncertainties of the inputs are significant enough to make it impossible to distinguish which would be the worst-case scenario(s). The envelope of all these plumes shows that the aquatic grass beds, habitat of several special-status species in the sector, including the copper redhorse, could be affected, regardless of the season, including the aquatic grass beds north of Île Bouchard if winds come from the northeast. In addition, waterfowl would be particularly vulnerable to a spill from May to July during the duckling-rearing period since young birds cannot fly. The Contrecoeur Islands are also an important site for the moulting of dabbling ducks in July and August. Regardless of the season considered, the oil plumes modelled under the most credible scenarios would not affect municipal water intakes.

The proponent also assessed the effect of winter conditions on a fuel spill (SNC-Lavalin, August 2020b). The proponent mentions that ice generally slows propagation and contains hydrocarbons when they are initially spilled (SNC-Lavalin, August 2020b). Hydrocarbons trapped in ice and snow during the winter would be released in the spring, or during periods of mild weather.

The proponent plans to refuel ships with marine diesel or LNG (liquefied natural gas) directly from tanker trucks or tankers, as is currently the case at its Montreal facilities (SNC-Lavalin, September 2017).

According to ECCC, the environmental effects caused by accidents and malfunctions have been adequately described and assessed. In addition to considering worst-case scenarios, the proponent also considered small spills that may occur more frequently.

The Mohawk Council of Kahnawà:ke expressed concerns about the proponent's risk analysis, which they felt had several shortcomings and wanted to better understand the consequences of the likely worst-case scenario.

Vigie Citoyenne Port de Contrecoeur expressed concerns about the consequences of a potential spill in winter conditions, as well as the Canadian Coast Guard's level of preparedness and response time in the event of an intervention.

Other Risks

In addition, other types of accidents and malfunctions are discussed and analyzed by the proponent, including the issue of railway operations and the risks associated with external activities. A detailed analysis of these types of accidents and malfunctions is provided in Table 8.7 in Section 8.6 of the proponent's Environmental Impact Statement (SNC-Lavalin, September 2017).

Risks Related to Rail and Road Transportation Activities

The proponent estimates that approximately 45% of containers with hazardous material would be transported by rail, at a rate of one train per day, and that trucks would move the other 55% (SNC-Lavalin, September 2017). The proponent assessed the risks associated with rail operations as very unlikely due to the very low speed of trains on the site. It stated that at very low speeds, locomotives could run off the rails which would not result in a loss of containment of the transported substances, but are very unlikely



to tip over to the side (SNC-Lavalin, April 2019). A container could still be dropped or struck during rail transportation at the site as a result of a derailment, improper switching, mechanical problems or human error. In road transportation, a container could be dropped or struck due to mechanical malfunction, human error or adverse weather conditions. The consequences of an accident would depend on the hazardous material involved and could involve an explosion, leaks of flammable or toxic liquefied gas or a spill in the river or on the wharf.

Stratégies Saint-Laurent has also expressed concern about the increased risk of marine accidents in terms of cumulative effects on the St. Lawrence River. To this effect, Transport Canada believes that in order to avoid accidents, non-commercial marine traffic should be restricted in the vicinity of the new facility, especially during loading and unloading operations. Due to the high sail area of these ships, a maximum wind speed should be determined for docking/equipment and stops for loading and unloading.

Citizens of the Municipality of Verchères have expressed concerns about the risk of accidents and collisions at sea, on trains or on roads. In addition, the Municipality of Verchères is concerned about the risks of accidents and malfunctions related to the use of the railway. The committee Sécurité ferroviaire Rive-Sud has also expressed concerns about the risks of accidents related to rail transportation (risk potential, effects, protective measures and intervention procedures and level of preparedness). Vigie Citoyenne Port de Contrecoeur is concerned about the potential risks of liquid hazardous material spills in the ditches bordering the railroad tracks that could affect the individuals, residence and critical habitat of the western chorus frog.

Rail transportation is governed by Transport Canada's *Transportation of Dangerous Goods Regulations* and is subject to the *Railway Safety Management System Regulations*, while road transportation is subject to the *Transport of Dangerous Goods Regulations* of Quebec's Ministère des Transports and is based on the standards of Transport Canada's *Transportation of Dangerous Goods Regulations*.

External Risks

External risks of anthropogenic origin would be primarily related to Yara Canada's industrial facilities on the territory of the MPA, which is located directly northeast of the proposed project. This company has been operating as a fertilizer distribution centre for over 30 years. An accident at these facilities could cause a domino effect at the Port. In fact, an explosion at Yara Canada's facilities would be the only man-made accident that could affect the new port facilities, which could result in a spill of containerized hazardous materials or fuel.

Proponent's Proposed Mitigation and Follow-up Measures

The proponent proposes mitigation and protection measures, response protocols and preliminary emergency response plans to minimize the potential risks associated with an accident or malfunction. These measures and the outline of the emergency measures plan are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the Registry (Document No. 145).



The proponent has also planned particular measures to reduce the risk of accidents and mitigate potential consequences for the western chorus frog and its habitat during the construction and operation phases. The main measure being the use of alternative routes by trucks transporting hazardous materials to avoid the critical habitat of this species.

Preventive or mitigating measures to reduce the risk of accidents and malfunctions during the construction phase were presented in response to AEIC-152 Addendum 2. These measures cover several elements such as dredging and wharf construction, fuelling, machinery maintenance and the storage and transportation of hazardous materials. Most of these measures are intended to minimize or eliminate the risk of spills. General mitigation, prevention and response measures regarding the use and circulation of machinery on the site are indicated in Table 9.1 of the Environmental Impact Statement and in response AEIC-79 (Addendum 2).

With respect to marine traffic, the proponent indicated that several regulatory risk mitigation procedures are currently in place through the *Canada Shipping Act* and the *Marine Transportation Security Act*. An analysis of the aspects affecting marine traffic, conducted by Innovation Maritime, is presented in the Environmental Impact Statement (Volume 3, Tome 3).

The proponent has an emergency response plan for its current operations at the Contrecoeur terminal that would be modified to take into account the new equipment and project operations. An outline of the emergency response plan during operations is detailed in CEAA Response CEAA 152 C of Addendum 2 of the Environmental Impact Statement (SNC-Lavalin, April 2019). Response procedures are also described in response CEAA 150 D of the same document for accidents that could occur during construction. The Mohawk Council of Kahnawà:ke expressed concerns about the response plan, wanting to know who would be involved in the emergency response and how the response would be conducted.

The proponent stated that each contractor hired would be contractually obligated to put in place their own emergency response plans, which would have to incorporate some of the port's procedures depending on the types of accidents contemplated. For example, in the event of a major oil spill, the contractor would, among other things, have to inform the control centre and alert network, control and stop the leak or spill if possible, attempt to limit dispersion in the water using sorbent booms or oil absorbent booms, and alert the Eastern Canada Response Corporation (ECRC) or Marine Emergency Response Corporation (if in the river) (SNC-Lavalin, April 2019). Health Canada mentions that the proponent should ensure that contractors' emergency plans are adequately communicated to all stakeholders (internal and external).

In addition, the proponent has identified all key internal and external agencies that can respond to an emergency (SNC-Lavalin, September 2017). The proponent has also planned to conduct emergency response simulation exercises on a 5-year basis.

ECCC is of the view that the protective measures, response protocols and preliminary contingency plans proposed by the proponent are sufficient and adequate. They address the types of emergencies that could reasonably be expected to occur, including consequences within and outside the project area, related prevention, alerting and preparedness issues, and remedial and recovery measures. ECCC agrees with the proponent that the existing emergency plan should be amended to accommodate new equipment and operations for this project, including auxiliary activities such as the relocation of the Énergir



pipeline. The proponent has also committed to submit its emergency measures plan to Transport Canada and ECCC prior to the commencement of work.

In developing the emergency response plan, ECCC and Health Canada make the following recommendations:

- As indicated by the proponent, inform contractors or any other mandated entity of their role and responsibility in the preparation and implementation of contingency plans in the event of a fuel spill or any other hazardous materials on the site. These parties should also be informed of the legislative and regulatory provisions relating to pollution prevention, including the *Canadian Environmental Protection Act* and *Environmental Emergency Regulations*, the provisions of the *Fisheries Act* and the *Migratory Birds Convention Act, 1994*;
- Ensures that dock personnel are prepared to respond to a minor spill that may occur between a ship and the dock and can activate the emergency plan;
- That the proponent's emergency measures plan include the mapping of sensitive elements of the environment (terrestrial and aquatic environments) in order to guide, as quickly as possible, responses in the event of an accident or malfunction. In addition, a periodic update of the mapping, if necessary, should be planned to take into account any changes in the environment and the status of species;
- Detail the measures to be taken to respond to emergencies for each of the main accident scenarios considered, including measures to protect the environment;
- Clarify the roles and responsibilities of internal and external stakeholders in the MPA's emergency measures plan and clearly distinguish between measures and equipment under the responsibility/ownership of the MPA and those belonging to private or municipal emergency response organizations;
- Identify the equipment needed to respond to these emergencies and locate it to ensure its availability;
- Provide staff training in the maintenance and use of intervention equipment;
- Provide a detailed spill notification procedure; and an emergency communications plan for external parties;
- Develop a contingency plan in the event of a hazardous material spill;
- Describe what is planned in the event of a hazardous material spill to protect sensitive components of the environment, including surface water, groundwater and wetlands, fish, migratory birds or other sensitive species.



6.1.2 Agency's Analysis and Conclusions on Residual Effects

Effects Analysis

The Agency considers that the proponent has adequately considered the potential terrestrial and aquatic effects of accidents and malfunctions; it has documented these environmental effects and has an adequate contingency plan in place. The proponent has also adequately identified the risks inherent to its project and would implement preventive measures that include appropriate infrastructure design, inspection and maintenance.

In all cases, although significant adverse effects could occur under certain scenarios, the likelihood of these major accident scenarios is low. At the Port of Montreal, no incidents have been documented related to chlorine, ammonia and anhydrous hydrogen fluoride for at least 40 years.

The Agency takes note of the proponent's intention to comply with federal⁶⁸ and provincial⁶⁹ laws and regulations, city of Contrecoeur and Regional County Municipality of Marguerite-D'Youville documents⁷⁰ and applicable codes⁷¹ governing accident prevention and emergency measures (SNC-Lavalin, September 2017).

The Agency also took into account the advice and impact analysis provided by ECCC, Health Canada and Transport Canada. These ministries provided some recommendations that have been incorporated into the relevant sections.

Identification of Key Mitigation Measures

The Agency considered the mitigation measures proposed by the proponent and the advice of expert government authorities to identify the key mitigation measures required to ensure that the project does

⁶⁸ *Transportation of Dangerous Goods Act* (Transportation of Dangerous Goods Regulations); Hazardous Materials Information Review Act (Hazardous Materials Information Review Regulations); *Canadian Environmental Protection Act* (Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations; Environmental Emergency Regulations); *Canada Marine Act* (Port Authorities Operations Regulations; General Conditions of Occupancy established under the Act); *Canada Shipping Act* (Cargo, Fumigation and Cargo Gear Regulations); *Marine Transportation Security Act* (Marine Transportation Security Regulations); *Pilotage Act*; *Container Security Convention Act* (Container Security Convention Regulations); *Railway Safety Act* (Railway Safety Management System Regulations); *Canada Transportation Act* (Ammonium Nitrate Storage Facilities Regulations); *Government Property Traffic Act* (Government Property Traffic Regulations [note: makes the Quebec Highway Safety Code applicable]).

⁶⁹ Civil Protection Act; Planning and Development Act and the proposed Sustainable Land Use Planning and Development Act; Highway Safety Code (Transportation of Dangerous Goods Regulation); An Act Respecting the Owners and Operators of Heavy Vehicles; Private Security Act.

⁷⁰ Town of Contrecoeur Civil Security Plan; Schéma d'aménagement de la MRC de Marguerite-D'Youville.

⁷¹ Canadian Standards Association (CSA); National Fire Code of Canada (NFC); National Building Code of Canada (NBC).



not cause significant adverse environmental effects in the event of accidents or malfunctions. The proponent shall:

- Take all reasonable measures to prevent accidents and malfunctions that may result in adverse environmental effects and mitigate any adverse environmental effect from accidents and malfunctions that do occur.
- Consult, prior to construction, the First Nations consulted and relevant authorities on the measures to be implemented to prevent accidents and malfunctions.
- Develop, prior to each phase of the project and in consultation with the First Nations consulted and relevant authorities, an accident and malfunction response plan in relation to each phase of the project. Integrate and refer to the plans, procedures and intervention organizations established, as the case may be, by the relevant authorities in the response plan in case of accident or malfunction. The accident and malfunction plan shall include:
 - A description of the types of accidents and malfunctions that may cause adverse environmental effects during any phase of the project;
 - The measures under the control of the proponent to be implemented in response to each type of accident and malfunction, including alert systems, to mitigate any adverse environmental effect caused by the accident or malfunction. The measures shall include the implementation of measures to protect sensitive habitats (including aquatic grass beds, wetlands and the habitat of the western chorus frog) in the case of a spill of any deleterious substance (including hydrocarbons); and
 - For each type of accident and malfunction, the roles and responsibilities (including in terms of measures to be implemented and equipment to be mobilized) of each relevant authority concerned participating in the response in case of accident or malfunction.
- Develop, in consultation with the First Nations consulted and potentially affected parties, a communications plan for accidents and malfunctions occurring in relation to the project. Develop the communications plan prior to construction and implement and keep it up to date during all phases of the project. The plan shall include:
 - The types of accidents and malfunctions requiring the proponent to notify the First Nations consulted and potentially affected parties;
 - The manner by which the First Nations consulted and potentially affected parties shall be notified by the proponent of an accident or malfunction and of any opportunity to assist in the response to the accident or malfunction; and
 - The contact information of the proponent that representatives of the First Nations consulted and potentially affected parties may contact and of the representatives of the First Nations consulted and potentially affected parties to which the proponent shall provide notification.
- Maintain up-to-date the accident and malfunction response plan during all phases of the project. Submit any updated accident and malfunction response plan to the Agency, the First Nations consulted and the relevant authorities involved in its implementation within 30 days of the plan being updated.



- In the event of an accident or malfunction with the potential to cause adverse environmental effects, including an accident or a malfunction, immediately implement the measures appropriate to respond to the accident or malfunction and:
 - Implement the communications plan as it relates to accidents and malfunctions;
 - Notify relevant authorities with responsibilities related to emergency response (including environmental emergencies) in accordance with applicable regulatory and legislative requirements;
 - Notify, as soon as possible and pursuant to the communications plan, the First Nations consulted and the parties potentially affected of the accident or malfunction, and notify the Agency in writing no later than 24 hours following the accident or malfunction. For the notification to the First Nations consulted, potentially affected parties and the Agency, specify:
 - The date and time when and location where the accident or malfunction occurred;
 - A summary description of the accident or malfunction; and
 - A list of any substance potentially released into the environment as a result of the accident or malfunction.
 - Submit a written report to the Agency no later than 30 days after the day on which the accident or malfunction occurred. The written report shall include:
 - A detailed description of the accident or malfunction and of its adverse environmental effects;
 - A description of the measures that were taken by the proponent to mitigate the adverse environmental effects caused by the accident or malfunction;
 - Any view from the First Nations consulted and potentially affected parties and advice from relevant authorities received with respect to the accident or malfunction, its adverse environmental effects and the measures taken by the proponent to mitigate these adverse environmental effects;
 - A description of any residual adverse environmental effect and any modified or additional measure required by the proponent to mitigate residual adverse environmental effects; and
 - Details concerning the implementation of the accident or malfunction response plan;
 - Submit a written report to the Agency no later than 90 days after the day on which the accident or malfunction occurred that includes a description of the changes made to avoid a subsequent occurrence of the accident or malfunction and of the modified or additional measure(s) implemented by the proponent to mitigate and monitor residual adverse environmental effects and to carry out any required progressive reclamation, taking into account the information submitted in the written report. The report shall include all additional views from the First Nations consulted and potentially affected parties and advice from relevant authorities received by the proponent.



Need for Follow-up and Follow-up Requirements

The Agency considers that a follow-up program is not required. If the project goes ahead, the proponent will still have to ensure that the measures mentioned above are implemented.

Conclusions

Taking into account the application of the mitigation and follow-up measures recommended above, the Agency is of the view that the project is unlikely to cause significant adverse environmental effects due to accidents or malfunctions. Although some worst-case scenarios suggest that important adverse environmental effects may take place, in reality, the possibility of these scenarios taking place is low.

6.2 Environmental Effects on the Project

The Agency considers that the proponent has taken into account the environmental factors that could affect the project in the design of the terrestrial and aquatic infrastructure and in the day-to-day operations of the terminal. The Agency is of the view that the environment is not likely to cause significant adverse environmental effects on the project.

The following subsections present the information considered by the Agency in its analysis, including the opinions and comments of government experts, First Nations consulted and the public.

6.2.1 Analysis of Potential Effects and Mitigation Measures Proposed by the Proponent

Identification of the Effects of the Environment on the Project

The analysis takes into consideration changes to the project that may be caused by the environment and that may result in adverse environmental effects, for example, earthquakes and extreme weather conditions, whether or not related to climate change. The environment may damage the project's terrestrial and aquatic infrastructure and affect the likelihood of an accident or malfunction occurring (section 6.1).

The proponent assessed several environmental factors that could affect the project, including earthquakes, floods, terrain instability and extreme weather conditions. The proponent indicated that the detailed design of the project would take into account the risks associated with climate change (SNC-Lavalin, April 2019).



Potential Effects

Seismic and Ground Instability Risks

The eastern part of Canada (Ontario, Quebec and the Maritime Provinces) is located in a stable continental region of the North American tectonic plate (SNC-Lavalin, September 2017). Seismic activity is moderate. The Contrecoeur sector is located in a spectral⁷² acceleration zone similar to the one prevailing in the entire St. Lawrence Valley (except for the Charlevoix-Kamouraska zone). In the event of an earthquake, a leak, spill or explosion of a containerized hazardous material could occur. However, the probability of such an event is considered unlikely, but possible over a horizon of more than 100 years (SNC-Lavalin, September 2017). The proponent states that its buildings and infrastructure would be constructed in accordance with the requirements of the National Building Code of Canada, which sets standards for each seismic zone (SNC-Lavalin, April 2019).

Some phenomena of ground instability, such as coulees, are mostly related to specific soil types. The proponent concludes that its site does not pose a risk of land instability since it is on flat land. The proponent adds that the risks of bank erosion, related to land instability near a body of water, are mainly on the islands in the sector and that the development of the wharf will protect the facilities from these risks. Pile foundations are also planned to ensure the stability of heavy equipment such as cranes and rails. (SNC-Lavalin, September 2017).

Extreme Weather Conditions

Extreme climatic conditions would be likely to cause changes to the project and result in adverse environmental effects. Wind, precipitation, snow and ice could generate overloads that could damage buildings or equipment. High winds could also cause stacked containers to fall. According to the proponent, the design of the project's infrastructure, buildings and equipment would take into account the codes and regulations related to the overloads that could occur. In addition, the proponent could modify its maintenance and servicing operations if extreme weather conditions were to cause power outages, flooding, ground instability or falling objects.

During the operation phase, the proponent states that the project's infrastructure would be located above the limit of the 0-100 year floodplain of the St. Lawrence River for the entire life of the project. It adds that the proposed development would not affect flood risks since the sizing of the culverts would maintain pre- and post-project hydraulic conditions. The proponent specified that the structures would be designed to allow the free flow of the watercourse and avoid any change in the hydrological conditions upstream of Route 132. The proponent has committed to following the recommendations of Quebec's Ministère des Transports (MTQ) to take into account heavy and frequent rainfall causing an increase in peak flow at the

⁷² Spectral acceleration is a measure of ground motion that takes into account the energy of sustained shaking for a given period of time.



culverts. The proponent would also take into account the effect of climate change, particularly the upward trend in precipitation quantities for the wettest days, in the sizing of permanent retention basins.

A decline in the outflow of the Great Lakes could occur over the next century, which could affect the flow of the St. Lawrence River (SNC-Lavalin, April 2019). The St. Lawrence River's flow is also influenced by precipitation, which is projected to increase annually by about 100 millimetres by 2080. The proponent states that it is not in a position to assess long-term changes in the river's flow and their effect on dredging volumes, but mentions that no significant increase is expected in the short and medium term.

Freezing rain, ice jams and ice build-up could damage the dock. The proponent states that these elements would be incorporated into the detailed design of the project and that this would limit the risk of ice and ice jams affecting the wharf.

Proponent's Mitigation and Follow-up Measures

The proponent has identified mitigation or preventive measures to reduce the potential effects of the environment on the project and the environmental effects that could result from them. These measures are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the Registry (Document No. 145).

In order to reduce the environmental effects that could result from earthquakes or strong winds that could cause a container to fall, the proponent plans to limit the storage height of containers, prohibit stacking for certain classes of materials, limit storage per square metre and, if strong winds are foreseeable, lower the storage height even further (SNC-Lavalin, September 2017).

The proponent states that, during the construction phase, the personnel dedicated to environmental monitoring would remain on the lookout for predicted weather conditions and would adapt the work accordingly (SNC-Lavalin, April 2019). Operations would be shut down in the event of hazardous weather conditions.

In order to take into account the effects of climate change on the project, the proponent increased the precipitation intensity by 18% for the calculation of the flows and volumes used for the design of the permanent retention basins. The proponent states that the detailed design of the drainage and retention structures (including sedimentation basins) would take into account probable hydraulic conditions. The hydrodynamic modelling of the proposed wharf and approach area also predicts a decrease in current near the banks compared to the current situation. Thus, no mitigation measures would be required. It also mentions that the project would comply with existing codes and regulations in order to withstand overloads created by extreme weather conditions (SNC-Lavalin, April 2019). In addition, ECCC is asking the proponent to ensure that the design criteria for stormwater drainage infrastructure take climate change into account. To do so, the proponent is to use the increased precipitation values with the applicable percentage indicated in Tables 1-4 of the Ouranos Report (2015), for the southern region and according to the project duration.



6.2.2 Agency Analysis and Conclusions on Residual Effects

Effects Analysis

The Agency considers that the proponent has taken into account environmental factors that could affect the project in the design of the terrestrial and aquatic infrastructure, has documented potential accidents and malfunctions related to these effects, and has provided an adequate emergency response plan. Information related to accidents and malfunctions is presented in section 6.1.

With respect to changes and risks related to seismicity, in general, Natural Resources Canada considers that the proponent has adequately identified and documented this environmental factor. Natural Resources Canada notes the importance of properly classifying the clays on the site since some of them could be classified as "extra-sensitive." The extra-sensitive clays must be analyzed according to a specific method as defined by the Canadian Engineering Manual.

Identification of Key Mitigation Measures

The Agency has determined that no additional mitigation measures are required to ensure that the project does not cause significant adverse environmental effects. It took into account the mitigation measures proposed by the proponent, the advice of government authorities, as well as the comments received from the First Nations consulted and the public.

Need for Follow-up and Follow-up Requirements

The Agency considers that no follow-up program is required. Should the project proceed, the proponent will still have to ensure that the mitigation and prevention measures identified and mentioned above by the proponent are implemented.

Conclusion

The Agency is of the view that the environment is not likely to cause significant adverse environmental effects on the project.

6.3 Cumulative Environmental Effects

Cumulative environmental effects are defined as environmental effects that are likely to result from a project when combined with those of other projects or activities that have been or will be carried out. The assessment of cumulative effects is based on the *Agency's Operational Policy Statement: Assessing Cumulative Environmental Effects* under the *Canadian Environmental Assessment Act, 2012* (Agency, March 2015b). The environmental effects considered for the cumulative effects analysis are those that occur in areas of federal jurisdiction in accordance with section 5 of CEAA 2012.



As part of the project, the Agency focused its analysis on four valued components: wetlands, the copper redhorse, the western chorus frog, and the current use of lands and resources for traditional purposes by Indigenous peoples.

Upon completion of its cumulative effects assessment, the Agency is of the view that the project, in combination with past, present and reasonably foreseeable projects and activities, is not likely to cause significant adverse cumulative environmental effects on wetlands, the copper redhorse, the western chorus frog and the general use of lands and resources for traditional purposes by Indigenous peoples taking into account the application of the recommended mitigation and follow-up measures and other considerations specified in sections 6.3.2, 6.3.3, 6.3.4 and 6.3.5.

6.3.1 Methodology and Extent

The proponent completed the cumulative effects assessment using the following four steps:

1. Determination of the extent of the study (justification of the choice of the selected components and identification of the spatial and temporal limits).
2. Identification of past, present and reasonably foreseeable projects, activities and events that may have an effect on at least one of the components under study.
3. Analysis of cumulative effects.
4. Identification of mitigation and follow-up measures.

The proponent consulted various sources of information to complete the cumulative effects assessment. It conducted consultations with key stakeholders during the preparation of the Environmental Impact Statement to identify issues and concerns related to the project and other relevant projects, as well as to obtain additional information on future projects. Additional information gathering and sector studies completed its documentation.

The proponent's choice of valued components for the cumulative effects assessment was based on the main issues identified in the project, on the components for which residual effects are predicted, regardless of the anticipated significance of these effects, and on the possibility that these same components may be affected by other past, present or reasonably foreseeable projects, activities or events in time and space.

The proponent has selected the following valued components: air quality and greenhouse gas emissions, the hydrodynamic regime of the St. Lawrence River, surface water quality, terrestrial vegetation and wetlands and riparian areas, fish and fish habitat, birds and their habitat, agricultural activities, public infrastructure and services, public safety, population's quality of life, protection of the St. Lawrence River and its ecosystem and special-status wildlife species.

The special-status wildlife species for which the proponent has conducted a cumulative effects assessment are those for which the significance of the project's residual impacts has been deemed to be low, medium or high. These species are the western chorus frog, snapping turtle, midland painted turtle,



northern map turtle, milksnake, smooth green snake, bank swallow, eastern wood-pewee, wood thrush, bobolink, barn swallow, least bittern, eastern meadowlark, little brown bat, northern bat, tri-colored bat, silver-haired bat, eastern red bat, hoary bat and copper redhorse.

The proponent has defined specific spatial boundaries for each of these components. It has set the past temporal limit at 1954, the date of the beginning of Contrecoeur's industrial activities, and the future temporal limit at approximately 2080, the year in which phase 3 of the port terminal would operate at full capacity. The proponent determined the future time limit based on an optimal scenario in which growth in merchant shipping would be sustained and demand for container transshipment would remain constant.

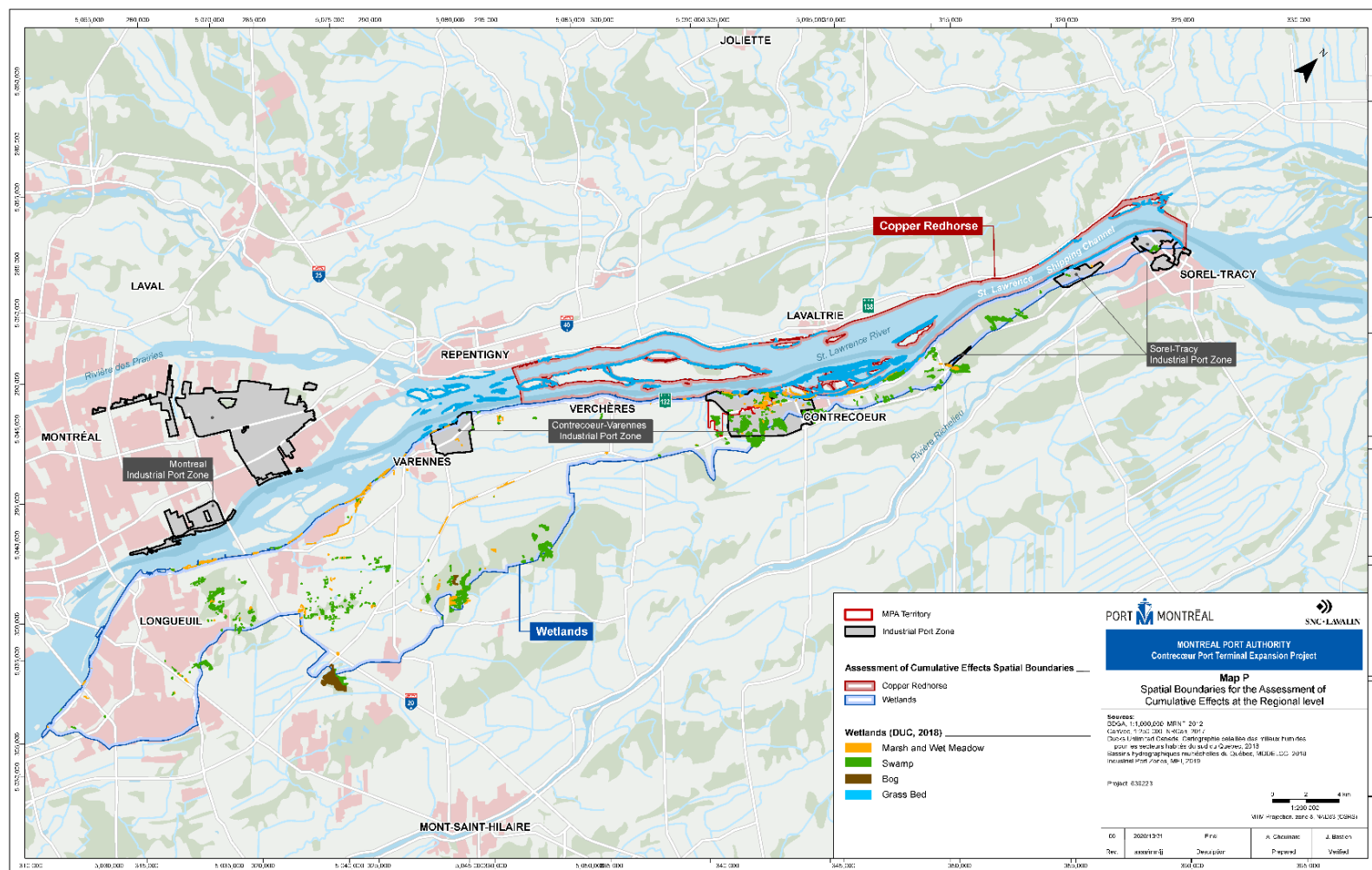
The past, present and reasonably foreseeable projects and activities identified by the proponent as most likely to affect the selected valued components are as follows:

- Consolidation of the Contrecoeur industrial zone;
- Phases 1, 2 and 3 – Contrecoeur port terminal;
- Contrecoeur's logistics hub;
- Development of industrial port areas;
- Technopôle de Contrecoeur;
- Cité 3000;
- Urbanization and development in riparian zones;
- Agriculture;
- Highway 30 Economic Development Corridor;
- Climate change.

Figure 17 shows the region with some of the projects and activities listed above. The details of each of these projects and activities are specified in the proponent's documents, including the Environmental Impact Statement, Addendum 2 and Addendum 4.



Figure 17: Spatial Boundaries for Cumulative Effects Assessment on Wetlands and Copper Redhorse



Source: SNC-Lavalin, October 2020



The Agency focused its analysis on cumulative effects on wetlands, the copper redhorse, the western chorus frog, and the current use of lands and resources for traditional purposes by Indigenous peoples. In selecting the valued components, the Agency relied on the potential significance of cumulative environmental effects and the likelihood of their occurrence, the degree of concern expressed by the First Nations, public, government experts and the state or condition of the valued component. The Agency excluded the other valued components from its analysis of cumulative effects given the absence or low magnitude of the project's anticipated residual effects on these components and the fact that these effects are unlikely to accumulate with the effects of other past, present or reasonably foreseeable projects in the area where the project would be developed.

Some citizens and interest groups are concerned that the Minister's decision on the project will be made before Transport Canada tables the cumulative effects assessment report on the cumulative effects of marine transportation and would have liked the Agency to consider the cumulative effects on the erosion of the islands and riverbanks. If the Contrecoeur project comes to fruition, they recommend the implementation of a serious and concrete protection and restoration program for the banks of the St. Lawrence River, particularly between Varennes and Contrecoeur.

When consulted, some citizens, an environmental group and the three First Nations were concerned about the cumulative effects of the project (combined with those of other projects or activities that have been or will be carried out) on all environmental, social and economic components related to the project or the St. Lawrence River. They would have liked the environmental assessment of the project to take this into account or that a regional study be carried out before the Minister's decision on the project. According to one environmental group, if the Contrecoeur project were to see the light of day, it should be an opportunity to put in place exemplary measures to protect and restore the St. Lawrence River, considering the risk that this project would contribute to aggravating issues that are already of concern.

In sections 5.2 (Wetlands), 5.3 (Fish and Fish Habitat), 5.5 (Other Special Status Species) and 5.8 (Current Use of Lands and Resources for Traditional Purposes by Indigenous peoples) of this report, the Agency concludes that the effects of the project on these four valued components are not significant, taking into account the application of mitigation measures, follow-up programs and compensation programs (if any). However, the residual effects of a project may become significant when combined with those of other past, present and reasonably foreseeable projects or activities in time and space.

To carry out the cumulative effects assessment on the four valued components, the Agency took into account the information gathered by the proponent, the effects of the project, the effects of other projects and activities, the views expressed by government experts, First Nations and the public, as well as the application of proposed mitigation and follow-up measures and existing federal and provincial regulations.

The following subsections present the Agency's analysis to conclude on the significance of cumulative effects on the four valued components. This analysis is based on the information provided by the proponent as well as the opinions and comments of government experts, First Nations consulted and the public.



6.3.2 Wetlands

Analysis of Cumulative Effects and Mitigation Measures Proposed by the Proponent

Status Report

The spatial boundaries selected by the proponent for the assessment of cumulative effects on wetlands are shown in Figure 17 (Section 6.3.1). These boundaries are based on hydrological rather than biological characteristics of the wetlands and correspond to the limits of the St. Lawrence southwest watershed taken from geomatics data from Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (2018), that were consulted by the proponent. The wetlands mapped by Ducks Unlimited Canada (2018) within this watershed are used to assess cumulative effects.

The past time limit is the 1950s, which also corresponds to the beginning of the development of intensive agriculture. This limit corresponds to a time when agricultural technologies and policies allowed intensive wetland farming, leading to the definitive transformation of poorly drained land into drained and arable land (SNC-Lavalin, April 2019). The future time limit is set at 2080, the year corresponding to the full operation of the three phases of the port terminal development and the full development of a potential logistics hub.

The past, current and reasonably foreseeable projects, activities and events most likely to affect wetlands in the St. Lawrence southwestern watershed are the same as those identified by the proponent in section 6.3.1.

The region along the St. Lawrence River between Montreal and Sorel-Tracy is highly urbanized. The land was deforested and cultivated under the French regime (SNC-Lavalin, April 2019). The proponent mentions that very little remains of the marsh area adjacent to the St. Lawrence in its natural state (SNC-Lavalin, April 2019). It is estimated that between 40% to 80% of wetlands surface area in agricultural and urban areas would have disappeared in the St. Lawrence Lowlands since the beginning of colonization (SNC-Lavalin, April 2019).

More recently, between 1998 and 2011, wetland disturbances continued in the St. Lawrence Lowlands region. The surface area of wetlands disturbed during this period is estimated at 56,681 hectares, or 19% of the total area of wetlands in the Lowlands, mainly due to agricultural and forestry activities (SNC-Lavalin, April 2019).

On the other hand, the numerous islands of the St. Lawrence, less accessible than the rest of the territory, have allowed plant associations to subsist in an almost natural state.

As for the territory of the MPA in Contrecoeur, agriculture covered most of it in the early 1950s, but gave way to the steel industry and public utility infrastructure over time. Between 1988 and 1992, following the integration of the Contrecoeur property into the letters patent of the MPA, the agricultural purpose of the territory was maintained, but certain sectors were transformed into wastelands, forests and wetlands (SNC-Lavalin, April 2019).



Finally, the surface area of wetlands in the St. Lawrence southwestern watershed is estimated at 674 hectares, 79% of which is swamp, 19% is marshland and 2% is bog woodlands (SNC-Lavalin, April 2019). The project area (phase 1) includes a total of 20.9 hectares of wetlands that would be destroyed by the project (see section 5.2).

Potential Effects

Agriculture has played and continues to play an important role in the loss of wetlands in the region. According to the proponent, it is difficult to quantify the effects of this activity due to the multiple sources of disturbances. However, the shift towards field crops (cereal and legume crops) observed in the Regional County Municipality of Marguerite-D'Youville⁷³ would favour encroachment into wetlands. On the other hand, the new *Regulation respecting compensation for adverse effects on wetlands and bodies of water* under the *Environment Quality Act* could discourage the establishment of these crops in wetlands (SNC-Lavalin, April 2019).

The Regional County Municipality of Marguerite-D'Youville is assessing the potential of intensive forestry on its territory. The proponent mentions that it is difficult to quantify the loss of wetlands that could result from this activity. However, due to the particular context of the region (increased forestry activity and reduced land availability), the proponent believes that forestry will continue to be a major source of wetland loss (SNC-Lavalin, April 2019).

The proponent states that economic development related to the new port facilities and related projects could increase residential and commercial development in the region, resulting in increased pressure on wetlands (SNC-Lavalin, April 2019). The City of Contrecoeur would still have a land reserve to accommodate new residents, but the Municipality of Verchères has used up the space that remained available for the development and reception of new residents. The effect of residential and commercial development on wetlands is difficult to quantify, according to the proponent, but like agriculture, this effect would be moderated by the *Regulation respecting compensation for adverse effects on wetlands and bodies of water*.

As for the other commercial and industrial projects, the three development phases of the port terminal would result in the loss of approximately 39.4 hectares of wetlands according to the overview established by the proponent in 2018. With the other reasonably foreseeable⁷⁴ development projects, a loss of approximately 26 hectares of wetlands could be added (SNC-Lavalin, April 2019). These estimates are based on available information for projects in the preliminary development stage. Other potential projects have been cited by the proponent, including the Contrecoeur-Varennnes industrial port zone and the Highway 30 economic development corridor, but these are not included in its calculations, either because of the lack of clear spatial boundaries that do not allow for the losses to be quantified or because the effects are difficult to quantify (SNC-Lavalin, April 2019). The Mohawk Council of Kahnawà:ke is concerned that these two potential projects have not been included.

⁷³ The RCM of Marguerite-D'Youville covers most of the St. Lawrence southwest watershed.

⁷⁴ These projects are as follows: Logistics hub, Cité 3000 and Technopôle.



Finally, the proponent mentions that, for the Sorel-Tracy region, the effect of climate change on wetlands is not significant and that wetlands play an important role in mitigating climate change at the local level (SNC-Lavalin, April 2019).

The proponent concludes that the cumulative effects of activities and projects are difficult to quantify, but the available information suggests that impacts will continue, but at a much slower rate than in the past. The proponent is of the view that the cumulative effects on wetlands associated with past, present and future human activities are significant, and that the likelihood of these cumulative effects occurring is high. However, it noted that the relative contribution of the project is negligible.

Proponent's Proposed Mitigation and Follow-up Measures

In order to mitigate its contribution to cumulative effects in the region and to compensate for the loss of wetlands that would result from phases 2 and 3 of the Contrecoeur port terminal, the proponent undertakes, in consultation with ECCC, to develop and implement a wetland compensation plan as close as possible to the future Contrecoeur terminal or in the St. Lawrence southwest watershed.

Agency Analysis and Conclusions on Residual Cumulative Effects

Effects Analysis

The Agency's analysis is based on the assessment of cumulative effects on wetlands carried out by the proponent, on comments received from First Nations and the public, as well as on advice from ECCC and the MELCC.

The project (phase 1) would result in the destruction of wetlands with different ecological functions. The residual effect on these environments has been qualified as moderate by the Agency (section 5.2). The subsequent development phases of the Contrecoeur terminal as well as the other reasonably foreseeable projects described in this section would add additional pressure on the wetlands. The Agency notes that the lack of regulations and compensation requirements in the past has contributed to the destruction of wetlands.

The Agency is of the view that the project could encourage anthropogenic development in the area and that there is potential for cumulative effects on wetlands, particularly in relation to agricultural, forestry, residential, commercial and industrial activities. The Agency notes, however, that uncertainty remains as to which projects will actually proceed.

Citizens and organizations question the Agency's conclusions regarding the absence of significant adverse cumulative effects of the project on wetlands, given that the destruction of wetlands is occurring in an area where wetland loss and degradation are recognized as having reached a critical threshold. Furthermore, it is pointed out that the Agency's analysis does not appear to sufficiently account for the additional future loss of wetlands that would be related to phases 2 and 3 of the project.

The Agency supports ECCC's advice that wetlands require special attention since their loss and degradation have already reached critical proportions in this region.



