Canadian Environmental Assessment Agency | Agence canadienne d'évaluation environnementale

GUIDELINES FOR THE PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT

pursuant to the

Canadian Environmental Assessment Act, 2012

Contrecoeur Port Terminal Expansion Project

Montreal Port Authority

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Canada

TABLE OF CONTENTS

DISCLAIMER

This document is not a legal authority, nor does it provide legal advice or direction; it provides information only, and must not be used as a substitute for the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) or its regulations. In the event of a discrepancy, CEAA 2012 and its regulations prevail. Portions of CEAA 2012 have been paraphrased in this document, but will not be relied upon for legal purposes.

Abbreviations and Short Forms

CEAA 2012	*Canadian Environmental Assessment Act*, *2012*
Agency	Canadian Environmental Assessment Agency

Part 1 - Key Considerations

1. INTRODUCTION

The purpose of this document is to identify for the proponent the information requirements for the preparation of an Environmental Impact Statement for a designated project[1] to be assessed pursuant to the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). This document specifies the nature, scope and extent of the information required. Part 1 of this document defines the scope of the environmental assessment and provides guidance and general instruction on the preparation of the Environmental Impact Statement. Part 2 outlines the information that must be included in the Environmental Impact Statement.

CEAA 2012 requires an assessment of the potential effects of a proposed project as identified in section 5 of CEAA 2012 in areas of federal jurisdiction. The Canadian Environmental Assessment Agency (the Agency) will use the proponent's environmental impact statement and other information received during the environmental assessment process to prepare an environmental assessment Report that will inform the issuance of a decision statement by the Minister of Environment and Climate Change. Therefore the environmental impact statement must include a full description of the changes the project will cause to the environment that may result in adverse effects on areas of federal jurisdiction (i.e. section 5 of CEAA 2012) including changes that are directly linked or necessarily incidental to any federal decisions that would permit the project to be carried out. It is the responsibility of the proponent to provide sufficient data and analysis on potential changes to the environment to ensure a thorough evaluation of the environmental effects of the project by the Agency.

The environmental assessment highlights the key issues associated with the project. It is important that it shows the evolution of the identified issues throughout the analysis based on the choice of alternatives and the mitigation measures put in place

2. GUIDING PRINCIPLES

2.1. Environmental Assessment as a Planning tool

An environmental assessment is a planning tool used to ensure that projects are considered in a careful and precautionary manner in order to avoid or mitigate possible environmental effects and to encourage decision makers to take actions that promote sustainable development (par. 4(1)(h) of CEAA 2012). The environmental impact statement must show that sustainable development objectives have been incorporated into the project. Sustainable development seeks to meet the needs of the present without compromising the ability of future generations to meet theirs. The three objectives of sustainable development are continued integrity of the environment, improvement of social equity, and improvement of economic efficiency. During planning and analysis of a project, the aim must be to balance these three objectives. The environmental impact statement must summarize the proponent's approach to sustainable development and explain how it has been incorporated into the project's design.

1 In this document, "project" has the same meaning as "designated project" as defined in CEAA 2012.

2.2. Public Participation

One of the purposes identified in CEAA 2012 is to ensure opportunities for meaningful public participation during an environmental assessment. CEAA 2012 requires that the Agency provides the public with an opportunity to participate in the environmental assessment and an opportunity to comment on the draft environmental assessment report. Meaningful public participation is best achieved when all parties have a clear understanding of the proposed project as early as possible in the review process. The proponent is required to provide current information about the project to the public and especially to the communities likely to be most affected by the project. He is encouraged to build on the capacity of individuals, groups and communities to assert their views and concerns about the project and invited to perform consultation activities at each step of the project's environmental assessment.

2.3. Aboriginal Engagement

A key objective of CEAA 2012 is to promote communication and cooperation with Aboriginal peoples which includes, First Nations, Inuit and Métis The proponent is expected to engage with Aboriginal groups that may be affected by the project, as early as possible in the project planning process. The proponent will provide Aboriginal groups with opportunities to learn about the project and its potential effects, make their concerns known about the project's potential effects and discuss measures to mitigate those effects. The proponent is strongly encouraged to work with Aboriginal groups in establishing an engagement approach. The proponent will make reasonable efforts to integrate traditional Aboriginal knowledge into the assessment of environmental impacts.

Information gathered through the environmental assessment process and associated engagement by the proponent with Aboriginal groups will be used to inform decisions under CEAA 2012. In providing information to the Agency, the proponent will respect any confidentiality commitments made to Aboriginal groups (see section 4.3.2 for further information on this subject). This information will also contribute to the Crown's understanding of any potential adverse impacts of the project on potential or established Aboriginal or Treaty rights and the effectiveness of measures proposed to avoid or minimise those impacts.

For more information on how Aboriginal traditional knowledge can aid in the preparation of the environmental impact statement, please refer to the Agency's reference guide entitled "*Considering Aboriginal traditional knowledge in environmental assessments conducted under the Canadian Environmental Assessment Act 2012*".

2.4. Application of the Precautionary Approach

In documenting the analyses included in the environmental impact statement, the proponent will demonstrate that all aspects of the project have been examined and planned in a careful and precautionary manner in order to avoid significant adverse environmental effects.

3. SCOPE OF THE ENVIRONMENTAL ASSESSMENT

3.1. Scope of the Project

On November 30, 2015, the Montreal Port Authority, the proponent of the Contrecoeur Port Terminal Expansion Project (the Project), submitted a description of the Project to the Agency. Based on this

description, the Agency has determined that an environmental assessment is required under CEAA 2012 and will include the construction, operation, decommissioning and abandonment of the following components:

- a new 675-m long sheet pile wharf with two berths;
- seven track rail marshalling yard of about 12,000 m in total length;
- intermodal rail yard with eight rail working lines with an average length of 1,000-m each;
- containers transshipment, storage and handling areas;
- truck control area;
- support facilities;
- rail and road access including the viaduct on Route 132;
- access channel, ship manoeuvring areas and mooring areas;
- emergency anchorage area;
- tugboats waiting area;
- dredging of the wharf construction area, the access channel, the ship manoeuvring areas and the mooring areas;
- sediment disposal site or sites from open-water or terrestrial dredging (if required);
- temporary wharf planned for dredging;
- other temporary structures required for project construction;
- aquatic and terrestrial backfilling, including a portion of wetland, for the construction of the wharf;
- wharf accessories, in particular handling and storage equipment;
- water supply system to supply ships with drinking water and for fire protection;
- electrical infrastructure required for port operations and to power ships;
- the petroleum products storage tanks intended for the operation of machinery, compressors, generators, trucks, locomotives, ships or other (if any);
- land and railway traffic lanes on the project site and transportation associated with it;
- Fossé Noir diversion;
- operations associated with the transshipment, storage and handling of containers;
- maritime traffic associated with the project and within the area of jurisdiction of the Montreal Port Authority, including approach and docking operations and use of tugboats;
- maintenance dredging, if required;
- waste, cargo residues and hazardous materials management;
- runoff and wastewater management;
- excavation waste and backfill management;
- scouring and site clearing of the construction zones and future operation areas;
- waste snow management.