On federal lands, the *Federal Policy on Wetland Conservation* aims to ensure that there is no net loss of wetland functions. The proponent has therefore planned compensation projects for projects under its control, including phases 1 to 3 of the project, in order to achieve this goal.

On provincial lands, the Agency is of the view that the *Regulation respecting compensation for adverse effects on wetlands and bodies of water*, which requires proponents to put forward the "avoid-minimize-compensate" mitigation sequence, would prevent a net loss of ecological functions when implementing nearby projects, particularly given the high financial contributions that may be required from a proponent in the event of wetland losses.

The Agency supports ECCC's advice that the implementation of compensation projects for all projects under the proponent's control is essential to avoid significant cumulative effects on wetlands. The follow-up of the offset project that the proponent proposes for phase 1 would make it possible to validate the effectiveness of the proposed measures. If they prove successful and the proponent wishes to develop phases 2 and 3 of the terminal, it could consider implementing the compensatory measures associated with these phases before they are carried out, as recommended in the *Operational Framework for Use of Conservation Allowances* (ECCC, 2012). The Agency supports the MELCC's opinion that the compensation project, through the creation or restoration of wetlands, should be carried out elsewhere than at the site of the work itself, in order to avoid disturbing the environment twice and, as much as possible, in the same watershed.

Identification of Key Mitigation Measures

Taking into account the mitigation measures proposed by the proponent, the advice of government experts, as well as the comments received from the First Nations consulted and the public, the Agency has determined that the mitigation and compensation measures proposed by the proponent for phase 1 of the project (see section 5.2) are necessary to ensure that there is no significant adverse cumulative effect on wetlands. However, the Agency adds the following measures:

- Participate, at the request of a relevant authority, in any regional initiative pertaining to the contribution of the project to the cumulative environment effects on conservation of wetlands and their functions that the implementation of the project, combined with the implementation of other physical activities, past or future, is likely to cause, in the event that there is such an initiative during the construction or operation of the project.
- Implement any mitigation measure that is technically and economically feasible or follow-up program identified through any regional initiative and which is under its responsibility.

Need for Follow-up and Follow-up Requirements

The Agency considers that the follow-up proposed by the proponent for phase 1 of the project (see section 5.2) would make it possible to verify the effectiveness of the proposed mitigation measures and ensure that cumulative effects on wetlands remain limited.



Conclusions

Based on the federal and provincial regulations in place and the implementation of the mitigation and follow-up measures identified above, the Agency is of the view that the project is not likely to cause significant adverse cumulative effects on wetlands.

6.3.3 Copper Redhorse

Analysis of Cumulative Effects and Mitigation Measures Proposed by the Proponent

Status Report

The spatial boundaries selected by the proponent for the assessment of cumulative effects on the copper redhorse correspond to the river section between Île Bouchard in the west and the Sorel Islands in the east, which is the feeding habitat for the adults of this species (SNC-Lavalin, April 2019) (Figure 17).

The proponent set the past temporal limit in the mid-1980s, when the first indications of the decline of the species were reported. The future temporal limit is 2080, the same as the one mentioned in section 6.3.1.

Past, current and reasonably foreseeable projects and activities identified by the proponent as most likely to affect the copper redhorse and its feeding habitat are presented in section 6.3.1. In addition to these, the following projects and activities have been identified:

- Increase in commercial navigation;
- Initial dredging and maintenance of the shipping channel.

The proponent also mentions the coming into force of the *Species at Risk Act* and the *Act Respecting Threatened or Vulnerable Species*, as well as the publication of the Plan de rétablissement du chevalier cuivré au Québec 2012–2017 and the 2012 Recovery Strategy for the copper redhorse in Canada as elements that could have an influence on the status of the species.

Fish inventories conducted in the waters of the Montreal area between 1963 and 1985 showed a significant decline in the relative abundance of copper redhorse compared to other redhorse species (COSEWIC, 2014). The copper redhorse is distinguished from other redhorse species by its great longevity, its late sexual maturity and its specialized diet. As indicated in section 5.3, the copper redhorse's distribution range is extremely restricted. The Richelieu River is the only known location where the species breeds. The St. Lawrence River and its main tributaries are used as a feeding area. According to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC, 2014), anthropogenic pressures (e.g., agriculture, aquaculture, water pollution, shoreline artificialization) have deteriorated and fragmented the copper redhorse's critical habitat, which is located in the most densely populated regions of Quebec. These pressures on the species' habitat, as well as its low reproductive success, are the key elements explaining its decline and compromising its recovery (COSEWIC, 2014).

In response to this situation, an artificial reproduction and stocking program was undertaken in the Richelieu River in 2004. For the time being, monitoring has not confirmed whether the species has



reproduced naturally, but the survival of the seeded young has been demonstrated (COSEWIC, 2014). The breeding and stocking efforts carried out by Quebec's Ministère des Forêts, de la Faune et des Parcs between 2008 and 2013 at the Saint-Ours Canal National Historic Site also seem promising. The population of fish aged 5 to 10 years old, probably from these stocking efforts, is constantly increasing in the Richelieu River (Parks Canada, 2019).

With respect to the local study area, the consolidation of the industrial zone in the 1950s created encroachments on fish habitat and possibly copper redhorse feeding habitat. Over the years, other shoreline developments have been added.

Currently, the survival of the copper redhorse relies essentially on interventions to protect the species and its habitat as well as reintroduction initiatives. Several actions have been put forward for the protection and recovery of the copper redhorse, such as the development of the Vianney-Legendre fishway at the Saint-Ours Canal National Historic Site in 2001 (COSEWIC, 2014).

Potential Effects

In the past, urbanization in the region, dredging of the shipping channel and bank erosion may have had an effect on the feeding habitat of the copper redhorse.

According to the proponent, the main future projects likely to cause cumulative effects on the copper redhorse are phases 1 to 3 of the port terminal. The dredging required to maintain the ship channel and the terminal's approach area could sporadically affect water turbidity (SNC-Lavalin, April 2019). The anticipated increase in commercial navigation in the St. Lawrence River, in addition to that associated with the two subsequent phases of development of the port terminal, could generate potential effects on aquatic grass beds and riparian ecosystems, particularly due to increased scour and bank erosion (SNC-Lavalin, April 2019). Aquatic grass beds are the essential feeding habitat for adult copper redhorses.

As indicated in Chapter 5.3, Fisheries and Oceans Canada is of the view that the increase in turbidity in the water column and the deposition of sediment in the aquatic grass beds located downstream could disturb the copper redhorse's nutrition.

The construction of the wharf and dredging of the approach area in phase 1 of the project would result in the loss of 0.9 hectares of aquatic grass beds. The proponent estimates the additional loss of aquatic plants at 1.8 hectares for phase 2 (in about 25 years) and 2.6 hectares for phase 3 (in about 50 years). Thus, according to the characterization work and estimates carried out by the developer between 2018 and 2020, cumulative losses of aquatic grass beds related to the port development in Contrecoeur could amount to approximately 5.3 hectares for the three expansion phases. According to the proponent, this area is negligible compared to the 600 hectares of available aquatic grass beds within the spatial limits (Figure 17) (SNC-Lavalin, April 2019).

Climate change impact scenarios show a decline in Great Lakes outflows over the next century (SNC-Lavalin, April 2019). These decreases in flow would have the effect of reducing the available habitat area, particularly critical between Montreal and Sorel-Tracy. Climate change could also amplify the effects



of invasive species on copper redhorse habitat due to increased water temperature, competition between species, predatory pressure and disease virulence (DFO, 2012).

Some members of the public wish to prevent the construction of the terminal from affecting the habitat of the copper redhorse. They suggest that the fish be moved to other existing habitats or to protected reserves where they would be safe. The Kahnawà:ke Mohawk Council is concerned about the cumulative effects of urbanization, agriculture, dams and navigation that have weakened the copper redhorse over time and would like to see the feeding habitats (aquatic grass beds) for the copper redhorse located near the proposed terminal protected from erosion. The Huron-Wendat First Nation would like the proponent to fully compensate for the loss of potentially affected aquatic grass beds during phase 1 of the project. It adds that this loss could be much greater if the two subsequent phases are carried out.

According to the proponent, the cumulative effects on copper redhorse habitat appear to be significant considering:

1. The deterioration and fragmentation of its habitat, which explains its decline and limits its recovery;
2. The effects of climate change and possible drops in water levels in the river;
3. An aging population, extremely low recruitment and deemed insufficient to balance natural mortality;
4. The maintenance or future increase of anthropogenic pressures on the species.

However, the proponent believes that the relative contribution of the project to the cumulative effects on the copper redhorse is low since:

1. The presence of the copper redhorse has not been confirmed on the coastline in front of the MPA territory, nor downstream, before the Îles de Contrecoeur;
2. The projected encroachment and apprehended modification of the species' feeding habitat (aquatic grass beds) by the project would be compensated, so that there would be no net loss of feeding habitat (SNC-Lavalin, April 2019).

The Mohawk Council of Kahnawà:ke deplores the fact that the analysis of cumulative effects on the copper redhorse is not based on a threshold from which it would be difficult or impossible for the species to recover and asserts that the species uses the aquatic grass beds located north of the navigation channel near Île Bouchard.



Proponent's Proposed Mitigation and Follow-up Measures

In order to mitigate its contribution to the cumulative effects on the copper redhorse, the proponent proposes:

- To apply, for phases 2 and 3, all measures identified for phase 1 of the project and that mitigate or compensate for the effects of the project on fish and fish habitat and on the copper redhorse, including the measures that will be required by the authorities responsible for authorizing expansion projects;
- Pursue the voluntary reduction program of ship speeds during the implementation of phases 2 and 3.

Fisheries and Oceans Canada considers the second measure to be the primary one that can avoid or mitigate cumulative effects related to navigation. It also considers the approach of documenting the condition of the banks and aquatic grass beds during the project's operation phase using earth observation technologies (see section 5.3) to be relevant.

Agency Analysis and Conclusions on Residual Cumulative Effects

Effects Analysis

The Agency's analysis is based on the assessment of cumulative effects on the copper redhorse carried out by the proponent, on the comments received from First Nations and the public, as well as on the advice of Fisheries and Oceans Canada and the MELCC.

Given the characteristics of the habitats present in the project's area of influence, the copper redhorse is likely to be present at the project site and be affected by the work. A total of approximately 5.3 hectares of aquatic grass beds would be destroyed by the construction of the wharves and the dredging of the approach areas after completion of the three phases of the project. The Agency is of the view that this area could increase or decrease in 25 or 50 years.

The MELCC specifies that if the proponent goes ahead with phases 2 and 3 of the Contrecoeur port terminal expansion, the issue surrounding the copper redhorse habitat will become a priority, as compensation for such habitat remains very complex and involves a large amount of uncertainty.

Fisheries and Oceans Canada notes that the proponent has assessed cumulative effects with emphasis on the subsequent phases of development of its Contrecoeur property (eastern part). They recall that in 2012, it indicated to the proponent that it was not prepared to authorize phase 1 of the port expansion project in the eastern part of its property, particularly because of the significance of the impacts that the project would have generated on the critical habitat of the copper redhorse (aquatic grass beds).

The Agency is of the view that the cumulative effects on the copper redhorse and its habitat have been adequately documented by the proponent. It notes that the population is aging, that the number of mature individuals is still extremely low, and that other factors could contribute to cumulative effects on the species and on the deterioration and fragmentation of its habitat, including the effects of climate change (possible decreases in river water levels), erosion and anthropogenic pressures.



The Agency is of the view that the regulations in place, both federally and provincially, would allow for adequate protection of the copper redhorse in the event that a proponent wishes to carry out a project in or near the copper redhorse's critical habitat. In particular:

- *Species at Risk Act*: This Act was introduced in 2002 and includes several prohibitions, including the prohibition against killing, harming, harassing, capturing or taking a listed wildlife species and the prohibition against destroying any part of its critical habitat. It also contains other protective measures such as the requirement for the relevant minister to prepare a recovery strategy for endangered or threatened species, authorization mechanisms to allow the carrying out of an activity affecting a species at risk or an element of its critical habitat, the issuance of emergency orders, and provisions to monitor the application of the Act. The copper redhorse has been listed as an endangered species on Schedule 1 of this Act since 2007;
- *Act Respecting Threatened or Vulnerable Species*: Since 1999, the species has had the most important status in force in Quebec, that of "threatened species." Section 5 of this Act states that the *Act Respecting the Conservation and Development of Wildlife* governs threatened or vulnerable wildlife species and their habitats;
- *Act Respecting the Conservation and Development of Wildlife*: It provides legal protection for the Pierre-Étienne-Fortin refuge in the Chambly rapids against possible modifications to the physical, chemical or biological elements of the habitat, and prohibits any activity during the spawning and incubation period for copper redhorse eggs, from June 20 to July 20, in areas used for this purpose. This Act also allows for the protection of fish habitat through the preparation of wildlife habitat plans that set the standards and conditions for intervention in the environment (Chapter IV.1 of the Act);
- *Fisheries Act*: Protects fish habitat, including copper redhorse, by prohibiting any work or undertaking that results in the killing of fish or the harmful alteration, disruption or destruction of fish habitat, unless authorized by the Minister of Fisheries, Oceans and the Canadian Coast Guard;
- *Quebec Fishery Regulations*: It is prohibited to use as bait the species of fish mentioned in Schedule 4 of these Regulations. The copper redhorse is part of these Regulations;
- The *Plan de rétablissement du chevalier cuivré au Québec 2012-2017* – also specifies that it is prohibited to capture suckers and redhorses during sports fishing (and to keep them) in the copper redhorse's distribution range except for Lake Saint-Pierre and its archipelago, in order to limit copper redhorse mortality. It is also mentioned that all commercial fishermen have a release obligation in the event that a copper redhorse or river redhorse is caught.

In addition to legal protection, other conservation measures are in effect in connection with the species, such as the recovery plans by Quebec's Ministère des Ressources naturelles et de la Faune (2012) and by Fisheries and Oceans Canada (2012). A multispecies fish pass was put into operation in 2001 at the Saint-Ours Canal National Historic Site and its dam, allowing the free passage of fish. In addition, the creation of the wildlife refuge in the Chambly rapids aims to preserve the integrity of the most important of the two known spawning grounds to ensure the tranquility of spawners during the breeding period and to protect the eggs from trampling during incubation. The protection of Île Jeannotte and Île aux Cerfs provides special protection to sites conducive to the growth of the copper redhorse, whose banks are practically the only ones in this section of the Richelieu River that have not been artificialized. Various



other interventions in the area also take place, including awareness activities for shoreline property owners.

The Agency also notes the breeding and seeding programs currently underway, as well as the compensatory measures and complementary initiatives proposed by the proponent for phase 1.

Identification of Key Mitigation Measures

The Agency is of the view that all mitigation and compensation measures proposed by the proponent in section 5.3.2 of this document would help reduce cumulative effects on the copper redhorse, but that the mitigation measures specified below are also necessary to ensure that the project, in combination with other projects or activities that have been or will be carried out, does not cause significant cumulative effects on the species. It took into account the mitigation and compensation measures proposed by the proponent, the advice of government experts, as well as the comments of the First Nations consulted and the public. The Agency also ensured that measures consistent with any recovery strategy will be taken to avoid, mitigate and monitor adverse effects on the copper redhorse should the project proceed.

- Implement measures to raise awareness with the operators of ships serving the project of the importance of observing the voluntary ship speed reductions in force between Sorel-Tracy and Contrecoeur.
- Require and ensure that the ships serving the project procure the services of at least one tugboat for berthing and casting off manoeuvres.
- Participate, at the request of a relevant authority, in any regional initiative pertaining to the contribution of the project to the cumulative environment effects on the copper redhorse that the implementation of the project, combined with the implementation of other physical activities, past or future, is likely to cause, in the event that there is such an initiative during the construction or operation of the designated project.
- Participate, at the request of a relevant authority, in any regional initiative pertaining to the contribution of the project to the cumulative environmental effects of shore erosion on fish and fish habitat and on species at risk and their habitat that the implementation of the project, combined with the implementation of other physical activities, past or future, is likely to cause, in the event that there is such an initiative during the construction or operation of the project.
- Implement any mitigation measure that is technically and economically feasible or follow-up program identified through any regional initiative and which is under its responsibility.

Need for Follow-up and Follow-up Requirements

In order to confirm the predicted cumulative effects on the copper redhorse and the effectiveness of the proposed mitigation measures, the Agency does not recommend a follow-up program in addition to those already identified in section 5.3.2.



Conclusions

Based on the federal and provincial legislation in place, the protection initiatives implemented and the application of the mitigation and follow-up measures identified above, the Agency is of the view that the project is not likely to cause significant adverse cumulative effects on the copper redhorse.

6.3.4 Western Chorus Frog

Analysis of Cumulative Effects and Mitigation Measures Proposed by the Proponent

Status Report

Cumulative effects on the western chorus frog were assessed by the proponent, taking into account several activities that overlapped or would overlap spatially and temporally with the project. The spatial boundaries selected by the proponent for the assessment of cumulative effects on the western chorus frog correspond to the geographic boundaries of critical habitat, residence and potential habitats. The past temporal boundary is the 1950s, which also corresponds to the beginning of intensive agricultural development. The future temporal boundary is set at 2080, which would correspond to the year of full operation of the three phases of the project. According to the proponent, the reasonably foreseeable projects and activities mentioned in section 6.3.1 could affect the western chorus frog (with the exception of urbanization and development in riparian zones and the Cité 3000 and Technopôle de Contrecoeur projects), as well as the following projects and activities:

- Costco distribution centre in Varennes;
- Plant for the transformation of waste into biofuels in Varennes.

The proponent also mentions the following elements that could have an influence on the species:

- Use of pesticides;
- Critical Habitat of the western chorus frog (*Pseudacris triseriata*) Great Lakes / St. Lawrence – Canadian Shield Population Order (2018-169);
- Action plan (Environment Canada, 2015) and future conservation plan for the population of Contrecoeur (Lyne Bouthillier, MFFP, personal communication, January 31, 2019);
- The lack of development on the land owned by the MPA west of Montée Lapierre and south of Route 132 to Highway 30, as well as on the land between Route 132 and the railway east of Montée Lapierre (excluding the MPA's connecting road) (Figure 18).

The western chorus frog now occupies only 10% of its historical range. In Montérégie, between the municipalities of Beauharnois and Contrecoeur, the species has a little over 800 fragmented sites on a thin strip 20 kilometres wide (Environment Canada, 2015b). In five years (from 2004 to 2009), 14% of the wetlands used for its reproduction were destroyed in the region (Environment Canada, 2015b). The main cause of the species' decline is the loss and degradation of suitable habitat due to residential, commercial and industrial development (Environment Canada, 2015b).



The Contrecoeur population is isolated from the main range of the species, the closest population being located in Varennes, a little more than 20 kilometres from Contrecoeur (SNC-Lavalin, April 2019). The ties that linked it to the current metapopulations have disappeared as a result of habitat modification. ECCC notes that any natural contribution of new individuals through migration to increase the population of Contrecoeur is impossible and that several elements indicate that this population is in a precarious state. On the basis of recent information, ECCC points out that the spring inventories of the last few years have highlighted low or no activity at several breeding sites, destruction of breeding habitats, limited connectivity between occupied breeding environments (by infrastructure or unsuitable habitat) and other threats, such as invasion by common reed, which weigh down on the species' habitat.

The Contrecoeur's population situation can be explained by habitat losses related to the development of intensive agriculture (including the drainage of temporary wetlands), the loss of open terrestrial environments (wet meadows, tidal flats), urbanization, as well as the development of the road network (including Highway 30) and industrial zones. On the other hand, the abandonment of agricultural land and the halt to its drainage and deforestation have played a favourable role in maintaining the population of Contrecoeur.

Habitats located outside the MPA property and likely to meet the vital needs of the species are wastelands, as well as wooded areas and their edges.

A recovery strategy (Environment and Climate Change Canada, 2015) and a recovery plan (Équipe de rétablissement de la rainette faux-grillon de l'ouest du Québec, 2019) have been developed for the western chorus frog.

Potential Effects

The proponent believes that the relative contribution of its project to the total cumulative effects on the western chorus frog would be negligible because the project area does not overlap with critical habitat, residences or potential habitats. Some of these habitats and residences are located on the MPA's property, in the area west of Montée Lapierre and south of Route 132 to Highway 30, as well as on the land between Route 132 and the railway east of Montée Lapierre (excluding the section of railway under its management) (Figure 18). However, the proponent does not plan to develop or transfer land in this part of the territory (SNC-Lavalin, August 2020b). The proponent also does not plan, in the foreseeable future (60 years), to build infrastructure in the portion of the species' critical habitat located on its property (SNC-Lavalin, April 2019).

It estimates that changes in hydrology in the project area during the two subsequent phases would not affect the frog breeding sites and temporary wetlands, which are located upstream of the hydrologic network and south of Highway 132 and the project area for these phases (SNC-Lavalin, April 2020b). It should be noted that the wetlands that could be destroyed by the completion of phases 2 and 3 are located north of Highway 132 and that no occurrence of the western chorus frog was detected during the inventories conducted by the proponent.

An increase in road traffic (trucks and vehicles of port personnel and current or future businesses) is expected in the sector, including the Montée de la Pomme-d'Or, Route 132 and Montée Lapierre. The latter passes through the critical habitat and the residence of the western chorus frog (SNC-Lavalin,



April 2019) (Figure 18). The proponent points out that the establishment of a logistics hub would not increase truck traffic on Montée Lapierre since the terminal's entrance and exit would be designed so that trucks carrying containers during the operational period (for all three phases), including those connected to a potential logistics hub, would only use Montée de la Pomme d'Or (SNC-Lavalin, August 2020b).

The proponent believes that the projected noise level at the terminal would be negligible compared to other sources outside the territory of the MPA. However, potential noise-related effects are expected in the vicinity of the railway line, particularly for Phase 3 of the project. Four trains per day could be reached at the maximum operating capacity of this phase, i.e., in about 60 years. A maximum noise level of 30 minutes per day could cause frog disturbance at a given point on the track edge.

The proponent states that, as in phase 1, the water quality of the frog's breeding sites would not be affected by subsequent phases since they are located upstream from the project. Furthermore, dust emissions would increase with the start of operations for phases 2 and 3, and during the construction periods. However, the estimated dust emission rates for the three phases would remain negligible compared to the current rate, and no impact is expected on the water quality of the western chorus frog breeding sites.

Climate change could lead to fluctuating water levels on breeding sites, especially in temporary wetlands, and affect the western chorus frog. The proponent also adds that plant succession⁷⁵ in the frog's habitats, particularly its breeding sites, could constitute a threat to the species, which appears in open and semi-open environments. The development of a closed forest environment would constitute a threat to the sustainability of the species.

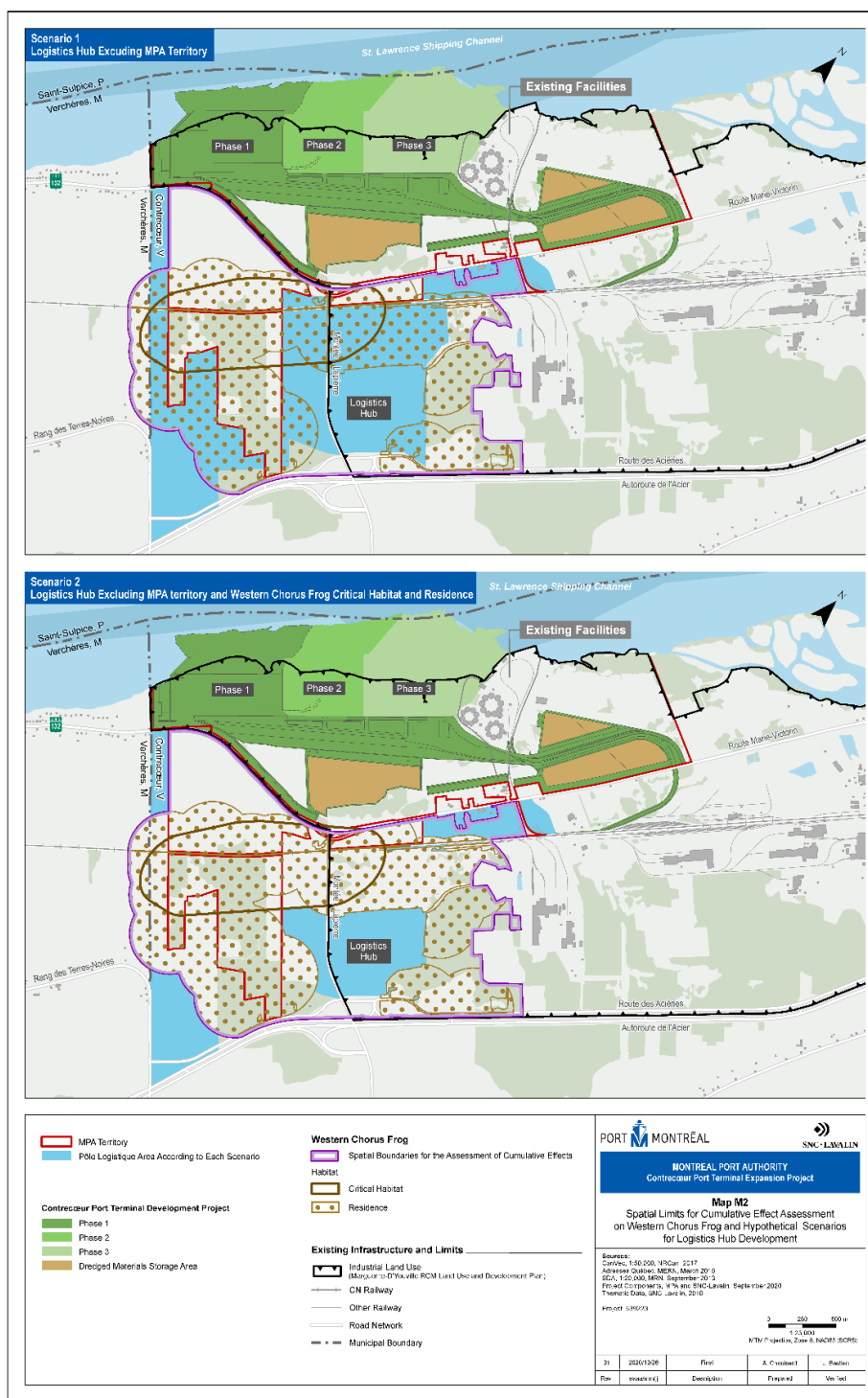
As mentioned in section 6.3.2, the proponent considers that economic development related to the new port facilities and related projects could increase residential and commercial development in the region and thus lead to increased pressure on wetlands (SNC-Lavalin, April 2019), which are potential habitats for the species. The effect of this development on wetlands is difficult to quantify, but could be mitigated by Quebec's *Regulation respecting compensation for adverse effects on wetlands and bodies of water*.

With respect to the possibility of a logistics hub⁷⁶ being set up near the Contrecoeur port terminal, the proponent states that its location is currently unknown and beyond its control (SNC-Lavalin, August 2020b). In order to respond to the Agency's request to assess the potential contribution of the development of a logistics hub to the cumulative effects on the western chorus frog, two hypothetical scenarios were considered by the proponent (Figure 18). These scenarios are based on a preliminary outline published in 2015 by the region's economic stakeholders, shortly after the announcement of the Government of Quebec's Maritime Strategy. However, the proponent considers that the analysis of cumulative effects is difficult and potentially misleading since no information is available at this time concerning the initial concept, the ground area, the type of infrastructure and the nature of the activities of the logistics hub.

⁷⁵ Gradual succession of plant species that appear as a result of a natural or man-made disturbance in an environment.

⁷⁶ A logistics hub is a multimodal industrial park grouping together companies and distribution centres that carry out logistics activities allowing goods to transit efficiently. It may include services related to customs and financial activities, information technology, communications and research and development.

Figure 18: Spatial Boundaries for the Cumulative Effects Assessment on the Western Chorus Frog and Potential Logistics Hub Location Scenarios



Source: SNC-Lavalin, October 2020



The Agency believes that the preliminary 2015 outline may no longer be current and agrees with ECCC that the potential logistics hub project has remained at the conceptual stage in recent years and that there are no project notices or projects under review and no known proponents. ECCC acknowledges that, to date, there is a great deal of uncertainty as to the composition (infrastructure, types of activities, etc.) and location of the logistics hub and, for this reason, considers the use of scenarios to be an appropriate method for analyzing potential cumulative effects on the western chorus frog, its habitat and its residence.

According to the first hypothetical scenario, the logistics hub would be located outside the MPA property. The western chorus frog population would lose 41.6 hectares (41.0%) of its critical habitat and 121.0 hectares (40.7%) of its residence (Figure 18). The species would have 57.8 hectares of its critical habitat and 101 hectares of its residence conserved within the MPA property. The development of the logistics hub would result in the loss of breeding, hibernation and feeding sites within this perimeter. It would also lead to habitat fragmentation and the appearance of barriers to movement for the western chorus frog, including increased road mortality. Residual potential breeding sites would be isolated from each other. The dynamics that allow exchanges of individuals between the different breeding sites according to their hydroperiod would be altered. The cluster's activities could also have indirect effects on the western chorus frog through noise, changes in hydrology, water quality and road mortality. The proponent believes that the Contrecoeur western chorus frog population would be compromised under this scenario. It considers the significance of the cumulative effects on the species to be high and considers that the relative contribution of its project would be negligible.

The second hypothetical scenario represents a logistics hub outside the MPA territory and outside the habitat of the western chorus frog (essential habitat and residence). According to this scenario, no loss of habitat is anticipated, nor mortality of individuals. Indirect effects (noise, road mortality) could, however, occur due to the development of the logistics hub on the periphery of the critical habitat and residence of the western chorus frog. The proponent deems the significance of cumulative effects in this scenario on the species to be low to negligible and considers the relative contribution of its project to cumulative effects to be negligible.

In addition to these two scenarios, the proponent believes that the cumulative effects on the western chorus frog could be significant overall by considering:

1. All the activities and projects that contributed to the decline of Contrecoeur's population in the past;
2. Climate change that will affect breeding sites in the future;
3. The change in the composition of plants present in the habitats that would take place in the medium term.

Considering the threatened status of the western chorus frog under the *Species at Risk Act*, the proponent expects the relevant provincial and federal authorities to protect this species at risk, as well as the wetlands and water environments that constitute habitats for it.



Proponent's Proposed Mitigation and Follow-up Measures

In order to mitigate the contribution to the cumulative effects on the western chorus frog that could result from phases 2 and 3, the proponent suggests maintaining the mitigation measures it wishes to implement in phase 1 aimed at reducing road mortality and, if necessary, to adjust them in the two subsequent phases.

It believes that some of the measures proposed for phase 1 would also help mitigate the cumulative effects of its project on the western chorus frog, including monitoring breeding activities and hydroperiod at the breeding sites, monitoring the quality of terrestrial habitat (plant succession) and improving connectivity between east and west of Montée Lapierre (detour fences). The proponent has also recently modified the footprint of its project by choosing not to develop the section of slope it planned to build along the northern edge of Route 132 east of Montée Lapierre. This section of slope would have been built in a wasteland and a wooded area located opposite a western chorus frog breeding site south of Route 132.

The proponent also plans to participate in other actions in cooperation with government agencies involved in the conservation of the western chorus frog and having jurisdiction over land located outside the MPA property:

- Participate in work to maintain connectivity between breeding sites in consultation with ECCC and Quebec's Ministère des Forêts, de la Faune et des Parcs;
- Create a buffer zone along the ditches bordering the railway.

Agency Analysis and Conclusions on Residual Cumulative Effects

Effects Analysis

The Agency's analysis is based on the proponent's assessment of effects on the western chorus frog, comments received from First Nations and the public, as well as advice from ECCC and the MELCC.

The Agency notes that the species continues to be impacted by residential, commercial and industrial development that results in the destruction of wetlands and breeding sites and fragments its habitat. It notes, in particular, that the Contrecoeur population is isolated from the main range of the species and that it is in a precarious state. Added to this is the uncertainty related to climate change, which could affect the medium and long-term maintenance of the Contrecoeur western chorus frog population, particularly by modifying the flood duration (or hydro-period) of the temporary wetlands where it breeds. The Agency supports the opinion of ECCC, which agrees with the proponent's assessment that the project's contribution to the cumulative effects on the western chorus frog is negligible.

The Agency is of the view that the protection of critical habitat, residence and suitable habitat for the western chorus frog remains an issue in the medium and long terms considering the future development pressure on the lands adjacent to the port terminal project and the increase in road and rail transportation that could result. ECCC and the Mohawk Council of Kahnawà:ke also believe that the container terminal project could promote the future development of projects or activities on the periphery of the MPA's



territory and are concerned about the potential effects of this development on the western chorus frog, its critical habitat and its residence.

The short-term objective of the Recovery Strategy for the western chorus frog (ECCC, 2015b) is to "maintain the areas of suitable habitat occupied and the level of breeding population within each local population and, where a metapopulation is present, maintain connectivity between the local populations comprising the metapopulation." Thus, any further loss of suitable habitat or connectivity in the Contrecoeur metapopulation would be contrary to the recovery strategy.

Its long-term goal is to ensure the viability of each local population by increasing the amount of suitable habitat and, where feasible, restoring historic local populations or creating new habitats. ECCC and the Mohawk Council of Kahnawà:ke are of the view that the development of future projects on the lands surrounding the proposed port terminal would risk encircling the habitat occupied by the western chorus frog and make it difficult, if not impossible, to increase the areas of suitable habitat or create new habitat.

While considering the hypothetical nature of the scenarios studied, ECCC is of the view that the proponent's Scenario 1 would create significant pressure and risk for the western chorus frog, its critical habitat and residence, and that no compensation plan could compensate for this habitat loss given the current uncertainties related to the success of the creation of breeding sites. In the event that Scenario 2 were to occur, ECCC believes that the potential effects on the western chorus frog, its critical habitat and residence would be limited. According to information obtained from the Government of Quebec (November 2020), Scenario 2 is preferred for the establishment of a potential logistics hub in Contrecoeur.

The MELCC is of the view that the development of the logistics hub could lead to a series of impacts on the western chorus frog and its habitat (displacement, reproduction, light pollution, air and water pollution, increased noise and human activity, etc.).

The Agency is aware that the distribution of populations is known in the area, that the species is the subject of federal and provincial recovery plans and that the portion of its critical habitat located on the MPA property is protected by an Order (SOR/2018-169). The MELCC notes that activities carried out on protected land must be compatible with the protection of the species.

The Agency notes that the status of the species in Quebec is vulnerable and that its habitat outside the federal territory in Contrecoeur does not benefit from any designation or legal protection at the provincial level. The Mohawk Council of Kahnawà:ke believes that legal protection for the western chorus frog is insufficient under provincial legislation, which is a major concern for the Council. However, the Agency notes that several provincial laws and regulations provide relevant protection mechanisms (Government of Canada, 2015):

- *Act Respecting Threatened or Vulnerable Species*: Applies on non-federal land. Section 5 states that the *Act Respecting the Conservation and Development of Wildlife* governs threatened or vulnerable wildlife species and their habitats;
- *Act Respecting the Conservation and Development of Wildlife*: Applies on non-federal land. Section 26 of this Act prohibits the disturbance, destruction or damage of an animal's eggs. Through this section, it is possible to protect the frog's breeding habitat during the breeding

season, regardless of land tenure. However, this Act does not include a provision for other life stages for the species. It also prohibits the capture or possession of western chorus frogs, while prohibitions against killing, injuring and harassing other life stages of the individual apply in the context of hunting (as defined by the Act);

- *Environment Quality Act (EQA)*: It applies on non-federal land. This Act could ensure the protection of individual western chorus frog on non-federal lands by imposing enforceable conditions in certificates of authorization issued for development projects. Wetlands and aquatic environments on private lands are subject to section 22(4) of the EQA and to division V.1 of the EQA dealing with wetlands and aquatic environments. The proponent must then submit an application for authorization to the Government of Quebec and provide it with, among other things, a characterization of the ecological functions of the wetlands and bodies of water likely to be affected, indicating, in particular, the presence of threatened or vulnerable species or species likely to be designated as such. Section 46.0.6 of this Act gives the Minister the authority to refuse to issue the authorization where the Minister is of the view that the project affects the ecological functions and biodiversity of the wetlands or watershed to which they belong. The Minister may also revoke or suspend a certificate of authorization;
- *Act Respecting Land Use Planning and Development* and the *Municipal Powers Act*: These Acts allow municipalities to designate areas as municipal parks or conservation areas ("wilderness conservation areas") on land they own. While most of these areas are created to maintain green space for public use (recreation and related infrastructure), municipalities can prohibit activities that may kill, injure or harass western chorus frogs. Available information suggests that there is currently no provision that specifically protects western chorus frogs in areas where their residual habitat is found and that the associated penalties are low compared to those under the *Species at Risk Act*. No information is available on how these measures are enforced by municipalities;
- *Natural Heritage Conservation Act*: This Act provides for the protection of western chorus frogs on private or municipal lands through the creation of private nature reserves that include habitat protection measures. It prohibits activities that may kill, injure or harass western chorus frogs by including measures and conditions in habitat conservation agreements;
- *Regulation Respecting Wildlife Habitats* (under the *Act Respecting the Conservation and Development of Wildlife*): This regulation could protect some frog habitat through the designation of wildlife habitat on provincial Crown land. Once designated under the *Act Respecting the Conservation and Development of Wildlife*, wildlife habitat and its boundaries are described, and additional prohibitions may be imposed through related regulations. Permits may only be issued for scientific, educational, or management and conservation purposes. Prohibitions on the destruction of the biophysical characteristics of a species' habitat come into effect automatically once a wildlife habitat is designated. The regulation applies only to Crown land. For example, western chorus frog habitat is not eligible for legal protection under the *Act Respecting the Conservation and Development of Wildlife* if it is located on private land;
- *Regulation Respecting the Environmental Impact Assessment and Review of Certain Projects*: Only projects listed in Schedule 1 of this Act are subject to the Environmental Impact Statement and review procedure and require prior authorization from the government;



- *Regulation Respecting Compensation for Adverse Effects on wetlands and Bodies of Water*: This regulation requires project proponents to implement the "avoid-minimize-compensate" mitigation sequence and to avoid net losses of wetland ecological functions during the potential implementation of future projects. High financial contributions may be required from a proponent in the event of wetland losses. Wetlands are habitats generally suitable for western chorus frogs.

Outside the MPA territory in Contrecoeur, the habitat of the western chorus frog is located on private land and cannot benefit from legal protection under the *Act Respecting the Conservation and Development of Wildlife*, except for its breeding habitat during the breeding period. If proponents wish to develop residential, commercial and industrial projects on or adjacent to western chorus frog habitat, these projects would not be subject to the *Regulation Respecting the Environmental Impact Assessment and Review of Certain Projects* unless they are included in Schedule 1 of that Regulation, which is unlikely. The *Environment Quality Act* could indirectly protect the habitat of the western chorus frog, as it includes provisions allowing the Government of Quebec to review projects affecting wetlands and aquatic environments (habitats conducive to the western chorus frog) and to impose enforceable conditions on the proponent or to refuse such projects. Nevertheless, despite the inclusion of conditions, projects have been carried out in the last decade in western chorus frog habitats that have had the effect of harming the species' population. Finally, the *Regulation Respecting Compensation for Adverse Effects on Wetlands and Bodies of Water* could discourage the development of projects on wetlands because of the high financial compensation required. Following the review of provincial regulations, the Agency is of the view that the Government of Quebec has legislative tools (mainly the *Environment Quality Act*) to ensure the protection of the western chorus frog and its habitat. ECCC believes that the *Environment Quality Act* could protect the wetlands that are part of the western chorus frog habitat. However, the protection of the terrestrial portion of the western chorus frog habitat would not be adequately protected by this Act.

ECCC points out that the lands surrounding the MPA property where the western chorus frog is located do not benefit from legal protection at the federal level similar to that which applies on federal lands or on lands covered by prohibitions under an Order in Council, such as the Emergency Order for the Protection of the western chorus frog (Great Lakes / St. Lawrence – Canadian Shield Population). The *Species at Risk Act* does, however, provide various tools or mechanisms that could be applied to protect the western chorus frog from threats to its survival or recovery outside of federal lands, including section 80, allowing for the adoption of an emergency order.

Due to the precarious status of this species, ECCC is of the view that any future loss of critical habitat or additional residence of the western chorus frog metapopulation could significantly harm or compromise the possibility of survival or recovery of the species and must be avoided. In the event that future development projects take shape outside of federal lands, ECCC believes that every effort should be made to avoid affecting the critical habitat and residence of the western chorus frog.

One environmental group disagreed with the Agency's conclusion that the cumulative effects on the western chorus frog metapopulation in Contrecoeur would not be significant. One regional organization emphasizes the importance of the western chorus frog and supports the Agency's conclusions and proposed actions.



Identification of Key Mitigation Measures

The Agency took into account the mitigation measures proposed by the proponent, the advice of government experts, as well as the comments received from the First Nations consulted and the public. The Agency also ensured that measures consistent with any recovery strategy were taken to avoid, mitigate and monitor adverse effects on the western chorus frog, should the project proceed.

The Agency notes that the proponent proposes several mitigation measures consistent with the species' recovery strategy. The implementation of these measures is relevant to mitigate the potential cumulative effects on the western chorus frog. The MELCC considers that the implementation of a habitat restoration project promoting, among other things, connectivity would contribute to the recovery of the western chorus frog population in Contrecoeur.

ECCC is satisfied with the proponent's commitment to implement additional mitigation measures. Indeed, ECCC believes that the implementation of measures consistent with the recovery strategy for the species is relevant to mitigate the potential cumulative effects on the Contrecoeur metapopulation. However, at this stage, ECCC cannot comment on the effectiveness of the proposed additional measures.

The Agency is of the view that all of the mitigation and compensation measures proposed by the proponent in section 5.5.2 of this document contribute to reducing cumulative effects on the western chorus frog, but that the following mitigation measures are also necessary to ensure that the project, in combination with other projects or activities that have been or will be carried out, does not result in significant cumulative effects on the species.

- Participate, at the request of a relevant authority, in any regional initiative pertaining to the monitoring, assessment or management of the cumulative environmental effects on the western chorus frog that the implementation of the project, in combination with the implementation of other past or future physical activities, is likely to cause, including any initiative established pursuant to the Government of Canada's Recovery Strategy for the western chorus frog, Great Lakes/St. Lawrence – Canadian Shield Population, in Canada, in the event that there is such an initiative during the construction or operation of the project.
- Implement any mitigation measure that is technically and economically feasible or follow-up program identified through any regional initiative and which is under the proponent's responsibility.
- Establish and maintain, from the beginning of construction and in consultation with Environment and Climate Change Canada, a revegetated strip of at least 10 metres wide in the area along the ditches bordering the Canadian National Railway tracks, as indicated by the proponent in Map 57-2 submitted in response to Information Request CEAA-2-57 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136). Implement measures to hasten the naturalization of this revegetated strip, including by seeding a mixture of native plants with a similar composition as the adjacent natural habitats to create meadows.



Need for Follow-up and Follow-up Requirements

In order to verify the prediction of cumulative effects on the western chorus frog and the effectiveness of the proposed mitigation measures, the Agency does not recommend a follow-up program in addition to the one identified in section 5.5.2.

Conclusions

Taking into account the following elements:

- Numerous past projects and activities have contributed to the decline of the western chorus frog population in Contrecoeur, which is in a precarious state;
- Climate change could accentuate the adverse effects on breeding sites;
- The land adjacent to the port terminal is likely to be coveted in the medium and long term for residential, commercial and industrial development projects;
- The areas surrounding the proponent's lands include a significant proportion of the critical habitat and residence of the western chorus frog. The future development of projects on these lands could result in the loss of the species' suitable habitat, critical habitat and residence. In addition to these losses, these projects could degrade and harm the species' habitat through road mortality, changes to the environment (noise, water quality, water levels, etc.) and loss of connectivity;
- The proponent has limited control over future development projects and there is significant uncertainty as to their content and location;
- Suitable habitat, critical habitat and residences located outside of federal lands do not currently enjoy legal protection at the federal and provincial levels.

The Agency considers that any development on or around the critical habitat, residence and suitable habitat of the species could harm the maintenance or recovery of the species or even compromise the survival of its population in Contrecoeur.

Taking into account the following elements, the Agency is of the opinion that the project is not likely to cause significant adverse cumulative effects on the western chorus frog:

- Implementation of the key mitigation and follow-up measures identified above;
- The contribution of phases 1, 2 and 3 of the port terminal to the cumulative effects on the western chorus frog is negligible;
- The critical habitat located on the MPA territory benefits from legal protection and the proponent does not anticipate any activities or land disposal in this sector in the foreseeable future;
- Quebec legislation contains provisions to protect the western chorus frog from threats to its survival or recovery outside of federal territory;
- The Government of Canada's *Species at Risk Act* contains provisions that can protect the western chorus frog from threats to its survival or recovery outside of federal lands.



6.3.5 Current Use of Lands and Resources for Traditional Purposes by Indigenous Peoples

Analysis of Cumulative Effects and Mitigation Measures Proposed by the Proponent

Status Report

According to the proponent, Indigenous peoples have raised many concerns about the cumulative environmental and cultural effects of the project. In section 7.3.1 of its impact study, the proponent identifies past, present and reasonably foreseeable projects and activities that are likely to affect the valued components selected for the cumulative effects analysis. Indigenous fisheries and the use of lands and resources for traditional purposes were not selected as valued components for the analysis of cumulative effects because the proponent believes that they will not directly interact with the activities of other projects or their impact is deemed to be low, due to the mitigation measures planned.

However, the First Nations that participated in the consultation in the context of the proponent's Environmental Impact Statement, namely the Mohawk of Kahnawà:ke, the W8banaki Nation and the Huron-Wendat Nation, unanimously raised a concern regarding the capacity of the St. Lawrence River and its ecosystem to support future projects. They are concerned about the degradation of the river environment they value. This is why the proponent has chosen to retain the component "Protection of the St. Lawrence River and its ecosystem" to analyze cumulative effects. However, the proponent believes that it is not possible, in the context of this study, to analyze the effects on the river environment on a large scale and mentions that Indigenous peoples have asked the federal government to carry out a regional study on this subject, which it officially supports.

The proponent explains that the spatial boundaries selected for the assessment of cumulative effects on the component valued by the First Nations correspond to the local study area, although it recognizes that the concerns of the latter go well beyond the local study area and concern the St. Lawrence River more generally.

The proponent and the First Nations define the 1950s as the beginning of the assessment of the cumulative effects of the project on current uses. It was during this decade that major territorial changes took place in relation to urban growth, industrial development and the expansion of maritime activities on the St. Lawrence River in the Greater Montreal area. The actions, projects or events that have had an impact on land use since this decade are numerous. It is the progressive combination of these various events that has contributed to changing land use practices over the years (SNC-Lavalin, 2017).

The proponent mentions that the ecosystems of the St. Lawrence have undergone several disturbances during the 20th century, such as changes in the flow regime, degradation of water quality, artificialization and erosion of the banks, and the decline of certain plant and animal communities (SNC-Lavalin, 2017). Despite efforts made to reduce adverse effects on the river over the last 30 years, it remains fragile. In the local study area, several elements of the river and its ecosystem have been affected since the 1950s:



- Changes in bathymetry, partly related to the establishment of the St. Lawrence Waterway, which was progressively dredged from 1844 to 1998;
- Dredging at the existing wharf during the implementation of the Iron Ore Company and maintenance dredging carried out approximately every four years by the MPA to maintain approach conditions;
- The decrease of the river water level by about three mm/year of the average level for the period 1897 to 2010;
- Bank erosion, a hydrodynamic phenomenon observed, particularly in the section between Montreal and Sorel-Tracy section. Wave actions are a contributing factor;
- The increase in shoreline development, encroaching on fish habitat. However, the health of fish populations in the St. Lawrence River has remained generally stable since 1995, within low to medium values. However, fish populations in the St. Lawrence River remain fragile, particularly in Lake Saint-Pierre;
- The area occupied by birds and their habitats has been reduced by agricultural, industrial and port activities in the local study area, although it still includes habitats of great value (Île Bouchard, heronry, Contrecoeur Islands Wildlife Reserve).

The ancestral territory of the Mohawk First Nation, and more specifically of the community of Kahnawà:ke, has been in great demand since the construction of the Seaway between 1954 and 1959, a period that marked the large-scale industrialization of the region. The ancestral territory of the Mohawk of Kahnawà:ke has been under pressure from the growth, first agricultural and then urban and industrial, of the cities and municipalities of the South Shore of Montreal. The Mohawk Council of Kahnawà:ke noted a continuing ecological decline of the St. Lawrence River associated with this growth. According to the Council, the repeated dredging of the navigation channel, the construction of dams and the industrialization of the Greater Montreal area have resulted in water contamination, habitat destruction and fragmentation, and the introduction of a large number of aquatic invasive species. The construction of several dams has had a strong impact on the decline of migratory fish stocks such as the American eel, whose populations have been drastically affected, changes that are noted by all the First Nations consulted in the framework of the project. The passage of ships in the navigation channel is also a major cause of bank erosion. The increase in the number of important transportation infrastructure such as the Honoré Mercier, Samuel-De Champlain, Victoria and Jacques-Cartier bridges, the Louis-Hyppolite-La Fontaine tunnel bridge, highways 10, 15 and 30, a dozen regional roads, in addition to the construction of the seaway whose passage runs along the shore of the reserve, have fragmented the territory traditionally used by its members. In addition to its activities will be added: the metropolitan express network and, in the next few years, the extension of Highway 35.

Potential Effects

Generally speaking, the Ndakina Office of the Grand Conseil de la Nation Waban-Aki is concerned about the capacity of the St. Lawrence River to support increased navigation as well as the repercussions on the species that live there, given all the port projects currently under development or under study (Saguenay, Quebec, Trois-Rivières, Contrecoeur, etc.). In its brief addressed to the Agency in July 2018,



the Grand Conseil de la Nation Waban-Aki highlighted the efforts of its members to stabilize yellow perch and sturgeon stocks, particularly in the Sorel Islands and Lake Saint-Pierre region.

The Mohawk Council of Kahnawà:ke noted that there are many port projects on the St. Lawrence River in addition to the projects stemming from Quebec's Maritime Strategy, for which the Nation was not consulted. The Council is therefore concerned about the cumulative effects of these projects and also points out that the governments should have carried out a regional study taking into consideration all the port projects and those of the Maritime Strategy on the St. Lawrence River. The Mohawk Council of Kahnawà:ke affirms that the threshold of impacts has been reached, and that it is now no longer possible to absorb other impacts without serious repercussions on their uses and rights.

The Huron-Wendat Nation is also concerned about cumulative effects and asks if there is a limit to the capacity of the river and the ecosystem to accommodate more ships. Faced with port projects under study or under development, the Huron-Wendat Nation is concerned about the adverse cumulative effects on the river's ecosystem. The Nation notes that the project, in itself, is a major source of concern for the Huron-Wendat population and that the realization of several projects, upstream in the St. Lawrence River, necessarily adds to the cumulative effects felt and perceived by the Hurons-Wendat in their territory.

The proponent states that the Montreal-Sorel regional study area has a history of increasing industrial development, a trend that will continue if all of the projects under consideration materialize. Foreseeable development projects could result in the loss of approximately 30% of the forested areas and 5% of the wetlands in the local study area to industrial or commercial activities. The natural shores to the west of the existing wharf would gradually disappear with the implementation of the wharves of phases 2 and 3 of the project, over nearly two kilometers. Other projects in the area, including a logistics hub, the creation of an industrial-port zone and the proposed Technopôle, if they are carried out, would result in increased noise and lighting, which would mean that the industrial sector of the local study area would be less and less frequented by wildlife in general. Furthermore, the increase in activities in the industrial sector of Contrecoeur would likely accentuate the current pressure on the special-status species mentioned in section 7.3.9 of the Environmental Impact Statement.

Indigenous Fisheries – Fish of Interest

The proponent chose not to analyze cumulative effects on Indigenous fisheries since it believes that the local study area is rarely, or not at all, frequented by Indigenous fishermen. However, the proponent has analyzed the cumulative effects on fish and fish habitat and anticipates that the main future projects that could have an effect on fish and fish habitat would be phases 2 and 3 of the development of the Contrecoeur port terminal. The proponent explains that, taking into account the losses generated by Phase 1 of the project, there could be a cumulative loss of approximately 45 hectares of fish habitat. Dredging would also modify fish habitat. Additional areas of approximately 13.6 hectares for Phase 2 and 21.6 hectares for Phase 3 would have to be dredged if the projects proceed, for a total of 51.5 hectares for all phases of development. Due to the construction of the wharf and the dredging, the development of the three phases could result in the loss of approximately 5.3 hectares of aquatic grass beds along the shoreline, between the proposed wharf and the current terminal, which provide feeding habitat for several species of fish (SNC-Lavalin, 2019 and 2020b).



The modification of the river ecosystem by anthropic interventions significantly changes the environment necessary to practise fishing activities. In interviews with land users, the Ndakina Office found that one of the important issues is the impact of erosion on fish habitat, which has direct consequences on the quantity and quality of the species favoured by W8banakiak. The increase in commercial shipping also leads to the introduction of invasive alien species that are more resistant to the new St. Lawrence River ecosystem conditions, which could create an imbalance in the fish species found in the W8banakiak fishing areas. The Environment and Land Offices of the Councils of Odanak and Wôlinak have carried out projects to monitor, protect and restore certain fish populations and their habitat and express concern that the activities of the new port could thwart their efforts. For their part, some W8banakiak fishermen voluntarily impose catch restrictions on themselves to promote the renewal of yellow perch and sturgeon stocks. Moreover, in order to slow down the decline of the stocks and contribute to the re-establishment of valued species, W8banaki fishermen must turn to other species to meet their food needs. The decrease in stocks of fish of interest to the Nation due to human activity is cumulatively affecting the ability of W8banakiak to carry out their fishing activities on the St. Lawrence River.

The Mohawk Council of Kahnawà:ke believes that their community cannot absorb further declines in fish populations, such as those that could result from the Contrecoeur port terminal expansion project, and considers the direct loss and indirect effects of the project on fish habitat, including aquatic grass beds, to be significant losses of fish habitat. The littoral areas and aquatic grass beds in the project area provide rearing and feeding habitat for many species of fish, including lake sturgeon and other species harvested by members of their Nation. The Mohawk Council of Kahnawà:ke is of the view that the project will contribute to a loss of connectivity in fish habitats. Habitat downstream of the project site would be altered by the construction and operation of the new terminal through effects that include hydrological changes, sediment and contaminant transport, and underwater noise. The Council believes that the quality of the resource is being increasingly compromised by the input of pollutants into the St. Lawrence River ecosystem and the bioaccumulation of toxins in fish flesh resulting from shipping, heavy industry and agriculture. The Mohawk Council of Kahnawà:ke believes that port expansion projects such as Contrecoeur's cause damage to fish populations that can only be understood cumulatively and comprehensively in the context of past, present and future expansion of marine transportation and agricultural, urban and industrial development in the St. Lawrence River.

The Mohawk Council of Kahnawà:ke is of the view that the recent improvement in the status of lake sturgeon in the St. Lawrence River has only been possible through careful management and protective measures. Climate change models predict a reduction in the flow of the St. Lawrence River, which will further reduce the quality of known sturgeon spawning areas and deep-water refuges. Although the decline in the St. Lawrence River lake sturgeon population has slowed, the population has not returned to historical levels of abundance. In addition, the cumulative effects of urbanization, agriculture, dams and navigation have left the copper redhorse in a precarious state. The shipping channel, which joins the shoreline in the area of the existing port, has fragmented the habitat that the copper redhorse once used to move between feeding areas and between spawning sites. This habitat fragmentation has a significant cumulative effect on the copper redhorse due to the major deterioration of habitat and water quality in the Richelieu and Yamaska rivers. The harbour expansion project would add to these cumulative effects through additional dredging to connect the new terminal to the navigation channel, through maintenance dredging and through the use of the existing navigation channel and harbour area. Given that the project



is expected to attract an increased volume of large ships and that the expansion of the port, once completed, would require periodic dredging, the Mohawk Council expects that the project would have an adverse impact on the recovery of the copper redhorse (MCK, 2018).

The Huron-Wendat Nation, for its part, is particularly concerned about the cumulative effects that the project could have on migratory species. In this regard, the Council of the Huron-Wendat Nation notes a concern for species of interest to the Nation, such as the American eel, whose stocks have been greatly affected by the construction of the dams in the project's Montreal-Sorel regional study area. Despite the Nation's special interest in species of interest such as the American eel, it is more concerned with the ecological integrity of the St. Lawrence River as a whole.

Traditional Land and Resource Use

The proponent chose not to analyze cumulative effects on the use of lands and resources for traditional purposes, explaining that the information available to it indicates that First Nations are unlikely to use the project area for these purposes. The proponent notes, however, that closely related components have been analyzed, such as terrestrial vegetation and wetlands and riparian areas, birds and their habitat, special-status wildlife species and the protection of the St. Lawrence River and its ecosystem.

In particular, the proponent indicates an increase in the number of ships at the container terminal from three ships per week in Phase 1 to six ships per week in Phase 2 and nine ships per week in Phase 3, which would increase the amount of bollarding on the banks of the river. The proponent anticipates a loss of approximately 25% of the vegetation present in the local study area, including forest environments, agricultural areas, wastelands and wetlands, which will be replaced by industrial and commercial spaces. Finally, the proponent is looking at the possibility of new businesses setting up in the area, attracted by the consolidation of the development of the Contrecoeur industrial zone. Depending on the type of industries that would be established, the industrial effluents generated and the treatment systems put in place, the quality of the water in the small streams flowing into the St. Lawrence River could be affected (SNC-Lavalin, 2017).

The Ndakina Office explains that in addition to modifying the resources necessary for the practice of fishing by the W8banakiak, changes related to bank erosion and industrialization are of concern to the Nation since they have a direct impact on their ability to access the valued sites for the practice of their activities. The implementation of the project could cumulatively contribute to reducing this access. Faced with this restriction in access possibilities, W8banakiak find themselves in competition with other users in the sector. With regard to hunting, the Ndakina Office indicates that many of the Nation's members fear that the expansion of the port will lead to a reduction in waterfowl hunting sectors. Some members are turning to the east side of the harbour for hunting since the number of non-Indigenous hunters is increasing west of the harbour. In this context, the reduction of potential migratory bird hunting areas, particularly the marshes, could lead to the arrival of non-Indigenous hunters east of the current harbour and thus increase competition and tensions inherent to the practice.

With regard to access to fishing sites, several trips pass directly through the local study area of the project. Île Bouchard is a valued site and frequented by W8banakiak members. Several members launch their boats at the landing wharf in Contrecoeur or Varennes and then head towards this island. The Ndakina



Office emphasized that its members are particularly concerned about shoreline erosion on the islands in the area, including Île Bouchard. Ultimately, the use of these sites not only allows W8banakiak to practise their fishing and hunting activities, but also to pass on knowledge to future generations by combining it with recreational activities, such as swimming and relaxation. The beaches are used recreationally by members of the Nation, which allows them to spend time with their families or in their social circle (GCNWA, 2018).

For its part, the Mohawk Council of Kahnawà:ke explains that decades of sustained land development and increased maritime traffic has greatly reduced access to the St. Lawrence River for the members of the Nation. The Council explains that due to the cumulative effects of the rapid industrialization of the Greater Montreal region and the St. Lawrence River, their ability to use the land and resources has been greatly reduced, and their members no longer have reasonable access or sufficient opportunity to engage in hunting, fishing and harvesting practices. The expansion of another harbour will only increase the difficulties of access to the St. Lawrence River. The construction and operation of the project could affect access to fishing sites, which could result in reduced fishing and harvesting near reserve lands.

In its March 2018 brief, the Council of the Huron-Wendat Nation states that the effects of the project will go beyond local issues. As access to the river may be reduced, due in part to increased marine traffic, the Nation believes that the project could result in cumulative effects on the use of lands and resources for traditional purposes for its members. The Council of the Huron-Wendat Nation states that it is also important to consider the portion of the St. Lawrence River downstream from the project where many Huron-Wendat activities are concentrated.

Proponent's Proposed Mitigation and Follow-up Measures

The proponent proposes several mitigation measures related to the valued components identified in its Environmental Impact Statement. These measures include a follow-up program for air quality, a natural environment management plan, compensation plans for the loss of wetlands, fish habitats and aquatic grass beds. In addition, for certain components or activities, including dredging and fish and fish habitat, the mitigation measures planned for Phase 1 of the project would have to be renewed for the phases 2 and 3. In addition, the proponent undertakes to collaborate, if necessary, in a regional study that could be conducted by the governments on the cumulative effects of marine infrastructure projects in Quebec.

Agency Analysis and Conclusions on Cumulative Effects

Effects Analysis

The Agency's analysis of the cumulative effects on the current use of lands and resources for traditional purposes by Indigenous peoples is based on information provided by the proponent, the advice of government experts, as well as the knowledge and comments received from First Nations.

The Agency notes that the current use of lands and resources for traditional purposes is intimately linked to the St. Lawrence River for each of the First Nations, that it has been affected by the urban and industrial development of the region since the 1950s, and that the project fits into this context. As mentioned



previously, the three Nations consulted as part of the environmental assessment process unanimously stressed the importance of establishing a global and ecosystemic portrait of the St. Lawrence River in order to be able to proceed with the analysis of cumulative effects on their current land and resource uses. In this regard, the W8banaki and Huron-Hendat Nations supported the Mohawk Council of Kahnawà:ke's formal request for a regional study on the St. Lawrence River.

Indigenous Fisheries – Fish of Interest

The Agency is of the opinion that the project could have cumulative effects on the practice of copper redhorse fishing in the project's local study area (in relation to the loss and modification of habitats caused by project encroachment and dredging) and could modify the conditions surrounding the practice of fishing for members of the Mohawk Nation of Kahnawà:ke.

As illustrated in section 6.3.3, the Agency has identified the main mitigation measures required to ensure that the project does not result in significant cumulative effects on the copper redhorse. It took into account the mitigation and compensation measures proposed by the proponent, the advice of government experts, as well as the comments received from the First Nations consulted and the public. The Agency also ensured that measures consistent with any recovery strategy were taken to avoid, or mitigate and monitor, adverse effects on the copper redhorse should the project proceed.

Taking into account the application of the key mitigation measures identified below, the Agency assesses that the intensity of cumulative effects on the Kahnawà:ke Mohawk Nation's copper redhorse fishery would be moderate since effects on this species and its habitat are expected, but that mitigation measures and compensation plans would be put in place so as not to hinder its recovery (see key mitigation measures in section 5.3.2 and in this section).

Traditional Land and Resource Use

The Agency considers that the history of urban and industrial development in the region since the 1950s suggests that the project fits into a context where First Nations practices and customs have already been substantially modified.

Including the ships serving the existing bulk terminal in Contrecoeur, the increase in commercial marine traffic would be approximately 6% in the area when the proposed container terminal would be operating at full capacity, which could create access or safety issues for First Nations people travelling by boat in the project's local study area. The increase in marine traffic could be an impediment to the successful fishing and hunting practices of First Nations members since anticipated changes in traffic patterns and current speeds could create additional waves that would cause users' boats to drift. Generally speaking, the increase in harbour activities in the project area could encourage users to avoid it, increase pressure from Indigenous and non-Indigenous users in areas less affected by the project's effects, and reduce the quality of the user experience in the local project area.

However, the Agency believes that the implementation of the key mitigation measures identified in section 5.7 (Socio-economic conditions) would help to mitigate the effects on users. These measures include security measures, a communications plan and a liaison process. The Agency also considers that the



implementation of the measures identified to mitigate the effects of the project on biological components—such as wetlands (section 5.2), fish and their habitat (section 5.3), and birds and their habitat (section 5.4)—as well as measures relating to the acoustic environment (section 5.6) could help preserve the experience of users who could continue to practice their activities by occasionally adapting their methods of practice.

Although the proponent estimates that the increase in erosion caused by the project would be small, the Agency is concerned about the effects associated with erosion, particularly on the banks of the project's local study area that are favoured by members of Indigenous communities. The effects caused by the subsequent phases of development of the Contrecoeur terminal could reduce user access points in the local study area and reduce the quality of sites—such as the beaches of Île Bouchard—used for hunting, fishing, social and cultural activities, and the transmission of intergenerational knowledge complementary to these practices. Considering the industrial use of the territory in which the local study area is located, the Agency believes that the natural environment area would be destined to decrease. Consequently, the Agency is of the opinion that each new project that falls within the local study area contributes to exacerbating threats and pressures on the use of lands and resources for traditional purposes by First Nations.

Identification of Key Mitigation Measures

The Agency considers that all of the key mitigation measures identified in sections 5.2, 5.3, 5.4, 5.6, 5.7, 5.8, 6.1, 6.3.2 and 6.3.3 would contribute to reducing cumulative effects on the current use of lands and resources for traditional purposes by First Nations, but that the mitigation measures identified below are also necessary to ensure that the project does not result in significant cumulative effects. It took into account the mitigation and compensation measures proposed by the proponent, the opinions of government experts, as well as the knowledge and comments received from the First Nations consulted.

- Develop, in consultation with the Mohawks of Kahnawà:ke First Nation, and implement a technically feasible plan to mitigate the environmental effects of operation of the project on the habitat of the copper redhorse located in the riparian zone of Île Bouchard. Submit the definitive plan to the Agency and the Mohawks of Kahnawà:ke First Nation no later than one year after the decision statement is issued. In addition to the Mohawks of Kahnawà:ke First Nation, identify the measures in consultation with Fisheries and Oceans Canada, the Quebec's Ministère des Forêts, de la Faune et des Parcs, any other relevant authority, the landowners of Île Bouchard and any other party involved in the implementation of the existing measure in which the proponent intends to participate. Implement the plan according to the schedule and support the participation of the Mohawks of Kahnawà:ke First Nation in the implementation of the plan according to the conditions agreed. As part of the development of the compensation plan:
 - Describe the mitigation measures that will be implemented as part of the implementation of the plan, which will include restoration of the habitat of the copper redhorse and which could involve bioengineering techniques, and/or in which the proponent will participate if existing comparable measures (including habitat restoration initiatives) are implemented by another party or other parties;



- Demonstrate how the measures will allow mitigation of the environmental effects of operation of the project on the habitat of the copper redhorse located in the riparian zone of Île Bouchard;
 - Describe how the follow-up of the measures will be done to ensure that the plan mitigates the environmental effects of operation of the project on the habitat of the copper redhorse located in the riparian zone of Île Bouchard or, if this is not the case, that modified or additional measures are implemented;
 - Establish a schedule for implementation of the plan;
 - Agree on the conditions of participation of the Mohawks of Kahnawà:ke First Nation in the implementation of the plan.
- Participate in any regional initiative led by a relevant authority pertaining to the monitoring of toxins present in the food resources taken in the St. Lawrence River. In doing so:
 - Implement any mitigation measure that is technically and economically feasible or follow-up program identified through this initiative and which is under its responsibility;
 - Submit to the Agency, as part of the annual report, and to the First Nations consulted, the result of its participation in this initiative, particularly any mitigation measure or follow-up program the proponent has implemented or proposes to implement following this participation.

Need for Follow-up and Follow-up Requirements

The Agency is of the view that the follow-up measures described in Chapter 5.8 on Current Land and Resource Use are adequate to monitor cumulative effects on Indigenous fisheries and traditional land and resource use by Indigenous peoples.

Conclusions

The Agency took into account the spatial boundaries selected for the assessment of cumulative effects on the valued components as well as the information available on the activities taking place within these spatial boundaries. It also took into account all the information presented by the proponent, government experts and First Nations. At the end of its analysis, taking into account the application of the key mitigation and follow-up measures specified above, the Agency assesses that the cumulative effects of the project would be 1) low to moderate in terms of current use by First Nations, and 2) moderate in terms of copper redhorse fishing for the Mohawk First Nation of Kahnawà:ke. Therefore, the Agency is of the opinion that the project is not likely to cause significant adverse cumulative effects on the current use of lands and resources for traditional purposes by First Nations.

The Agency also recognizes that the current use of land and resources by First Nations within the spatial boundaries of the analysis are not being fully exercised at the time of the project assessment. It recognizes that First Nations' concerns regarding cumulative effects on their current use of land and resources extend well beyond the local study area and involve the St. Lawrence River as a whole. The Agency is of the opinion, given the geographic and historical context in which the project is located, that any residual effects resulting from future projects would exacerbate threats to the use of lands and resources for traditional purposes and to the ability of First Nations to resume these practices.



7. Impact on Aboriginal and Treaty Rights

Consistent with the Agency's overall approach to consultation and the updated Guidelines for Federal Officials to Fulfill the Duty to Consult (March 2011), the Agency requested information from all potentially affected Indigenous communities on the nature of their Aboriginal and treaty rights protected under section 35 of the *Constitution Act, 1982*⁷⁷ (Aboriginal and treaty rights) and how they may be affected by the project. The Agency considered all new information from the proponent and Indigenous communities about potential impacts throughout the consultation process to better understand the nature and extent of adverse impacts on rights. The Agency assessed the potential impacts on the rights of Indigenous peoples and their degree of severity by examining the relationship between project activities and the conditions necessary for the exercise of rights, such as the availability and quality of resources, access to territory, and experience related to the exercise of rights and cultural transmission. Where potential impacts on Aboriginal and treaty rights are identified, the Agency will consider appropriate mitigation measures before determining the severity of potential impacts.

This section summarizes how the project may affect the rights of the First Nations selected for consultation. Appendix D summarizes the main concerns identified by First Nations during the environmental assessment up to the publication of this report and indicates how the proponent and the Agency have responded to them.

This analysis is not a rights determination process. In this document, the Agency reports on the visions of land occupancy proposed by the First Nations, and this, in full respect of the positions shared by other First Nations. The effects on current uses of lands and resources for traditional purposes are considered and assessed in section 5.8 of this report. The cumulative effects of the project on current land and resource uses are assessed in section 6.3.5.

7.1 Existing Aboriginal and Treaty Rights

The study area selected by the proponent to assess the effects of the project on Indigenous peoples is the local study area. However, the Agency points out that the adverse effects of the project could also be felt by First Nations outside the local study area. The Agency also took into account the concerns of First

⁷⁷(1) The existing Aboriginal and treaty rights of the Indigenous Peoples of Canada are hereby recognized and affirmed.

(2) In this Act, "Indigenous Peoples of Canada" includes the Indian, Inuit and Métis Peoples of Canada.

(3) For greater certainty, a treaty right referred to in subsection (1) includes an existing or potential treaty right arising from a land claims agreement.

(4) Notwithstanding anything in this Act, the Aboriginal and treaty rights referred to in subsection (1) are guaranteed equally to male and female persons.



Nations with respect to the potential effects of project activities outside the extent of the environmental assessment, including the cumulative effects of navigation.

7.1.1 Mohawk First Nations of Kahnawà:ke, Kanesatake and Akwesasne

The Kahnawà:ke Mohawk Reserve is located on the south shore of the St. Lawrence River, 10 km southwest of Montreal, at the level of Lake Saint-Louis, approximately 70 km upstream from the project study area. The Project Study Area is within the traditional territory of the Mohawks of Kahnawà:ke who claim unextinguished Aboriginal rights and title to the project area. In its shared submission to the Agency in March 2018, the Mohawk Council of Kahnawà:ke also claims other rights, including, but not limited to, Aboriginal title, governance rights (including environmental management based on the [Two Row Wampum treaty](#) and "Ohen:ton Karihwaterhkwen", the basis for decision-making centred on respect for the environment as a whole) and the rights to collect and trade in the St. Lawrence River as inherent rights and subsection 35(1) of the *Constitution Act*, 1982.

The community of Kanesatake is located on the north shore of Lake of Two Mountains, at the junction of the Ottawa River, 53 km west of Montreal and approximately 125 km from the project site. The traditional territory of the Kanesatake First Nation straddles the project study area.

The Akwesasne First Nation is located approximately 180 km from the project site. The project study area overlaps the traditional territory of Akwesasne. According to the information gathered by the proponent, this territory includes part of the St. Lawrence River, at the mouth of the Raquette and St. Regis rivers, as well as several islands located on these bodies of water. The territory of Akwesasne straddles Ontario, Quebec and New York State in the United States.

The 1996 Adams decision⁷⁸ of the Supreme Court of Canada recognized the Mohawks' right to fish for food in Lake St. Francis and the St. Lawrence River, based on the Nation's pre-contact practices. The decision does not specify on which portion of the river the right to fish applies. The decision simply cites the historical analysis presented to the Court. This analysis concluded that at the time of European contact, when Indigenous rights crystallized, the Mohawks had military control of the St. Lawrence River between Montreal and Lake Ontario. The Côté Decision (1993), based on the Oswegatchie Treaty of 1760, recognized Mohawk rights to their lands, as well as their right to hunt and fish as they traditionally did. The Oswegatchie Treaty was signed between the British and the Iroquois nations, including the Iroquois of Kahnawà:ke and Kanesatake.

Through the filing of a memoir and letters in its exchanges with the Agency, the Mohawk Council of Kahnawà:ke has raised concerns about the impacts the project may have on the practice of the following rights: Indigenous governance rights, fishing and stewardship rights in general, sturgeon fishing rights, fishing and management rights related to the copper redhorse, harvesting rights and food sovereignty, ownership rights to Indigenous languages, cultures and cultural heritage, impacts on the health/safety of

⁷⁸ <https://scc-csc.lexum.com/scc-csc/scc-csc/fr/item/1420/index.do>



the Mohawk Territory of Kahnawà:ke and the lands of the Seigneurie du Sault Saint-Louis. It was not possible, either for the proponent or the Agency, to obtain information concerning the uses and rights exercised by members of the Kanesatake and Akwesasne First Nations who could be affected by the project.

7.1.2 The W8banaki Nation

The W8banaki First Nation includes the communities of Odanak and Wôlinak, both located on the south shore of the St. Lawrence between Sorel-Tracy and Bécancour. Odanak is located approximately 60 km from the study area, and Wôlinak approximately 100 km away. Of Algonkian origin, the name of the W8banaki Nation comes from the terms "W8ban" (white light) and "Aki" (land) meaning "people of the dawn".

The W8banakiak claim to be among the Indians "domiciled allied with the King of France" in the St. Lawrence Valley who made a treaty at Oswegatchie in 1760 with the British Crown. In addition, the Quebec Court of Appeal ruled⁷⁹ that the Oswegatchie Treaty of 1760 is a treaty that recognizes the right of Indigenous People "domiciled" in the St. Lawrence Valley to remain on settled lands and, for a nomadic people, a right of access to traditional hunting and fishing territories.

According to the map provided by the Ndakina Office to the proponent, the boundaries of the territory (Ndakina), over which W8banakiak claims to have Aboriginal and treaty rights, extend on the south shore of the St. Lawrence River, between the Richelieu River and the end of the St. John River watershed, and on the north shore, near the L'Assomption River to the St. Anne River. The Quebec portion of the Ndakina has as its southern limit the Canada-U.S. border and ends, to the north, near La Tuque. Thus, the local area of the project is just outside this ancestral territory. The boundaries listed are subject to change by the Ndakina Office. The proponent specifies that, to date, the Nation has chosen not to embark on a comprehensive land claim process for its entire territory. The approach advocated by the GCNWA is a land assertion approach which, without going through a judicial process at this time, defines the extent of the Ndakina over which the Nation defends and protects its rights and interests and calls for the application of the Crown's duty to consult and accommodate (SNC-Lavalin 2017).

7.1.3 The Huron-Wendat Nation

The Huron-Wendat Nation has been established since the end of the 17th century in the Wendake reserve. It is the only Huron-Wendat reserve in Canada. Wendake is located on the shores of the Saint-Charles River called *Akiawenrahk* in the Huron-Wendat language, which means "trout river". Wendake is located in the administrative region of the Capitale-Nationale and is landlocked by Quebec City. The project area is located approximately 100 km southwest of "Nionwentio", which means "our magnificent territory" in the Huron-Wendat language, the traditional territory of the Huron-Wendat Nation. According to information transmitted by the Council of the Huron-Wendat Nation, this territory covers 66,056 km²

⁷⁹Côté decision, 1993 ([Online](#))



and extends, from north to south, from the Saguenay River to the U.S. border. From east to west, it goes from New Brunswick to the Saint-Maurice River. The southeastern fringe of this territory also includes a small part of the State of Maine, between the Saint John River and the Canada-U.S. border.

The Huron-Wendat Nation indicated in its submission to the Agency in March 2018 that the rights and freedoms protected by the Huron-British Columbia Treaty of 1760 include, but are not limited to, freedom of trade and religion, the right to practise customs such as hunting, fishing, trapping, gathering, traditional rites, the peaceful enjoyment of Nionwentsino and, more generally, the right to self-government. According to the Huron-Wendat Nation, this Peace and Alliance Treaty seals the nation-to-nation and treaty partner relationship between the Crown and the Huron-Wendat Nation. The rights protected by this treaty are entrenched in the Canadian Constitution through section 35. This treaty, whose validity was recognized by the Supreme Court of Canada in 1990 in the *Sioui* decision⁸⁰, protects the customary and religious activities of the Huron-Wendat Nation that take place on the Nionwentsido. None of the Huron-Wendat Nation's comprehensive and specific land claims are located in the project area.

7.2 Potential Adverse Effects of the Project on Aboriginal and Treaty Rights

7.2.1 Pathways of Potential Impacts on the Exercise of Traditional Resource Rights

The project has the potential to cause adverse environmental effects, which may also adversely impact Aboriginal and treaty rights related to fishing, hunting and cultural practices of Indigenous communities. Due to the location of the project area within or adjacent to traditional, recognized or claimed lands used for the exercise of rights, the following Indigenous communities are most likely to be directly affected by the project: the Mohawk First Nation of Kahnawà:ke and the W8banaki First Nation. The Huron-Wendat Nation believes that its rights of navigation, resource harvesting, trade, governance and management of its heritage could be impacted by the development of the project.

Since 2015, the Agency has received several briefs from First Nations and has had several exchanges with them regarding the assessment of the project's potential impact on their rights. The main concerns that have been raised are related to the following elements:

- The impacts of the project on fish and fish habitat in general;
- The impacts of the project on the availability and quality of fish of interest including copper redhorse, yellow perch, walleye, bass, sturgeon and pike;

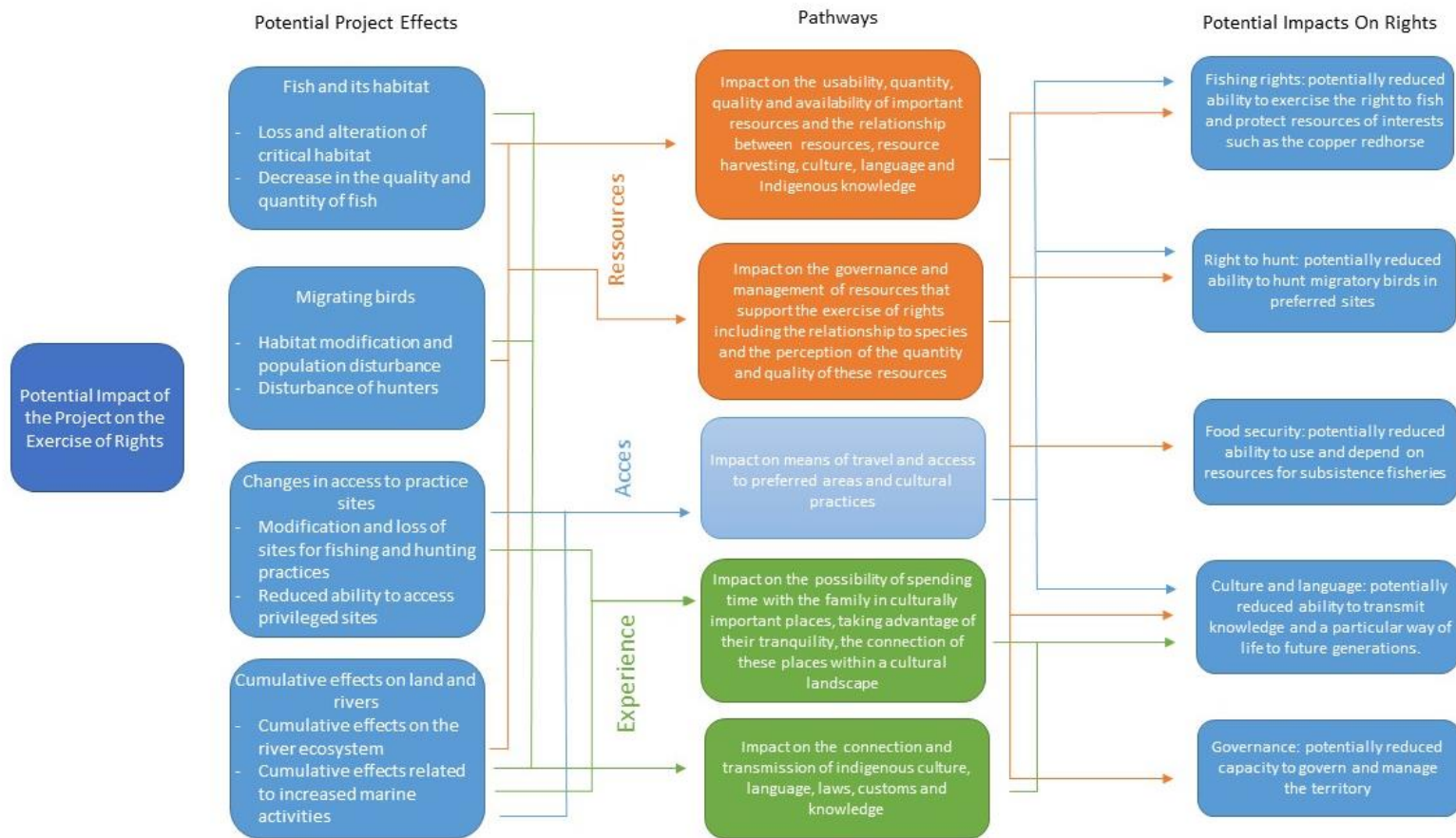
⁸⁰ *Sioui* Judgment: <https://scc-csc.lexum.com/scc-csc/scc-csc/fr/item/608/index.do>



- The potential impacts of the project on the exercise of fishing rights and the hunting of migratory birds;
- Modification of the river ecosystem including the cumulative effects of increased navigation and other activities resulting from the various port projects on the St. Lawrence River;
- The impacts of the project on governance, the experience of the territory and the transmission of culture and knowledge.