3.2. Factors to be Considered

Scoping establishes the parameters of the environmental assessment and focuses the assessment on relevant issues and concerns. Part 2 of this document specifies the factors to be considered in this environmental assessment, including the factors listed in subsection 19(1) of CEAA 2012:

- environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other physical activities that have been or will be carried out;
- the significance of effects;
- comments from the public;
- mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project;
- the requirements of the follow-up program in respect of the project;
- the purpose of the project;
- alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternatives;
- any change to the project that may be caused by the environment;
- the results of any relevant regional study pursuant to CEAA 2012; and
- any other matter relevant to the Environmental Assessment that the Agency requires to be taken into account;

3.3. Scope of Factors

3.3.1. Changes to the Environment

Environmental effects occur as interactions between actions (the carrying out of the project or decisions made by the federal government in relation to the project) and receptors in the environment, and subsequently between components of the environment (e.g., change in water quality that may cause adverse effects on fish and fish habitat).

Under CEAA 2012, an examination of environmental effects that result from changes to the environment as a result of the project being carried out or as a result of the federal government exercising any power duty or function that would allow the project to be carried out must be considered in the environmental impact statement.

In scoping the potential changes to the environment that may occur, proponents should consider any potential changes in the physical environment such as changes to air quality, water quality and quantity, and physical disturbance of land that could be reasonably be expected to occur.

3.3.2. Valued components to be examined

Valued components refer to environmental biophysical or human features that may be impacted by a project. The value of a component not only relates to its role in the ecosystem, but also to the value

people place on it. For example, it may have been identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic importance.

The environmental impact statement will identify the valued components linked to section 5 of CEAA 2012, including the ones identified in section 6.3 (Part 2) that maybe affected by changes in the environment, as well as species at risk and their critical habitat as per the requirement outlined in section 79 of the *Species at Risk Act*. Section 5 of CEAA 2012 defines environmental effects as:

- a change that may be caused to fish and fish habitat, marine plant and migratory birds;
- a change that may be caused to the environment on federal lands, in another province or outside Canada;
- with respect to aboriginal peoples, an effect of any change caused to the environment on:
    - ✓ health and socio-economic conditions;
    - ✓ physical and cultural heritage;
    - ✓ the current use of lands and resources for traditional purposes;
    - ✓ any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.
- for projects requiring a federal authority to exercise a power or function under another Act of Parliament;
    - ✓ a change, other than the ones mentioned above, that may be caused to the environment and that is directly linked or necessarily incidental to the exercise of the federal power or function;
    - ✓ the effect of that change, other than the ones mentioned above, on:
        - health and socio-economic conditions;
        - physical and cultural heritage; and
        - any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

The final list of valued components to be presented in the environmental impact statement will be completed according to the evolution and design of the project and reflect the knowledge acquired on the environment through public consultation and Aboriginal engagement. The environmental impact statement will describe what methods were used to predict and assess the adverse environmental effects of the project on these components.

The valued components will be described in sufficient detail to allow the reviewer to understand their importance and to assess the potential for environmental effects arising from the project activities. The environmental impact statement will provide a rationale for selecting specific valued components and for excluding any valued components or information specified in these guidelines. Challenges may arise regarding particular exclusions, so it is important to document the information and the criteria used to make each determination. Examples of justification include primary data collection, computer modelling, literature references, public consultation, expert input or professional judgement. The environmental impact statement will identify those valued components, processes, and interactions that either were identified to be of concern during any workshops or meetings held by the proponent or that the proponent considers likely to be affected by the project. In doing so, the environmental

impact statement will indicate to whom these concerns are important and the reasons why, including environmental, Aboriginal, social, economic, recreational, and aesthetic considerations.

3.3.3. Spatial and Temporal Boundaries

The spatial and temporal boundaries used in the environmental assessment may vary depending on the valued component. The proponent is encouraged to consult with the Agency, federal and provincial government departments and agencies, local government and Aboriginal groups, and take into account public comments when defining the spatial boundaries used in the environmental impact statement.

The environmental impact statement will describe the spatial boundaries to be used in assessing the potential adverse environmental effects of the project and provide a rationale for each boundary. Spatial boundaries will be defined taking into account the appropriate scale and spatial extent of potential environmental effects, community and Aboriginal traditional knowledge, current land and resource use by Aboriginal groups, ecological, technical and social and cultural considerations.

The temporal boundaries of the environmental assessment will span all phases of the project determined to be within the scope of this environmental assessment as specified under section 3.1 above. Community and Aboriginal traditional knowledge should be factored in by the proponent to make decisions around temporal boundaries.

If the temporal boundaries do not span all phases of the project, the environmental impact statement will identify the boundaries used and provide a rationale.

4. PREPARATION AND PRESENTATION OF THE ENVIRONMENTAL IMPACT STATEMENT

4.1. Guidance

The proponent is encouraged to consult relevant Agency policy and guidance[2] on topics to be addressed in the environmental impact statement, and with the Agency during the planning and development of the environmental impact statement.

In its project planning and in the development of the environmental impact statement and technical support documentation, the proponent is also encouraged to consider ‘’*Environment and Climate Change Canada 2016 guidelines for the preparation of the environmental impact statement and useful references*’’ available at Environment and Climate Change Canada, as well as Health Canada’s document entitled ‘’*Useful Information for Environmental Assessments*[3]’’.

Submission of regulatory and technical information necessary for federal authorities to make their regulatory decisions during the conduct of the environmental assessment is at the discretion of the proponent. Although that information is not necessary for the environmental assessment decision, the proponent is encouraged to submit it concurrent with the environmental impact statement

[2] Visit the Canadian Environmental Assessment Agency website: www.ceaa-acee.gc.ca/default.asp?lang=En&n=F1F30EEF-1
[3] See the Health Canada website: http://publications.gc.ca/collections/collection_2015/sc-hc/H128-1-10-599-eng.pdf

4.2. Study Strategy and Methodology

The proponent is expected to respect the intent of these guidelines and to consider the effects that are likely to arise from the project (including situations not explicitly identified in these guidelines), the technically and economically feasible mitigation measures that will be applied, and the significance of any residual effects. Except where specified by the Agency, the proponent has the discretion to select the most appropriate methods to compile and present data, information and analysis in the environmental impact statement as long as they are justifiable, rigorous and replicable.