Figure 19 as well as section 7.3 reflect the main views and concerns expressed by First Nations regarding the project's potential impacts on their rights and the ways in which the project could affect the exercise of these rights. The rights impact assessment methodology used by the Agency classifies these impact pathways into three categories: Resources, Access and Experience.

Figure 19: Schematic Representation of the Potential Impact Pathways of the Project on the Rights of the First Nations Who Participated in the Environmental Assessment



Source: Agency, November 2020



7.3 Consultation With First Nations

7.3.1 Fishing Rights

Figure 19 illustrates that the First Nations' fishing rights could be mainly impacted by the direct and cumulative effects of the project on fish and fish habitat, affecting the possibility for First Nations to use and manage the resource and to pursue their cultural practices related to the harvesting of the resource. First Nations' fishing rights could also be impacted by the potential effects of the project in relation to project-related maritime activities affecting access to practise sites.

The Mohawk Council of Kahnawà:ke considers the coastal areas and aquatic grass beds in the project area to be rearing and feeding habitat for many species of fish, including preferred species such as lake sturgeon and copper redhorse that are harvested by members of the Nation. Council believes that the project will result in direct losses of fish habitat and indirect effects on fish habitat during both the construction and operation phases of the project. These habitat losses may have an impact on fish populations that could affect fishing opportunities in areas favoured for traditional land use.

At one time, the copper redhorse was fished commercially and there was a strong market demand for this species. The cumulative effects of urbanization, agriculture, dams and shipping have had significant effects on the species and its habitat. The aquatic grass beds downstream from the project in the Contrecoeur Archipelago are known to be frequented by the copper redhorse and constitute an essential adult feeding habitat for this species. The Council expects that the dredging and construction work will have an adverse impact on these essential feeding areas for the copper redhorse. In addition, the Mohawk Council of Kahnawà:ke also states that the area of the future Contrecoeur terminal has been identified as a feeding site for lake sturgeon. The Mohawk Council of Kahnawà:ke believes that the project will have an impact on their fishing rights since the current proposed project and future harbour expansions will further deteriorate the quality of the habitat and the viability of the species in the area.

The Grand Conseil de la Nation Waban-Aki believes that the project is likely to have impacts on fish habitat for various species fished by members of the W8banaki Nation for food, ceremonial or social purposes. The regional study area represents a privileged location for yellow perch fishing in a context where yellow perch is in a precarious situation in Lake Saint-Pierre. The precarious situation of yellow perch in Lake Saint-Pierre leads the Nation to modify their fishing habits. Since some of the species important to the Nation, particularly sturgeon, are migratory, the loss of important habitat for the life cycle of walleye and sauger, sturgeon, pike and yellow perch could have repercussions on the fishing rights of the Nation's members. Sturgeon and bass are also fished for food. It should be mentioned that the sturgeon, part of the emblems of the community of Odanak, is of cultural importance for the W8banaki Nation.

Changes in the river ecosystem result in impacts on fish habitat and thus have direct consequences on the quantity and quality of preferred species and the fishing rights of W8banakiak. The increase in commercial navigation also leads to the introduction of invasive alien species more resistant to the new



river ecosystem conditions that could create a disruption in the fish species found in the W8banakiak fishing areas. The decrease in fish stocks of species of interest to the fishery due to human activity obviously affects in a cumulative manner the ability of W8banakiak to avail themselves of their fishing rights in the St. Lawrence River.

The Huron-Wendat Nation is careful to monitor the impacts that the project could have on migratory species favoured by members of the Nation, such as the American eel and lake sturgeon, which could be felt by members practicing their activities downstream from the project, both outside and inside the Nionwentsio.

7.3.2 Right to Hunt

As represented in Figure 19, and according to the information available to the Agency, the right to hunt migratory birds could be impacted by the effects on the resource resulting from the potential disturbance of the birds to a lesser extent and, more particularly, by the effects on the experience of the territory resulting from the reduction of sites conducive to this activity leading to displacement and competition with non-indigenous hunters in residual sites.

The Ndakina Office points out that there are currently several obstacles limiting members' right to hunt in the local and regional study areas of the project. Lack of accessibility, anthropization of the shoreline and territory, recreational and commercial boating, the presence of other hunters and environmental changes all contribute to limit the hunting activities of the Nation's members. Industrialization and urbanization have reduced the availability and accessibility of waterfowl hunting sites, particularly in the floodplain and river tidal flats. The Ndakina Office believes that the construction of a port terminal to the west of the current facility could contribute to a decrease in this accessibility and thus increase hunting pressure on the remaining sites.

For the practice of the right to hunt, the Ndakina Office emphasizes that mobility is an integral part of the practice of W8banakiak in order to adapt their subsistence practices. The need to travel may be motivated by the behaviour of the species sought, water level or marine traffic. It is therefore important to note that while the local study area is strategically important to members' hunting rights, waterfowl hunting is conducted with consideration of the entire regional study area since species movements and water level fluctuations require members to practise adaptively. Commercial navigation is another factor that impedes members' practice since the passage of ships, their waves and drafts create technical difficulties for members who hunt from boats. Mobility is therefore essential for the W8banakiak hunting rights.

Moreover, the Ndakina Office points out that since there is not an abundance of hunting territories, the implementation of the project could create a displacement among some non-native hunters, which could create conflicts of use with W8banakiak hunters. The development of the tidal flats sites leads to a displacement of hunters to the remaining sites, especially to hunt waterfowl. This could lead to a decrease in the accessibility of waterfowl hunting sites and an increase in hunting pressure on the remaining sites and the tensions inherent to the practice.

Finally, the Council of the Huron-Wendat Nation points out that in order to gain access to the sites and exercise their hunting rights, particularly for migratory birds and deer in the regional project area and



downstream, some members of the Nation navigate on the St. Lawrence River. A decrease in accessibility or an increase in obstacles to safe navigation could have an impact on the exercise of the right to hunt.

7.3.3 Food Sovereignty

Illustrated in Figure 19, and according to the information available to the Agency, the right to food sovereignty could be impacted by the effects on the resource resulting from impacts on fish and fish habitat and by the increase in maritime activities affecting First Nations fishermen's experience of the territory.

The Mohawk Council of Kahnawà:ke also believes that Project Contrecoeur will further limit the exercise of their culture and way of life through its impact on their fisheries and, by extension, on their food sovereignty. Food sovereignty broadens the notion of food security by including the capacities and responsibilities of indigenous communities to make decisions about their food systems and, through food, to practise relationships with the land. Mohawk users have high standards for the quality of the fish they harvest. Mohawk fishermen do not harvest or use fish when they have a suspicion of contamination. If there are concerns about the sustainability of a fish population, fishermen stop harvesting until they see the population showing signs of recovery. The viability of fishing as a regular practice in Kahnawà:ke depends on the ability of Nation members to reliably access healthy fish populations. Consequently, the Mohawk Council of Kahnawà:ke stresses that the lack of information on the bioaccumulation of toxins in the food chain, particularly in fish flesh, undermines the food sovereignty of its members.

The Ndakina Office states that the exceptional quality of the ecosystems in the project's local study area indicates its importance in terms of land use for food purposes. All hunting in the local study area takes place on the banks of the south shore of the St. Lawrence River and in the islands of the river between Saint-Arsène and the western tip of Île au Dragon. In this area, the Îles de Contrecoeur, Île aux Rats, Île aux Veaux, Île à Brillant, Île aux Branches and Île aux Dragons are sectors where members regularly practice hunting activities for food purposes. In addition, members of the Nation redistribute the harvested food in the community, mainly to elders and families in a precarious socio-economic situation.

In addition, the Ndakina Office points out that the local study area and the regional study area therefore appear to be very important sectors for carrying out a very particular type of fishery that is becoming less and less accessible in the vicinity of Lake Saint-Pierre. The regional study area also represents for this member a place where he can pursue his fishing practices for yellow perch for food purposes in a more ethical, free and efficient manner. Finally, the Ndakina Office explains that thanks to the sharing of resources, many elders who are no longer able to practise activities for food purposes on the territory can benefit from the harvests of other members of the Nation.

7.3.4 Culture and Language

The First Nations who participated in the environmental assessment mentioned the direct link between the exercise of rights and the practice of their culture and way of life and shared their concerns regarding the direct and cumulative effects of the project on them. The intergenerational transmission of knowledge



was particularly cited by the First Nations as being dependent on the capacity of members to exercise their practices under adequate conditions. As presented in Figure 19, any effect of the project on the resource, access and experience is likely to have repercussions on Indigenous language and culture.

The Mohawk Council of Kahnawà:ke explains that their food and harvesting practices are at the heart of cultural continuity. The revitalization of the language, cultural practices and knowledge system depends on the continuation of activities related to land and water, as well as the continued harvesting, processing and consumption of traditional foods such as fish. Fishing and other land-based activities encourage the intergenerational transfer of cultural and spiritual knowledge, as well as language transmission. By spending time on the land and water, observing, listening and copying their elders, children and youth learn harvesting and processing techniques and the ways in which they relate to the environment that go along with these activities. Sharing is an important cultural value that depends on sufficient quantities of high-quality fish and other traditional foods to sustain us and our social relationships.

For the Mohawks of Kahnawà:ke, the structure of their language is intrinsically linked to their culture. Their language reflects their relationship to the land, through their activities on the land and water. The Mohawk Council of Kahnawà:ke explains that although not currently anticipated by the proponent, the project could have adverse effects on language and cultural rights, as the effects of the project on fish habitat could reduce fishing opportunities that could, in turn, affect the transmission of language and culture.

In addition, the Mohawk Council of Kahnawà:ke explains that the project site is on Mohawk traditional territory, used by the ancestors of the present Mohawks. The Council confirms its particular interest in any Iroquois artifacts from all eras that may be discovered as part of the project. In order to protect its cultural rights, the Mohawk Council of Kahnawà:ke express its interest in any archaeological work, discoveries and interpretations that may take place in the project area that relate to this period. The management of their cultural heritage assets is of paramount importance, particularly if human remains are discovered. The repatriation and reburial of human remains in accordance with their traditions is of utmost importance to all members of the community.

The Ndakina Office emphasizes that fishing and hunting are essential activities for the transfer of W8banakiak knowledge to future generations. Moreover, fishing is one of the traditional activities practiced by both men and women W8banakiak since it is more easily accessible and can also be practiced more easily with children, who are more often in the care of women. Yellow perch fishing is of particular historical, cultural and social importance to the Nation. For many W8banakiak, this species is representative of the collective spring fishing on the St. Francis River and in Lake Saint-Pierre. Due to the ease of this type of fishing, this species is also central to the transmission and practice of W8banakiak knowledge for many members.

It is important for the Nation to actively involve youth in these activities as early as possible. This learning of fishing practices and techniques is also intrinsically linked to the learning of values related to subsistence and a code of ethics to be respected on the Ndakina territory. These values are essential for the Nation and its members and are an integral part of a W8banakiak way of being and acting on the territory. The practice of activities related to the territory in the local study area and the regional study area allows many members to develop friendship and family ties within the Nation. For example,



swimming is regularly practised in the Local Study Area and the Regional Study Area from different beaches. These beaches are occupied on a regular basis, several times a year by members. It is practised by families with children and grandchildren.

The Ndakina Office points out that the gradual change in the vocation of the territory poses a challenge for the protection of the historical and archaeological heritage in the terrestrial portions, but also of the banks and coastline of the regional study area. In fact, several areas where there would be archaeological artifacts are accessible by water and have a high archaeological potential. However, they are located close to the banks, and with a significant erosion such as that observed in the St. Lawrence River, archaeological losses would be expected. On Île Bouchard, the Ndakina Office indicates that there are many places whose archaeological potential has never been evaluated. This is an ancestral territory and the islands near Contrecoeur could have been used by the W8banakiak and consequently could have an archaeological potential of interest to the Nation.

The Council of the Huron-Wendat Nation explains that the practice of contemporary customs is the main vehicle for the transmission of intergenerational knowledge for the Huron-Wendat. A reduction in use brought about by the reduction of available resources and spaces is therefore equivalent to a reduction in transmission, which is vital to the exercise of territorial rights and the perpetuation of Huron-Wendat culture.

Furthermore, the Nation explains that it has a duty to ensure protection and respect of the Huron-Wendat archaeological and cultural heritage on its ancestral lands in order to ensure the right of access of the Nation's members to their religious and cultural sites. Thus, the CNHW asks to be involved in the land and maritime survey work and to be able to collect any Huron-Wendat artifact found on the site.

7.3.5 Regional, Historical and Cumulative Context

The Grand Conseil de la Nation Waban-Aki, the Mohawks of Kahnawà:ke First Nation and the Huron-Wendat Nation shared their concerns with the Agency and the proponent regarding the cumulative effects of the project, particularly those related to the increase in marine traffic generated by the project.

From the outset, the Mohawks of Kahnawà:ke assert that the construction of the seaway and the expansion of marine transportation in the St. Lawrence River has altered the ecosystem beyond the acceptable threshold for exercising their right to fish. In addition, the Council adds that there are multiple other land uses within their territory that limits the expression of their Indigenous governance right to manage and protect the St. Lawrence River. The St. Lawrence River is already heavily impacted by urban development, agricultural and industrial activities, dams, bridge construction and repair, port expansion, navigation channel maintenance and other activities related to the shipping industry. The Council explains that for more than 70 years, their Indigenous governance rights have been set aside by the large-scale industrialization taking place in the region. Historic and ongoing increases in contamination, habitat and water quality degradation, and invasive species incursions have also hindered the ability of the Mohawks of Kahnawà:ke to exercise their governance rights and stewardship responsibilities.

Regarding the changing conditions supporting the exercise of W8banakiak rights as practised in the local study area, the Ndakina Office explains that the abundance of wildlife resources, access modalities and



experience in the territory could be affected by the historical situation and the cumulative effects of environmental changes. W8banakiak still carries out fishing, hunting, plant gathering and trapping activities in the regional study area to this day. The Ndakina office points out that the cumulative effects of industrialization, urbanization, seaway development and agriculture-related pollution taking place on and around the river since the 1950s have greatly affected land use for the W8banaki Nation. Nevertheless, its members continue to use the project area, especially near Île Bouchard and in the Contrecoeur Islands.

Currently, there are a number of barriers that limit member practice in the Regional Study Area and the Local Study Area. Lack of accessibility, anthropization of the shoreline and territory, recreational and commercial boating, the presence of other fishermen and environmental changes all contribute to limiting fishing by Nation members. As mentioned previously, it is necessary to understand that the MPA project is part of a context where the practice of rights is already limited. The evaluation of these limits is essential to obtain a better understanding of the potential social and environmental impacts of the project.

Thus, the Ndakina Office explains that some of its members fear that the implementation of the new MPA facilities, in addition to the other port projects mentioned above, will generate significant cumulative impacts for the practice of the rights of W8banakiak whether of a food, ritual or social nature. The Ndakina Office has expressed concerns about the potential cumulative effects that the presence of the proposed marine terminals could cause and the resulting consequences on the practice of their activities in or along the St. Lawrence River.

The Nation Council is concerned about the fish species that may be affected by the cumulative effects of the project. While a particular interest is focused on species such as the American eel, the Nation is also concerned about the ecological integrity of the St. Lawrence River as a whole. According to the Nation, the Contrecoeur port terminal expansion project must also be considered from the perspective of cumulative effects, given the various current port projects, particularly along the St. Lawrence River. Finally, the Nation affirms that cumulative effects must be duly considered and that the analysis of the cumulative effects of the project on the rights, activities and interests of the members of the Huron-Wendat Nation must be documented.

7.3.6 Governance of the Territory

The First Nations reminded the proponent and the Agency of the importance for the First Nations to exercise stewardship and responsibility towards the territory.

The Mohawk Council of Kahnawà:ke believes that the impact on their governance rights is likely to persist for generations to come, as the project will limit their ability to influence decisions about the uses and long-term recovery of the St. Lawrence River. As a regional impact assessment (on the St. Lawrence River) has not been completed to date, the Mohawks of Kahnawà:ke are unable to fulfill their stewardship responsibilities under the Kanien'kehà:ka (Mohawk) laws. In particular, the Ohen:ton Karihwatehkwen, an environmental code based on Kanien'kehà:ka (Mohawk) practices and traditions, requires Mohawks to consider complex ecological linkages that may not be evident when considering only a localized area. The fact that the Contrecoeur project is being assessed without a regional cumulative effects analysis is therefore contrary to their traditional law. The Mohawk Council of Kahnawà:ke remains concerned that



the absence of a regional strategic environmental assessment makes it virtually impossible for the proponents of individual projects, including the Port of Montreal, to provide adequate information on the potential impact of this project on the rights and interests of the Mohawks of Kahnawà:ke.

The Ndakina Office explains that the regional area in which the proponent's project is located is subject to significant urban and industrial development. These changes are having an effect on the fishing and hunting practices of its members by gradually reducing the space and resources available for these activities.

From a proper resource governance perspective, the Environment and Land offices of the Councils of Odanak and Wôlinak have carried out projects to monitor, protect and restore some of the fish populations and their habitat and express their concern that the activities of the new port could thwart their efforts. The Ndakina Office stipulates that its members participate in the management of the resource through the location of their fishing activities, but also, for some members, by voluntarily imposing catch restrictions in order to promote the renewal of yellow perch and sturgeon stocks. Consequently, the decrease in fishing success creates a sense of powerlessness among the Nation's members regarding their ability to contribute to the governance of the regional study area. The Ndakina Office explained that many members of the Nation also feel that they have no means to act to change the direction of the increased development of the St. Lawrence River. This feeling of powerlessness in relation to the various projects generates significant stress related to the Nation's ability to preserve the sustainability of the practice.

The Council of the Huron-Wendat Nation wishes to ensure that the decisions made concerning the project respect the rights, activities, interests and customary laws of the Huron-Wendat Nation.

7.4 Issues to Be Addressed in the Regulatory Approvals Phase

The regulatory approval phase, during which federal authorizations or permits are considered, would take place after the completion of the environmental assessment. Should the project be authorized under CEAA 2012, Fisheries and Oceans Canada would continue to consult with Indigenous communities in the pursuit of regulatory processes under the *Fisheries Act* and the *Species at Risk Act*. The Agency forwarded the comments it received from First Nations during the environmental assessment report to Fisheries and Oceans Canada so that the Department could consider them before making its decisions under the Acts it administers. Where appropriate, Fisheries and Oceans Canada's decisions will take into account the results of ongoing consultations with Indigenous communities as well as the record of consultations resulting from the environmental assessment.



7.5 Agency Findings as to Impact on Rights

Based on its analysis and the assessment criteria set out in the "Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples", the Agency concludes that the project is likely to have a **high severity** of impacts on the Mohawk Nation of Kahnawà:ke Aboriginal and treaty rights, a **moderate severity** of impacts on the W8banaki Nation Aboriginal and treaty rights and a **low severity** of impacts on the Huron-Wendat Nation Aboriginal and treaty rights. The effects of the project will be felt in the long term and are potentially irreversible. The project has the potential to cause environmental effects and to have negative impacts on the Aboriginal and treaty rights related to fishing, hunting and cultural practices of Indigenous people.

The Agency estimates that the **severity** of the project's effects on governance would be **moderate** for the W8banaki Nation and **high** for the Mohawk Nation of Kahnawà:ke. Both Nations have expressed concern that impacts remain after mitigation or adaptation measures. The Mohawk Nation of Kahnawà:ke maintains that since no regional impact assessment of the Contrecoeur project has been conducted, the Mohawks of Kahnawà:ke will not be able to fulfill their stewardship responsibilities under Kanien'kehà:ka (Mohawk) law.

For its part, the W8banaki Nation highlights that its members feel powerless to influence the direction of development of the St. Lawrence River and to protect their environment and the practice of their activities. The W8banaki Nation pointed out that the project may not be compatible with the efforts made by its members, among others, to protect and renew the preferred fish populations.

For the W8banaki Nation and the Mohawk Nation of Kahnawà:ke, the Agency is of the opinion that the project fits into a historical context marked by the urban and industrial development of the region. The Agency considers that the severity of the cumulative impacts of this anthropogenic development on their rights is moderate for the W8banaki Nation and high for the Mohawk Nation of Kahnawà:ke. The exercise of their rights, in the current context, including their capacity to steward the territory, is diminished.

The Agency has noted a number of measures that would make it possible to mitigate the impacts of the project that could affect rights and the practice of traditional activities. These measures relate to wetlands (section 5.2), fish and fish habitat (section 5.3), birds and fish habitat (section 5.4), other special status species (section 5.5), current use of lands and resources for traditional purposes (section 5.8), physical and cultural heritage (section 5.9), and accidents and malfunctions (section 6.1). These measures also include commitments regarding the bioaccumulation of toxins in fish flesh, the development of a plan to mitigate the environmental effects of the designated project's operation on copper redhorse habitat located in the riparian zone of Bouchard Island (section 6.3. 5), the support of food sovereignty initiatives for the Mohawk Nation of Kahnawà:ke by the proponent and the Crown, the follow-up of the effects of the project's operation on First Nations' traditional fishing and hunting activities (section 5.8) and the integration of First Nations in the development and participation in compensation measures and follow-up programs on valued components included in the sections named in this paragraph.

The Agency has explored existing initiatives within its federal partners in order to find answers to the expectations formulated by First Nations regarding the request for a regional assessment on the



St. Lawrence River. The assessment of the cumulative effects of marine transportation in Transport Canada's Ocean Protection Plan could provide information on the valued components targeted by First Nations. However, the timeline of the initiative and the scope of the study on transportation activities represent definite limits to the contribution of this initiative. The First Nations, who are already involved in the initiative, mentioned that the information produced in the framework of this evaluation was insufficient to meet their expectations.

The Agency notes that despite these commitments, the issue of cumulative effects remains a major concern for First Nations. The Contrecoeur port terminal expansion project is part of a situation where there are a number of other port expansion projects planned, namely the ports of Trois-Rivières, Quebec City and Bécancour. The addition of these projects at the St. Lawrence River level will generate cumulative impacts on the activities of First Nations and the intergenerational transmission of culture and knowledge.

The Crown has engaged in a consultation and collaboration process for the development of a regional assessment with the Mohawk Council of Kahnawà:ke, the Grand Council of the Waban-Aki Nation, the Council of the Huron-Wendat Nation and any other First Nation with an interest in this assessment. At the time of this report's publication, this process is at a preliminary stage and there is no confirmation of a regional assessment of the St. Lawrence Seaway.

On July 29, 2020, the Minister of Environment and Climate Change received a Request for a Regional Assessment from the Mohawk Nation of Kahnawà:ke under Subsection 97(1) of the Impact Assessment Act (IAA), covering an area of the St. Lawrence River extending from Montreal to Quebec City. Some of the key issues raised in that letter (See: [Online](#)), and which were put forward as the rationale for such regional assessment, included increased shipping activity and industrialization in the region, their effects on the environment and impacts on rights, and the resulting need for a regional analysis of the current state of the river and the cumulative effects of current and future activities.

Following review and analysis of the request, the Minister responded that there were potential merits in conducting a regional assessment under the IAA in the St. Lawrence River area, as a means to help inform decisions and improve the effectiveness and efficiency of future project assessments (See: [Online](#)). The Minister also noted that it would be beneficial to undertake further analysis and to have associated discussions with the Mohawk Council of Kahnawà:ke, the Province of Quebec and other parties to explore this further, and to help define the nature, scope, objectives and outcomes before a decision is made to move forward with a regional assessment. This engagement program is ongoing, and has to date included the participation of the Mohawk Council of Kahnawà:ke, the Grand Council of the Waban-Aki Nation, the Council of the Huron-Wendat Nation and other First Nations. The Agency will provide the Minister with the results of these discussions by spring 2021 in order to inform a final decision on whether or not to move forward with such a regional assessment.

As of the time of publication of this EA Report, this engagement process remains in progress and no decision has yet been made on proceeding with this regional assessment of the St. Lawrence River. Regional assessments under the IAA consider the effects of existing or future physical activities carried out in a region, with the objective of informing planning and management of cumulative effects and informing future project impact assessments. A key consideration in the review of regional assessment



requests and the Agency's eventual recommendation to the Minister on same, as set out in the Agency associated Operational Guide, is "the potential for impacts, including cumulative impacts, to the rights of Indigenous people in the region". The ongoing analysis of this potential regional assessment includes consideration of the nature of the issues and impacts on a regional scale (non-project specific) that may be better analyzed and more effectively addressed through a regional approach.



8. Conclusions and Agency Recommendations

In preparing this report, the Agency took into account the proponent's Environmental Impact Statement, its responses to information requests, as well as the advice of government experts and the views of First Nations and the public.

The environmental effects of the project and their significance as well as the potential for cumulative environmental effects, have been determined using assessment methods and analytical tools that reflect currently accepted practices in the field of environmental and socio-economic assessment.

The Agency concludes that, taking into account the implementation of mitigation measures, the project is not likely to cause significant adverse environmental effects as defined in CEAA 2012.

The Agency has identified key mitigation measures and the requirements of a follow-up program that will be presented to the Minister to help him in making his decision on the significance of potential adverse environmental effects of the project. Should the Minister determine that the project is likely to cause significant adverse effects, the Minister will refer the matter to the Governor in Council as to whether the effects are justified in the circumstances. If the Governor in Council decides that these effects are justified in the circumstances, the Minister will outline the conditions for carrying out the project in his Decision Statement under CEAA 2012. Conditions issued by the Minister would be legally binding on the proponent. The Agency expects that all of the proponent's commitments⁸¹ would be implemented in order for the project to be carried out in a careful and precautionary manner.

⁸¹ The proponent's commitments are outlined in a compilation of measures and commitments. This document number 145 is available on the Canadian Impact Assessment Registry website under reference number 80116.



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Appendices

Appendix A: Environmental Effects Rating Criteria

The Agency has developed the following assessment criteria for the analysis of the significance of environmental effects for the Contrecoeur Project environmental assessment. Appendix A presents the general definitions of the criteria, the definitions of levels for extent, duration, frequency and reversibility (Table AA1), the definitions of levels of magnitude for each of the valued components (Table AA2), and the grid for determining the significance of environmental effects (Tables AA3, AA4 and AA5).

General Definitions of Criteria Used to Assess Residual Effects on Each of the Valued Components (VCs)

Magnitude: Indicates the level of disturbance (change) that the studied valued component (VC) would experience. The magnitude assessment takes into account the component's ecological context. The magnitude can incorporate the concept of the time when the effect would occur, which can refer to a phase of the component's life cycle (migration, reproduction, feeding, etc.) or a period during which a cultural, spiritual or recreational practice by a First Nation or population would occur (e.g., hunting season).

Extent: Geographical extent of the adverse effects.

Duration: Period of time during which the adverse effects would occur.

Frequency: Pace at which the adverse effects would occur in a given period.

Reversibility: Likelihood of a VC recovering from the adverse effects caused by the Project.

Significance: The significance of the adverse effects is determined by the combination of levels assigned to each of the criteria (magnitude, extent, duration, frequency and reversibility) for each component. A grid for determining the significance of the residual effects on the components is used for this purpose (Tables AA3, AA4 and AA5).

Table AA1: Definition of Levels for Each Criteria⁸²

Assessment Criteria	Level Descriptions
Extent	Site-specific: Effects limited to the Project site. Local: Effects extend beyond the Project site but are in the local study area. Regional: The effects extend beyond the local study area.
Duration	Short term or temporary: The effects would occur over a period of less than one or two years. Medium term: The effects would occur over a period of one or two to five years. Long term: The effects would occur over a period of more than five years.
Frequency	Once: Occurs once in any phase of the Project. Intermittent: Occurs occasionally or intermittently during one or more phases of the Project. Continuous: Occurs continually during one or more phases of the Project.
Reversibility	Reversible: The VC would recover completely from the Project's effects (e.g., return to the baseline or another target). Partially reversible: The VC would partly recover from the Project's effects. Irreversible: The VC would not recover from the Project's effects.

⁸² These levels apply to all valued components.



Table AA2: Definition of Magnitude Levels for Each of the VCs

Levels	Definition of Levels for the Magnitude Criterion
Wetlands	
LOW	In the case of wetlands in “<i>areas where wetland losses or functional values require that special measures be applied</i>”⁸³ <u>and/or</u> in an area where wetlands have been designated as having ecological or socioeconomic importance⁸⁴: • The effects would not limit or reduce the ecological or socioeconomic functions of wetlands. In the case of wetlands outside of such areas: • The effects would affect the wetlands and alterations or loss of ecological or socioeconomic function are expected in wetlands of lesser ecological value⁸⁵.
MEDIUM	In the case of wetlands in “<i>areas where wetland losses or functional values require that special measures be applied</i>” <u>and/or</u> in an area where wetlands have been designated as having ecological or socioeconomic importance: • The effects would affect wetlands, BUT without causing any net loss of wetland ecological or socioeconomic functions. In the case of wetlands outside of such areas: • The effects would affect wetlands and alterations or loss of ecological and socioeconomic functions are anticipated in wetlands of moderate ecological value.
HIGH	In the case of wetlands in “<i>areas where wetland losses or functional values require that special measures be applied</i>” <u>and/or</u> in an area where wetlands have been designated as having ecological or socioeconomic importance:

⁸³ Taken from: Environment Canada, 1996. Federal Policy on Wetland Conservation Implementation Guide for Federal Land Managers. 23 pages and appendices.

⁸⁴ Taken from: Environment Canada, 1991. Federal Policy on Wetland Conservation. 15 pages.

⁸⁵ Ecological value: This value must be determined through an analysis of such criteria as surface area, connectivity (natural environments, bodies of water), the diversity of natural communities found there, and disruptions affecting these environments. It tends to illustrate the fragmentation of habitats and ecosystems. Reference: MDDEP (2008), Guide d'élaboration d'un plan de conservation des milieux humides.



Levels	Definition of Levels for the Magnitude Criterion
	- The effects would cause a net loss of wetland ecological or socioeconomic functions. In the case of wetlands outside of such areas: - The effects would affect wetlands and alterations or loss of ecological or socioeconomic function are anticipated in wetlands of high ecological value.
Fish and Fish Habitat, Including Special-Status Species	
LOW	The effects would cause little to no disruption to one or more sensitive phases in the life cycle of fish. In the case of special-status fish⁸⁶: The effects would not disrupt the sustainability <u>and/or</u> management <u>and/or</u> recovery of one or more of these species.
MEDIUM	The effects would disrupt one or more sensitive phases of the life cycle of fish, BUT without harming the sustainability of the fish population. In the case of special-status fish: Effects on these species are anticipated, BUT measures (offsetting or protective) could be taken to avoid disrupting the sustainability <u>and/or</u> management <u>and/or</u> recovery of one or more of these species.
HIGH	The effects would disrupt the sustainability of the fish population. In the case of special-status fish: Effects on these species are anticipated AND no measures (offsetting or protective) could be taken to reduce the effects.

⁸⁶ Species with federal or provincial special status or those subject to recommendations from the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).



Levels	Definition of Levels for the Magnitude Criterion
Birds and Bird Habitat, Including Special-Status Species	
LOW	The effects would cause little to no disruption to one or more sensitive phases in the life cycle of birds. In the case of special-status birds: • The effects would not disrupt the sustainability <u>and/or</u> management <u>and/or</u> recovery of one or more of these species.
MEDIUM	The effects would disrupt one or more sensitive phases of the life cycle of birds, BUT without harming the sustainability of the bird population. In the case of special-status birds: • Effects on these species are anticipated, BUT measures (offsetting or protective) could be taken to avoid disrupting the sustainability <u>and/or</u> management <u>and/or</u> recovery of one or more of these species.
HIGH	The effects would disrupt the sustainability of the bird population. In the case of special-status birds: • Effects on these species are anticipated AND no measures (offsetting or protective) could be taken to reduce the effects.
Other Special-Status Species	
LOW	The effects would not disrupt the maintenance <u>and/or</u> management <u>and/or</u> recovery of one or more of these species.
MEDIUM	Effects on these species are anticipated, BUT measures (offsetting or protective) could be taken to avoid disrupting the sustainability <u>and/or</u> management <u>and/or</u> recovery of one or more of these species.
HIGH	Effects on these species are anticipated AND no measures (offsetting or protective) could be taken to reduce the effects.



Levels	Definition of Levels for the Magnitude Criterion
Risks to Human Health	
LOW	The potential effects on physical health are related to exposure to contaminant levels that are well below the applicable standards and criteria for the protection of physical health. OR Contaminant management and mitigation measures would minimize residual effects on the acoustic environment, air, water, soil, food or quality of life (including contaminants for which there are no thresholds); OR Potential effects on physical health are related to exposure to low levels of nuisance (noise, light, vibrations, odours, dust). The effects can be felt by a few individuals. In the case of psychological health: • The perception of the risk to health or safety that could be caused by Project-related changes to the environment is manifested by a few individuals but is not a concern for many social groups.
MEDIUM	Potential physical health effects are related to exposure to contaminant levels that are below the applicable standards and criteria for the protection of physical health, BUT at moderate levels of nuisance (noise, light, vibration, odour, dust). The effects may be felt by certain social groups. AND Residual effects will persist on acoustic environment, air, water, soil, food or quality of life despite contaminant management and mitigation measures (including contaminants for which there are no thresholds). In the case of psychological health:



Levels	Definition of Levels for the Magnitude Criterion
	• Certain individuals and social groups who would be affected by the Project perceive a risk to their health or safety that could be caused by Project-related changes to the environment BUT mitigation or compensation measures could be put in place.
HIGH	Potential physical health effects are related to exposure to contaminant levels that are above applicable standards and criteria for the protection of physical health OR to high levels of nuisance (noise, light, vibration, odour, dust). The effects may be felt by several social groups or a significant portion of the affected population. AND Residual effects will persist on acoustic environment, air, water, soil, food or quality of life despite contaminant management and mitigation measures (including contaminants for which there are no thresholds). In the case of psychological health: • Several social groups that would be affected by the Project perceive a high risk to their health or safety that could be caused by Project-related changes to the environment, AND no mitigation or compensation measures could be put in place.
Socioeconomic Conditions⁸⁷	
LOW	The area is not commonly used for activities. The effects would cause few changes to behaviours required for carrying out activities and their economic impact.

⁸⁷ Definition: all social and economic conditions required for the continuation of activities undertaken by the population affected by the environmental changes caused by the project (e.g., jobs, education, housing, infrastructure, community social services and physical community infrastructure, medical and social services, or recreational services and facilities).



Levels	Definition of Levels for the Magnitude Criterion
MEDIUM	The effects would lead to changes in the behaviours required for carrying out activities BUT carrying out activities would not be compromised in the most commonly used areas.
HIGH	The effects would lead to noticeable changes in the behaviours required for carrying out activities in regularly used areas, such that the activity would be compromised or no longer possible .
Physical or Cultural Heritage	
LOW	The effects would slightly alter the characteristics of the unique nature of an element of the physical or cultural heritage and/or of a structure, site or thing of historical, archeological, paleontological or architectural significance. AND/OR Access to or use of an element of the physical or cultural heritage and/or of a structure, site or thing of importance would not be altered for users. In the case of designated heritage elements: • The effects would not disrupt the sustainability and/or management of designated heritage elements.
MEDIUM	The effects would alter some characteristics of the unique nature of an element of the physical or cultural heritage and/or of a structure, site or thing of historical, archeological, paleontological or architectural significance, BUT would not compromise its integrity. AND/OR Access to or use of an element of the physical or cultural heritage and/or of a structure, site or thing would be altered BUT would not be compromised for users. In the case of designated heritage elements:



Levels	Definition of Levels for the Magnitude Criterion
	The sustainability or management of designated heritage elements would be altered BUT would not alter their designation.
HIGH	The effects would lead to the loss of characteristics of the unique nature of an element of the physical or cultural heritage <u>or</u> of a structure, site or thing of historical, archeological, paleontological or architectural significance, such that its integrity would be compromised. AND/OR The effect would prevent users from accessing or using an element of the physical or cultural heritage <u>or</u> a structure, site or thing of historical, archeological, paleontological or architectural significance. In the case of designated heritage elements: The effects would interfere with the sustainability <u>and/or</u> management of designated heritage elements <u>and</u> could compromise their designation.
Current Use⁸⁸ of Lands and Resources for Traditional Purposes⁸⁹ by Indigenous Peoples	
LOW	The effects would alter the conditions of traditional practices⁹⁰ in a manner resulting in few changes to current use. AND/OR

⁸⁸ In the context of an environmental assessment, “current use” refers to the manner in which land and resource use may be affected in the course of the life cycle of a proposed project. “Current use” includes active use by Indigenous Peoples at the time of the environmental assessment and uses that are likely to occur in a reasonably foreseeable future provided that they have continuity with traditional practices, traditions or customs. Furthermore, uses that may have ceased due to external factors and should also be considered if they can reasonably be expected to resume once conditions change.

⁸⁹ Traditional purposes typically relate to activities that are integral to a community’s way of life and culture and have continuity with historic practices, customs and traditions of the community.

⁹⁰ A “practice” is a way of doing something that is common, habitual or expected, generally related to activities that are integral to a community’s way of life and culture and offer continuity with historic practices.

“Conditions of practice” are baseline conditions for the practice of activities. Examples of these are quantity or quality of available resources and access to the area.



Levels	Definition of Levels for the Magnitude Criterion
	The effects involve few changes to behaviour , allowing current use to continue , in preferred ways or locations.
MEDIUM	The effects would alter the conditions of traditional practices without compromising current use. AND/OR Some behaviours would be modified, but current use would not be compromised.
HIGH	The effects would alter the conditions of traditional practices in a manner resulting in changes that would compromise current use. AND/OR Current Indigenous use would no longer be possible in accordance with preferred ways or would be compromised in the only suitable, available or most preferred locations.



Table AA3: Decision Tree for Determining Overall Significance of a Residual Effect (High Magnitude)

Extent	Duration	Frequency	Reversibility / Irreversibility	Level of Effect	Significance	Extent	Duration	Frequency	Reversibility/ Irreversibility	Level of Effect	Significance	Extent	Duration	Frequency	Reversibility/ Irreversibility	Level of Effect	Significance
Regional	Long Term	Continuous	Irreversible	High	Significant	Local	Long Term	Continuous	Irreversible	High	Significant	Site-Specific	Long Term	Continuous	Irreversible	High	Significant
			Partially reversible	High	Significant				Partially	High	Significant				Partially	High	Significant
			Reversible	High	Significant				Reversible	High	Significant				Reversible	High	Significant
		Intermittent	Irreversible	High	Significant			Intermittent	Irreversible	High	Significant			Intermittent	Irreversible	High	Significant
			Partially	High	Significant				Partially	High	Significant				Partially	High	Significant
			Reversible	High	Significant				Reversible	High	Significant				Reversible	High	Significant
		Once	Irreversible	High	Significant			Once	Irreversible	High	Significant			Once	Irreversible	High	Significant
			Partially	High	Significant				Partially	High	Significant				Partially	High	Significant
			Reversible	High	Significant				Reversible	High	Significant				Reversible	High	Significant
	Medium Term	Continuous	Irreversible	High	Significant		Medium Term	Continuous	Irreversible	High	Significant		Medium Term	Continuous	Irreversible	High	Significant
			Partially	High	Significant				Partially	High	Significant				Partially	High	Significant
			Reversible	High	Significant				Reversible	High	Significant				Reversible	High	Significant
		Intermittent	Irreversible	High	Significant			Intermittent	Irreversible	High	Significant			Intermittent	Irreversible	High	Significant
			Partially	High	Significant				Partially	High	Significant				Partially	High	Significant
			Reversible	High	Significant				Reversible	High	Significant				Reversible	Moderate	Not Significant
		Once	Irreversible	High	Significant			Once	Irreversible	High	Significant			Once	Irreversible	High	Significant
			Partially	High	Significant				Partially	High	Significant				Partially	Moderate	Not Significant
			Reversible	High	Significant				Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant
	Short Term or Temporary	Continuous	Irreversible	High	Significant		Short Term or Temporary	Continuous	Irreversible	High	Significant		Short Term or Temporary	Continuous	Irreversible	High	Significant
			Partially	High	Significant				Partially	High	Significant				Partially	High	Significant
			Reversible	High	Significant				Reversible	High	Significant				Reversible	Moderate	Not Significant
		Intermittent	Irreversible	High	Significant			Intermittent	Irreversible	High	Significant			Intermittent	Irreversible	High	Significant
			Partially	High	Significant				Partially	High	Significant				Partially	Moderate	Not Significant
			Reversible	High	Significant				Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant
		Once	Irreversible	High	Significant			Once	Irreversible	High	Significant			Once	Irreversible	Moderate	Not Significant
			Partially	High	Significant				Partially	Moderate	Not Significant				Partially	Moderate	Not Significant
			Reversible	High	Significant				Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant

*Only residual impacts with a "High" effect level demonstrate a significant effect within the meaning of the *Canadian Environmental Assessment Act, 2012*.