It is possible these guidelines may include matters which, in the judgement of the proponent, are not relevant or significant to the project. If such matters are omitted from the environmental impact statement, the proponent will clearly indicate it, and provide a justification so the Agency, federal authorities, Aboriginal groups, the public and any other interested party have an opportunity to comment on this decision. Where the Agency disagrees with the proponent's decision, it will require the proponent to provide the specified information.

The assessment will include the following general steps:

- identifying the activities and components of the project;
- predicting potential changes to the environment;
- predicting and evaluating the likely effects on identified valued components;
- identifying technically and economically feasible mitigation measures for any significant adverse environmental effects;
- determining any residual environmental effects; and
- determining the potential significance of any residual environmental effect following the implementation of mitigation measures.

For each valued component, the environmental impact statement will describe the methodology used to assess project-related effects. The environmental impact statement will document how scientific, engineering, traditional and local knowledge were used to reach conclusions. Assumptions will be clearly identified and justified. All data, models and studies will be documented such that the analyses are transparent and reproducible. All data collection methods will be specified. The uncertainty, reliability and sensitivity of models used to reach conclusions must be indicated.

The environmental impact statement will identify all significant gaps in knowledge and understanding related to key conclusions, and the steps to be taken by the proponent to address these gaps. Where the conclusions drawn from scientific, engineering and technical knowledge are inconsistent with the conclusions drawn from traditional knowledge, the environmental impact statement will contain a balanced presentation of the issues and a statement of the proponent's conclusions.

The environmental impact statement will include a description of the environment (both biophysical and human), including the components of the existing environment and environmental processes, their interrelations as well as the variability in these components, processes and interactions over time scales appropriate to the likely effects of the project. The description will be sufficiently detailed to characterize the environment before any disturbance to the environment due to the project and to identify, assess and determine the significance of the potential adverse environmental effects of the project. The information describing the existing environment may be provided in a stand-alone chapter of the environmental impact statement or may be integrated into clearly defined sections within the

effects assessment of each valued component. This analysis will include environmental conditions resulting from historical and present activities in the local and regional study area.

In describing and assessing effects to the physical and biological environment, the proponent will take an ecosystem approach that considers both scientific and traditional knowledge and perspectives regarding ecosystem health and integrity. The description of the large ecosystems can be based on the *Cadre écologique de référence du Québec*[4] and should include the geological, topographical, hydrological and climatic factors that affect the ecosystem, as well as the most important species that are part of the ecosystem and their life cycles (migration, feeding, reproduction and protection). The proponent must identify and justify the indicators and measures of ecosystem health and integrity used for the analysis and relate these to the identified valued components.

In describing and assessing effects related to Aboriginal peoples, the proponent will consider the use of both primary and secondary sources of information regarding baseline information, changes to the environment and the corresponding effect on health, socio-economics, physical and cultural heritage or current use of lands and resources for traditional purposes. Primary sources of information include traditional land use studies, information obtained directly from Aboriginal groups, socio-economic studies, heritage surveys or other relevant studies conducted specifically for the project and its environmental impact statement. Secondary sources of information include previously documented information on the area, not collected specifically for the purposes of the project, or desk-top or literature-based information. The proponent will provide Aboriginal groups the opportunity to review and provide comments on the information used for describing and assessing effects on Aboriginal peoples (further information on engaging with Aboriginal groups is provided in Part 2, Section 5 of this document). Where there are discrepancies in the views of the proponent and Aboriginal groups on the information to be used in the environmental impact statement, the environmental impact statement will document these discrepancies and the rationale for the proponent's selection of information.

If the baseline data have been extrapolated or otherwise processed to depict environmental conditions in the study areas, modelling methods and equations will be described and will include calculations of margins of error and other relevant statistical information, such as confidence intervals and possible sources of error.

The assessment of the effects of each of the project components and physical activities, in all phases, will be based on a comparison of the biophysical and human environments between the predicted future conditions with the project and the predicted future conditions without the project. In undertaking the environmental effects assessment, the proponent will use best available information and methods. All conclusions will be substantiated. Predictions will be based on clearly stated assumptions. The proponent will describe how each assumption has been tested. With respect to quantitative models and predictions, the environmental impact statement will document the assumptions that underlie the model, the quality of the data and the degree of certainty of the predictions obtained.

[4] See the Ministère du Développement durable, de l'Environnement et de la Lutte contre les Changements climatiques website : http://www.mddelcc.gouv.qc.ca/index_en.asp

4.3. Use of Information

4.3.1. Scientific Advice

Section 20 of CEAA 2012 requires that every federal authority with specialist or expert information or knowledge with respect to a project subject to an environmental assessment make that information or knowledge available to the Agency. The Agency will advise the proponent of the availability of any pertinent information or knowledge so that it can be incorporated into the environmental impact statement, along with, as appropriate, expert and specialist knowledge provided by other levels of government.

4.3.2. Community Knowledge and Aboriginal Traditional Knowledge

Sub-section 19(3) of CEAA 2012 states that "the environmental assessment of a designated project may take into account community knowledge and Aboriginal traditional knowledge". For the purposes of these guidelines, community knowledge and Aboriginal traditional knowledge refers to knowledge acquired and accumulated by a community or an Aboriginal community, through generations of living in close contact with nature.

The proponent will incorporate into the environmental impact statement the community and Aboriginal traditional knowledge to which it has access or that is acquired through Aboriginal and public engagement activities, in keeping with appropriate ethical standards and obligations of confidentiality. Agreement should be obtained from Aboriginal groups regarding the use, management and protection of their existing traditional knowledge information during and after the environmental assessment.

4.3.3. Existing Information

In preparing the environmental impact statement, the proponent is encouraged to make use of existing information relevant to the project. When relying on existing information to meet requirements of the environmental impact statement guidelines, the proponent will either include the information directly in the environmental impact statement or clearly direct the reader to where it may obtain the information (that is through cross-referencing). When relying on existing information, the proponent will also comment on how the data were applied to the project, separate factual lines of evidence from inference, and state any limitations on the inferences or conclusions that can be drawn from the existing information.

4.3.4. Confidential Information

In implementing CEAA 2012, the Agency is committed to promoting public participation in the environmental assessment of projects and providing access to the information on which environmental assessments are based. All documents prepared or submitted by the proponent or any other stakeholder in relation to the environmental assessment are included in the Canadian Environmental Assessment Registry and made available to the public on request. For this reason, the environmental impact statement will not contain information that:

- is sensitive or confidential (for example, financial, commercial, scientific, technical, personal, cultural or other nature), that is treated consistently as confidential, and the person affected has not consented to the disclosure; or,
- may cause harm to a person or harm to the environment through its disclosure.