Table AA4: Decision Tree for Determining Overall Significance of a Residual Effect (Medium Magnitude)

Extent	Duration	Frequency	Reversibility / Irreversibility	Level of Effect	Significance	Extent	Duration	Frequency	Reversibility / Irreversibility	Level of Effect	Significance	Extent	Duration	Frequency	Reversibility / Irreversibility	Level of Effect	Significance
Regional	Long Term	Continuous	Irreversible	High	Significant	Local	Long Term	Continuous	Irreversible	Moderate	Not Significant	Site-Specific	Long Term	Continuous	Irreversible	Moderate	Not Significant
			Partially	High	Significant				Partially	Moderate	Not Significant				Partially	Moderate	Not Significant
			Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant
		Intermittent	Irreversible	High	Significant			Intermittent	Irreversible	Moderate	Not Significant			Intermittent	Irreversible	Moderate	Not Significant
			Partially	Moderate	Not Significant				Partially	Moderate	Not Significant				Partially	Moderate	Not Significant
			Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant
		Once	Irreversible	Moderate	Not Significant			Once	Irreversible	Moderate	Not Significant			Once	Irreversible	Moderate	Not Significant
			Partially	Moderate	Not Significant				Partially	Moderate	Not Significant				Partially	Moderate	Not Significant
			Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant
	Medium Term	Continuous	Irreversible	High	Significant		Medium Term	Continuous	Irreversible	Moderate	Not Significant		Medium Term	Continuous	Irreversible	Moderate	Not Significant
			Partially	Moderate	Not Significant				Partially	Moderate	Not Significant				Partially	Moderate	Not Significant
			Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant
		Intermittent	Irreversible	Moderate	Not Significant			Intermittent	Irreversible	Moderate	Not Significant			Intermittent	Irreversible	Moderate	Not Significant
			Partially	Moderate	Not Significant				Partially	Moderate	Not Significant				Partially	Moderate	Not Significant
			Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant
		Once	Irreversible	Moderate	Not Significant			Once	Irreversible	Moderate	Not Significant			Once	Irreversible	Moderate	Not Significant
			Partially	Moderate	Not Significant				Partially	Moderate	Not Significant				Partially	Moderate	Not Significant
			Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant				Reversible	Low	Not Significant
	Short Term or Temporary	Continuous	Irreversible	Moderate	Not Significant		Short Term or Temporary	Continuous	Irreversible	Moderate	Not Significant		Short Term or Temporary	Continuous	Irreversible	Moderate	Not Significant
			Partially	Moderate	Not Significant				Partially	Moderate	Not Significant				Partially	Moderate	Not Significant
			Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant
		Intermittent	Irreversible	Moderate	Not Significant			Intermittent	Irreversible	Moderate	Not Significant			Intermittent	Irreversible	Moderate	Not Significant
			Partially	Moderate	Not Significant				Partially	Moderate	Not Significant				Partially	Moderate	Not Significant
			Reversible	Moderate	Not Significant				Reversible	Moderate	Not Significant				Reversible	Low	Not Significant
		Once	Irreversible	Moderate	Not Significant			Once	Irreversible	Moderate	Not Significant			Once	Irreversible	Moderate	Not Significant
			Partially	Moderate	Not Significant				Partially	Moderate	Not Significant				Partially	Low	Not Significant
			Reversible	Moderate	Not Significant				Reversible	Low	Not Significant				Reversible	Low	Not Significant

*Only residual impacts with a "High" effect level demonstrate a significant effect within the meaning of the *Canadian Environmental Assessment Act, 2012*.



Table AA5: Decision Tree for Determining Overall Significance of a Residual Effect (Low Magnitude)

Extent	Duration	Frequency	Reversibility / Irreversibility	Level of Effect	Significance	Extent	Duration	Frequency	Reversibility / Irreversibility	Level of Effect	Significance	Extent	Duration	Frequency	Reversibility / Irreversibility	Level of Effect	Significance
Regional	Long Term	Continuous	Irreversible	Moderate	Not Significant	Local	Long Term	Continuous	Irreversible	Moderate	Not Significant	Site-Specific	Long Term	Continuous	Irreversible	Moderate	Not Significant
			Partially	Moderate	Not Significant				Partially	Moderate	Not Significant				Partially	Low	Not Significant
			Reversible	Moderate	Not Significant				Reversible	Low	Not Significant				Reversible	Low	Not Significant
		Intermittent	Irreversible	Moderate	Not Significant			Intermittent	Irreversible	Moderate	Not Significant			Intermittent	Irreversible	Low	Not Significant
			Partially	Moderate	Not Significant				Partially	Low	Not Significant				Partially	Low	Not Significant
			Reversible	Low	Not Significant				Reversible	Low	Not Significant				Reversible	Low	Not Significant
		Once	Irreversible	Moderate	Not Significant			Once	Irreversible	Low	Not Significant			Once	Irreversible	Low	Not Significant
			Partially	Low	Not Significant				Partially	Low	Not Significant				Partially	Low	Not Significant
			Reversible	Low	Not Significant				Reversible	Low	Not Significant				Reversible	Low	Not Significant
	Medium Term	Continuous	Irreversible	Moderate	Not Significant		Medium Term	Continuous	Irreversible	Moderate	Not Significant		Medium Term	Continuous	Irreversible	Low	Not Significant
			Partially	Moderate	Not Significant				Partially	Low	Not Significant				Partially	Low	Not Significant
			Reversible	Low	Not Significant				Reversible	Low	Not Significant				Reversible	Low	Not Significant
		Intermittent	Irreversible	Moderate	Not Significant			Intermittent	Irreversible	Low	Not Significant			Intermittent	Irreversible	Low	Not Significant
			Partially	Low	Not Significant				Partially	Low	Not Significant				Partially	Low	Not Significant
			Reversible	Low	Not Significant				Reversible	Low	Not Significant				Reversible	Low	Not Significant
		Once	Irreversible	Low	Not Significant			Once	Irreversible	Low	Not Significant			Once	Irreversible	Low	Not Significant
			Partially	Low	Not Significant				Partially	Low	Not Significant				Partially	Low	Not Significant
			Reversible	Low	Not Significant				Reversible	Low	Not Significant				Reversible	Low	Not Significant
	Short Term or Temporary	Continuous	Irreversible	Moderate	Not Significant		Short Term or Temporary	Continuous	Irreversible	Low	Not Significant		Short Term or Temporary	Continuous	Irreversible	Low	Not Significant
			Partially	Low	Not Significant				Partially	Low	Not Significant				Partially	Low	Not Significant
			Reversible	Low	Not Significant				Reversible	Low	Not Significant				Reversible	Low	Not Significant
		Intermittent	Irreversible	Low	Not Significant			Intermittent	Irreversible	Low	Not Significant			Intermittent	Irreversible	Low	Not Significant
			Partially	Low	Not Significant				Partially	Low	Not Significant				Partially	Low	Not Significant
			Reversible	Low	Not Significant				Reversible	Low	Not Significant				Reversible	Low	Not Significant
		Once	Irreversible	Low	Not Significant			Once	Irreversible	Low	Not Significant			Once	Irreversible	Low	Not Significant
			Partially	Low	Not Significant				Partially	Low	Not Significant				Partially	Low	Not Significant
			Reversible	Low	Not Significant				Reversible	Low	Not Significant				Reversible	Low	Not Significant

*Only residual impacts with a "High" effect level demonstrate a significant effect within the meaning of the *Canadian Environmental Assessment Act, 2012*.



Appendix B: Assessment of Residual Adverse Environmental Effects - Executive Summary

Potential Residual Effects	Characterization of Potential Residual Effects	Significance of Potential Residual Adverse Environmental Effects
Transboundary Environmental Effects - Greenhouse Gas Emissions		
- Maximum annual emissions of 6800 tonnes of CO₂ equivalent during the construction phase. The main sources of GHGs would come from combustion gases generated by the circulation of trucks and machinery on the site (equipment mainly equipped with diesel engines) as well as from dredging work on the water by dredgers and tugs. - Annual emissions of 39 kilotonnes of CO₂ equivalent in the operation phase. The sources of GHG emissions would be almost exclusively related to the transportation and handling of containers.	Low contributions of the project's direct and indirect emissions to provincial or national emissions.	Not Significant Greenhouse gas emissions would not contribute significantly to provincial or national emissions.
Wetlands		
- Loss of 20.9 hectares of wetlands during the construction phase. - Sediment runoff or input of suspended solids could alter the pH, vegetation and the presence of microorganisms in the wetlands. - The profiling of the ditches, the installation of the drainage system and the deviation of the Fossé Noir ditch and potentially Ruisseau 1 could result in a change in water conditions in these wetlands. - During the operating phase, the presence of the wharf would impose a constraint on the water flow pattern compared to natural conditions. - Loss of ecological functions among the 26 complexes affected by the loss of wetlands. The main consequences of these losses of functions during the construction and operation phases would be related to a variable decrease (ranging from slight to significant according to the proponent) in water filtration and regulation due to the loss of wetlands area.	<u>Magnitude</u>: Medium - The project would result in the destruction of wetlands with different ecological functions, however a compensation project is planned to avoid a net loss of wetland functions. <u>Extent</u>: Local <u>Duration</u>: Long term <u>Frequency</u>: Continuous <u>Reversibility</u>: Irreversible	Not Significant Taking into account the application of mitigation measures, the residual effects of the project on wetlands would be moderate.



Potential Residual Effects	Characterization of Potential Residual Effects	Significance of Potential Residual Adverse Environmental Effects
• Small to very small reduction in functions related to biodiversity conservation, landscape quality and erosion control. • Some wetland complexes would be fragmented, but these have a low ecological value according to the proponent.		
Fish and Fish Habitat		
Habitat Destruction and Alteration: • Loss of 8.3 hectares of habitat for fish and benthic fauna (backfilling and channelization). • Disturbance and alteration of 16.3 hectares of aquatic habitat as a result of dredging. • Modification of the site's current drainage system. The affected sections could provide feeding, growth and breeding habitat for common species of fish in the stickleback and cyprinid family. • Loss of 0.9 hectares of feeding habitat for copper redhorse adults. • The project may affect a small part of the juvenile lake sturgeon feeding area. • Potential introduction or spread of invasive exotic species such as zebra mussels, quagga mussels and water milfoil due to the passage of ships in the waters of the St. Lawrence River during the operation phase and dredging activities. These species could harm fish and benthic fauna. Change in Water Quality: • Increased suspended solids and contaminants input into the river and the three waterways and impact on the quality of the surface water. Suspended solids could interfere with biological activities, for example, affecting respiration in fish and growth rate in mussels. • Maintenance of the drainage system, de-icing and snow waste management, as well as the discharge of runoff, could affect the water quality of the three streams and the St. Lawrence River and lead to a degradation of benthic wildlife and fish habitat.	<u>Magnitude</u>: Medium - Effects are expected on certain species (more specifically on the copper redhorse) and their habitat, but mitigation measures and compensation plans would be put in place in order to avoid affecting the maintenance, management or recovery of these species. <u>Extent</u>: Local. <u>Duration</u>: Long term. <u>Frequency</u>: Continuous. <u>Reversibility</u>: Partially reversible over time and irreversible on fish habitat.	Not Significant Residual effects would be moderate considering the mitigation and compensation measures proposed by the proponent, the advice of government experts, as well as the comments received from the First Nations consulted and the public. The Agency ensured that measures consistent with any recovery strategy were taken to avoid, or mitigate and monitor adverse effects on species at risk should the project proceed.



Potential Residual Effects	Characterization of Potential Residual Effects	Significance of Potential Residual Adverse Environmental Effects
- Maintenance dredging, navigation and approach maneuvers in river areas could lead to the re-suspension of sediments in the water. - The presence of the wharf could alter the currents and sediment supply to the aquatic grass beds downstream of the structure. - Ice melters used in the maintenance of roads, railways and wharf areas could be found in runoff, increase chloride concentrations at discharge points in the environment and be harmful to freshwater plants and fish, as well as other organisms that are not adapted to life in salt waters. - Petroleum hydrocarbons from fuels used in operations could also end up in surface waters. Underwater Acoustic Environment: - Changes of fish behaviour because of sheet pile and support profile driving activities as well as sediment dredging. - In the operation phase, the noise of ships carrying the containers would be the main source of underwater noise. Maintenance dredging would generate noise and could cause disturbance at a very low frequency, over an estimated period of a few days every four years.		
Birds and Their Habitat		
Habitat Destruction and Alteration : - Loss of potential habitat consisting of forest, fallow grounds, wetland and riparian areas during clearing, brush, mowing and dock construction in the project area. - Relocation of some resident birds associated with hardwood forests, such as the black-capped chickadees and downy woodpeckers, because of clearing in winter. - Loss of 0.9 hectare of grassland and encroachment into the Îles de Verchères Aquatic Bird Concentration Area. - Destruction of the nesting habitat of three colonies of bank swallows during site preparation work.	<u>Magnitude</u>: Medium - Effects could affect one or more important phases of the birds' life cycle, but without affecting the preservation of populations. <u>Extent</u>: Local <u>Duration</u>: Long term <u>Frequency</u>: Continuous <u>Reversibility</u>: partially reversible over time and irreversible on bird habitat.	Not Significant Residual effects of the project would be moderate, taking into account the application of key mitigation measures.



Potential Residual Effects	Characterization of Potential Residual Effects	Significance of Potential Residual Adverse Environmental Effects
• The use of piles of land stored as nesting sites during construction could be an ecological trap for the bank Swallow. • Possible destruction of bank swallow nests due to river erosion during the breeding season (late May to early August). • Loss of wooded areas suitable for nesting eastern wood pewee and wood thrush due to deforestation. • Deforestation would contribute to the fragmentation of forests and promote predation, by the brown-headed cowbird, of wood thrush nests nesting near forest edges. • Destruction and creation of potential habitat for the common nighthawk due to stripping and excavation activities, depending on the area and the timing of the work. • Impossibility for the peregrine falcon to nest on the Port Authority's territory given the lack of suitable structures. • Destruction of the nests of ground-nesting species such as Canada geese and mallards due to clearing, brushing and mowing. • Destruction of the killdeer nests during the construction and operation phases. Collisions: • Increase in the number of collisions with vehicles during construction. • Risk of collision for the bank Swallow due to its social behaviour. • Low risk of bird collisions with structures. Malfunction : • Risk of disturbance due to noise and vibrations generated by construction work and activities of the operation phase. • Alteration of the reproductive success and changes in communication between species due to noise.		



Potential Residual Effects	Characterization of Potential Residual Effects	Significance of Potential Residual Adverse Environmental Effects
Other Special Status Species		
Flora With Special Status: - A total of 124.8 hectares of vegetation potentially hosting special-status species would be lost due to deforestation, removal of vegetation, and heavy machinery and vehicle traffic. The presence of the facilities would prevent the resumption of vegetation thereafter. - At least six colonies of ostrich fern and two colonies of bloodroot from Canada would be affected by the construction and operation phases. - Vegetation in the plant community study area could still be disturbed by dust raised by machinery and vehicle traffic on unpaved roads during construction, reducing the photosynthesis capacity of vegetation near the work site. - The removal of vegetation would increase the proportion of edge habitats, which could encourage the introduction and spread of invasive plant species. Herpetofauna - Western Chorus Frog: - During the construction and operation phases, an increase in the frog's mortality rate would be possible, even though marginal, due to the risk of collision with vehicles on Montée Lapierre, which crosses the critical habitat and residence of the western chorus frog. - During the operation phase, the western chorus frog population may experience a marginal disturbance (approximately 15 minutes per day) of its reproduction due to noise from rail traffic created by the additional passage of one to two trains per day (8 to 9 trains per week), at the maximum capacity of the terminal. Herpetofauna - Other Special Status Species: - During the construction phase, the main effects on special status turtle species would be related to the loss of aquatic and terrestrial habitats (including egg-laying habitats) due to the proposed wharf, the approach area, the backfilling of the entrance of the Fossé noir ditch and the deviation of this watercourse.	<u>Magnitude</u>: Medium - effects are expected on certain species (floristic as well as bat, turtle and snake species) and their habitat, however compensatory or protective measures would be put in place so as not to adversely affect the maintenance, management or recovery of these species. <u>Extent</u>: Local <u>Duration</u>: Long term <u>Frequency</u>: Continuous <u>Reversibility</u>: Partially reversible over time and irreversible on their habitat.	Not Significant Taking into account the application of mitigation measures, the residual effects of the project on special-status species would be moderate.



Potential Residual Effects	Characterization of Potential Residual Effects	Significance of Potential Residual Adverse Environmental Effects
- Effects on special-status turtle species would also be related to the increased risk of mortality and injury resulting from increased collision potential and the reduction in potential movement between downstream and upstream habitats due to the barriers created by the development of the approach area and the area to be filled. - In the operation phase, the main effects on turtles would be : (1) a loss of function and modification of aquatic habitats due to the approach area, wharf and bailing, (2) a small potential increase in the number of fatalities or injuries due to the increased risk of ship collisions, (3) a terrestrial and aquatic (semi-permeable) barrier effect due to the new port area, and (4) access to sedimentation ponds that may contain contaminants. - The main effects of the project on special status snake species would be a loss of habitat of 41.36 hectares for the milksnake and 53.19 hectares for the smooth green snake, the addition of physical barriers (e.g., train loading area), affecting movement and access to sites of interest such as hibernacula, and increased risk of injury and mortality due to vehicle and machinery collisions and burial during clearing and grading operations. Mammals With Special Status: - The main effect on the six special-status bat species would be the destruction of resting, potential nursery and feeding habitats due to deforestation and site development. - The significance of the potential effects of the project would be strong on the tricolored bat, the little brown bat and northern bat, which form colonies composed of several reproductive and juvenile females grouped together in the same shelter. - Of the 158 trees considered to have a high potential for shelter for tricolored bat, little brown bat and northern bat, 37 trees are located in the portions that would be deforested. - Approximately 120 hectares of feeding habitat and 37 hectares of resting habitat would be removed from the project area (including dredged sediment management areas). - Depending on the species, artificial lighting could positively or adversely affect feeding behaviour and night-time movements. Some species may benefit from certain types of lighting that attract the insects they feed on. During feeding periods, slow-flying or low-		



Potential Residual Effects	Characterization of Potential Residual Effects	Significance of Potential Residual Adverse Environmental Effects
flying species would be more likely to collide with moving vehicles at night due to the attraction behaviour generated by artificial lighting, increasing the risk of mortality. Conversely, artificial lighting could induce avoidance behaviour for light-sensitive species. - Noise from the construction site during the construction phase could disturb certain species that could avoid the area. During the operation phase, the noise generated during the day could lead to avoidance behaviour by bats near noise-generating activities. - For the southern bog lemming, 11.83 hectares of habitats would be lost due to deforestation and vegetation removal. Further, mortality could occur due to vehicle, truck and machinery traffic. Construction activities could disturb individuals, resulting in displacement of individuals and increasing their vulnerability to predation. Insects: - Approximately 26.6 hectares of herbaceous wasteland, that could potentially be used by the monarch, would be lost during the construction work. The monarch could, however, find replacement habitats on the territory of the MPA and in the region in general.		
Human Health (Physical and Psychological)		
- Potential exceedances of certain CAAQS standards or MELCC's AAR criteria at the project site and at a few sensitive receptors in the surroundings of the project for certain contaminants, including particulate matter and nitrogen dioxide (NO₂). - It is unlikely that concentrations of metals, metalloids and other contaminants in air, water or fish flesh would increase to the point where they exceed health protection standards and criteria. - Increase in noise that would approach or could exceed the MELCC recommendations for a few sensitive receptors in the surroundings of the project. - The First Nations would have little exposure to the nuisances and contaminants emitted by the project, since the reserve territories are located more than 60 kilometres away from the project's zone of influence.	<u>Magnitude</u>: Medium - Contaminant management and mitigation measures would keep exposure to levels of air contaminants below applicable standards and criteria for the majority of the population. Some individuals may experience medium levels of nuisance and health effects (sleep disturbance) related to noise, vibration and dust or perceive a risk to their health or safety that could be caused by changes to the environment related to the project, but mitigation measures would be put in place. <u>Extent</u>: Local <u>Duration</u>: Long term	Not Significant Taking into account the application of mitigation and follow-up measures, the project's residual effects on human health (physical and psychological), including that of First Nations, would be moderate.



Potential Residual Effects	Characterization of Potential Residual Effects	Significance of Potential Residual Adverse Environmental Effects
	<u>Frequency</u> : Continuous <u>Reversibility</u> : Partially reversible	

Potential Residual Effects	Characterization of Potential Residual Effects	Significance of Potential Residual Adverse Environmental Effects
Socio-Economic Conditions		
Recreational and Tourist Activities and Access to the River: - The practice of recreation and tourism activities could be affected by the project intermittently, however it would not be compromised. The project would have effects on the green and blue roads, which allow motorized and bicycle rides and recreational boating on the river, respectively. - Recreational fishing and hunting would be little affected by the project. Economic Activities: - Commercial fishing would be non-existent in the local study area. - Agricultural activities in the project area could be affected due to the loss of rental land generated by the encroachment of new facilities.	<u>Intensity</u> : Medium - The effects would lead to changes in the behaviours necessary for the practice of certain activities such as recreational, touristic and agricultural activities, but provided that these mitigation measures would be put in place, then the practice of these activities would not be compromised. <u>Extent</u> : Local - some residual effects would extend into the local study area, including those on aquatic users. <u>Duration</u> : Long term <u>Frequency</u> : Once for the loss of agricultural land and intermittently for recreational activities depending on dredging activities and the to-and-fro movement of ships. <u>Reversibility</u> : Partially reversible	Not Significant Taking into account the application of mitigation and follow-up measures, the residual effects of the project on socio-economic conditions would be moderate.
Indigenous Peoples - Current Uses of Lands and Resources for Traditional Purposes		
Fishing and Hunting Activities: The project could have effects on fishing and hunting in the regional project area and the resulting uses for First Nations.	<u>Magnitude</u> : Medium - Some behaviours would be changed, however current use would not be compromised. <u>Extent</u> : Local – some effects would extend into the local study area.	Not Significant With the implementation of mitigation measures, the residual effects of the project on the current use of lands and resources for



Potential Residual Effects	Characterization of Potential Residual Effects	Significance of Potential Residual Adverse Environmental Effects
- The W8banaki Nation: activities and customs related to migratory bird hunting, fishing for yellow perch, walleye, bass, sturgeon and pike; - Mohawk First Nations, including Kahnawà:ke First Nation: activities and customs surrounding the copper redhorse and sturgeon fishery; - The Huron-Wendat Nation: activities and customs related to the fishing of American eel, sturgeon, walleye and bass. Changes in Access and Land Use: - Activities could be disrupted by the increase in maritime traffic, the erosion of privileged sites, the difficulty of access to these sites, and increased competition between hunters and fishermen for the use of residual spaces.	<u>Duration</u>: Long term <u>Frequency</u>: Continuous <u>Reversibility</u>: Partially Reversible	traditional purposes by Indigenous peoples would be moderate.
Physical and Cultural Heritage		
Physical Heritage: - The visual influence of port infrastructure. - Light pollution that may affect area residents. Cultural Heritage: - Construction work could affect prehistoric and historic archaeological remains, both on land and at sea. - Mining activities are unlikely to affect prehistoric or historic archaeological remains.	<u>Magnitude</u>: Medium - access to or use of a physical or cultural heritage feature, building, site or thing is altered, however it would not be compromised for users. <u>Extent</u>: Local <u>Duration</u>: Long term <u>Frequency</u>: Continuous - effects would occur continuously over time for physical and cultural heritage. <u>Reversibility</u>: Irreversible - the residual effects of the project on physical heritage would be irreversible and partially reversible with respect to cultural heritage.	Not Significant The residual effect would be moderate. The project is not likely to cause significant adverse residual environmental effects, taking into account the application of key mitigation measures.



Appendix C: Key Mitigation and Monitoring Measures Identified by the Agency

The Agency has identified the key mitigation and monitoring measures required to ensure that the proposed project does not cause significant adverse environmental effects on valued components considered in the federal environmental assessment of the project. It took into account the mitigation measures proposed by the proponent, the advice of government experts, as well as the comments received from the First Nations consulted and the public. These mitigation and monitoring measures were used in the development of the document on potential conditions for the environmental assessment.

Valued Components	Key Mitigation Measures and Monitoring Requirements
Transboundary Environmental Effects - Greenhouse Gas Emissions	Key Mitigation Measures • Provide and maintain, during operation, electrical power so that any ship serving the project that is equipped to plug into land-based electrical power while berthed can do so. Follow-up Requirements • Develop, in consultation with Environment and Climate Change Canada, Transport Canada and other relevant authorities, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of the greenhouse gas emissions from the project (including those of ships) during construction and during operation. Develop the follow-up program applicable to construction prior to construction and develop the follow-up program applicable to operation at least one year before operation. Implement the follow-up program during construction and operation. In the context of development of the follow-up program, define quantifiable targets for the reduction of greenhouse gas emissions from the project and identify the reduction measures under the proponent's control that will be implemented in order to achieve these targets. As part of the implementation of the follow-up program: ◦ Monitor the greenhouse gases emitted by the project during construction and operation at a frequency that accounts for the nature of the activities as part of the project and the representative periods of activities and traffic and compare the results of this monitoring with the targets defined during the development of the follow-up program; ◦ Provide, in the annual report, the progress achieved during the reporting year to achieve the targets defined during the development of the follow-up program; ◦ Develop and implement modified or additional mitigation measures if monitoring results demonstrate that measures are necessary to mitigate the adverse environmental effects of greenhouse gas emissions coming from the project and to achieve the targets defined during the development of the follow-up program;



Valued Components	Key Mitigation Measures and Monitoring Requirements
	○ Update the follow-up program applicable to operation, including the targets defined during the development of the follow-up program, before the end of the third year of operation and, subsequently according to the schedule determined in each review in consultation with parties consulted for the development of the follow-up program. Implement the updated follow-up program.
Wetlands	Key Mitigation Measures • Implement the project in a manner that avoids adverse environmental effects of the project on wetlands and wetland functions. To avoid adverse effects, maintain wetlands and their functions over minimizing adverse effects on wetlands and their functions. When the loss of wetlands and their functions cannot be avoided, mitigate the adverse effects on wetlands and their functions instead of compensating for affected wetlands and their functions. • In the case of the adverse environmental effects of the project on wetlands and their functions located in the project area that cannot be avoided or mitigated, develop, prior to construction and in consultation with Environment and Climate Change Canada, the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques, the First Nations consulted, and any other stakeholder involved in conservation of the wetlands identified by the proponent, and implement an offsetting plan for wetlands and their functions that seeks to improve or create wetland functions and that complies with the <i>Federal Policy on Wetland Conservation</i>. In doing this: ○ Conduct, as part of the development of the offsetting plan, inventories of all the potential sites where the proponent plans to implement the offsetting plan, in order to determine the area, wetland functions and restoration potential of each site; ○ Select, taking account of the results of the inventories carried out, one or more definitive site(s) on which the proponent will implement the offsetting plan. These sites must be located in the southwestern watershed of the St. Lawrence River, as close as possible to the project; ○ Submit the results of the inventories conducted, including an explanation of how the definitive site(s) selected will allow the offsetting of all the wetlands and their functions affected by the project to the Agency and the parties consulted for the development of the offsetting plan, no later than 30 days after the completion of the inventory report. Submit the definitive offsetting plan to them prior to construction; ○ Implement the offsetting plan at the definitive site(s) selected before the wetlands in the project area are affected, unless this is not technically or economically feasible. If it is not technically or economically feasible to complete the implementation of the offsetting plan before the wetlands in the project area are affected, provide a justification for this to the Agency prior to construction and complete the implementation of the offsetting plan within three years after the start of construction. • Discuss, as part of the development of the offsetting plan, with each of the First Nations consulted about the opportunities for their participation in the implementation of the plan. Allow the First Nations to participate in the implementation of the offsetting plan;



Valued Components	Key Mitigation Measures and Monitoring Requirements
	• Delineate and maintain, during construction, the perimeters of all the residual wetlands in the plant community study area identified in Figure 8 with high-visibility tape, within one metre of the boundary of all the wetlands, and do not undertake any construction or storage activity associated with the project within the delineated areas; • Delineate and maintain, during construction, the perimeters of all the wetlands in the plant community study area identified in Figure 8 that will be backfilled as part of the project, based on the maximum encroachment distance, using high-visibility tape different from the tape used to identify the residual wetlands to be conserved; • Install, at the start of construction, sediment barriers to prevent the deposition of sediment from the work sites in the residual wetlands in the plant community study area identified in Figure 8, including by installing a sediment barrier at the base of any backfilled embankment located in or near a wetland. Maintain the barriers functional during construction and remove them manually at the end of construction. When removing the barriers, dispose of any accumulated sediment outside of any watercourse, shoreline, floodplain or wetland; • Stabilize, during operation, all surfaces located in the plant community study area identified in Figure 8 that are likely to be a source of sediments that could be deposited in residual wetlands; • Develop, prior to construction and in consultation with Environment and Climate Change Canada, Natural Resources Canada and the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques, measures to prevent the project from causing the drainage, through a drainage ditch associated with the project, of any residual wetland that is in the plant community study area identified in Figure 8. Implement these measures during construction. Provide these measures to the Agency before implementing them; • Maintain, during construction and operation, the baseline drainage upstream (in terms of inflow) and downstream (in terms of effluent) of residual wetlands located in the plant community study area identified in Figure 8, in order to maintain the wetland functions, unless not technically feasible. If maintaining drainage in accordance is not technically feasible, restore drainage as soon as technically feasible. Follow-up Requirements • Develop, prior to construction and in consultation with Environment and Climate Change Canada, the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques and the First Nations consulted, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the environmental effects of the project on residual wetlands and the engineered wetlands and their functions. As part of the implementation of the follow-up program: ◦ Monitor, during construction and operation, the wetland functions, hydrological conditions and the presence of invasive alien plant species in the residual wetlands in the plant community study area identified in Figure 8; ◦ Monitor wetland functions, the area and the presence of invasive alien plant species in the wetlands developed at the selected site(s) as part of the implementation of the offsetting plan;



Valued Components	Key Mitigation Measures and Monitoring Requirements
	○ Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects of the project on wetlands and their functions; ○ Before the end of the fifth year following the implementation of the offsetting plan, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring of the residual or engineered wetlands or their functions is required. If additional monitoring of any of the wetlands is required, update the follow-up program and implement the additional requirements of the follow-up program.
Fish and Fish Habitat	Key Mitigation Measures <u>Measures Related to Dredging and Management of Dredged Sediments</u> • Conduct construction activities in the aquatic environment outside the growing period of the aquatic grass beds and their use for food by the copper redhorse. In doing so, determine, to the satisfaction of Fisheries and Oceans Canada, the start and end dates of these periods for any year during which construction activities in the aquatic environment take place, and notify the Agency of the dates before undertaking these activities. • Perform the dredging required for the construction by using a dredging method or methods with the least impact to reduce emissions of suspended solids in the water column and reduce potential sediment depositions in the aquatic grass beds located downstream from the project. Submit the following information to the Agency and relevant authorities before construction, and any update to that information during dredging: ○ The total volume of sediment that will be dredged; ○ The dredging method(s) approved by Fisheries and Oceans Canada, including, if more than one method is approved, the areas in which each method will be used and the dredging schedule for each zone; ○ The manner in which the targeted dredging method(s) will make it possible to meet the technical, economic and environmental requirements of the project and the dredging criteria established during the environmental assessment while minimizing the sediment accumulation rates in the aquatic grass beds; and ○ The dredged sediment management methods and the water management methods resulting from the dredged sediments, developed in consultation with relevant authorities, that will be implemented by the proponent in view of the method(s). • Delineate, prior to dredging required for the construction, areas in the aquatic environment within which access is prohibited, unless required for safety reasons, and require and ensure that any person associated with the project abides with this prohibition. In doing so, delineate the perimeter of all aquatic grass beds located between the planned terminal and the existing terminal with buoys.



Valued Components	Key Mitigation Measures and Monitoring Requirements
	• Delineate, before construction, the perimeters of all areas in which dredging required for construction will be undertaken. Do not undertake dredging outside these areas, except if required for safety reasons, and require and ensure that every person associated with the project comply with this prohibition. • If hydraulic dredging is used to perform all or part of the dredging required for construction, opt for a hydraulic dredging method with the lowest acoustic power technically feasible. When a dredging method or methods is chosen, submit to the Agency a justification explaining how the chosen hydraulic dredging method meets this requirement and how it compares with other existing methods. • If additives for water treatment (flocculants and/or coagulants) are added to any sediment dredged by hydraulic dredging, opt, in consultation with relevant authorities, for an additive that is the least likely to produce adverse environmental effects on fish and fish habitat and human health. When an additive is selected, submit to the Agency a justification explaining how the chosen additive meets this requirement and how it compares with other existing additives. • If mechanical dredging is used to perform all or part of the dredging required for construction or maintenance dredging, install, before dredging begins, a transshipment flap, or any equivalent device, between the barge and the wharf and eliminate barge overflow during dredging or transportation of sediments. • Conduct, prior to construction and in consultation with relevant authorities, tests to improve the work methods (including the management of the sediments dredged as part of the project), so as to mitigate the adverse environmental effects on fish and fish habitat. Submit to the Agency, prior to construction, the test results, including a justification explaining how these results will be taken into account in the development and implementation of any component or activity of the project associated with the management of the dredged sediments. As part of the tests, validate: ◦ The lime concentrations and the dewatering periods necessary to obtain the cohesion values required to ensure the long-term stability of the works associated with the management of the dredged sediments; and ◦ The concentrations of suspended solids and contaminants likely to be found in the dewatering and runoff water of the sediment management areas and the treatment process required so that the dewatering and runoff water meets the applicable water quality standards. • Develop, prior to the first maintenance dredging required for the project, a protocol for characterizing and managing the sediments to be dredged during maintenance dredging. As part of the development of the protocol: ◦ Identify how the in-situ characterization of the sediments will be carried out to determine the levels of contamination; ◦ Determine the management and disposal methods for sediments, dredged material and dewatering water that will be implemented during dredging, taking into account the results of the characterization; and ◦ Submit the protocol to the Agency prior to the first maintenance dredging.



Valued Components	Key Mitigation Measures and Monitoring Requirements
	• Characterize, before each period of maintenance dredging required for the project, the sediments to be dredged. Select and implement methods for managing and disposing of sediments, dredged material and dewatering water, taking into account the characterization results, in order to mitigate environmental effects on fish and fish habitat from maintenance dredging. <u>Measures to Control the Input of Suspended Solids or Any Other Contaminant to the Aquatic Environment</u> • Minimize vegetation clearing, including clearing on both sides of the high-water line, and any other activity required for site preparation of the project to the lowest technically feasible extent. Provide to the Agency, before construction, a justification explaining how the projected extent for these activities meets this requirement. Conserve the plant cover in the project area as long as possible. • Do not release any material, rubbish or debris within the natural high-water line, including through the installation of retention devices, and immediately remove any material, rubbish or debris deposited accidentally within the natural high-water line. • Develop and implement measures to manage job site and runoff water to prevent erosion in the project area and limit the inflow of suspended solids into the aquatic environment, including the St. Lawrence River. Take into account flood, heavy precipitation and frost periods when it develops and implements the measures and maintain these measures regularly to repair any damaged measure as soon as technically feasible. These measures include: ◦ Installing, from the start of construction, and maintain, depending on the progress of the construction work, a drainage system for runoff water; ◦ Developing permanent retention ponds and temporary sedimentation ponds; ◦ Installing hydrodynamic separators, or any equivalent device, at the discharge points to the water system; and ◦ Deploying sediment barriers, or any other equivalent equipment, over a sufficient distance and at the locations considered necessary, including along watercourses and ditches, on the periphery of work areas, at the bottom of embankments and around piles of unconsolidated materials, so as to capture all the runoff water during all phases of the project. • Store any pile of unconsolidated material at least 30 metres of any water body, unless such material is used for site consolidation, in which case it must be stabilized. • Maintain a vegetated strip along any water body located on Montreal Port Authority territory, with the exception of the locations of the components required for the project (including erosion and sedimentation control measures). Take into account Quebec's Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains when establishing and maintaining the vegetated strip. Carry out work or activity within the vegetated strip only if necessary for safety reasons or to implement and maintain any component of the project. • Proceed with washing of cement mixers outside of Montreal Port Authority territory, at an authorized location, unless it is not technically or economically feasible. If the washing of cement mixers must proceed on Montreal Port Authority territory, implement measures to prevent the wash water from entering the aquatic environment, including by neutralizing it before releasing it into the drainage system or, if it is not



Valued Components	Key Mitigation Measures and Monitoring Requirements
	neutralized, by disposing of it outside Montreal Port Authority territory, at an authorized location. Neutralize the alkaline curing water coming from the concreting work before its release into the aquatic environment at an authorized location, on the project site or off-site. • Stabilize any temporary structure or facility required for construction and located on the edge of or downstream from any body of water so that it withstands the floods that may occur during construction. • Develop, prior to construction, and implement, measures to stabilize, during any scheduled temporary suspension of construction, bare soils which pose a risk of erosion and sediment transport of suspended solids to the aquatic environment on Montreal Port Authority territory. In doing this: ◦ Take into account the conditions in the work area, the possible duration any work stoppage and the time of year at which work stoppage may occur when developing the stabilization measures; ◦ Submit the stabilization measures to the Agency prior to construction and indicate how the criteria have been considered in the development of these measures; and ◦ Implement the stabilization measures upon the cessation of work and ensure their good working order and effectiveness throughout the period of suspension of work. <u>Measures Related to the Construction of the Wharf</u> • For the backfilling of the area behind the wharf associated with the project: ◦ Manage the water coming from inside the area behind the wharf before it is released into the aquatic environment, in order to limit the inflow of suspended solids; and ◦ Use only clean backfill materials free of fine sediments and other contaminants. • Capture, to the satisfaction of Fisheries and Oceans Canada, any fish that are trapped in any confined area of the project area and immediately relocate them to an area outside the confined area in a manner consistent with the <i>Fisheries Act</i> and its regulations, and the <i>Species at Risk Act</i>. <u>Measures for Driving Piles or Sheet Piles</u> • Install the piles and sheet piles required for the project in the aquatic environment in a way to mitigate the adverse environmental effects on fish and fish habitat. In doing this: ◦ Use vibratory sheet pile driving instead of pile driving, unless it is not technically feasible; ◦ Gradually increase the power of the pile driving and sheet piling equipment at the beginning of any pile driving period that is preceded by a period of at least 20 minutes during which pile driving was not carried out; and



Valued Components	Key Mitigation Measures and Monitoring Requirements
	- Recover drilling muds and dispose of this material on land. <u>Species-at-Risk Specific Measures</u> - Develop, before construction and to the satisfaction of Fisheries and Oceans Canada and in consultation with the Quebec’s Ministère des Forêts, de la Faune et des Parcs and the First Nations consulted, and implement a capture and relocation plan for the hickorynut and any other freshwater mussel that could be negatively affected by construction. As part of the development of the plan, develop measures to be implemented if it detects alien freshwater mussels during the survey to avoid spreading them in another body of water. Provide the approved plan to the Agency before implementing it. As part of the implementation of the plan: - Conduct, at the beginning of each year during which construction activities in the aquatic environment are held, an inventory in the areas of the project in which the hickorynut and any other freshwater mussel that could be adversely affected by construction is likely to be present; and - If individuals are detected during any inventory, collect these individuals and relocate them outside these areas, in habitat areas favourable for the species, prior to the beginning of the construction activities in the aquatic environment, or if they are alien freshwater mussels, implement the measures included in the plan for alien freshwater mussels. - Develop, before construction and to the satisfaction of Fisheries and Oceans Canada and in consultation with the Quebec’s Ministère des Forêts, de la Faune et des Parcs, the Mohawks of Kahnawà:ke First Nation and the Indigenous Community of Odanak and Wôlinak, and implement an offset plan for the purpose of offsetting the losses of aquatic grass beds constituting the critical habitat for feeding of adult copper redhorse. Submit the offsetting plan approved by Fisheries and Oceans Canada to the Agency before implementing it. - Discuss, prior to implementing the offset plan, with the Mohawks of Kahnawà:ke First Nation and the Indigenous Community of Odanak and Wôlinak about the possibilities of their participation in the implementation of the offset plan, and allow their participation in implementation. <u>Fish Habitat Measures</u> - Develop, prior to construction and to the satisfaction of Fisheries and Oceans Canada and in consultation with the Quebec’s Ministère des Forêts, de la Faune et des Parcs, the Mohawks of Kahnawà:ke First Nation and the Indigenous Community of Odanak and Wôlinak, and implement an offsetting plan related to fish and fish habitat. Submit the offsetting plan approved by Fisheries and Oceans Canada to the Agency before implementing it. - Discuss, prior to implementing the offsetting plan, with the Mohawks of Kahnawà:ke First Nation and the Indigenous Community of Odanak and Wôlinak about the possibilities of their participation in the implementation of the offsetting plan, and allow their participation in implementation.



Valued Components	Key Mitigation Measures and Monitoring Requirements
	- For any fish habitat offset measure proposed in any offsetting plan that could result in adverse environmental effects that were not taken into account in the environmental assessment, develop and implement, after consulting the Mohawks of Kahnawà:ke First Nation, the Indigenous Community of Odanak and Wôlinak, and relevant authorities, measures to mitigate these effects. Provide these measures to the Agency before implementing them. - Realign the Fossé Noir in a way to mitigate the adverse environmental effects of the project on fish and fish habitat and any other wildlife species, including by realigning it in its natural channel bed. - Maintain the passage of fish in the channel beds of the streams located on Montreal Port Authority territory, downstream from the pipes required for the project. - Undertake the progressive reclamation of the areas disturbed by the project in the aquatic environment, including the areas disturbed by the deployment of the pipes and culverts associated with the project. <u>Measures Related to Surface Water Quality</u> - If it is necessary to manage waste snow in Montreal Port Authority territory, build, at the start of construction, and maintain, during construction and operation, a snow dump in a manner compliant with applicable standards and legislated requirements, including the pollution prevention dispositions of the Fisheries Act, the Environment Quality Act and the Canadian Environmental Protection Act, while taking into account the Guide d'aménagement des lieux d'élimination de neige (Guide to development of snow disposal sites) of the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques and the Code of practice: road salts environmental management of Environment and Climate Change Canada. - Develop, prior to construction, and implement, during construction and operation, measures to mitigate the adverse environmental effects on fish and fish habitat caused by the use of de-icing salts as part of the project, so as to comply with the standards and legislation in form in the matter of storage of road salts, including by storing salt in a closed dome. Provide these measures to the Agency before implementing them. <u>Measures Related to Soil Quality</u> - Develop, prior to construction, and implement measures to manage soil excavated as part of the project to mitigate the adverse environmental effects on fish and fish habitat, including by applying the principle of non-degradation of soil to all reused soils and by managing soils that present potential for contamination so that they do not constitute a new source of contamination for the environment. In doing this: - Perform, prior to construction, a characterization of the soils situated in the final footprint of all the infrastructures built as part of the project, including the soils of the soil and sediment storage areas; - Compare the results of the characterization with the concentrations present in the soil on which the sediments will be deposited and with the Canadian Environmental Quality Guidelines and the Canada-Wide Standard for Petroleum Hydrocarbons (PHC) in Soil of the Canadian Council of Ministers of the Environment and, for soil disposed of off-site, the generic soil criteria established in Annex 2 of the Guide d'intervention – Protection des sols et réhabilitation des terrains contaminés (Intervention Guide – Soil



Valued Components	Key Mitigation Measures and Monitoring Requirements
	Protection and Contaminated Sites Rehabilitation) of the Quebec’s Ministère de l’Environnement et de la Lutte contre les Changements climatiques; ○ Submit to the Agency, prior to construction, the results of the characterization and the measures developed for the management of the characterized soils, and indicate how the comparisons have been taken into account in the development of these measures; and ○ Dispose of any soil that requires off-site disposal at a site authorized for this purpose and manage any soil that must be stored temporarily in the Montreal Port Authority territory before being transported off-site so that it does not adversely affect the aquatic environment. • Maintain, during construction, a materials tracking system allowing tracing of the origin or destination of any material required or generated as part of the project, particularly excavated soil, to ensure it is managed in a manner compliant with applicable rules and requirements. • If sediment amendments are to be added for the terrestrial management of the sediments, identify and use, in consultation with Environment and Climate Change Canada and the province, amendments that are the least likely to affect adversely the soils and biological receptors that could be in contact with the amended sediments. Follow-up Requirements • Develop, prior to construction and in consultation with Fisheries and Oceans Canada, Environment and Climate Change Canada and the Quebec’s Ministère des Forêts, de la Faune et des Parcs, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on fish and fish habitat of suspended solids generated by dredging associated with the project. Take into account for the <i>Recommandations pour la gestion des matières en suspension (MES) lors des activités de dragage</i> (Recommendations for the management of suspended solids during dredging) of the Quebec’s Ministère de l’Environnement et de la Lutte contre les Changements climatiques and Environment and Climate Change Canada when developing and implementing the follow-up program. As part of the implementation of the follow-up program: ○ Verify, before the beginning of dredging, that the correlation curve between the turbidity values and the concentrations of suspended solids is representative of the real conditions at the time dredging will take place; ○ Monitor regularly, during dredging, the ambient concentrations of suspended solids and the mean concentrations of suspended solids 100 metres and 300 metres from the dredge; ○ Review the methodology applied to the monitoring depending on the progress of dredging (including for the number, frequency and collection times of the surface water samples) and apply the revised methodology, as applicable, for any subsequent monitoring;



Valued Components	Key Mitigation Measures and Monitoring Requirements
	○ If the results of the monitoring demonstrate that the mean concentrations of suspended solids increase by more than five milligrams per litre relative to the ambient concentrations 300 metres from the dredge, develop and implement modified or additional mitigation measures so that the increase does not exceed five milligrams per litre relative to the ambient concentrations at this location; and ○ If the results of the monitoring demonstrate that the mean concentrations of suspended solids increase by more than 25 milligrams per litre relative to the ambient concentrations 100 metres from the dredge, temporarily stop dredging and develop and implement, in consultation with the parties consulted for the development of the follow-up program, modified or additional mitigation measures. Do not resume dredging as long as the mean concentrations, accounting for the implementation of the modified or additional mitigation measures, increase by more than 25 milligrams per litre relative to the ambient concentrations at this location. Notify the Agency as soon as technically feasible of any temporary stop of dredging. • Develop, prior to construction and to the satisfaction of Fisheries and Oceans Canada and in consultation with the Quebec's Ministère des Forêts, de la Faune et des Parcs and the First Nations consulted, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of the dredging required for construction of the project and the maintenance dredging on the aquatic grass beds. Implement the follow-up program during construction and for at least the first 20 years of operation. As part of the implementation of the follow-up program: ○ Monitor, annually during the first 5 years of monitoring, the delineated aquatic grass beds; ○ Before the end of the fifth year of monitoring, review, according to the results of the monitoring, the frequency at which the subsequent monitoring must take place and, if it is determined that a lower frequency can be applied for any subsequent monitoring, apply this revised frequency for the subsequent monitoring; ○ Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are necessary to mitigate the adverse environmental effects on the aquatic grass beds, in order to preserve the quality of the habitat; and ○ Before the end of the twentieth year of operation, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program. • Develop, prior to construction and in consultation with Fisheries and Oceans Canada, the Quebec's Ministère des Forêts, de la Faune et des Parcs and the First Nations consulted, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of the project on fish and fish habitat. Implement



Valued Components	Key Mitigation Measures and Monitoring Requirements
	the follow-up program during construction and for at least twenty years after the end of construction. As part of the implementation of the follow-up program: ○ Monitor the use by the different fish species of the streams and shoreline of the Montreal Port Authority territory; ○ Update, every five years, the follow-up program; ○ Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are necessary to mitigate the adverse environmental effects on fish and fish habitat; and ○ Before the end of the twentieth year after the end of construction, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program. • Develop, prior to construction and in consultation with Fisheries and Oceans Canada, Environment and Climate Change Canada and the Quebec's Ministère de l'Environnement et de la Lutte contre les Changements climatiques, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on fish and fish habitat of changes to the hydrosedimentary and hydrodynamic regime caused by the building of the new wharf and the dredging required for construction. Implement the follow-up program for at least three years after the end of construction of the new wharf and the end of the dredging. As part of the implementation of the follow-up program: ○ Monitor the speed of the currents, the turbidity and the degree of erosion in the sector between the new wharf and the existing wharf by means of appropriate equipment and depending on the type of substrate; ○ Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are necessary to mitigate the adverse environmental effects on fish and fish habitat of changes to the hydrosedimentary and hydrodynamic regime; and ○ Before the end of the third year after the end of construction of the new wharf and the end of the dredging work, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program. • Develop, prior to construction and in consultation with the Canadian Space Agency, Public Works and Procurement Canada, Environment and Climate Change Canada, the Quebec's Ministère de l'Environnement et de la Lutte contre les Changements climatiques and the First Nations consulted, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of shore erosion in the project's zone of influence on fish and fish habitat and on



Valued Components	Key Mitigation Measures and Monitoring Requirements
	species at risk and their habitat. Implement the follow-up program during construction and during the first 20 years of operation. As part of the implementation of the follow-up program: ○ Monitor, during construction and during the first five years of operation at sites located in the project's zone of influence, including the shores of the Îles de Contrecoeur National Wildlife Area, and at control sites on which the project should not have an effect, the evolution over time of the riparian environment, including turbidity, the shoreline, evolution of the aquatic grass beds, marshes, terrestrial vegetation and land use, and augment the information collected in the field with additional information obtained by means of earth observation technologies; ○ Before the end of the fifth year of operation, and every five years thereafter, update the follow-up program and implement the revised follow-up program requirements until the end of the twentieth year of operation. In updating the follow-up program, determine how the information collected in the field can be augmented with additional information obtained using similar or comparable technologies to the earth observation technologies; ○ Develop and implement modified or additional mitigation measures that are under the proponent's control if the information and the results of the monitoring demonstrate that modified or additional mitigation measures, particularly protective measures for sensitive areas, are necessary to mitigate the adverse environmental effects of shore erosion in the project's zone of influence on fish and fish habitat and on species at risk and their habitat; and ○ Before the end of the twentieth year of operation, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program. • Develop, prior to construction and in consultation with Fisheries and Oceans Canada, Environment and Climate Change Canada, Health Canada, the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques and the First Nations consulted, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of effluents from the sedimentation and holding ponds associated with the project on fish and fish habitat and species at risk and their habitat. As part of the development of the follow-up program, identify the contaminants that will be monitored. As part of the implementation of the follow-up program, the proponent shall: ○ Monitor, during construction, the quality of the effluents of the sedimentation and retention ponds; ○ Monitor, during operation, the quality of the effluents of the retention ponds; ○ Review, every two years, the methodology applied to the monitoring of effluent quality (including for the sampling frequency) and apply the revised methodology, as applicable, for all subsequent monitoring; and



Valued Components	Key Mitigation Measures and Monitoring Requirements
	○ Develop and implement modified or additional mitigation measures if the results of the monitoring of effluent quality demonstrate that modified or additional mitigation measures are necessary to mitigate the adverse environmental effects of effluents of the sedimentation and holding ponds on fish and fish habitat and species at risk and their habitat. • Develop, prior to construction and in consultation with Fisheries and Oceans Canada, Environment and Climate Change Canada, Health Canada, the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques and the First Nations consulted, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of changes to surface water quality caused by the project in the watercourses and ditches upstream and downstream from the project area on fish and fish habitat and species at risk and their habitat. As part of the development of the follow-up program, identify the contaminants that will be monitored. As part of the implementation of the follow-up program: ○ Monitor surface water quality during construction and operation; ○ Review, every 2 years, the methodology applied to the monitoring of surface water quality (including for the sampling frequency) and apply the revised methodology, as applicable, for all subsequent monitoring; and ○ Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are necessary to mitigate the adverse environmental effects of changes to surface water quality caused by the project on fish and fish habitat and species at risk and their habitat. The monitoring of the plan to compensate for the loss of aquatic grass beds is not part of the monitoring requirements presented above, as this monitoring would be included in the conditions of the permit that may be issued by Fisheries and Oceans Canada under the <i>Species at Risk Act</i>.
Birds and Their Habitat	Key Mitigation Measures • Minimize vegetation clearing, including clearing on both sides of the high-water line, and any other activity required for site preparation of the project to the lowest technically feasible extent. Provide to the Agency, before construction, a justification explaining how the projected extent for these activities meets this requirement. Conserve the plant cover in the project area as long as possible (also included in section 5.3.2). • Carry out the project in a manner that protects migratory birds and avoids harming, killing or disturbing them or destroying, removing or disturbing their nests or eggs. For this purpose, meet Environment and Climate Change Canada's Avoidance Guidelines in order to reduce the risk to migratory birds. Actions when carrying out the project shall comply with the Migratory Birds Convention Act, 1994, the Migratory Birds Regulations and the Species at Risk Act. • In reference to birds other than migratory birds, undertake no activity associated with the project that could hinder their nesting, in order to avoid the destruction of nests, eggs and chicks. In doing so:



Valued Components	Key Mitigation Measures and Monitoring Requirements
	○ Determine the dates of the nesting periods for every year during which activities associated with the project that could hinder nesting of birds are carried out and submit these dates, including a justification for these dates, to the Agency before carrying out any activity; ○ If it is not technically feasible to carry out any activity that is potentially harmful to nesting outside the nesting periods determined during a given year, submit a justification to the Agency and develop and implement additional mitigation measures to avoid the adverse effects on birds during nesting. Submit these measures to the Agency before implementing them. <u>Measures to attenuate noise and vibration</u> ● Implement measures to mitigate noise and vibration attributed to the project at all phases of the project, including (these measures are also included in other sections of the report, including sections 5.3.2, 5.5.2 and 5.6.2): ○ Vehicles and equipment operated by the proponent for the project must be equipped with broadband backup alarms that meet safety standards; ○ Use programmed deceleration lifting beams; ○ Operate vehicles and equipment equipped with anti-noise and anti-vibration systems and keeping these systems in good working order through a regular inspection and maintenance program; ○ Install the generators and compressors required for the project away from biological receptors likely to be affected by noise and vibrations; ○ Establish speed limits not exceeding 30 kilometres/hour on the roadways on Montreal Port Authority territory and require and ensure that all persons abide by these speed limits; ○ Use vibratory driving of sheet piles instead of pile driving, unless it is not technically feasible; ○ Establish a speed limit for trains not to exceed 15 kilometres/hour within Montreal Port Authority territory and requiring and ensuring that all trains abide by this speed limit. <u>Measures to Reduce the Effects of Lighting</u> ● Develop, prior to construction, and implement, during construction and operation, mitigation measures that take into account the Bureau de Normalisation du Québec standard 4930-100/2016 entitled Éclairage extérieur – contrôle de la pollution lumineuse regarding the quantity of light emitted, its direction, spectral composition and duration of use, for the lighting fixtures used for the project, in order to mitigate the adverse environmental effects of the project while complying with operational health and safety requirements. As part of these measures: ○ Direct lighting fixtures toward active construction zones during construction and toward port infrastructures during operation;



Valued Components	Key Mitigation Measures and Monitoring Requirements
	○ Install and maintain, during construction and operation, exterior lighting fixtures with a correlated colour temperature in the 3000-Kelvin range; ○ Use LED-type lighting on high masts and roadway light fixtures to limit light pollution; ○ Reduce lighting after 11:00 p.m. in parking lots and around the perimeters of buildings associated with the project to the lowest intensity possible while meeting the operational safety requirements for the project. <u>Offsetting Measures</u> • Install, prior to construction and in consultation with Environment and Climate Change Canada and the Quebec’s Ministère des Forêts, de la Faune et des Parcs, artificial nest boxes in Montreal Port Authority territory to offset the loss of nesting sites for bank swallows at the location of the proposed wharf. Perform maintenance on the nest boxes annually and maintain their accessibility and integrity during construction and operation; • Develop, in consultation with the Quebec’s Ministère des Forêts, de la Faune et des Parcs, and implement a plan to compensate habitat losses for waterbirds attributed to the project in the Îles de Verchères Aquatic Bird Concentration Area. Submit the definitive plan to the Agency no later than one year after the decision statement is issued and implement it according to the schedule established. As part of the development of the compensation plan: ○ Take into account the <i>Lignes directrices pour la conservation des habitats fauniques</i> of the Quebec’s Ministère des Forêts, de la Faune et des Parcs; ○ Establish a schedule for the implementation of the plan; ○ Demonstrate how offsetting measures implemented under the plan will compensate losses in the Concentration Area, in terms of the area affected by the project and the habitat functions lost or degraded. • Develop, prior to construction and in consultation with the First Nations consulted and relevant authorities, and implement a plan to compensate the losses of forested bird habitat caused by the project. Conduct the reforestation required as part of the implementation of the plan outside of areas likely to be deforested as part of other future potential projects in the region and in areas that maintain connectivity with habitat not affected by the project. Maintain the reforested areas during construction and operation. Follow-up Requirements • Develop, prior to construction and in consultation with Environment and Climate Change Canada, Quebec’s Ministère des Forêts, de la Faune et des Parcs and the First Nations consulted, and implement, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of mitigation measures implemented by the proponent to avoid adverse environmental effects to birds (including migratory birds) that frequent the territory of Montreal Port Authority, the heronry on Île Bouchard and the Îles de Verchères Aquatic Bird



Valued Components	Key Mitigation Measures and Monitoring Requirements
	Concentration Area. As part of the development of the follow-up program, identify the bird species to be monitored, including valued and special-status species. As part of the implementation of the follow-up program: ○ Monitor noise levels (including impulse noises) in the heronry on Île Bouchard. In doing this: ▪ Perform this monitoring before construction, during construction when sheet piles are deployed and for at least 10 years after the start of operation; ▪ If high impulse noises are measured in the heronry between April and August, monitor the use of the heronry by birds to determine if this noise is adversely affecting it. ○ Monitor the use by bank swallows of the study area for the follow-up on the bank swallow described in Appendix L of the Response to Information Request Round 2 from the Agency (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136), including the use of the nest boxes installed. Carry out this monitoring annually during construction and during the first three years after the end of construction and then every five years thereafter during operation; ▪ Monitor, in spring and fall migration periods during construction and for at least 10 years after the start of operation, the use by waterfowl of the portion of the Îles de Verchères Aquatic Bird Concentration Area included in the zone to be inventoried indicated in Figure 3.4 of the document of recommendations from the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques (Canadian Impact Assessment Registry Reference Number 80116, Document Number 152); ▪ Monitor the integrity and use by waterbirds of the compensation measures implemented as part of the compensation plan developed to compensate habitat losses for waterbirds attributed to the project in the Îles de Verchères Aquatic Bird Concentration Area. ○ Monitor, from the beginning of reforestation and for at least three years following the end of any reforestation, the integrity and use by forest birds of the areas reforested as part of the compensation plan developed to compensate the losses of forested bird habitat caused by the project; ○ Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the environmental effects of the project on birds (including migratory birds), their eggs and their nests; ○ Before the end of the tenth year of operation, determine, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program.



Valued Components	Key Mitigation Measures and Monitoring Requirements
Other Special Status Species	Key Mitigation Measures <u>Floristic Species</u> • Delineate, prior to the start of tree clearing, the areas in the project area where tree clearing will take place and not undertake any tree clearing outside these areas, unless required for health and safety reasons. • Delineate, prior to construction, the areas colonized by invasive alien plant species. • Develop, prior to construction, measures to limit the introduction and spread of invasive alien plant species in Montreal Port Authority territory, including the residual wetlands, and implement them during construction, including by: ◦ Requiring third-party contractors associated with the project to use granular backfill materials from sources that are free of invasive alien plant species; ◦ Cleaning the machinery used in areas colonized by invasive alien plant species delineated in washing stations that are located in sectors not conducive to the germination of invasive alien plant species and that are 30 metres or more from any wetland or watercourse before using this machinery outside these habitats; and ◦ Eliminating all visible invasive alien species at the work site of the designated project by burying them in a ditch, at least two metres deep and under at least 1 metre of clean materials or, if on-site burial is not technically or economically feasible due to the burial depth recommended for a given species, disposing of this species off-site in a technical landfill site operated pursuant to the <i>Environment Quality Act</i>. • Transplant, at the beginning of construction, colonies of ostrich fern and bloodroot found in Montreal Port Authority territory to an area not affected by the project located outside of the critical habitat of the western chorus frog. In doing so: ◦ Transplant the plants to areas containing the species' preferred habitat; and ◦ Maintain the transplanted colonies during construction and operation. <u>Western Chorus Frog and Turtles</u> • Carry out the construction work associated with the addition of rail access to the project outside the breeding season for the western chorus frog. • Install, to the satisfaction of Environment and Climate Change Canada and in consultation with the Quebec's Ministère des Forêts, de la Faune et des Parcs, and maintain, from the start of construction diversion fencing on the south side of Route 132, between Stream 2 and Montée Lapierre, and on the east and west sides of Montée Lapierre, as indicated by the proponent on Map 551 submitted in response to Information Request CEAA-2-55 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136), to prevent



Valued Components	Key Mitigation Measures and Monitoring Requirements
	movements by the western chorus frog toward the project area and to encourage movements by the western chorus frog toward the culvert indicated in Map 551. In doing so: ○ Take steps, prior to construction, to obtain authorization from the owners of the lots adjacent to Montée Lapierre to install the diversion fencing on their lots and inform the Agency of the results of these efforts prior to construction; ○ Ensure the diversion fencing remains functional at all times during the period between freeze and thaw; ○ Ensure the diversion fencing remains clear of any vegetation so as to prevent the western chorus frog from crossing the fence; and ○ Assess, before the end of construction, if the diversion fencing must be maintained in whole or in part to prevent the movements of the western chorus frog toward the project area and encourage its movements toward the culvert during operation and, as applicable, maintain the diversion fencing in whole or in part during operation. If it is determined that the diversion fence may be removed in whole or in part at the end of construction, submit a justification of this determination to the Agency before the end of construction. • Install, at the start of construction and to the satisfaction of Environment and Climate Change Canada, and maintain, during construction and operation, structures allowing maintenance of water levels on the breeding sites of the western chorus frog located on Montreal Port Authority territory during the critical life stage of the species. • Install, at the start of construction and to the satisfaction of Environment and Climate Change Canada, and maintain, during construction and operation, links between the breeding sites of the western chorus frog in order to encourage movements of the species on Montreal Port Authority territory, including by the implementation of sills and buffer zones along the watercourses. • Develop and implement measures, in consultation with Environment and Climate Change Canada and the Quebec's Ministère des Forêts, de la Faune et des Parcs, to reduce mortality risks to the northern map turtle, midland painted turtle and snapping turtle caused by the project in terrestrial and aquatic habitats. Provide these measures to the Agency before implementing them. In doing this: ○ Install and maintain, during any activity associated with the project likely to result in mortality of the northern map turtle, midland painted turtle or snapping turtle, exclusion fences to prevent individuals from accessing the work areas and bare ground areas associated with the project area; ○ Install, at the start of construction of the wharf associated with the project, and maintain, during wharf construction, an aquatic barrier to prevent the northern map turtle, midland painted turtle and snapping turtle from accessing the work area; and ○ Periodically inspect the exclusion fences and aquatic barrier and repair any damaged portion of the fencing or barrier as soon as technically feasible.



Valued Components	Key Mitigation Measures and Monitoring Requirements
	• Develop and implement, prior to any construction activity in Streams 1 and 2, the Fossé Noir, ditches (areas 4A and 4B) and the backfilled area of shoreline near the wharf, a capture and relocation program to remove all northern map turtles, midland painted turtles and snapping turtles observed in any of these areas and relocate them, before the onset of hibernation and pursuant to wildlife care protocols, to a suitable habitat determined by the proponent in consultation with the Quebec's Ministère des Forêts, de la Faune et des Parcs, taking into account the habitat requirements necessary for each species to complete its biological cycle (including feeding, hibernation and egg laying). • If a northern map turtle, midland painted turtle or snapping turtle is observed inside any exclusion area surrounded by exclusion fencing or an aquatic barrier, capture the turtle as soon as technically feasible and relocate it in accordance with the relocation requirements and determine how the turtle accessed the exclusion area and, as soon as technically feasible, implement any corrective measure required to prevent future access. • Maintain, during operation, the integrity and accessibility of the remaining egg-laying sites used by the northern map turtle, midland painted turtle and snapping turtle in Montreal Port Authority territory, including by limiting the spread of invasive alien plant species in egg-laying sites. • Offer, at least annually, to all employees and contractors associated with the project during construction and operation of the project, awareness training on the measures to be taken to protect the northern map turtle, midland painted turtle and snapping turtle, including the reporting of all turtle observations on Montreal Port Authority territory. Document the participation of employees and contractors to the training. • Implement and maintain, during operation, structures to deter the northern map turtle, midland painted turtle and snapping turtle from laying their eggs in areas that pose a risk to turtles, located in Montreal Port Authority territory. Ensure that the structures remain functional at all times and repair any defective layout as soon as technically practicable. <u>Bats</u> • Control the lighting required for the project activities, including its direction, duration of use, intensity, spectrum colour and glare, so as to mitigate the adverse environmental effects on the northern myotis, little brown myotis and tri-colored bat of sensory disturbances due to light, while complying with operational health and safety requirements. • Develop, prior to construction and in consultation with Environment and Climate Change Canada and the Quebec's Ministère des Forêts, de la Faune et des Parcs, measures to offset potential habitat losses for the northern myotis, little brown myotis and tri-coloured bat caused by the project, and implement these measures. Provide these measures to the Agency before implementing them. In doing so: ◦ Install, before the start of tree clearing required for the project, and maintain, during construction and operations, bat condominiums on the Montreal Port Authority territory; and ◦ Establish, before operation, and maintain, during operation, linear woodlands in Montreal Port Authority territory. • Establish speed limits not exceeding 30 kilometres/hour on the roadways on Montreal Port Authority territory and require and ensure that all persons abide by these speed limits.



Valued Components	Key Mitigation Measures and Monitoring Requirements
	<u>Monarch</u> • Delineate, at the beginning of construction, areas of potential habitat for the monarch butterfly in Montreal Port Authority territory outside the work site and shall not undertake any construction activity within the delineated areas. • Undertake the progressive reclamation of areas disturbed by the project. For the revegetation efforts involved in progressive reclamation, use plant species that support the creation of breeding and feeding habitats for the monarch butterfly, including milkweeds and native deciduous species. Follow-up Requirements <u>Floristic and Monarch Species</u> • Develop, prior to construction, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures related to the progressive reclamation of areas disturbed by the project. The proponent shall implement the follow-up program during construction and during at least the first 5 years of operation. As part of the implementation of the follow-up program: ◦ Monitor annually, at the end of the growing season, the establishment (including in terms of area occupied and mortality) of the plant species used to revegetate areas where progressive reclamation has been carried out, including species that support the creation of habitats for the monarch butterfly, including milkweeds and native deciduous species; ◦ Monitor annually, at the end of the growing season, the establishment of invasive alien plant species in areas where progressive reclamation has been carried out; ◦ Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required; and ◦ Before the end of the fifth year of operation, determine, based on the results of the monitoring, if additional monitoring is required. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program. • Develop, prior to construction, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on the ostrich fern and the bloodroot, particularly the transplanting performed. <u>Western Chorus Frog</u> • Develop, prior to construction and in consultation with the First Nations consulted, Environment and Climate Change Canada and the Quebec's Ministère des Forêts, de la Faune et des Parcs, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on the western



Valued Components	Key Mitigation Measures and Monitoring Requirements
	chorus frog caused by the project. Implement the follow-up program during construction and operation. As part of the implementation of the follow-up program: ○ Monitor annually, every spring, the hydroperiod and water quality in the breeding sites of the western chorus frog identified during the development of the follow-up program; ○ Monitor the presence of the western chorus frog in the Montreal Port Authority territory and, every year in spring, monitor the breeding activities of the western chorus frog at the breeding sites of the western chorus frog identified during the development of the follow-up program; ○ Monitor annually the quality of terrestrial habitat, including plant succession and the presence of invasive alien plant species, for the western chorus frog on Montreal Port Authority territory, including in the buffer zones and the revegetated strip; and ○ Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects of the project on the western chorus frog, including to ensure that breeding sites retain sufficient water levels for tadpole metamorphosis and to maintain the open herbaceous habitats preferred by the species. <u>Turtles</u> • Develop, prior to construction and in consultation with the First Nations consulted, Environment and Climate Change Canada and the Quebec's Ministère des Forêts, de la Faune et des Parcs, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on the northern map turtle, midland painted turtle and snapping turtle caused by the project. Implement the follow-up program during construction and operation. As part of the implementation of the follow-up program: ○ Monitor, during the egg-laying periods of the northern map turtle, midland painted turtle and snapping turtle, turtle mortality on the roadways in Montreal Port Authority territory; ○ Monitor the egg-laying activities of the northern map turtle, midland painted turtle and snapping turtle on the residual egg-laying sites and in the areas that pose a risk to turtles in Montreal Port Authority territory; ○ Monitor, outside the egg-laying periods of the northern map turtle, midland painted turtle and snapping turtle, the use by turtles, particularly juveniles, of the Montreal Port Authority territory; ○ Before the end of the fifth year of operation, review, according to the results of the monitoring, the frequency at which the subsequent monitoring must take place and, if it is determined that a lower frequency can be applied for any subsequent monitoring, apply this revised frequency for the subsequent monitoring; and



Valued Components	Key Mitigation Measures and Monitoring Requirements
	- Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects attributed to the project on the northern map turtle, midland painted turtle or snapping turtle. <u>Bats</u> - Develop, prior to construction and in consultation with the First Nations consulted, Environment and Climate Change Canada and the the Quebec’s Ministère des Forêts, de la Faune et des Parcs, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on the northern myotis, little brown myotis and tri-colored bat caused by the project. Implement the follow-up program before construction, during construction and during at least the first 6 years of operation. As part of the implementation of the follow-up program: - Monitor the use by the northern myotis, little brown myotis and tri-colored bat of the installed bat houses, including during the breeding season for bats; - Conduct acoustic inventories within a radius of no more than one kilometre from the project area identified by the proponent in Map 59-1 submitted in response to Information Request CEEA-2-59 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136). Conduct the acoustic inventories at a minimum of four recording stations, on at least 20 nights at each station, to be divided between bats’ breeding and migration periods; - Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects of the project on the northern myotis, little brown myotis and tri-coloured bat; and - Before the end of the sixth year of operation, determine if additional monitoring is required, in consultation with the parties consulted for the development of the follow-up program and according to the results of the monitoring. If additional monitoring is required, update the follow-up program and implement the additional requirements of the follow-up program.
Human Health (Physical and Psychological)	Key Mitigation Measures <u>Air Quality</u> - Identify, prior to construction and in consultation with relevant authorities, the human receptors likely to be affected by the environmental effects on human health from air-quality changes caused by the project. Submit the list of human receptors to the Agency prior to construction. - Implement, during all phases of the project, measures to reduce dust emissions attributed to the project. Take into account whether current weather conditions are conducive to dust emissions (including drought or sustained winds) when implementing these measures. As part of these measures:



Valued Components	Key Mitigation Measures and Monitoring Requirements
	○ Temporarily halt all activities associated with the project when weather conditions are conducive to dust emissions, including drought and sustained winds that may move dust from activities toward human receptors likely to be affected by air quality changes. Resume activities when permitted by weather conditions. ○ Minimize vegetation clearing, including clearing on both sides of the high-water line, and any other activity required for site preparation of the project to the lowest technically feasible extent. Provide to the Agency, before construction, a justification explaining how the projected extent for these activities meets this requirement. Conserve the plant cover in the project area as long as possible. ○ Implement measures to reduce dust emissions from piles of unconsolidated materials located on Montreal Port Authority territory that are unused for over 48 hours; ○ Favour, during construction, the use of paved roadways to access the project area; ○ Maintain the riprap along unpaved roadways in the project area; ○ Regularly clean and/or wet surfaces in the project area in order to reduce dust emissions from surfaces; ○ Use dust suppressants that comply with standard NQ 2410- 300 of the Bureau de Normalisation du Québec [Quebec standards bureau]; ○ Establish speed limits not exceeding 30 kilometres/hour on the roadways on Montreal Port Authority territory and require and ensure that all persons abide by these speed limits; ○ Establish wheel-washing stations at the exits of sediment management areas and require and ensure that truck operators use them; ○ Ensure that open loads of granular materials are covered during transport and that sediments are hauled in leakproof dump trucks; ○ Implement dust control measures during any activity likely to emit dust (including drilling and boring). ● Implement measures to mitigate airborne emissions, including greenhouse gas emissions, caused by the project during all phases of the project, including by: ○ Developing the project area and optimizing activities associated with the operation of the project so as to minimize equipment movements and the time and distances required to travel between the different sites;



Valued Components	Key Mitigation Measures and Monitoring Requirements
	○ Using, during construction, zero-emission vehicles and equipment or, if a zero-emission vehicle or piece of equipment is not available or its use is not technically or economically feasible, providing the Agency with the justification for this determination and using an equivalent vehicle or piece of equipment that uses diesel or a fuel with low carbon content and that complies with at least the Group 4 emissions standards; ○ Reducing the size, power and time of use of the equipment required for construction to the lowest technically and economically feasible size, power and time of use; ○ Employing, during operation, ship-to-shore gantry cranes, rail-mounted travelling cranes, electric rail-mounted cantilevered cranes, tractor trucks, horizontal transport vehicles, stacking cranes and forklifts for empty containers that are electric or, if a given piece of equipment or vehicle is unavailable in electric mode or its use is technically or economically impractical, providing the Agency with a justification for this determination and using at least hybrid equipment or vehicles; ○ Minimizing container loading and unloading time during operation; ○ During construction and operation, implementing a policy forbidding engine idling in mobile equipment and road vehicles in the project area and requiring and ensuring all persons to comply with this policy, except in the case of health- and safety-related constraints; ○ Requiring that the shunting locomotive operators who handle trains on Montreal Port Authority territory use locomotives that satisfy at least the Group 4 emissions standards, in accordance with the Locomotive Emissions Regulations, and which are maintained in accordance with the engine maintenance instructions provided by the manufacturer in order to remain at least compliant with the Group 4 emissions standards; ○ Encouraging the operators of trains with automatic stop-start systems serving the project to use these systems when they are in the Montreal Port Authority territory, except in the case of health and safety-related constraints. ● Service all vehicles and equipment operated by it as part of the project in accordance with the manufacturer's maintenance guidelines to keep them in good working order. Ensure that emission control technologies are not removed from the vehicles and equipment, unless their removal is required for repair and maintenance activities, in which case the technologies shall be reinstalled or replaced before the vehicle or equipment is returned to service. ● Provide and maintain, during operation, electrical power so that any ship serving the project that is equipped to plug into land-based electrical power while berthed can do so.