The proponent will consult with the Agency regarding whether specific information requested by these guidelines should be treated as confidential.

4.4. Presentation and Organization of the Environmental Impact Statement

To facilitate the identification of the documents submitted and their placement in the Canadian Environmental Assessment Registry, the title page of the environmental impact statement and its related documents will contain the following information:

- project name and location;
- title of the document, including the term “environmental impact statement”;
- subtitle of the document;
- name of the proponent;
- the date.

The environmental impact statement will be written in clear, precise language. A glossary defining technical words, acronyms and abbreviations will be included. It will include charts, diagrams, tables, maps and photographs, where appropriate, to clarify the text. Perspective drawings that clearly convey the various components of the project will also be provided. Wherever possible, maps will be presented in common scales and datum to allow for comparison and overlay of mapped features.

For purposes of brevity and to avoid repetition, cross-referencing is preferred. The environmental impact statement may make reference to the information that has already been presented in other sections of the document, rather than repeating it. The exception to this preference is the cumulative effects assessment, which should be provided in a stand-alone section. Detailed studies (including all relevant and supporting data and methodologies) will be provided in separate appendices and will be referenced by appendix, section and page in the text of the main document. The environmental impact statement will explain how information is organized in the document. This will include a list of all tables, figures, and photographs referenced in the text. A complete list of supporting literature and references will also be provided. A table of concordance, which cross references the information presented in the environmental impact statement with the information requirements identified in the environmental impact statement Guidelines, will be provided. The proponent will provide copies of the environmental impact statement and its summary for distribution, including paper and electronic version in an unlocked, searchable PDF format, as directed by the Agency.

4.5. Summary of the Environmental Impact Statement

The proponent will prepare a summary of the environmental impact statement in both of Canada’s official languages (French and English) to be provided to the Agency at the same time as the environmental impact statement and which will include the following:

- a concise description of all key components of the project and related activities;
- a summary of the consultation conducted with Aboriginal groups, the public, and government agencies, including a summary of the issues raised and the proponent’s responses;
- an overview of expected changes to the environment;
- an overview of the key environmental effects of the project and proposed technically and economically feasible mitigation measures; and

- the proponent's conclusions on the residual environmental effects of the project after taking mitigation measures into account and the significance of those effects.

The summary is to be provided as a separate document and should be structured as follows:

1. Introduction and environmental assessment context
2. Project overview
3. Alternative means of carrying out the project
4. Public participation
5. Aboriginal engagement
6. Summary of environmental effects assessment for each valued components, including:
    a. description of the biophysical and human environments;
    b. anticipated changes to the environment;
    c. anticipated effects on valued components;
    d. mitigation measures;
    e. significance of residual effects.
7. Follow-up and monitoring programs proposed

The summary will have sufficient details for the reader to learn and understand the project, potential environmental effects, proposed mitigation measures, and the significance of the residual effects. The summary will include key maps illustrating the project location and key project components.

Part 2 – Content of the Environmental Impact Statement

1. INTRODUCTION AND OVERVIEW

1.1. The Proponent

In the environmental impact statement, the proponent will:

- provide contact information (that is name, address, phone, fax, email);
- identify itself and the name of the legal entity that would develop, manage and operate the project;
- describe corporate and management structures;
- specify the mechanism used to ensure that corporate policies will be implemented and respected for the project; and
- identify key personnel, contractors, and/or sub-contractors responsible for preparing the environmental impact statement.

1.2. Project Overview

The environmental impact statement will describe the project, key project components and associated activities, scheduling details, the timing of each phase of the project and other key features. If the project is a part of a larger sequence of projects, the environmental impact statement will outline the larger context.

The overview is to identify the key components of the project, rather than providing a detailed description, which will follow in Section 3 (part 2) of this document.

1.3. Project Location

The environmental impact statement will contain a description of the geographical setting in which the project will take place. This description will focus on those aspects of the project and its setting that are important in order to understand the potential environmental effects of the project. The following information will be included:

- the UTM coordinates of the main project site;
- current land use in the area;
- distance of the project facilities and components to any federal lands;
- the environmental significance and value of the geographical setting in which the project will take place and the surrounding area;
- environmentally sensitive areas, such as national, provincial and regional parks, ecological reserves, wetlands, national wildlife areas, habitats of federally and provincially listed species at risk and of special-status, and other sensitive areas;
- description of local and Aboriginal communities; and
- traditional Aboriginal territories, treaty lands, Indian reserve lands.

1.4. Regulatory Framework and the Role of Government

The environmental impact statement will identify:

- any federal power, duty or function that may be exercised that would permit the carrying out (in whole or in part) of the project or associated activities;
- the environmental and other regulatory approvals and legislation that are applicable to the project at the federal, provincial, regional and municipal levels;
- government policies, resource management, planning or study initiatives pertinent to the project and/or environmental assessment and their implications;
- whether a request will be or was made to Transport Canada's Marine Safety Directorate to undertake the TERMPOL review process[5];
- any treaty or self-government agreements with Aboriginal groups that are pertinent to the project and/or environmental assessment;
- any relevant land use plans, land zoning, or community plans; and
- regional, provincial and/or national objectives, standards or guidelines that have been used by the proponent to assist in the evaluation of any predicted environmental effects.

2. PROJECT JUSTIFICATION AND ALTERNATIVES MEANS OF CARRYING OUT THE PROJECT CONSIDERED

2.1. Purpose of the Project

The environmental impact statement will describe the purpose of the project by providing the rationale for the project, explaining the background, the problems or opportunities that the project is intended to satisfy as well as the stated objectives and the positive impacts of the project, from the perspective of the proponent. If the objectives of the project are related to or contribute to broader private or public sector policies, plans or programs, this information will also be included. The proponent shall show that the existing territory is not sufficient for carrying out the upcoming activities.

The description of the background and rationale for the project must clearly set out the environmental, social and economic issues on the local, regional, national and international scales.

This information will be considered in assessing the justifiability[6] of any significant adverse residual environmental effects, if such effects are identified.

2.2. Alternative Means of Carrying out the Project

The environmental impact statement will identify and consider the effects of alternative means of carrying out the project that are technically and economically feasible. The proponent will complete the following procedural steps for addressing alternative means:

- identify the alternative means to carry out the project including all the alternative sites considered;
- identify the effects of each technically and economically feasible alternative means;

[5] TERMPOL Code: "Code of Recommended Standards for the Safety and Prevention of Pollution for Marine Transportation Systems and Related Assessment Procedures"
[6] See subsection 52(2) of the *Canadian Environmental Assessment Act, 2012.*

- select the approach for the analysis of alternative means (i.e., identify a preferred means or bring forward alternative means);
- assess the environmental effects of the alternative means to determine the preferred means (lower-impact alternatives).