Valued Components	Key Mitigation Measures and Monitoring Requirements
	- Implement, during operation, monitoring and communications practices to notify ships serving the project that are releasing excessive amounts of smoke, including in terms of colour of the smoke and the duration of the smoke occurrence. Document all observed smoke occurrences and any action taken in response to each smoke occurrence. <u>Acoustic Environment</u> - Identify, prior to construction and in consultation with relevant authorities, the human receptors likely to be affected by the environmental effects on human health from exposure to noise and vibrations caused by the project. Submit the list of human receptors to the Agency prior to construction. - Do not exceed the noise limits set out in the Lignes directrices relativement aux niveaux sonores provenant d'un chantier de construction industriel and the Note d'instructions 98- 01 sur le bruit of the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques during, respectively, construction and operation. - Implement, during construction, measures to mitigate noise and vibrations caused by the project that take into account for the mitigation measure described in Appendix H of the Health Canada document Guidance for Evaluating Human Health Impacts in Environmental Assessment: - Vehicles and equipment operated by the proponent for the project must be equipped with broadband backup alarms that meet safety standards; - Use programmed deceleration lifting beams; - Operate vehicles and equipment equipped with anti-noise and anti-vibration systems and keeping these systems in good working order through a regular inspection and maintenance program; - Install the generators and compressors required for the project away from human receptors likely to be affected by noise and vibrations; - Establish a speed limit for trains not to exceed 15 kilometres/hour within Montreal Port Authority territory and requiring and ensuring that all trains abide by this speed limit; - Prohibit banging of the rear panels of trucks when unloading materials; - Develop, from the start of construction, and maintain, during operation, a vegetated slope on the northern edge of Route 132 within the boundaries of the Montreal Port Authority territory, and on the eastern edge of Stream 4, between Route 132 and the St. Lawrence River, except for a portion on the side of Route 132 east of Montée Lapierre, as indicated by the Proponent on Map



Valued Components	Key Mitigation Measures and Monitoring Requirements
	57-2 submitted in response to Information Request CEAA-2-57 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136), and at the road and rail access points associated with the project. ▪ Mount the vegetated slop with a curtain wall on the eastern side of Stream 4, between Route 132 and the St. Lawrence River. Determine the size and location of the curtain wall prior to construction and provide to the Agency, prior to construction, the proposed size and location and a justification (using acoustic modelling) demonstrating how the proposed size and location will mitigate the adverse environmental effects of changes in the acoustic environment caused by the project on the human health of the human receptors likely to be affected by noise and vibrations. • Limit pile-driving activities and any other activity associated with the project that causes tonal or pulsing sounds to Mondays through Fridays during the day (7:00 a.m. to 7:00 p.m.), except if this is not technically or economically feasible. If any pile-driving activity or any other activity that causes tonal or pulsing sounds must be done from Mondays through Fridays in the evening or at night (7:00 p.m. to 7:00 a.m.), or on Saturdays, Sundays or statutory holidays, notify the community before carrying out the activity, in accordance with the communications plan; • If sheet pile placement is to be accomplished by hammering rather than vibration, develop and implement modified or additional mitigation measures to ensure that noise levels remain the same as those projected by the proponent for construction (Appendix C of the response to the first round of Information Request, Canadian Impact Assessment Registry Reference Number 80116, Document Number 126). <u>Water Quality</u> • If additives for water treatment (flocculants and/or coagulants) are added to any sediment dredged using hydraulic dredging, select, in consultation with the relevant authorities, a type of additive that is least likely to cause adverse environmental effects on human health. At the time of choosing the additive, submit to the Agency, a justification explaining how the selected additive meets this requirement and how it compares to other existing additives; • Inform stakeholders of any activity that may adversely affect water quality and municipal infrastructure, including the City of Contrecoeur's drinking water intake. <u>Safety and Quality of Life of the Population and First Nations</u> • Develop, prior to construction and in consultation with the potentially affected parties, a protocol for receiving complaints as it pertains to exposure to noise and vibrations and to air-quality changes caused by the project. Implement the protocol during construction and operation. Prior to construction, submit the protocol to the Agency and the parties consulted for the development of the protocol. As part of the implementation of the protocol: ◦ Communicate the details of the protocol, including the method for submitting a complaint, to the parties consulted for the development of the protocol;



Valued Components	Key Mitigation Measures and Monitoring Requirements
	- Take note of any complaint attributable to the project as quickly as possible, or within 48 hours of receiving the complaint, and implement any corrective measure under the control of the proponent as soon as technically feasible in response to any complaint received, which may include modified or additional mitigation measures; - Account for the results of the follow-up program on noise or the follow-up programs on air quality when it determines if any corrective action is necessary; - Submit a summary report each quarter of the complaints received during the quarter and any corrective action taken to the Agency and to the parties potentially affected (including the time interval taken to take note of any complaint received and the time interval taken to implement any corrective action). Follow-up Requirements <u>Air Quality</u> - Develop, prior to construction and in consultation with Environment and Climate Change Canada and Quebec’s Ministère de l’Environnement et Lutte contre les changements climatiques, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to environmental effects of airborne particulate emissions on human health. As part of the development of the follow-up program, develop the method to be applied to determine, in consultation with the parties consulted for the development of the follow-up program, if the project is the source responsible for any exceedances of air quality criteria in relation to particulate emissions observed during the implementation of the follow-up program. As part of the implementation of the follow-up program: - Install, prior to construction and taking account of the <i>Lignes directrices concernant les stations de surveillance de la qualité de l’air</i> of Quebec’s Ministère de l’Environnement et Lutte contre les changements climatiques and the Canadian Council of Ministers of the Environment’s Ambient Air Monitoring Protocol for PM2.5 and Ozone, at least three new sampling stations on Montreal Port Authority territory in order to monitor emissions from the project to human receptors likely to be affected by air-quality changes, including one station that can be used to monitor climate; - Monitor, prior to construction and during construction and operation, the concentrations of fine particulate matter (PM2.5), inhalable particulate matter (PM10) and total particulate matter (PMT) and the dust falls at the existing sampling station and at the new stations; - Compare the results of the monitoring with the values established in <i>Quebec’s Clean Air Regulation</i> or, for inhalable particulate matter (PM10) and fine particulate matter (PM2.5), the following alert thresholds:



Valued Components	Key Mitigation Measures and Monitoring Requirements
	▪ Guidelines for inhalable particulate matter (PM₁₀) recommended by the World Health Organization (24-hour mean) of 50 µg/m³; and ▪ the 24-hour standard for fine particulates (PM_{2.5}) specified in the <i>Canadian Ambient Air Quality Standards</i> for 2020 by the Canadian Council of Ministers of the Environment of 27 µg/m³. ○ If any comparison made demonstrates an exceedance of values or alert thresholds, determine, in consultation with the parties consulted for the development of the follow-up program, if project is the source of the exceedance. If the project is the source of the exceedance, develop and implement modified or additional mitigation measures to mitigate the adverse environmental effects of airborne particulate emissions on human health. • Develop, prior to construction and in consultation with Environment and Climate Change Canada and the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to environmental effects of nitrogen dioxide emissions on human health. As part of the development of the follow-up program, determine the frequency of monitoring and develop the method to be applied to determine, in consultation with the parties consulted for the development of the follow-up program, if the project is the source responsible for any exceedances of air quality criteria for nitrogen dioxide observed during the implementation of the follow-up program. As part of the implementation of the follow-up program: ○ Monitor the nitrogen dioxide concentrations at one or more sampling station(s) located so as to capture the nitrogen dioxide emissions coming from the project. Perform this monitoring during construction, in the first year of operation, and subsequently at a frequency that accounts for the nature of the activities carried on under the project and the representative periods of activities and traffic; ○ Compare the results of the monitoring with the Canadian Ambient Air Quality Standards for nitrogen dioxide of the Canadian Council of Ministers of the Environment that are applicable at the time monitoring is conducted; ○ If any comparison made demonstrates an exceedance of the standards, determine, in consultation with the parties consulted for the development of the follow-up program, if the project is the source of the exceedance. If the project is the source of the exceedance, develop and implement modified or additional mitigation measures to mitigate the adverse environmental effects on human health of nitrogen dioxide emissions. <u>Acoustic Environment</u> • Develop, prior to construction and in consultation with Health Canada and other relevant authorities, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse



Valued Components	Key Mitigation Measures and Monitoring Requirements
	environmental effects of changes in the acoustic environment on human health (including sleep) caused by the project. In determining the information for the follow-up program, take account the dredging method(s) chosen. As part of the implementation of the follow-up program: ○ Monitor noise levels, using sonometers equipped with windscreens, during construction and operation, including noise levels in real time felt by the human receptors likely to be affected by noise and vibrations, pulsing sounds and low-frequency noises; ○ Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects of changes in the acoustic environment on human health (including sleep) caused by the project. <u>Water Quality</u> • Develop, prior to construction and in consultation with relevant authorities, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects on human health of water-quality changes caused by the project. As part of the implementation of the follow-up program: ○ Regularly monitor, during dredging, ambient concentrations of suspended solids and average concentrations of suspended solids upstream from the drinking water intake for the city of Contrecoeur; ○ Monitor, on a regular basis, the concentrations of suspended solids and other contaminants as specified in the follow-up programs in section 5.3.2 of this report; ○ Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects on human health of water-quality changes caused by the project.
Socio-Economic Conditions	Key Mitigation Measures • Implement the mitigation measures on wetlands (section 5.2), fish and their habitat (section 5.3), birds and their habitat (section 5.4), acoustic environment (section 5.6), current use of lands and resources for traditional purposes (section 5.8) and physical heritage (section 5.9) provided in this report. <u>Communication With Stakeholders</u> • Identify, prior to construction, the parties that may be potentially affected by the project or by any environmental effect of the project, which shall include parties representative of local and municipal governments, nearby residents and users of the immediate surroundings and community, environmental, recreation and tourism, and economic development organizations. Provide a list of the potentially affected parties, including their contact information, to the Agency prior to construction and provide an updated list to the Agency upon request during any phase of the project;



Valued Components	Key Mitigation Measures and Monitoring Requirements
	• Develop, prior to construction and in consultation with the First Nations consulted and the potentially affected parties, a communication plan to share information related to the project. Determine, during the development of the communications plan, procedures for disseminating information related to the project. Implement the communications plan and keep it up to date during construction and operation. Disseminate the following information as part of the communications plan: ◦ The project schedule, and a description of all activities associated with the construction of the project and their progress, including: ▪ Any activity that could impede or restrict temporary or permanent access to the road or rail networks or the aquatic environment, including roads providing public access to the St. Lawrence River; ▪ Any activity carried out between Monday and Friday between 7:00 p.m. and 7:00 a.m., on the weekend, or a statutory holiday; ▪ Any activity that could adversely affect water quality and municipal infrastructures (including the drinking water intake for the municipality of Contrecoeur). ◦ The manner in which the proponent will inform the community if it must carry on activities associated with the project during the evening, at night, on the weekend or on a statutory holiday; ◦ The schedule for any activity associated with the operation of the project, including: ▪ the schedule of the trains serving the project; ▪ the schedule of docked ships and loading and unloading activities. ◦ Any information related to pleasure boating, including any information about water quality and any information about temporary and permanent restrictions, and navigational tools and measures implemented during construction or operation to take account of the project (including the restricted navigation areas); ◦ A summary of the results of air, noise and water quality monitoring programs; ◦ Any other information of interest to the First Nations consulted and the potentially affected parties identified during the development of the communications plan. • Develop, prior to construction and in consultation with the First Nations consulted and potentially affected parties, a community liaison protocol. Implement the community liaison protocol during construction and operation. As part of the development and implementation of the protocol:



Valued Components	Key Mitigation Measures and Monitoring Requirements
	○ Develop a mechanism for parties consulted for the development of the protocol to provide feedback to the proponent about any adverse environmental effect caused by any component of the project and the associated issues and for the proponent to respond to the feedback received in a timely manner (including by the implementation of modified or additional mitigation measures); ○ Establish communication methods for sharing any information relevant to the project with the community, including the information referred to in the communications plan implemented and the details of the feedback mechanism, including the way to submit feedback; ○ Document any feedback received and how the proponent responded to this feedback, including the implementation or anticipated implementation of any modified or additional mitigation measure by the proponent, or the proponent's justification for not requiring a modified or additional mitigation measure in order to respond to the feedback. <u>Aquatic Environment</u> • Maintain restricted navigation areas to ensure safe navigation in the river study area identified in Figure 1, including: ○ A security perimeter around work sites in aquatic environments during construction; ○ A restricted navigation area around the ship loading and unloading area during operation. • Implement measures to raise awareness with the operators of ships serving the project of the importance of observing the voluntary ship speed reductions in force between Sorel-Tracy and Contrecoeur. <u>Terrestrial Environment</u> • Participate, at the request of a relevant authority during any phase of the project, in the implementation of any technically and economically feasible measure or development under its responsibility related to road safety on Route 132, Montée Lapierre and Montée de la Pomme-d'Or; ○ Collaborating to install hazard and traffic signs adapted to Route 132 and Montée Lapierre and Montée de la Pomme d'Or; ○ Collaborating to ensure the presence of traffic control persons during the construction phase of the project for the circulation of vehicles and machinery. • Notify, prior to construction, the operators of rented farmland located on Montreal Port Authority territory, of the loss and unavailability of this land during construction and operation. Should some farmland become available again after the end of construction, the proponent shall offer additional land rental opportunities.



Valued Components	Key Mitigation Measures and Monitoring Requirements
	Follow-up Requirements The Agency has not identified a follow-up program specific to the effects on socio-economic conditions to verify the effects predictions and the effectiveness of the proposed mitigation measures. Follow-up programs relevant to the socio-economic context were identified for other valued components analyzed in the environmental assessment, including wetlands, fish and their habitat, birds and their habitat, human health, and physical and cultural heritage.
Current Use of Lands and Resources for Traditional Purposes by Indigenous Peoples	Key Mitigation Measures • Develop, prior to construction and in consultation with the First Nations consulted, a communication protocol for sharing information related to the project with the First Nations and to receive and respond to any feedback from the First Nations concerning the project or any environmental effect of the project. Implement the communication protocol and keep it up to date during construction and operation. The communication protocol shall specify procedures, including a timetable, for sharing information on the following elements: ◦ The timetable and location of each activity associated with the construction and operation of the project in the terrestrial and aquatic environments that could affect the practice of the First Nations' traditional activities; ◦ The means for the First Nations to provide feedback to the proponent about the project or any environmental effect of the project and the means for the proponent to respond to any feedback received in a timely manner. Follow-up Requirements • Develop, prior to construction and in consultation with the First Nations consulted and relevant authorities, a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects caused by the project on the traditional fishing and hunting activities of the First Nations and any other complementary activity. Implement the follow-up program during construction and operation; • Where consultation with First Nations is a requirement of a follow-up program, discuss the follow-up program with each Nation and determine, in consultation with each Nation, opportunities for participation in the implementation of the follow-up program, including the conduct of monitoring, the analysis and reporting of follow-up results and whether modified or additional mitigation measure(s) are required.
Physical and Cultural Heritage	Key Mitigation Measures • Paint the dock cranes associated with the project in colours that harmonize with the adjacent environment of the project. • Develop, from the start of construction, and maintain, during operation, a vegetated slope on the northern edge of Route 132 within the boundaries of the Montreal Port Authority territory, and on the eastern edge of Stream 4, between Route 132 and the St. Lawrence River,



Valued Components	Key Mitigation Measures and Monitoring Requirements
	except for a portion on the side of Route 132 east of Montée Lapierre, as indicated on Map 57-2 submitted in response to Information Request CEAA-2-57 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136), and at the road and rail access points associated with the project. ○ Mount the vegetated slop with a curtain wall on the eastern side of Stream 4, between Route 132 and the St. Lawrence River. Determine the size and location of the curtain wall prior to construction and provide to the Agency, prior to construction, the proposed size and location and a justification (using acoustic modelling) demonstrating how the proposed size and location will mitigate the adverse environmental effects of changes in the acoustic environment caused by the project on the human health of the human receptors likely to be affected by noise and vibrations. • Develop, prior to construction, and implement, during construction and operation, mitigation measures that take into account the Bureau de Normalisation du Québec standard 4930-100/2016 entitled <i>Éclairage extérieur – contrôle de la pollution lumineuse</i> [exterior lighting – control of light pollution] regarding the quantity of light emitted, its direction, spectral composition and duration of use, for the lighting fixtures used for the project, in order to mitigate the adverse environmental effects of the project while complying with operation health and safety requirements. As part of these measures: ○ Direct lighting fixtures toward active construction zones during construction and toward port infrastructures during operation; ○ Install and maintain, during construction and operation, exterior lighting fixtures with a correlated colour temperature in the 3000-Kelvin range; ○ Use LED-type lighting on high masts and roadway light fixtures to limit light pollution; and ○ Reduce lighting after 11:00 p.m. in parking lots and around the perimeters of buildings associated with the project to the lowest intensity possible while meeting the operational safety requirements for the project. • Submit to the Agency, before the beginning of the surveys, a letter confirming the proponent’s commitments to provide third-party bodies with all archaeological documentation or collections of Indigenous and non-Indigenous origin generated or discovered during the surveys and during the implementation of the project for conservation and public presentation purposes. Inform the Agency, on an annual basis, of the steps taken by the proponent during the reporting year to meet its commitment and of any conservation or presentation measures implemented by the third-party bodies. • Conduct, in consultation with the First Nations consulted and relevant authorities, an archaeological survey in the terrestrial areas with archaeological potential identified in Figure 15 of the environmental assessment report and on Île Bouchard. Survey in priority, prior to construction, the areas in the project area and complete the survey of the other areas, including Île Bouchard, in the 5 years after the beginning of construction. Assign the responsibility for conducting the survey to a qualified person who is a professional terrestrial archaeologist. As part of the conduct of the survey:



Valued Components	Key Mitigation Measures and Monitoring Requirements
	- Discuss, before the survey begins, with each First Nation about opportunities for their participation in conducting the survey and allow them to participate in the survey, including the evaluation of the survey results; - Define, before the survey begins, the plots where the survey will be conducted by using digital technologies and taking into account past land occupation in the project area; - Implement the survey methodology developed in consultation with the Indigenous Community of Odanak and Wôlinak as part of the environmental assessment, including the use of visual surveys, georadar (including for the shoreline terraces), core sampling, shovel sampling and the establishment of test trenches; - Assess, in consultation with the First Nations consulted, the survey results; - Should any artifact be discovered during the survey, carry out an archaeological dig at the location of the discovery and implement measures, in consultation with the First Nations consulted and relevant authorities, involving the management and conservation of any artifact discovered; and - Submit, within 30 days following the completion of the survey report for each area, including Île Bouchard, the survey results to the Agency and the parties consulted for the archaeological survey, including the results of any archaeological dig conducted and the details of any measure implemented relating to the management and conservation of any artifact discovered. - Conduct, prior to construction and in consultation with Parks Canada, the Quebec’s Ministère de la Culture et des Communications, the First Nations consulted and any other stakeholder in the heritage field identified by the proponent, an archaeological survey of the maritime archaeological survey area identified on Map C11-1 submitted in response to Comment 211 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136). Assign the responsibility of conducting the survey to a qualified person who is a professional maritime archaeologist. As part of the conduct of the survey: - Discuss, before the survey begins, with each First Nation about opportunities for their participation in conducting the survey and allow them to participate in the survey, including the evaluation of the survey results; - Conduct a visual inspection of the surface and underwater area; - Provide side-scan sonar and a high-resolution multibeam sonar coverage and, if recommended by the qualified person conducting the survey, high-resolution marine magnetometer coverage to identify any anomaly with archaeological potential in the area where the survey is being conducted; - Inspect, unless it is not technically or economically feasible, all the anomalies with archaeological potential identified by using a subaquatic investigation method recommended by the qualified person and document the heritage value of each anomaly; and



Valued Components	Key Mitigation Measures and Monitoring Requirements
	- Submit, at least 90 days before the start of construction, the survey results to the Agency and the parties consulted for the archaeological survey, including any additional measure recommended by the qualified person to be implemented as part of the project in connection with any anomaly with archaeological potential that cannot be investigated. - Implement any additional measure recommended by the qualified professional, including archaeological monitoring during dredging, to investigate any anomaly with archaeological potential that cannot be inspected with a subaquatic investigation method. - Develop, in consultation with Parks Canada, the Quebec's Ministère de la Culture et des Communications and the First Nations consulted, and implement a chance-find procedure that must be implemented in the event of a chance discovery during construction, of any structure, site or thing of historical, archaeological, paleontological or architectural significance previously unidentified by the proponent or reported to the proponent by a First Nation or other party. As part of the chance-find procedure: - Immediately halt work at the location of the discovery; - Delineate an area of at least 30 metres around the discovery as a no-work zone. The no-work requirement shall not apply to actions required to be undertaken to protect the integrity of the discovery; - Give a qualified person, who is an archaeologist, the responsibility for conducting an assessment at the location of the discovery in accordance with Quebec's Cultural Heritage Act; - Inform the First Nations consulted within 24 hours of the discovery and allow the First Nations to monitor the archaeological works; and - Consult Parks Canada, the Quebec's Ministère de la Culture et des Communications, the First Nations consulted on all applicable legislative or legal requirements and associated regulations and protocols with respect to the discovery, recording, transferring and safekeeping of structures, sites or things of historical, archaeological, paleontological or architectural significance, and comply with them. - Assign the responsibility of monitoring all excavation activities undertaken by the proponent in the terrestrial environment during construction to a qualified person who is a professional archaeologist. If any structure, site or thing of historical, archaeological, paleontological or architectural significance is discovered during the excavation, implement the chance-find procedure. Follow-up Requirements - Develop, prior to construction, and implement a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the mitigation measures as it pertains to the adverse environmental effects of changes to the environment on physical heritage caused by the project. As part of the implementation of the follow-up program:



Valued Components	Key Mitigation Measures and Monitoring Requirements
	○ Monitor the growth, composition and abundance of the vegetation on the vegetated slope. Carry out this monitoring on at least a monthly basis during the first year after the development of the slope, at least every two months during the second year after the development of the slope and on a semi-annual basis at a minimum during the third, fourth and fifth years after the development of the slope; and ○ Develop and implement modified or additional mitigation measures if the results of the monitoring demonstrate that modified or additional mitigation measures are required to mitigate the adverse environmental effects of changes to the environment on physical heritage caused by the project.
Accidents or Malfunctions	Key Mitigation Measures • Take all reasonable measures to prevent accidents and malfunctions that may result in adverse environmental effects and mitigate any adverse environmental effect from accidents and malfunctions that do occur. • Consult, prior to construction, the First Nations consulted and relevant authorities on the measures to be implemented to prevent accidents and malfunctions. • Develop, prior to each phase of the project and in consultation with the First Nations consulted and relevant authorities, an accident and malfunction response plan in relation to each phase of the project. Integrate and refer to the plans, procedures and intervention organizations established, as the case may be, by the relevant authorities in the response plan in case of accident or malfunction. The accident and malfunction plan shall include: ○ A description of the types of accidents and malfunctions that may cause adverse environmental effects during any phase of the project; ○ The measures under the control of the proponent to be implemented in response to each type of accident and malfunction, including alert systems, to mitigate any adverse environmental effect caused by the accident or malfunction. The measures shall include the implementation of measures to protect sensitive habitats (including aquatic grass beds, wetlands and the habitat of the western chorus frog) in the case of a spill of any deleterious substance (including hydrocarbons); and ○ For each type of accident and malfunction, the roles and responsibilities (including in terms of measures to be implemented and equipment to be mobilized) of each relevant authority concerned participating in the response in case of accident or malfunction. • Develop, in consultation with the First Nations consulted and potentially affected parties, a communications plan for accidents and malfunctions occurring in relation to the project. Develop the communications plan prior to construction and implement and keep it up to date during all phases of the project. The plan shall include:



Valued Components	Key Mitigation Measures and Monitoring Requirements
	- The types of accidents and malfunctions requiring the proponent to notify the First Nations consulted and potentially affected parties; - The manner by which the First Nations consulted and potentially affected parties shall be notified by the proponent of an accident or malfunction and of any opportunity to assist in the response to the accident or malfunction; and - The contact information of the proponent that representatives of the First Nations consulted and potentially affected parties may contact and of the representatives of the First Nations consulted and potentially affected parties to which the proponent shall provide notification. - Maintain up-to-date the accident and malfunction response plan during all phases of the project. Submit any updated accident and malfunction response plan to the Agency, the First Nations consulted and the relevant authorities involved in its implementation within 30 days of the plan being updated. - In the event of an accident or malfunction with the potential to cause adverse environmental effects, including an accident or a malfunction, immediately implement the measures appropriate to respond to the accident or malfunction and: - Implement the communications plan as it relates to accidents and malfunctions; - Notify relevant authorities with responsibilities related to emergency response (including environmental emergencies) in accordance with applicable regulatory and legislative requirements; - Notify, as soon as possible and pursuant to the communications plan, the First Nations consulted and the parties potentially affected of the accident or malfunction, and notify the Agency in writing no later than 24 hours following the accident or malfunction. For the notification to the First Nations consulted, potentially affected parties and the Agency, specify: - The date and time when and location where the accident or malfunction occurred; - A summary description of the accident or malfunction; and - A list of any substance potentially released into the environment as a result of the accident or malfunction. - Submit a written report to the Agency no later than 30 days after the day on which the accident or malfunction occurred. The written report shall include: - A detailed description of the accident or malfunction and of its adverse environmental effects; - A description of the measures that were taken by the proponent to mitigate the adverse environmental effects caused by the accident or malfunction;



Valued Components	Key Mitigation Measures and Monitoring Requirements
	▪ Any view from the First Nations consulted and potentially affected parties and advice from relevant authorities received with respect to the accident or malfunction, its adverse environmental effects and the measures taken by the proponent to mitigate these adverse environmental effects; ▪ A description of any residual adverse environmental effect and any modified or additional measure required by the proponent to mitigate residual adverse environmental effects; and ▪ Details concerning the implementation of the accident or malfunction response plan; ○ Submit a written report to the Agency no later than 90 days after the day on which the accident or malfunction occurred that includes a description of the changes made to avoid a subsequent occurrence of the accident or malfunction and of the modified or additional measure(s) implemented by the proponent to mitigate and monitor residual adverse environmental effects and to carry out any required progressive reclamation, taking into account the information submitted in the written report. The report shall include all additional views from the First Nations consulted and potentially affected parties and advice from relevant authorities received by the proponent. Follow-up Requirements • A follow-up program is not required.
Effects of the Environment on the Project	Key Mitigation Measures • No additional mitigation measures are required. Follow-up Requirements • A follow-up program is not required.
Cumulative Effects	Key Mitigation Measures Wetlands • Participate, at the request of a relevant authority, in any regional initiative pertaining to the contribution of the project to the cumulative environment effects on conservation of wetlands and their functions that the implementation of the project, combined with the implementation of other physical activities, past or future, is likely to cause, in the event that there is such an initiative during the construction or operation of the project. • Implement any mitigation measure that is technically and economically feasible or follow-up program identified through any regional initiative and which is under its responsibility.



Valued Components	Key Mitigation Measures and Monitoring Requirements
	<u>Copper Redhorse</u> • Implement measures to raise awareness with the operators of ships serving the project of the importance of observing the voluntary ship speed reductions in force between Sorel-Tracy and Contrecoeur. • Require and ensure that the ships serving the project procure the services of at least one tugboat for berthing and casting off manoeuvres. • Participate, at the request of a relevant authority, in any regional initiative pertaining to the contribution of the project to the cumulative environment effects on the copper redhorse that the implementation of the project, combined with the implementation of other physical activities, past or future, is likely to cause, in the event that there is such an initiative during the construction or operation of the designated project. • Participate, at the request of a relevant authority, in any regional initiative pertaining to the contribution of the project to the cumulative environmental effects of shore erosion on fish and fish habitat and on species at risk and their habitat that the implementation of the project, combined with the implementation of other physical activities, past or future, is likely to cause, in the event that there is such an initiative during the construction or operation of the project. • Implement any mitigation measure that is technically and economically feasible or follow-up program identified through any regional initiative and which is under its responsibility. <u>Western Chorus Frog</u> • Participate, at the request of a relevant authority, in any regional initiative pertaining to the monitoring, assessment or management of the cumulative environmental effects on the western chorus frog that the implementation of the project, in combination with the implementation of other past or future physical activities, is likely to cause, including any initiative established pursuant to the Government of Canada's Recovery Strategy for the western chorus frog, Great Lakes/St. Lawrence – Canadian Shield Population, in Canada, in the event that there is such an initiative during the construction or operation of the project. • Implement any mitigation measure that is technically and economically feasible or follow-up program identified through any regional initiative and which is under the proponent's responsibility. • Establish and maintain, from the beginning of construction and in consultation with Environment and Climate Change Canada, a revegetated strip of at least 10 metres wide in the area along the ditches bordering the Canadian National Railway tracks, as indicated by the proponent in Map 57-2 submitted in response to Information Request CEAA-2-57 (Canadian Impact Assessment Registry Reference Number 80116, Document Number 136). Implement measures to hasten the naturalization of this revegetated strip, including by seeding a mixture of native plants with a similar composition as the adjacent natural habitats to create meadows.



Valued Components	Key Mitigation Measures and Monitoring Requirements
	<u>Current Use of Lands and Resources for Traditional Purposes by Indigenous Peoples</u> • Develop, in consultation with the Mohawks of Kahnawà:ke First Nation, and implement a technically feasible plan to mitigate the environmental effects of operation of the project on the habitat of the copper redhorse located in the riparian zone of Île Bouchard. Submit the definitive plan to the Agency and the Mohawks of Kahnawà:ke First Nation no later than one year after the decision statement is issued. In addition to the Mohawks of Kahnawà:ke First Nation, identify the measures in consultation with Fisheries and Oceans Canada, the Quebec's Ministère des Forêts, de la Faune et des Parcs, any other relevant authority, the landowners of Île Bouchard and any other party involved in the implementation of the existing measure in which the proponent intends to participate. Implement the plan according to the schedule and support the participation of the Mohawks of Kahnawà:ke First Nation in the implementation of the plan according to the conditions agreed. As part of the development of the compensation plan: ◦ Describe the mitigation measures that will be implemented as part of the implementation of the plan, which will include restoration of the habitat of the copper redhorse and which could involve bioengineering techniques, and/or in which the proponent will participate if existing comparable measures (including habitat restoration initiatives) are implemented by another party or other parties; ◦ Demonstrate how the measures will allow mitigation of the environmental effects of operation of the project on the habitat of the copper redhorse located in the riparian zone of Île Bouchard; ◦ Describe how the follow-up of the measures will be done to ensure that the plan mitigates the environmental effects of operation of the project on the habitat of the copper redhorse located in the riparian zone of Île Bouchard or, if this is not the case, that modified or additional measures are implemented; ◦ Establish a schedule for implementation of the plan; ◦ Agree on the conditions of participation of the Mohawks of Kahnawà:ke First Nation in the implementation of the plan. • Participate in any regional initiative led by a relevant authority pertaining to the monitoring of toxins present in the food resources taken in the St. Lawrence River. In doing so: ◦ Implement any mitigation measure that is technically and economically feasible or follow-up program identified through this initiative and which is under its responsibility; ◦ Submit to the Agency, as part of the annual report, and to the First Nations consulted, the result of its participation in this initiative, particularly any mitigation measure or follow-up program the proponent has implemented or proposes to implement following this participation.



Appendix D: Summary of First Nations Concerns

This appendix includes the comments received from First Nations during the environmental assessment, as well as the responses provided by the MPA (the proponent) and the Agency. The concerns presented were summarized by the Agency from issues raised during the various meetings and exchanges with First Nations and comments submitted which are available on the Canadian Impact Assessment Registry.

The comments are presented in order of chapters of the environmental assessment report. The information found in the referenced documents and in Chapters 5 and 6 of the environmental assessment report prevails over the information found in this appendix.

Theme	Summary of the Comment or Concern	Summary of the Proponent's Response	Agency's Response
Mohawk Nation of Kahnawà:ke (MCK)			
Transboundary Environmental Effects - Greenhouse Gas Emissions (GHG)	The MCK is concerned with the effects of increases in road and rail traffic on the health of the community (MCK, 2019) since the Kahnawà:ke reserve is close to Highway 30, railroads and numerous highways. The community's greenhouse gases (GHGs) concerns are largely related to the increase in road, rail and marine traffic.	The proponent anticipates an increase in GHG emissions and other air contaminants during the operation phase, but does not anticipate that the increase in traffic will affect the Mohawk community of Kahnawà:ke (SNC lavalin, August 2020a). The proponent notes that the majority of GHG emissions in the operation phase would not be directly linked to the operation of the terminal (buildings and equipment), but rather to emissions from transport trucks, ships and locomotives in the extended study area (SNC Lavalin, April 2019).	The Agency considers that the volume of greenhouse gas emissions estimated for the project would be low compared to provincial and national emission levels. ECCC and the MELCC are of the opinion that the various measures proposed by the proponent are adequate and sufficient to reduce the effects of GHG emissions by the project.
Wetlands	The Mohawks of Kahnawà:ke are concerned about the fragmentation of wetlands, the effects of this fragmentation on wildlife, and the loss of wetlands due to the removal of riparian vegetation and the detour of watercourses (MCK, 2019).	The proponent is developing a compensation plan for the loss of wetlands in consultation with First Nations. This plan would include compensation for the loss of wetlands ecological functions and the double of the area destroyed would be compensated (SNC-Lavalin, August 2019). This includes a follow-up program for the areas dedicated to compensation in order to ensure that the desired ecological functions are maintained, that the compensated area remains stable and that the wetlands are not altered by	The Agency is of the view that the project is not likely to cause significant adverse environmental effects on wetlands, given the application of the mitigation (including the compensation plan) and follow-up measures recommended in section 5.2.2, as well as the proponent's proposal to use the "avoid-minimize-compensate" sequence when carrying out its project.



		external disturbances (SNC-Lavalin, August 2019).	
	Concerns were raised by the Mohawk Council of Kahnawà:ke regarding the mitigation measures proposed by the proponent. The community wishes that the project should keep the residual wetlands in the St. Lawrence Valley intact, if wetlands are to be created elsewhere, the Mohawk Council of Kahnawà:ke requests that the proponent make real gains in the quality and functions of the wetlands that will be created to compensate for the lost areas (MCK, 2020). The MCK request that they be consulted on the compensation plan related to wetlands (MCK 2019).	The proponent would carry out its compensation plan at one of the three potential sites it is considering, either in the municipality of Verchères, Contrecoeur or Boucherville (SNC-Lavalin, August 2019).The proponent will inform the First Nations of the wetland compensation plan (SNC-Lavalin, August 2020b).	The Agency recommends that a compensation plan and a follow-up program be developed prior to construction, in consultation with First Nations, ECCC and MELCC. The compensation plan for wetlands must comply with the Federal Policy on Wetland Conservation and make it possible to improve or create wetland functions. The follow-up program would make it possible to verify the accuracy of the environmental assessment, judge the effectiveness of the mitigation measures and ensure the monitoring of wetland functions. The results of the monitoring conducted would be submitted by the proponent to the Agency, the First Nations, ECCC and MELCC.
Fish and Fish Habitat	The community expressed concern about the direct and indirect loss of fish habitat. This includes habitat connectivity, loss of aquatic grass beds, and the effects of hydrological changes on fish habitat functions (MCK, 2019), notably the habitats for the survival of sturgeon (lake and black) and copper redhorse. The community asks that the proponent reduce the area of affected aquatic grass beds. Such as proposing measures to protect aquatic grass beds downstream from dredging activities (MCK, 2019). The MCK requires complete information regarding fish and their habitat and the planned compensation measures. It also supports the realization of the projects described by the Seigneuries ZIP report. The MCK says it is concerned about the loss of copper redhorse habitat, including habitat fragmentation, increased flow and rate of sedimentation due to dredging. In addition, this First Nation considers the measures proposed by the proponent to counter erosion and the programs to compensate for the loss of fish habitat,	The proponent proposes that First Nations participate in the inventories of additional species prior to construction, if required. The proponent is committed to involving First Nations in fish habitat monitoring programs and will meet with First Nations on a bi-annual (during construction) and annual (during operation phase) basis to present the measures put in place to protect fish and fish habitat. First Nations are also invited to contact the proponent if necessary. The proponent submitted a compensation plan to offset the effects of the destruction and alteration of fish habitats, and a plan to compensate for the loss of feeding habitat for adults of the copper redhorse (aquatic grass beds). The proponent would put in place a separate fish habitat compensation program for the copper redhorse. The proponent would inform the Mohawk Council of Kahnawà:ke if the project to improve water quality and habitat for	By taking into account the value, nature and extent of the habitats that would be affected by the work, the Agency supports the opinion of Fisheries and Oceans Canada, which assesses that the losses of fish habitat that would occur would be compensable under the <i>Fisheries Act</i>. Fisheries and Oceans Canada assesses that the reserve habitat project (Îles de Boucherville) would have sufficient habitat credits to offset habitat losses for species other than the copper redhorse. Based on the information available, Fisheries and Oceans Canada considers that the objective of developing feeding areas for the copper redhorse to compensate for the losses of aquatic grass beds is technically feasible and that monitoring would be necessary to assess the quality of the arrangements. Details regarding habitat loss and alteration and plans to compensate for these will be clarified and reviewed under the <i>Fisheries Act</i> and <i>Species at Risk Act</i> by Fisheries and Oceans Canada during subsequent review phases.



	including critical copper redhorse habitat, to be inadequate. In a letter to the agency, the community says it was not convinced that the use of the Boucherville Islands as a habitat bank as an adequate compensation measure. Council is greatly concerned about the cumulative effects already being felt in the St-Lawrence river and the future effects of the project. The community says that the compensation projects for the copper redhorse should be drawn from the options presented in the report of the ZIP 2017 committee commissioned by the proponent.	copper redhorse in the Richelieu River watershed, which is still under discussion, goes ahead. The proponent plans on involving First Nations in the biological monitoring program for wildlife species, which would be implemented and would include the monitoring of fish species in the waterways and along the shoreline of the project territory, as well as in the monitoring program for aquatic grass beds. The proponent proposes to use a 27.7 hectare reserve habitat created on the Boucherville Islands to compensate for the loss of 24.6 hectares of fish habitat (SNC-Lavalin, August 2020). The proponent commits to develop 1.8 hectares of grassland to compensate for the loss of 0.9 hectares of critical copper-red horse habitat and proposes other complementary measures. At a meeting between the MCK and the proponent on October 29, 2020, the proponent agreed to work with the MCK to stabilize part of the tip of Île Bouchard in order to protect the feeding habitats of the copper redhorse.	The Agency recommends that the compensation plans to compensate for losses and modifications to fish habitat and the compensation plans for aquatic grass beds losses for the copper redhorse be developed prior to construction, to the satisfaction of Fisheries and Oceans Canada and in consultation with the MCK and the Quebec's Ministère des Forêts, de la Faune et des Parcs. The Agency recommends the development and implementation of several monitoring programs (aquatic grass, fish, erosion, quality of effluents and stream water) for which the First Nations will be consulted. Taking into account the mitigation, compensation and monitoring measures, the Agency considers that the residual effects of the project on fish and their habitat would be moderate.
	The community is concerned about the cumulative effects on lake sturgeon and considers that the proponent's analysis on sturgeon does not take into account the cumulative effects that threaten the lake sturgeon population in the river.	In regards to the effects on lake sturgeon, the proponent has not identified the cumulative effects, but considers that, although the section of the St.Lawrence River on the coast of the Contrecoeur terminal is identified as an area of feeding for juvenile lake sturgeon, only a small portion of this habitat would be at risk of minimal effects and other similar habitats are found nearby. The proponent believes that the significance of the effect on native fisheries and species of interest would be negligible.	Fisheries and Oceans Canada considers that the portion of the lake sturgeon feeding area affected by the project offers a less productive habitat in general for fish, including lake sturgeon, due to the compact clay substrate that predominates there. Some small areas, where alluvial deposits are observed, are covered by aquatic grass beds which are strongly favorable to fish, including the copper redhorse, but rarely associated with the presence of juvenile lake sturgeon.
Birds and Their Habitat	The MCK considers that, for birds, which require habitats to be connected, any habitat loss would be greater than what the proponent claimed in its impact study.	The proponent claims to minimize the effects by carrying out deforestation between September 1 and April 1, prior to the nesting period, in order to reduce the potential effect on the reproduction of forest and aquatic birds, as stipulated in the	Based on the application of the mitigation and follow-up measures identified in section 5.4, the Agency is of the view that the project is not likely to cause significant adverse environmental effects on



		<i>Migratory Birds Regulations</i> (SNC-Lavalin, April 2019).	birds and their habitat, including special status species.
Other Special Status Species and Their Habitat	The Mohawk Council of Kahnawà:ke has expressed concern about the effects, on the western chorus frog, of increased noise, air pollution, light, vehicle activity, creek detours or canalization, as well as the sealing of surfaces adjacent to the critical habitat of species. (MCK, 2019).	The proponent proposed to include representatives of the Mohawk Council of Kahnawà:ke in the additional collection of inventories required prior to construction, to participate in environmental monitoring during construction, and to maintain an open dialogue before, during and after construction. According to the proponent's information, no encroachment into the critical habitat and residence of the western chorus frog is anticipated in the project (SNC-Lavalin, April 2019). Nevertheless, during the construction and operation phases, the proponent believes that an increase in the western chorus frog's mortality rate would be possible, but marginal, due to the risk of collisions with vehicles on Montée Lapierre (SNC-Lavalin, August 2019). The proponent proposes the installation of a detour fence along Montée Lapierre and route 132 to to avoid potential mortalities (SNC-Lavalin, August 2020b).	A number of mitigation measures would be put in place by the proponent during the construction and operation phases. This includes the installation of a deviation fence and measures related to maintaining water levels at breeding sites and maintaining links between these sites on the territory of the Montreal Port Authority. The Agency also recommends the development and implementation of a monitoring program (hydroperiod and water quality at breeding sites, western chorus frog presence, breeding activities, habitat quality) for which First Nations will be consulted
	In a meeting between the Agency and the Mohawk Council of Kahnawà:ke in March 2018, the council mentioned that there is a lack of information in the Environmental Impact Statement regarding compensation for the lost of bat habitat. The community is looking for more information on how the loss of habitat would be compensated.	To compensate for the loss of resting habitat for these species, the proponent plans to develop two condominiums along the edges of riparian woodlands and maintain wooded linear areas.	Given that the potential habitats (resting, mothering and feeding) for these species could be affected by the project,the Agency is of the view that the project could result in adverse effects on the little brown bat, the northern bat and the tricolored bat. To compensate the loss of habitat, the Agency, ask the proponent to install bat condominiums and to establish and maintain wooded areas on the territory of the Montreal Port Authority. It also calls for other mitigation measures and, in consultation with the First Nations and the government experts, to develop a follow-up program (acoustic monitoring et usage of the condominiums).



Health	The community raises concerns with fish contamination, access to healthy traditional foods and illnesses associated with eating contaminated traditional foods.	According to the proponent, having not had access to information characterizing the current situation, it is not possible for it to assess how the project could affect the health of community members, in terms of nutrition or lifestyle habits. In the event that members of the MCK would use the local study area for their fishing activities, the project should not cause any effects on the health or diet of the Nation's members. The proponent mentioned that no contaminant of potential concern has been identified in connection with the project and that it does not think that metals would be dissolved in the water of the sedimentation and retention basins or in the surface water of the study zone.	According to the Agency, the proponent is committed to maintaining a dialogue with Indigenous peoples. Health Canada is of the view that the baseline conditions have been sufficiently documented by the proponent and that the proponent has demonstrated that it does not anticipate the release of metals in environments that could contaminate traditional foods. Health Canada recommends that further analysis be undertaken if contaminants of potential concern are identified during effluent monitoring
Socio-Economic Conditions	The community says it wants to be informed on the commitments of economic benefits and employment. The community raises concerns about the possibility of positive economic benefits for the Indigenous communities, and wants to discuss the details of collaboration with the proponent on the MCK's involvement in the planned work and offer internship and training opportunities to Kahnawà:ke members interested in port-related careers.	The proponent says that once the project is accepted, he would convene an initial meeting with the First Nations on: future labour needs; services and skills (businesses and labour) of each of the First Nations; training needs and actions to be implemented to encourage training (SNC-Lavalin, April 2019). The proponent plans to: inform the First Nations directly about the tendering process and implement a system to monitor economic benefits for the First Nations. In addition, Indigenous peoples will be able to contact the proponent at any time to obtain information or to report a concern related to this component (SNC-Lavalin, April 2019).	The Agency considers that the proponent has adequately identified and documented the effects of its project on the socio-economic conditions of First Nations, including recreational and tourism activities, wildlife activities and economic activities. The concerns, relating to economic benefits and employment, raised by the community are outside the extent of the environmental assessment, however, according to the proponent, economic benefits should be felt by First Nations and the general population. The proponent proposes to implement several follow-up programs to ensure First Nations satisfaction. The MELCC also agrees and notes that a boost to the local and regional economy can generate other effects in host communities. Faced with a project of this scale, the MELCC suggests that the proponent innovate by developing, in partnership with local communities, an observatory of the effects and benefits of its project.



			The proponent has also made commitments regarding the economic benefits of the project to address public and First Nations concerns.
Current Use of Lands and Resources for Traditional Purposes	The Mohawk Council of Kahnawà:ke felt that the project could limit access to the river from the Recreation Bay and North Wall access points, on the one hand, because of the danger created for its users by the increase in marine traffic, but also because of the degradation of the access points and sites of importance by erosion caused by ship-generated waves.	According to the proponent, most of the traditional activities of the Mohawks of Kahnawà:ke and Kanesatake take place near the reserves and on the territory of Tioweró:ton, but this information could not be validated. The proponent indicated that the maritime traffic generated by the project would stop at the port of Contrecoeur and then head back downstream. The passage of ships would not be happening in front of the Kahnawà: ke reserve. The proponent explains that in the context of the project, the Mohawks did not share particular information on the use by its members of the territory under study, fearing that the information might be misinterpreted. According to the proponent, the project would not hinder the accessibility of areas in the local study area frequented by Indigenous fishermen.	The Agency believes that the construction and operation of the project could force users who frequent this portion of the St. Lawrence River to take detours in order to engage in their activity. A drop in user traffic is not expected, as users are accustomed to the presence of commercial ships in these waters and the increase in frequency of passages resulting from the project would be small, thus limiting the disturbance. Mitigation measures are provided in section 5.7 of the report to ensure user safety. The annual meetings between the First Nations and the proponent would allow the latter to present an annual report on port operations at the site and each stakeholder to discuss issues that concern them
	The Mohawks claim that there is a resurgence of hunting and fishing by the Kahnawà:kerô:non, but that this resurgence is threatened by the degradation of habitats for prized species, including the copper redhorse and lake sturgeon. An activity protected by section 35 (1) of the <i>Constitution Act, 1982</i>.	To respond to the concerns and recommendations expressed regarding fishing and the protection of fish and fish habitat, the proponent proposes to keep the First Nations informed of the project's effects and to involve them in the environmental follow-ups. The proponent's proposed mitigation measures related to fish and fish habitat should reduce the effects on use.	The Agency is of the opinion that the key mitigation and follow-up measures identified in section 5.3.2 could mitigate the potential effects on fish and their habitat and thus reduce the effect on Indigenous fishing. A follow-up program on traditional First Nations fishing and hunting activities (and any other complementary activity) is recommended in section 5.8 of this report.
Physical and Cultural Heritage	The community is concerned about underwater archaeology, artifact management, archaeological discoveries and the interpretations that could take place in the project area. The MCK wants to be involved in the work related to archaeology, with the presence of a Mohawk representative in the survey process (MCK, 2019).	Since the First Nations would be involved in the archaeological work, the proponent considers that there would be no adverse effects. The proponent proposes several mitigation measures to avoid adverse and irreversible effects on the archaeological heritage. These measures are specified in the Environmental Impact Statement documents produced by the	The Agency has identified the main mitigation measures likely to reduce the potential effects on cultural heritage in section 5.9, including participation in archaeological surveys in terrestrial and aquatic environments and the sharing of results. The MELCC notes that the artifacts found in a water environment must be handed over to the



		proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the Canadian Impact Assessment Registry (Document No. 145).	Government of Quebec pursuant to section 75 of the <i>Cultural Heritage Act</i> .
Accidents and Malfunctions	Concerns in relation to the possibility of accidents and the responses to be implemented in the event of an accident or malfunction.	The proponent proposes mitigation and protection measures, response protocols and preliminary emergency response plans to minimize the potential risks associated with an accident or malfunction. These measures and the outline of the emergency measures plan are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and published on the Canadian Impact Assessment Registry (Document No. 145). The mitigation measures planned by the proponent are presented in section 6.1 of this report.	The Agency considers that the proponent has considered the potential terrestrial and aquatic effects of accidents and malfunctions, has documented these environmental effects, and has an adequate contingency plan in place. The Agency requests that the proponent include First Nations in the planning and implementation of these measures to prevent and deal with accidents or malfunctions.
Cumulative Effects	Numerous concerns related to the cumulative effects of various projects along the St. Lawrence River were raised by the MCK, particularly port projects and the resulting increase in maritime traffic (effects on fishing rights, cultural practices, language, transmission of knowledge). The community says it is dissatisfied with the scope of the Agency's cumulative effects analysis. The MCK mentioned that the scope of the assessment and the fact that the analysis is looking to analyze the effects on the territory of the partitioned project instead of the effects already felt on the whole river is not representative of the current situation. In July 2020, the MCK submitted a request to the Agency for a potential regional assessment of the St. Lawrence River region.	Those concerns are outside the extent of the environmental assessment for the proponent. The proponent indicates that it would collaborate with governments on regional strategic studies that could be conducted in relation to the cumulative effects of port infrastructure projects.	The scope of the project's environmental assessment is specified in section 1.3.2 of the report. With respect to the assessment of cumulative effects, the Agency relies on the information gathered by the proponent regarding the effects of the project, combined with the effects of other past, present and reasonably foreseeable projects and the geographic and temporal boundaries it has used (section 6.3.1). Transport Canada is currently conducting an assessment of the cumulative effects of marine transportation on the St. Lawrence River and is expected to table its preliminary report in the spring of 2021. The Agency is currently reviewing the MCK's request for a regional assessment. .



	The MCK is concerned about the cumulative effects on copper redhorse and lake sturgeon. The proponent's analysis on sturgeon would not take into account the cumulative effects that threaten the lake sturgeon population in the river.	The proponent is of the view that the cumulative effects on copper-red horse habitat are significant considering the deterioration and fragmentation of its habitat, which explains its decline and limits its recovery. The effects of climate change and possible decreases in water levels in the river. An aging population, extremely low recruitment and considered insufficient to balance natural mortality. The maintenance or future increase of anthropogenic pressures on the species. However, the proponent asserts that the contribution of its project to cumulative effects is low.	Cumulative effects on the lake sturgeon was not selected as a valued component for cumulative effects. However, the analysis on the copper-red horse is presented in section 6.3.3 of this report.
	The MCK is concerned about increased rail and road traffic that could be generated by the project and deplores the fact that the Agency only considers local effects. These concerns are linked to the effects of increased rail traffic on health, safety and quality of life throughout the Mohawk traditional territory, the Kahnawà:ke territory and the lands of the Sault-Saint-Louis seigneurie.	The effects of project-related road and rail transportation on biological components were analyzed in the local study area by the proponent, with the exception of the assessment of the effects of road and rail transportation on air quality and greenhouse gases, which were assessed in the expanded study area. The proponent recognizes that there would be increased pressure on the road and rail networks through truck, worker vehicle and train traffic, as well as increased public infrastructure needs for the surrounding cities. The promoter is participating in a regional study conducted by the Ministère des Transports du Québec (MTQ) on traffic on Highway 30.	Issues related to increased road and rail traffic outside the site of the project are considered by the Agency to be outside the scope of the project and beyond the control of the proponent. However, the creation by the proponent of a committee involving various neighbourhood and First Nations stakeholders could serve as a forum for discussion in order to find solutions.
	Concerns about the increase in maritime traffic and its effects on access to the river and the practice of rights by members. The MCK expressed concern that Transport Canada's assessment of the cumulative effects of marine transportation does not cover the full range of issues of their concerns and requested that the Agency complete an additional study. The request from MCK to conduct a regional assessment was forwarded to the Minister in July 2020	The proponent is participating in Transport Canada's ongoing cumulative effects assessment. The proponent indicates that it will work with governments on regional strategic studies that could be conducted in relation to the cumulative effects of port infrastructure projects.	Transport Canada is currently carrying out an assessment of the cumulative effects of maritime transport on the St. Lawrence River. Transport Canada is expected to table its preliminary report in the spring of 2021. A meeting was held between the Agency and the MCK regarding their regional assessment request.



	under subsection 97(1) of the <i>Impact Assessment Act</i>. According to the MCK, this study is necessary for the Crown to fulfill its duty to consult. The Grand Conseil de la Nation Waban-Aki and the Council of the Huron-Wendat Nation supported the request for a regional study submitted by the Mohawk Council of Kahnawà:ke to the Minister in July 2020.		The Minister of Environment and Climate Change (the Minister) has determined that such a regional assessment has potential benefits at various levels. In order to deepen the analysis and help define the nature, extent, objectives and results of such a study, the Agency will, over the coming months, launch an engagement process with federal and provincial authorities, the MCK, other interested First Nations and non-governmental organizations. The results of this process, which must be shared with the Minister no later than the spring of 2021, and will enable him to make a final decision on the conduct of a regional study. This study will not be completed before the environmental assessment of the project is completed.
Aboriginal and Treaty Rights	Through the filing of a memoir and letters in its exchanges with the Agency, the Mohawk Council of Kahnawà:ke raised concerns about the impacts that the project could have on the practice of the following rights: Indigenous governance rights; Indigenous fishing and stewardship rights generally; Indigenous fishing rights related to sturgeon; Indigenous fishing rights related to copper red horse; Indigenous harvesting and food sovereignty rights; Indigenous language, cultural and cultural heritage property rights; Impacts to health/safety of Mohawk Territory of Kahnawà:ke and the lands of the Seigneurie du Sault Saint-Louis.	To respond to the MCK's concerns, the proponent has put in place mitigation measures to minimize the effects of the project in relation to the practice of community rights. These include measures concerning the copper-red horse, water quality, wetlands, fish and their habitat, as well as maintaining an open channel of communication with the First Nations for the life of the port project.	The Agency has incorporated information shared by the MCK regarding their rights and historical presence in the study area into the rights impact analysis found in section 7. Cumulative effects are among the criteria used to assess the extent of the effects the project would have on rights.
	During the consultation phase on the draft report, the MCK mentioned that the project would affect their harvesting and food sovereignty rights. To mitigate these impacts, the MCK shared two projects currently under development in the community. These projects would allow the community to harvest and plant traditional foods within the community.	The promoter has been informed of these two projects and is committed to analyzing these projects and the possibility of contributing to them.	The Agency is currently undertaking discussions to facilitate Mohawks' access to existing funding programs or other forms of assistance to implement their initiatives in partnership with federal authorities.



Grand Conseil de la Nation Waban-Aki (GCNWA)			
Transboundary Environmental Effects - Greenhouse Gas Emissions (GHG)	During the public consultation on the draft report, the GCNWA expressed to the Agency that it no longer has GHG concerns.	During the construction and operation phases, the proponent proposes to track GHG emissions and produce an annual balance sheet that would serve as a tool for setting emission reduction targets or emission intensities for different activities. The proponent also proposes to make available shore-side electrical hook-up for ships.	The project could result in residual transboundary effects through greenhouse gas emissions. However, the Agency is of the view that these effects are not likely to be significant given that the volume of greenhouse gases from the project would contribute little to provincial or national emissions and due to the implementation of recommended mitigation and follow-up measures.
Wetlands	The community is concerned about the effects of the project on wetlands including erosion caused by ship wakes.. The Grand Conseil de la Nation Waban-Aki indicates that there must not be an underestimation of the potential effects of the project on coastal and other wetland habitats.	The proponent would develop a compensation plan for the loss of wetlands in consultation with First Nations. This plan would include full compensation for the loss of wetlands ecological functions and double the area destroyed (SNC-Lavalin, August 2019). This also includes a follow-up program for the areas dedicated to compensation in order to ensure that the desired ecological functions are maintained, that the compensated area remains stable and that the wetlands are not altered by external disturbances (SNC-Lavalin, August 2019).	The Agency is of the view that the project is not likely to cause significant adverse environmental effects on wetlands, given the application of the mitigation (including the compensation plan) and follow-up measures recommended in section 5.2.2, as well as the proponent's proposal to use the "avoid-minimize-compensate" sequence when carrying out its project. The Agency recommends that a compensation plan and a follow-up program be developed prior to construction, in consultation with First Nations, Environment and Climate Change Canada and Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques. The compensation plan for wetlands must comply with the <i>Federal Policy on Wetland Conservation</i> and allow for the improvement or creation of wetland functions. The follow-up program would be able to verify the accuracy of the environmental assessment and to judge the effectiveness of mitigation measures related to the environmental effects of the project on wetlands. The results of the follow-up would be presented by the proponent to the Agency, the First Nations,



			Environment and Climate Change Canada and the Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques.
Fish and Their Habitat	The Grand Conseil de la Nation Waban-Aki hopes that the project will not have an adverse effect on migratory species of interest to the Nation present in the local study area such as lake sturgeon, walleye, pike, bass and, in particular, yellow perch. Other concerns regarding effects on fish species include bullhead, eel, brill, silver squid, burbot, carp, white bass and tomcod.	The proponent considers that effects are not anticipated on yellow perch and sturgeon, which are species of particular concern to First Nations. According to the proponent, the sector that would be affected represents an area of little significance for so-called migratory species. Although the stretch of the St. Lawrence River along the shoreline of the Contrecoeur terminal is identified as a juvenile feeding area for lake sturgeon, only a small portion of this habitat is likely to be affected to a minimal extent, and other similar habitats are located nearby. According to the proponent, no spawning grounds are present in the project area. The proponent believes that the effect of the project on Indigenous fisheries and species of interest would be negligible. The proponent proposes a plan to compensate for the loss and modification of fish habitat and a plan to compensate for the loss of feeding habitat for adult copper redhorse (aquatic grass beds) and includes several measures to mitigate the effects of the project on fish and fish habitat.	According to Fisheries and Oceans Canada, the project would cause habitat losses for several fish species, including copper-red horse, northern pike, walleye, sauger, smallmouth bass, largemouth bass and yellow perch. Fisheries and Oceans Canada, considers that the portion of the lake sturgeon feeding area affected by the project provides less productive habitat in general for fish, including lake sturgeon due to the compact clay substrate that predominates. Some small areas where alluvial deposits are observed are covered by aquatic grass beds that are highly favourable to fish, including copper redhorse, but rarely associated with the presence of juvenile lake sturgeon. The Agency recommends that the plan to compensate for the losses and modifications of fish habitat and the plan to compensate for the loss of copper redhorse aquatic grass beds be developed prior to construction, to the satisfaction of Fisheries and Oceans Canada and in consultation with the GCNWA and the Quebec's Ministère des Forêts, de la Faune et des Parcs. The Agency recommends the development and implementation of several follow-up programs (aquatic grass beds, fish, erosion, effluent and stream water quality) for which First Nations will be consulted. In view of the mitigation, compensation and follow-up measures, the Agency is of the opinion that the project's residual effects on fish and fish habitat would be moderate.
Birds and Their Habitat	The Ndakina Office of the Grand Conseil de la Nation Waban-Aki hopes that the project will not have a significant direct or cumulative adverse effect on	The proponent believes that the effects on migratory birds and migratory bird hunting would be felt locally.	Based on the application of the mitigation and follow-up measures identified in section 5.4.2, the Agency is of the view that the project is not likely to



	migratory bird populations valued for hunting and that the project will not cause a displacement of pressure felt by non-Indigenous hunting activities. The species mentioned by the community are geese, ducks (especially black and wood ducks) and white geese.	The proponent claims that to minimize the effects, it will carry out deforestation between September 1 and April 1, prior to the nesting period, in order to reduce the potential effect on the reproduction of forest and aquatic birds, as stipulated in the <i>Migratory Birds Regulations</i> (SNC-Lavalin, April 2019), and implement, at all phases of the project, measures to mitigate the effects of light, noise and vibration generated by the project.	cause significant adverse environmental effects on birds and their habitat, including special status species. However, the Agency is of the view that the project could modify the conditions of traditional Wabanaki practices related to the hunting of migratory birds.
Socio-Economic Conditions	The W8banakiak indicated that it would be desirable to know in advance what the employment needs are so that they have time to train their members if necessary. The Grand Conseil de la Nation Waban-Aki is satisfied with the measure proposed by the proponent regarding the organization of an initial meeting with the First Nations in order to exchange on their needs in terms of employment, services, skills and training.	The proponent says that once the project is accepted, he would convene an initial meeting with the First Nations on: future labour needs; services and skills (businesses and labour) of each of the First Nations; training needs and actions to be implemented to encourage training (SNC-Lavalin, April 2019). The proponent plans to: inform the First Nations directly about the tendering process and implement a system to monitor economic benefits for the First Nations. In addition, they will be able to contact the proponent at any time to obtain information or to report a concern related to this component (SNC-Lavalin, April 2019).	The Agency considers that the proponent has adequately identified and documented the effects of its project on the socio-economic conditions of First Nations, including recreational and tourism activities, wildlife activities and economic activities. Economic and employment concerns raised by the community are outside the scope of the environmental assessment. However, according to the proponent, economic benefits should be felt by First Nations and the general population. The proponent has also made commitments regarding the economic benefits of the project to respond to the concerns of the First Nations, such as setting up invitations to participate in follow-up programs. Faced with a project of this scale, the MELCC suggests that the proponent innovate by developing, in partnership with local communities, an observatory of the effects and benefits of its project.
Current Use of Lands and Resources for	Concerns about the effects on migratory fish species on community fisheries lived experience and intergenerational transmission. Concerns related to the reduction of territories for hunting and access to wildlife resources, access (privatization of land along the banks), effects on the quality of the experience (related	The proponent believes that the significance of the effect on Indigenous fisheries and species of interest would be negligible. The proponent also considers that the effect on the use of lands and resources for traditional purposes would be negligible. Some species and habitats would be	The Agency is of the view that the project could modify alter the conditions of traditional practices as well as all activities and customs related to migratory bird hunting and fishing for yellow perch, walleye, bass, sturgeon and pike.



Traditional Purposes	to the increase in maritime traffic), as well as the erosion of beaches - disappearance of places where fishing is practised or where knowledge is transmitted. The Ndakina office is particularly interested in the issue of yellow perch, especially in Lake Saint-Pierre. The Ndakina office reports that its members also hunt migratory birds such as geese, ducks (especially black and wood ducks) and white-fronted geese on the tidal flats of the river and its islands.	affected by construction activities in the project area, but the project would not have direct effects on the use of lands and resources by Indigenous peoples. The proponent indicates that the project would not cause any impediment to recreational boating on the St. Lawrence River.	The Agency is of the opinion that the key mitigation and follow-up measures identified in section 5.3.2 could mitigate the potential effects on fish and fish habitat and thus reduce the effect on Indigenous fisheries. The Agency also considers that the key mitigation measures presented in sections 5.2.2 (wetlands), 5.4.2 (birds and their habitat) and 5.5.2 (other species with special status) make it possible to reduce the effects on components valued by First Nations and mitigate the repercussions on the use of the territory by Indigenous peoples. A follow-up program on First Nations' traditional fishing and hunting activities (and any other complementary activities) is recommended in section 5.8.2 of this report. Annual meetings between the First Nations and the proponent would allow the proponent to present an annual report on port operations at the site and allow each stakeholder to discuss issues of concern.
Physical and Cultural Heritage	The GCNWA is concerned about the protection of archaeological heritage, and the potential loss of heritage. The GCNMA has expressed great interest in the archaeological work that the proponent plans to carry out prior to construction, the discoveries that could be made, as well as the management of artifacts that could result.	The proponent has mandated the Grand Conseil de la Nation Waban-Aki to conduct a study in 2018 on the use and occupation of the territory by First Nations (SNC-Lavalin, April 2019). Since the First Nations will be involved in the archaeological work, the proponent considers that there would be no adverse effects. Akeos and the Grand Conseil de la Nation Waban-Aki have each prepared a report. The proponent proposes several mitigation measures in order to avoid adverse and irreversible effects on the archaeological heritage. These measures are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a compilation of measures and commitments provided by the proponent and	The Agency has identified the main mitigation measures likely to reduce the potential effects on cultural heritage in section 5.9, including participation in and sharing the results of archaeological digs. The MELCC notes that the artifacts found in a water environment must be handed over to the Government of Quebec pursuant to section 75 of the <i>Cultural Heritage Act</i>.



		published on the Canadian Impact Assessment Registry (Document No. 145).	
Cumulative Effects	The GCNWA is concerned about the effect of the project on the increase in maritime traffic in the Lake Saint-Pierre sector and more generally on the cumulative effects of maritime transport caused by the various port projects: erosion caused by ship wakes, effects on ecosystems, uses, erosion and disappearance of important sites, access to the river, invasive exotic species. The Ndakina Office believes that Transport Canada's study of the Ocean Protection Plan on the cumulative effects of marine transportation on the St. Lawrence River will eventually provide valuable information, but that this plan is too focused on marine navigation and does not take a more global or ecosystemic approach to all activities and their effects on the St-Lawrence River. An eventual regional assessment of cumulative effects on the St. Lawrence River ecosystems would fill important gaps.	In order to mitigate erosion caused by ship-generated waves, the proponent proposes to reduce ship speeds in the Montreal-Sorel sector, which totals some 30 km. During construction, the proponent would meet with the Council on a semi-annual basis to follow up on the effects of the project and hear their concerns. During the operation phase, the proponent would meet with the Council on an annual basis. These meetings would be an opportunity for the proponent to present an annual review of port activities at the site, but also to discuss issues of concern to Indigenous peoples. The proponent is participating in Transport Canada's ongoing cumulative effects assessment. The proponent indicates that it will work with governments on regional strategic studies that could be conducted in relation to the cumulative effects of marine infrastructure projects.	Transport Canada is currently conducting an assessment of the cumulative effects of marine transportation on the St. Lawrence River and is expected to table its preliminary report in the spring of 2021. The Agency is currently reviewing the MCK's request for a regional assessment, which was supported by the GCNWA and the Huron-Wendat Nation. The Minister of Environment and Climate Change (the Minister) has determined that a regional assessment has potential benefits at various levels. In order to deepen the analysis and to help define the nature, scope, objectives and results of such a study, the Agency will, in the coming months, launch an consultation process with federal and provincial authorities, interested First Nations and non-governmental organizations. The results of this process, which must be shared with the Minister no later than the spring of 2021, will enable him to make a final decision on the conduct of a regional study. This study will not, however, be carried out before the completion of the environmental assessment of the project.
Aboriginal and Treaty Rights	Accoding to the GCNWA, the integration of the rights impact assessment methodology was done late in the environmental assessment process: the application of the proposed methodology requires that information needs to be planned in collaboration with the concerned communities before the Environmental Impact Statement guidelines are published.	To respond to the GCNWA's concerns, the proponent has put in place mitigation measures to minimize the impact of the project in relation to the practice of community rights.	The Agency presented the new Rights Impact Assessment methodology to the Grand Conseil de la Nation Waban-Aki in March 2019. The Agency notes the GCNWA's comments on the reservations of the GCNWA regarding the use of the rights impact assessment methodology in Chapter 7 of this report. The Agency has incorporated, in the rights impact analysis in Section 7 of this report, the information shared by the GCNWA regarding their rights and historical presence in the study area.



Huron-Wendat Nation (NHW)			
Transboundary Environmental Effects - Greenhouse Gas Emissions (GHG)	The community expressed concerns about the increase in GHGs in relation to the increased ship traffic. The Huron-Wendat Nation emphasizes that the proponent should act as a leader in the reduction of GHG emissions and propose reduction targets accordingly.	The proponent notes that the majority of GHG emissions in the operation phase would not be directly related to terminal operations (buildings and handling equipment), but rather to emissions from transport trucks, ships and locomotives in the expanded study area (SNC Lavalin, April 2019). The proponent proposes to monitor GHG emissions during the construction and operation phases and to produce an annual report that would serve as a tool for setting emission reduction targets or emission intensities for various activities. It also proposes to make available shore power for ships.	The Agency considers that the volume of greenhouse gas emissions estimated for the project would be low compared to provincial and national emission levels. ECCC and MELCC are of the opinion that the various measures proposed by the proponent are adequate and sufficient to reduce the effects of the project on GHG emissions.
Wetlands	The Huron-Wendat Nation mentions that the loss of natural habitat, regardless of its size, is significant and should not be minimized. It stressed that a wetland restoration program should be considered because of the anticipated effects on herpetofauna. Finally, it considers that monitoring of residual wetlands over a three year period is not sufficient and should be carried out over a 20-year period (evaluated every three years) (Nionwentsio Office, 2018). The presence of special-status plant species is also of concern to the Huron-Wendat Nation. These include: the ginger asaret (<i>Asarum canadense</i>), the ostrich fern <i>Matteuccia</i> (<i>Matteuccia struthiopteris</i>) as well as the bloodroot (<i>Sanguinaria canadensis</i>) (Nionwentsio Office, 2018).	The proponent is developing a compensation plan for the loss of wetlands in consultation with First Nations. This plan would include compensation for the loss of wetlands ecological functions and the double the areas destroyed would be compensated (SNC-Lavalin, August 2019). This includes a follow-up program for the areas dedicated to compensation in order to ensure that the desired ecological functions are maintained, that the compensated area remains stable and that the wetlands are not altered by external disturbances (SNC-Lavalin, August 2019).	The Agency is of the view that the project is not likely to cause significant adverse environmental effects on wetlands, given the application of the mitigation (including the compensation plan) and follow-up measures recommended in section 5.2.2, as well as the proponent's proposal to use the "avoid-minimize-compensate" sequence when carrying out its project. The Agency recommends that a compensation plan and a follow-up program should be developed prior to construction and in consultation with First Nations, ECCC and MELCC. The wetland compensation plan must be consistent with the <i>Federal Policy on Wetland Conservation</i> and must enhance or create wetland functions. The follow-up program would verify the accuracy of the environmental assessment and judge the effectiveness of mitigation measures related to the environmental effects of the project on wetlands. The follow-up program is presented in section 5.2 of this report.



Fish and Their Habitat	The First Nation shared many concerns about the potential effects of the project on copper-red horse, American eel, lake sturgeon, walleye, bass, brochet, striped bass, brill, pike, brook trout and Atlantic salmon. The Huron-Wendat Nation considers that the loss of aquatic grass beds, an essential habitat for the copper red horse, constitutes the most significant effect of the project and should be fully compensated. According to the Nionwentsio Office, the copper redhorse is a symbolic species for the Nation and the loss of habitat should be fully compensated by the proponent, even more than double the area, and be included in a condition. Special attention should be paid to the monitoring of these compensated habitats by the proponent, in order to ensure their effectiveness, use and sustainability (Nionwentsio Office, 2018).	According to the proponent, effects are not anticipated on eel, yellow perch and sturgeon, which are species of particular concern to First Nations. The proponent considers involving First Nations in additional inventories, if required, and follow-up programs related to fish and fish habitat. They will also have the opportunity to contact the proponent at any time to obtain information or to report a concern. There would also be meetings between the proponent and the First Nations twice a year during construction and once a year during the operation phase to keep them informed of the work and discuss concerns. The proponent submitted a compensation plan to offset the effects of the destruction and modification of fish habitats and a plan to compensate for the loss of feeding habitat for copper redhorse adults (aquatic grass beds).	According to Fisheries and Oceans Canada, the project would cause habitat losses for several fish species, including copper red horse, northern pike, walleye, sauger, smallmouth bass, largemouth bass and yellow perch. The Agency recommends that the proponent develop and implement a plan to compensate for the loss and alteration of fish habitat and a plan to compensate for the loss of aquatic grass beds (double the area lost) for the copper redhorse. The Agency recommends the development and implementation of several follow-up programs (aquatic grass beds, fish, erosion, effluent and stream water quality) for which the First Nations will be consulted. Follow-up requirements on the compensation plan for the loss of aquatic grass beds will be determined under the <i>Species at Risk Act</i> by Fisheries and Oceans Canada during a subsequent review phase. Taking into account the mitigation, compensation and follow-up measures, the Agency is of the opinion that the residual effects of the project on fish and fish habitat would be moderate.
Birds and Their Habitat	The community's concerns are related to the practice of hunting migratory birds on the banks of the St-Lawrence River.	The proponent believes that the effects on migratory birds and migratory bird hunting would be felt locally. The effects likely to affect birds would be related to the loss, deterioration or fragmentation of their habitat, the destruction of nests and colonies, disturbance by noise, vibrations and increased marine traffic, as well as by-catch resulting from collision with infrastructure or vehicles (SNC-Lavalin, April 2019). The proponent proposes to implement, in all phases of the project, measures to mitigate the effects of light, noise and vibration generated by the project.	Based on the application of the mitigation and follow-up measures identified in section 5.4, the Agency is of the view that the project is not likely to cause significant adverse environmental effects on birds and their habitat. However, according to the Agency, the project could modify the conditions of traditional practices related to the hunting of migratory birds.



	The Nation questions the compensation measures proposed for least bittern. It considers pertinent that compensation for the loss of habitat for shorebirds be carried out prior to the start of construction and that a follow-up specific to these species be carried out. In order to compensate for the loss of forest habitats, particularly for the Eastern Wood-Pewee and Wood Thrush, the Nation would like the proponent to get involved in projects to protect nearby terrestrial habitat.	According to inventories conducted by the proponent and references from other sources, the least bittern has been observed outside and to the east of the project area and the project would not encroach on the potential habitat of the species, which would be located outside and near the eastern limit of the Montreal Port Authority's territory. The proponent is proposing a compensation plan to offset habitat loss in the îles de Verchères Aquatic Bird Concentration Area and plans to monitor waterfowl use of this protected area during the construction phase. According to the proponent, deforestation could cause the loss of wooded areas suitable for nesting eastern wood-pewee and wood thrush. Deforestation would also contribute to the fragmentation of forests and promote predation by the brown-headed cowbird on wood thrush nests nesting near forest edges (SNC-Lavalin, April 2019). The proponent undertakes to plant two trees for every tree cut (SNC-Lavalin, April 2019) and will develop a reforestation program to this effect that will include monitoring of the plantations (SNC-Lavalin, September 2017).	Although the plan proposed by the proponent to mitigate habitat loss in the îles de Verchères Aquatic Bird Concentration Area is summary, the Agency considers that the proposed replacement habitat on the Boucherville Islands is a relevant avenue that should be explored further. The Agency believes that the proponent's commitment to plant two trees for each tree cut would reduce the effects of habitat loss for birds due to the fragmentation of their habitat and the increase in predation that would be caused by deforestation. To mitigate these effects, however, the proponent would have to carry out a proportion of the plantings close to the lost suitable habitat, but outside of areas likely to be deforested as part of potential development projects in the region.
Other Special Status Species and Their Habitat	The Huron-Wendat Nation mentions that endangered species must be studied throughout the regional study area. The Council is concerned about the effects of the project on the Canada asaret, the ostrich fern mattheworm and the Canada bloodhound (Nionwentsyo Office, 2018). It considers that special attention should be paid to these floral species and that habitat protection or restoration should be carried out by the proponent.	According to the proponent, the Canada saury has not been identified in the Project Area and would therefore be unlikely to be affected by the Project. The proponent's inventories show that at least six colonies of ostrich fern matteuccia and two colonies of Canada bloodwort that would be affected by the construction and operation phases. Pre-construction transplanting would take place for the ostrich fern and bloodroot colonies identified to an unaffected area south of the railway tracks.	First Nations would be consulted as part of the follow-up program in section 5.5. Since deforestation, removal of vegetation and circulation of machinery in the project area could affect the colonies of ostrich fern and bloodroot, the Agency is of the view that the project could cause adverse effects on them. However, the proponent proposes to transplant the colonies in a suitable environment. The Agency considers this measure sufficient and recommends that transplants take place in an area unaffected by the project south of the CN rail line and away from wetlands and critical habitat for the western chorus frog.



	The NHW is concerned about the proximity of the project to the habitat and the status of the western chorus frog. The Huron-Wendat Nation requested that the proponent refine its inventories on the western chorus frog to ensure that there would be no effect.	According to the proponent's information, no encroachment into the critical habitat and residence of the western chorus frog is anticipated in the project (SNC-Lavalin, April 2019). Nevertheless, during the construction and operation phases, the proponent believes that an increase in the frog's mortality rate would be possible, but marginal, due to the risk of collisions with vehicles on Montée Lapierre (SNC-Lavalin, August 2019). The proponent proposes the installation of a deviation fence along Montée Lapierre and route 132 to to avoid potential fatalities (SNC-Lavalin, August 2020b).	The Agency notes that the proponent made several modifications to its project to avoid adverse effects on this species and encroachment on its habitat and residence. Also, several mitigation measures would be implemented by the proponent during the construction and operation phases. These include, in particular, the installation of a deviation fence, and measures to maintain water levels at breeding sites and to maintain links between these sites on the territory of the Montreal Port Authority. The Agency also recommends the development and implementation of a follow-up program (hydroperiod and water quality at the breeding sites, presence of the western chorus frog, breeding activities, habitat quality) for which the First Nations will be consulted.
Socio-Economic Conditions	Traditionally, the Huron-Wendat Nation used the St-Lawrence river for commercial or diplomatic purposes and its rights would be protected by the Huron-British Treaty of 1760. Concerns regarding the continued exercise of these rights have been raised by NHW, which wishes to receive calls for tenders for construction work.	The proponent says that once the project is accepted, he would convene an initial meeting with the First Nations on: future labour needs; services and skills (businesses and labour) of each of the First Nations; training needs and actions to be implemented to encourage training (SNC-Lavalin, April 2019). The proponent plans to: inform the First Nations directly about the tendering process and implement a system to monitor economic benefits for First Nations. In addition, they will be able to contact the proponent at any time to obtain information or to report a concern related to this component (SNC-Lavalin, April 2019).	The Agency considers that the proponent has adequately identified and documented the effects of its project on the socio-economic conditions of First Nations, including recreation and tourism, wildlife activities and economic activities. The concerns raised by the community regarding the calls for tenders are outside the scope of the environmental assessment, however, the proponent has made commitments regarding the economic benefits of the project to address the concerns of the First Nations, such as inviting them to participate in follow-up programs. Faced with a project of this scale, Quebec's Ministère de l'Environnement et de la Lutte contre les Changements Climatiques suggests that the proponent innovate by developing, in partnership with local communities, an observatory of the effects and benefits of its project.
Current Use of Lands and Resources for	Members of the NHW fish in the vicinity of Lake St. Pierre and the islands of Sorel and states that they are concerned about the availability of culturally important species such as American eel and lake sturgeon. .	The proponent believes that the significance of the effect on Indigenous fisheries and species of interest would be negligible.	The Agency is of the view that the project could modify the conditions of traditional practices linked to duck and deer hunting as well as the activities and customs related to fishing for American eel,



Traditional Purposes	Concerns that the project may affect the species fished: yellow perch, walleye, bass, sturgeon and pike. Access to the St. Lawrence River has also considerably diminished for the Nation's members, notably due to the conversion of public land into private or tourist land, augmentation of maritime traffic or due to erosion. The possibility of continuing the practice of its hunting and fishing rights is a source of great concern for the Nation. Some members of the Huron-Wendat Nation hunt migratory birds such as waterfowl, but also deer in the Sorel Islands and around Lake Saint-Pierre. The Nation is concerned that the project will affect valued species such as waterfowl.	The proponent also believes that the residual effects would be negligible on the use of lands and resources for traditional purposes. Some species and habitats would be affected by construction activities in the project area, but the project would not have direct effects on the use of lands and resources by Indigenous Peoples. The proponent indicates that the project would not interfere with recreational boating on the St. Lawrence River. According to the proponent, there would be no hindrance to waterfowl hunting on the islands of Contrecoeur or Sorel, and there would be no additional hindrance to navigation on the St. Lawrence River. The proponent believes that the effects on migratory birds and on the hunting of migratory birds would be felt locally. The main mitigation measures include the involvement of First Nations in the environmental follow-up programs and the presentation of the results of the follow-ups carried out during the annual meetings.	sturgeon, walleye and bass for the Huron-Wendat Nation. The Agency is of the opinion that the key mitigation and follow-up measures identified in section 5.3.2 could mitigate the potential effects on fish and fish habitat and thus reduce the effect on Indigenous fisheries. The Agency also considers that the key mitigation measures presented in sections 5.2.2 (wetlands), 5.4.2 (birds and their habitat) and 5.5.2 (other species with special status) make it possible to reduce the effects on components valued by First Nations and mitigate the repercussions on the use of the territory by Indigenous peoples. A follow-up program on First Nations' traditional fishing and hunting activities (and any other complementary activities) is recommended in section 5.8.2 of this report. Annual meetings between the First Nations and the proponent would allow the proponent to present an annual report on port operations at the site and allow each stakeholder to discuss issues of concern to them.
Physical and Cultural Heritage	The NHW wants to be involved in any work specifically related to the evaluation of archaeological heritage. The community says that these conclusions of the Grand Conseil de la Nation Waban-Aki diverge from their conclusions, in terms of history and archaeological aspects. The Nionwentsyo Office indicates that the Huron-Wendat Nation should be closely involved in the archaeological process, including the choice of the firm, the sampling plan, the sampling methods, the	The proponent has mandated the Huron-Wendat Nation to comment on the archaeological study produced by the Grand Conseil de la Nation Waban-Aki (2018). Since the First Nations would be involved in the archaeological work, the proponent considers that there would be no adverse effects. The proponent proposes several mitigation measures in order to avoid adverse and irreversible effects on the archaeological heritage. These measures are specified in the Environmental Impact Statement documents produced by the proponent, as well as in a	The Agency has identified the main mitigation measures likely to reduce the potential effects on cultural heritage in section 5.9, including participating in and access to the results of archaeological digs. The MELCC notes that the artifacts found in a water environment must be handed over to the Government of Quebec pursuant to section 75 of the <i>Cultural Heritage Act</i>.



	excavations, the analysis of artifacts and their conservation.	compilation of measures and commitments provided by the proponent and published on the Canadian Impact Assessment Registry (Document No. 145).	
Cumulative Environmental Effects	The Council of the Huron-Wendat Nation affirms that cumulative effects must be duly considered and the cumulative effect that most concerns the Huron-Wendat Nation is related to the cumulative loss of fish habitat. Furthermore, the Council points out that several projects are not assessed by the Agency, but contribute to cumulative effects in the St. Lawrence River. The Huron-Wendat Nation has questions about how cumulative effects are being addressed. It expresses the wish that a body adopt a more regional perspective of projects and take into account the Indigenous perspective in this framework.	During construction, the proponent would meet with the Council on a semi-annual basis to follow up on the effects of the project and hear their concerns. During the operation phase, the proponent would meet with the Council on an annual basis. These meetings would be an opportunity for the proponent to present an annual review of port activities at the site, but also to discuss issues of concern to Indigenous groups, including environmental protection and applicable environmental follow-ups.	The scope of the environmental assessment of the project is specified in section 1.3.2 of the report. With respect to the assessment of cumulative effects, the Agency relies on the information gathered by the proponent regarding the effects of the project in combination with the effects of other past, present and reasonably foreseeable projects and the appropriate geographic and temporal boundaries used by the proponent (section 6.3.1 of the report). The analysis of cumulative effects on the copper redhorse (including its habitat) is presented in section 6.3.3 of the report. Transport Canada is currently conducting an assessment of the cumulative effects of marine transportation on the St. Lawrence River and should submit its preliminary report in the spring of 2021. The Agency is currently reviewing the MCK's request for a regional assessment.
	The Council regrets that Transport Canada's Oceans Protection Plan (OPP) does not include the fluvial section of the St. Lawrence River in its extent, and is limited to the marine section. It maintains that this is not representative of the most significant cumulative effects of marine terminal projects that will be felt in the fluvial section of the river as a result of the various projects currently under study. The Council of the Huron-Wendat Nation and the Grand Conseil de la Nation Waban-Aki supported the request	This concern is outside the extent of the environmental assessment for the proponent. The proponent indicates that it will work with governments on regional strategic studies that could be conducted in relation to the cumulative effects of marine infrastructure projects.	Transport Canada is currently conducting an assessment of the cumulative effects of marine transportation on the St. Lawrence River and is expected to table its preliminary report in the spring of 2021. The Agency is currently reviewing the MCK's request for a regional assessment (supported by the GCNWA and the Huron-Wendat Nation). The Minister of the Environment and Climate Change (the Minister) has determined that such a regional assessment has potential benefits at various levels. In order to deepen the analysis and to help define



	for a regional study submitted by the Mohawk Council of Kahnawà:ke to the Minister in July 2020.		the nature, scope, objectives and results of such a study, the Agency will, over the next few months, launch an engagement process with federal and provincial authorities, other interested First Nations and non-governmental organizations. The results of this process must be shared with the Minister no later than the spring of 2021, so that a final decision on the conduct of a regional study can be made. However, this study will not be completed before the end of this environmental assessment.
Aboriginal and Treaty Rights	For its part, the Council of the Huron-Wendat Nation wishes to ensure that the decisions made concerning the project respect the rights, activities, interests and customary laws of the Huron-Wendat Nation.	The proponent wishes to develop and maintain an open dialogue where these issues could be addressed if necessary and would put in place measures in collaboration with the Huron-Wendat to ensure a particular follow-up to maintain dialogue with Indigenous Peoples throughout the life of the project.	The Agency has incorporated, in the rights impact analysis in Section 7 of this report, the information shared by NHW regarding their rights.