In its alternative means analysis, the proponent will address, at a minimum, the following project components:

- location of the wharf, the access channel and mooring areas;
- construction of berths: location, orientation, configuration and construction;
- containers transshipment, storage and handling areas;
- location of rail marshalling yard and the number and length of railways;
- location of the intermodal rail yard and the number and length of railways;
- rail and road access, including the viaduct on Route 132;
- land and railway traffic lanes at the project site;
- Fossé Noir diversion;
- dredging methods including temporary wharf planned for dredging;
- sediment management and location of disposal sites.

The proponent shall consider, without limiting itself thereto, the following criteria:

- dredging or backfilling must not be carried out in aquatic environments unless absolutely necessary, and it must be kept to a minimum in terms of surface area and volume, should it be required;
- show how encroachment has been minimized in both the aquatic and terrestrial environments;
- avoiding or minimizing habitat destruction in the aquatic environment or of wetlands. Compensation should be considered only as a last recourse;
- blasting in the aquatic environment should be limited to a minimum;
- the sedimentation rate must be kept to a minimum in order to reduce the frequency and scale of maintenance dredging;
- contaminated sediment management must comply with the *Criteria for Evaluating Sediment Quality in Quebec and Application Frameworks: Prevention, Dredging and Remediation*[7];
- in the analysis of management options of dredged sediment, preference must be given to beneficial use of dredged sediment (wildlife habitats, fertilizing waste substances, etc.);
- soil and sediment management in terrestrial environments, on non-federal lands, will take into account the Quebec's *Soil Protection and Contaminated Sites Rehabilitation Policy*[8], and within federal lands, the *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health*[9].

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[7] See the St-Lawrence Action Plan website: http://planstlaurent.qc.ca/fileadmin/publications/diverses/Qualite_criteres_sediments_e.pdf

[8] See the Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques web site : http://www.mddelcc.gouv.qc.ca/sol/terrains/politique-en/index.htm

[9] see the Canadian Council of Ministers of the Environment website: http://ceqg-rcqe.ccme.ca/en/index.html?

For further information regarding the "purpose of" and "alternative means", please consult the Agency's Operational Policy Statement entitled "*Addressing "Purpose of" and "Alternative Means" under the Canadian Environmental Assessment Act, 2012*".[10]

The Agency recognizes that projects may be in the early planning stages when the environmental impact statement is being prepared. Where proponents have not made final decisions concerning the placement of project infrastructure, the technologies to be used, or that several options may exist for various project components, they are strongly encouraged to conduct an environmental effects analysis at the same level of detail assessment of the various options available (alternative means) within the environmental impact statement and their effects on the environment.

3. PROJECT DESCRIPTION

3.1. Project Components

The environmental impact statement must describe the project by presenting all of the activities, facilities, structures, work and equipment planned during the different phases of the project, as well as the temporary, permanent and related works, facilities and infrastructure that will assist in understanding the environmental effects. This will include:

- all the proposed wharfs and all related infrastructure, including their surface area, size and location, as well as their orientation relative to existing terminal;
- ship manoeuvring areas, access channel, mooring areas and emergency anchorage area;
- rail marshalling yard and intermodal rail yard;
- land and railway traffic lanes at the project site;
- support facilities and truck control area;
- Fossé Noir diversion;
- rail and road access, including the viaduct on Route 132, and their surface area, size, location and orientation, as well as their relative distance to the wharf to be built;
- transshipment, storage and handling areas of containers, including service and electrical power supply infrastructure, work areas and equipment;
- the petroleum products storage tanks intended for the operation of machinery, compressors, generators, trucks, locomotives, ships or other (if any);
- permanent and temporary linear infrastructure (including conduits, power lines, etc.), indicating the route of the infrastructure concerned and their locations;
- water management structures;
- temporary structures required for project construction;
- permanent and temporary structures associated with dredging (including dredging management) as well as the temporary wharf, open-water or terrestrial disposal sites and dewatering basins (if

[10] See the Canadian Environmental Assessment Agency website: https://www.ceaa-acee.gc.ca/default.asp?lang=En&n=1B095C22-1

required) indicating the size, location, type, volume and the level of contamination of sediments to be stored, as the case may be;

- delimitation of the contaminated areas (sediments and soils) in terms of the levels of contamination;

The environmental impact statement shall include maps and bathymetric data of the project site and its alternatives, at an appropriate scale. The maps shall show the location of the sediment disposal sites, indicate the surface area (land and water) required for the project and identify the owners. The maps shall also show the boundaries of the proposed site including UTM coordinates, the major existing infrastructure, adjacent land uses and any important environmental features.

3.2. Project Activities

This will include descriptions of the activities to be carried out or potentially carried out during each phase (construction, operation, maintenance and decommissioning), the location of each activity, expected outputs and an indication of the activity's magnitude and scale.

Although a complete list of project activities should be provided, the emphasis will be on activities with the greatest potential to have environmental effects. Sufficient information will be included to predict environmental effects and address public concerns identified. Highlight activities that involve periods of increased environmental disturbance or the release of materials into the environment.

The environmental impact statement will include a summary of the changes that have been made to the project since originally proposed, including the benefits of these changes to the environment, Aboriginal peoples, and the public.

The environmental impact statement will include a schedule including time of year, frequency, and duration for all project activities.

The information will include, but not limited to, a description of:

- the activities involved in preparing the site for construction of the port terminal and the other project components: site clearing, scouring, excavation, blasting (if required), backfilling (area, volume, characteristics, origin and transport of materials, temporary storage), any required diversion of water flows, construction of outer retaining dikes or cofferdams, grading, drilling, densification, preloading, compaction of soil and temporary road construction;
- the construction methods used for the wharf (including backfilling, grading and soil compaction, riprap installation if necessary, as well as pile driving, and installation of sheet piles wall and ground anchors);
- construction methods and dimensions of mooring areas at the wharf and, if any, anchoring zones in the access channel and harbor water;
- dredging activities for the development of the port infrastructure (wharf, access channel, ship manoeuvring areas, and mooring areas), indicating the locations, depths, surface areas, volumes and nature of the sediments to be dredged (i.e. their physical and chemical characteristics[11], including the concentrations of the substances analyzed and their comparison with the quality

[11] The Agency recommends that the proponent submit the sediment sampling plan to Environment and Climate Change Canada.

criteria appropriate for the planned uses), dredging methods (for example, the equipment used, duration and frequency), management of anticipated dispersion plume of sediment that could be resuspended during dredging or open-water disposal (if applicable), mitigation measures to prevent sediment resuspension, sediment management plans (open-water or terrestrial disposal, including management of dewatering basins if required) and methods for transporting sediment to construction or disposal areas;

- activities associated to maritime traffic, including approach and docking operations, use of tugboats, icebreaking and the anticipated increase in traffic in the port attributable to the project in relation to the current maritime traffic within the area of jurisdiction of the Montreal Port Authority (including the number of ships, frequency, type, size, speed, tonnage and capacity of the ships), as well as the operating schedule of the port terminal;
- activities related to resupplying ships and locomotives;
- storage and management of fuels and chemical products (if any);
- operations related to the transshipment, storage and handling of containers, specifying in particular what type and quantity of containers that will be transshipped there;
- water management, specifying the infrastructure and recovery equipment, including the drainage and treatment of industrial water, storm water and wastewater (including runoff water from the site, management of ballast water and bilge water, management plans for invasive species) and infrastructure for drinking water supply, if any;
- road traffic, including activities related to road access, to the intermodal rail yard (truck loading and unloading) and to the truck control area, specifying the number, type, size and capacity of trucks, as well as the approximate arrival and departure times and the increase in traffic relative to the current traffic load;
- rail traffic and handling, including activities related to rail access, the rail marshalling yard and the intermodal rail yard, specifying the number, type, size and capacity of trains, as well as the approximate arrival and departure times and the increase in traffic relative to the current rail traffic;
- maintenance of the structures, infrastructure, facilities, equipment, wagons and locomotives, including maintenance dredging operations (surface area, volume and frequency based on the sediment budget for the water body, dredged sediment management and methods);
- waste, cargo residues and hazardous materials management;
- waste snow management.

4. PUBLIC PARTICIPATION AND CONCERNS

The environmental impact statement will describe the ongoing and proposed consultations of the proponent and the information sessions that he will hold or that it has already held on the project. It will provide a description of efforts made by the proponent to distribute project information and provide a description of information and materials that were distributed during the consultation process. The environmental impact statement will indicate the methods used, where the consultation was held, the persons and organizations consulted, the concerns voiced and the extent to which this information was incorporated in the design of the project as well as in the environmental impact statement. The environmental impact statement will provide a summary of key issues raised related to the environmental assessment as well as describe any outstanding issues and ways to address them.

5. ABORIGINAL ENGAGEMENT AND CONCERNS

For the purposes of developing the environmental impact statement, the proponent will engage with Aboriginal groups that may be affected by the project, to obtain their views on:

- effects of changes to the environment on Aboriginal peoples (health and socio-economic issues; physical and cultural heritage, including any structure, site or thing that is of historical, archaeological, paleontological or architectural significance; and current use of lands and resources for traditional purposes) in accordance with paragraph 5(1)c) of CEAA 2012; and
- potential adverse impacts of the project on potential or established Aboriginal or Treaty rights, title and related interests, in respect of the Crown's duty to consult, and where appropriate, accommodate Aboriginal peoples.

With respect to the above matters and in addition to information requirements outlined in Part 2, Sections 6.1.7 and 6.3.3, of these guidelines, the environmental impact statement will document:

- valued components suggested by Aboriginal groups for inclusion in the environmental impact statement, whether they were included, and the rationale for any exclusions;
- each group's potential or established rights (including geographical extent and their nature), including maps and data sets (for example, fish catch numbers) when this information is provided by a group to the proponent or available through public records;
- based on the proponent's perspective, the potential adverse impacts of each of the project components and physical activities, in all phases, on potential or established Aboriginal or Treaty rights. This assessment is to be based on a comparison of the exercise of the identified rights between the predicted future conditions with the project and the predicted future conditions without the project. Include the perspectives of Aboriginal groups where these were provided to the proponent by the groups;
- based on the proponent's perspective, the measures identified to mitigate or accommodate potential adverse impacts of the project on the potential or established Aboriginal or Treaty rights. These measures will be written as specific commitments that clearly describe how the proponent intends to implement them;
- based on the proponent's perspective, the effects of changes to the environment on Aboriginal peoples or potential adverse impacts on potential or established Aboriginal or Treaty rights that have not been fully mitigated or accommodated as part of the environmental assessment and associated engagement with Aboriginal groups, including the potential adverse effects that may result from the residual and cumulative environmental effects. Include the perspectives of Aboriginal groups where these were provided to the proponent by the groups;
- specific suggestions raised by Aboriginal groups for mitigating the effects of changes to the environment on Aboriginal peoples, or on potential or established Aboriginal or Treaty rights;
- views expressed by Aboriginal groups on the effectiveness of the mitigation or accommodation measures;
- from the proponent's perspective, any potential cultural, social and/or economic impacts or benefits to Aboriginal groups that may arise as a result of the project. Include the perspectives of Aboriginal groups where these were provided to the proponent by the groups;
- comments, specific issues and concerns raised by Aboriginal groups and how the key concerns were responded to or addressed;

- changes made to the project design and implementation directly as a result of discussions with Aboriginal groups or information obtained from them;
- where and how Aboriginal traditional knowledge was incorporated into the environmental effects assessment (including baseline conditions and effects analysis for all valued components) and the consideration of potential adverse impacts on potential or established Aboriginal or Treaty rights and related mitigation measures; and
- any additional issues and concerns raised by Aboriginal groups in relation to the environmental effects assessment and the potential adverse impacts of the project on potential or established Aboriginal and Treaty rights, title and related interests.

Information provided related to potential adverse impacts on potential or established Aboriginal or Treaty rights will be considered by the Crown in meeting its common law duty to consult obligations as set out in the *Aboriginal Consultations and Accommodation - Updated Guidelines for Federal Officials to Fulfill the Duty to Consult* (March 2011)[12].

5.1. Aboriginal Groups to Engage & Engagement Activities

With respect to engagement activities, the environmental impact statement will document:

- the engagement activities undertaken with Aboriginal groups prior to the submission of the environmental impact statement, including the date and means of engagement (for example, meeting, mail, telephone);
- any future planned engagement activities; and
- how engagement activities by the proponent allowed Aboriginal groups to understand the project and evaluate its effects on their communities, their use of lands and resources, their potential or established Aboriginal or Treaty rights and other interests.

In preparing the environmental impact statement, the proponent will ensure that Aboriginal groups have access to timely and relevant information on the project and how the project may adversely impact them. The proponent will structure its Aboriginal engagement activities to provide adequate time for Aboriginal groups to review and comment on the relevant information. Engagement activities are to be appropriate to the groups' needs and should be arranged through discussions with the groups. The environmental impact statement will describe all efforts, successful or not, taken to solicit the information required from Aboriginal groups to support the preparation of the environmental impact statement.

The proponent will ensure that views of Aboriginal groups are heard recorded. The proponent will keep detailed tracking records of its engagement activities, recording all interactions with Aboriginal groups, the issues raised by each Aboriginal group and how the proponent addressed the concerns raised. The proponent will share these records with the Agency.

The proponent should consider translating information for Aboriginal groups in English or into the appropriate Aboriginal language(s) in order to facilitate engagement activities during the environmental assessment.

[12] See the Indigenous and Northern Affairs Canada website: www.aadnc-aandc.gc.ca/eng/1100100014680/1100100014681

The proponent will hold meetings with the following potentially affected Aboriginal groups and facilitate these meetings by making key environmental assessment summary documents (baseline studies, environmental impact statement, key findings, plain language summaries) accessible:

- Mohawks of Kahnawake;
- Mohawks of Kanesatake;
- Mohawks of Akwesasne;
- Abénakis Odanak Nation;
- Abénakis Wôlinak Nation.

For the above groups, the proponent will ensure there are sufficient opportunities for individuals and groups to provide oral input in the language of their choice. The proponent will ensure that these Aboriginal groups' views are heard and recorded. The proponent will make a summary of key environmental assessment documents (draft/final environmental impact statement, key findings, plain language summaries) accessible to these Aboriginal groups and ensure their views are heard and recorded.

The groups referenced above may change as more is understood about the environmental effects of the project and/or if the project or its components change during the environmental assessment. The Agency reserves the right to alter the list of Aboriginal groups that the proponent will engage as additional information is gathered during the assessment.

Upon receipt of knowledge or information of potential effects to an Aboriginal group not listed above, the proponent shall provide that information to the Agency as soon as he knows.

6. EFFECTS ASSESSMENT

6.1. Project Setting and Baseline Conditions

Based on the scope of project described in section 3 (Part 1), the environmental impact statement will present baseline information in sufficient detail to enable the identification of how the project could affect the valued components and an analysis of those effects. Should other valued components be identified during the conduct of the environmental assessment, the baseline condition for these components will also be described in the environmental impact statement. To determine the appropriate spatial boundaries to describe the baseline information, refer to section 3.3.3 (Part 1). As a minimum, the environmental impact statement will include a description of:

6.1.1. Atmospheric environment

- ambient air quality at the project site and in the airshed likely to be affected by the project, including the following contaminants: total suspended particulates, fine particulates smaller than 2.5 microns ($PM_{2.5}$), particulates smaller than 10 microns (PM_{10}), carbon monoxide (CO), sulphur oxides (SOx), nitrogen oxides (NOx), greenhouse gases (GHGs), volatile organic compounds (VOC), polycyclic aromatic hydrocarbons (PAH) and all other potential air pollutants (mobile and stationary sources) including metals and non-metals;
- direct and indirect sources of air emissions;
- existing greenhouse gas emissions (GHG), in the project study area, by individual pollutant measured as kilotonnes of CO_2 equivalent per year;

- GHG emission allowances imposed by federal, provincial and territorial governments;
- current ambient noise levels at key receptor points (for example, local and Aboriginal communities, and seasonal dwelling), including the results of a baseline study on the ambient noise level and information on typical sound sources, geographic extent and day–night variations;
- existing ambient night-time light levels at the project site, including spill-over light, night-time glare from point light sources and skyglow, and in any other areas where project activities could have an effect on light levels; the environmental impact statement will describe night-time light levels during different seasons and weather conditions;
- multi-seasonal weather and climatic information, including historical data and baseline information on precipitation (rain and snow), mean, maximum and minimum temperatures, humidity, wind (duration, direction and strength), fog (frequency, duration) and extreme weather events.

6.1.2. Groundwater and Surface Water

- hydrogeological context (hydrostratigraphy, piezometry, aquifers and aquitards types, regime and velocity of flow, etc.);
- physical properties of the hydrogeological units (granulometry, hydraulic conductivity, transmissivity, saturated thickness, porosity, etc.);
- location and description of all groundwater monitoring wells in the study area, including the relevant and available data for these wells (drilling logs, stratigraphy, groundwater levels, hydraulic conductivity, screened geological unit, etc.);
- groundwater quality comparing it to federal guidelines and provincial criteria corresponding to the intended uses. Existing data should be complemented by groundwater characterization studies, if required;
- delineation and characterization of groundwater interactions with surface water, including locations of groundwater discharge to surface water;
- the hydrographic network of the watershed, watercourses and water bodies that may be affected by the project, along with the longitudinal profile and water levels (during peak flows, low flows and mean conditions) for segments of the watercourses directly affected by the project;
- the hydrological regime, including the watercourses mean annual flows, mean daily and monthly flows, low and flood flows;
- the physicochemical water quality of affected watercourses comparing it to federal guidelines and provincial criteria corresponding to the intended uses (especially the *Canadian Water Quality Guidelines for the Protection of Aquatic Life*). Existing data must be complemented by surface water characterization studies, if required;
- specifically for the Saint Lawrence river:
    - ✓ ice dynamics in the study area, including ice formation and thickness, ridging, icebreaking, and movement of ice;
    - ✓ ice conditions along the shipping routes must also be discussed with consideration of predicted climate change and its possible effects on the timing of ice formation in the future;

- ✓ detailed bathymetry (wharf area, access channel and mooring areas) and hydraulic conditions, including surface and bottom current profiles and speed of currents and waves;
- ✓ the sedimentologic regime, including areas that are input sources (erosion), sediment transport and accumulation zones, particularly in dredging and backfilling working areas and around potential open-water sediment disposal sites;
- ✓ where the structures will be built, the characterization of bottom sediments, including their nature, thickness, size and mobility;
- ✓ recent physicochemical characterization of sediments to be dredged and their toxicity, if applicable, using toxicity tests[13], comparing them to *the Criteria for Evaluating Sediment Quality in Quebec and Application Frameworks: Prevention, Dredging and Remediation*;
- ✓ recent physicochemical characterization of sediments at open-water disposal sites[14], comparing them to the *Criteria for Evaluating Sediment Quality in Quebec and Application Frameworks: Prevention, Dredging and Remediation*.

6.1.3. Riparian, Wetland and Terrestrial Environments

- topography, drainage, nature of the soils and surficial deposits, and erosion- and landslide-prone areas;
- geological hazards that exist in the area planned for the project facilities and infrastructure, including:
  - ✓ seismic risk parameters;
  - ✓ landslides, slope erosion and the potential for soil and rock instability, and subsidence during and following project activities;
  - ✓ risks of underwater landslides.
- the nature and depth of the bedrock;
- physicochemical characterization of soils in the excavation area, in terrestrial, wetland and riparian environments, with a description of past uses;
- topography, drainage, geology, hydrogeology and the physicochemical characteristics of potential on-land sediment or soil disposal sites, with the exception of sites already authorized by the Quebec government;
- description of the shoreline, banks and current and future flood risk areas, as well as the characterization of wetlands (fens, marshes, peatlands, mudflats and eelgrass beds, etc.), including the location and extent of wetlands likely to be affected by project activities using a recognized methodology[15][16] according to their size, type (wetland class and form), the description

[13] Environment Canada (2002), *Sediment Sampling Guide for Dredging and Marine Engineering Projects on the St. Lawrence* River, Volume 1 and 2. It is necessary that the physico-chemical characterization of the sediments be specific to the project context. The Agency suggests that the proponent consults Environment and Climate Change Canada on the sampling plan and sediment analysis strategy.

[14] Idem

[15] National Wetlands Working Group (1997). *The Canadian Wetland Classification System*. See the website : http://www.env.gov.yk.ca/animals-habitat/documents/canadian_wetland_classification_system.pdf

of their functions (ecological, hydrological, wildlife habitat, socio-economic, etc.) and species composition;

- plant and animal species (abundance, distribution and diversity) and their habitats, with a focus on species at risk and of special-status or species that are of social, economic, cultural or scientific significance as well as invasive alien species.

6.1.4. Fish and Fish Habitat

Under CEAA 2012 and in this document, the definition of "fish" is that found in section 2 of the *Fisheries Act*, which includes molluscs, crustaceans and other marine animals. The proponent must provide the following:

- a characterization of fish populations on the basis of species and life stage, including information on the surveys carried out by the proponent and the source of data available (for example, location of sampling stations, catch methods, date of catches, species). The characterization must include fish species of significance to aboriginal peoples, including but not limited to, lake and Atlantic sturgeon, walleye, sauger, northern pike and yellow perch;
- a list of any fish or invertebrate species at risk and of special-status that appear on federal and provincial lists, as well as species assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC)[17] and that are known to be present or likely to be present in the study area, including, but not limited, to the copper redhorse, the channel darter, the Eastern sand darter, the river redhorse, the bridle shiner and the northern brook lamprey.
- a description, including photos or videos, of the habitats, including critical habitats under the Fisheries Act, suitable to species at risk and of special-status, that appear on federal and provincial lists and found or are likely to be found in the study area. The description of habitats must be by homogeneous sections or components of interest (for example, grass bed, ditch, etc.), including the length of the section, water depths, type of substrate (sediments), the presence, abundance and diversity of aquatic and riparian vegetation, benthos and phytoplankton;
- a description of natural obstacles or existing structures (for example, water crossings) that hinder the free passage of fish;
- maps, at a suitable scale, indicating the surface area of potential or confirmed fish habitat or their components for spawning, nursery, feeding, overwintering, migration routes, etc. These data must be related to the water depths (bathymetry) to identify the extent of the littoral zone of the water bodies;
- the description and location of suitable habitats for fish species at risk and of special-status that appear on federal and provincial lists and that are found or are likely to be found in the study area. Note that certain intermittent streams or wetlands may constitute fish habitat or contribute indirectly to fish habitat. The absence of fish at the time of the survey does not irrefutably indicate an absence of fish habitat.

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[16] Canadian Wildlife Service (2008). *Wetland Ecological Functions Assessment: An Overview of Approaches*. Technical Report Series no 497, Atlantic Region, 59 pp. See the following website: http://www.publications.gc.ca/site/eng/9.565284/publication.html

[17] See the COSEWIC website: http://www.cosewic.gc.ca/eng/sct0/index_e.cfm

6.1.5. Birds and their Habitat[18]

- a description of birds using or likely to use the study area (including waterfowl, raptors, shorebirds, marsh birds and other land birds) and their habitats. This description can be based on existing sources but must be supported in order to demonstrate that the data used are representative of the birds and habitats present in the study area. Existing data must be supplemented by inventories, if required;
- the abundance, distribution, and life stages of migratory and non-migratory birds in the study area and species composition for each season;
- year-round migratory and non-migratory bird use of the area (for example, winter, spring migration, breeding season, fall migration), based on preliminary data from existing sources. The existing data must be supplemented by inventories, if required;
- the suitable habitats for federally and provincially listed avian species at risk and of special-status, including species assessed by the COSEWIC that are found, or are likely to be found, in the study area (including, but not limited to, chimney swift, eastern whip-poor-will, peregrine falcon, short-eared owl, rusty blackbird, golden-winged warbler, Canada warbler, least bittern, red-headed woodpecker, loggerhead shrike, bald eagle and bank swallow).

6.1.6. Other Species at Risk and of Special-Status

- a list of all federally and provincially listed species at risk and of special-status that are found, or are likely to be found, in the study area and that may be affected by the project (including, but not limited to, western chorus frog (Great Lakes / St. Lawrence-Canadian Shield population), eastern milksnake, northern map turtle, snapping turtle, wood turtle and monarch). The status for each species will be specified at the federal and provincial levels, and may be established using existing data and literature as well as surveys to provide current field data;
- a list of all federal species that may be affected by the project and not listed on Schedule 1 of the *Species at Risk Act* but that have been assessed by the COSEWIC, that are found, or are likely to be found in the study area. This list can be established using existing data and literature and will include those species listed according to their latest assessment by COSEWIC.
- any published studies that describe the regional importance, abundance and distribution of species at risk and of special-status. Existing data must be supplemented by inventories, if required;
- residences, seasonal movements, movement corridors, habitat requirements, key habitat areas, identified critical habitat and/or recovery habitat (where applicable) and general life history of species at risk that may occur in the project area, or be affected by the project.

[18] Necessary inventories should be designed taking into account the references and recommendations contained in the document "*Guidelines for the preparation of the environmental impact statement and useful references*" from Environment and Climate Change Canada (2016) and in the Technical Report No. 508 "*A framework for the scientific assessment of potential project impacts on birds*" (Hanson and al. 2009) available at this website: http://publications.gc.ca/site/fra/9.567093/publication.html. Schedule 3 of the Framework shows some type of projects and recommended techniques to assess the effects on migratory birds.

6.1.7. Aboriginal Peoples

With respect to potential effects on Aboriginal peoples and the related valued components, baseline information will be provided for each Aboriginal group identified in section 5.1 (part 2) of these guidelines. Baseline information will describe and characterize the elements listed below in accordance with the spatial and temporal scope selected for the assessment:

Baseline information for current use of lands and resources for traditional purposes will focus on the traditional activity (e.g., hunting, fishing, trapping, plant gathering) and include a characterization of all attributes of the activity that can be affected by environmental change. This includes not only identifying species of significance but also assessing the quality and quantity of preferred traditional resources and locations, timing (e.g., seasonality, access restrictions, distance from community), ambient/sensory environment (e.g., noise, air quality, visual landscape, presence of others) and cultural environment (e.g., historical/generational connections, preferred areas). Specific aspects that will be considered include, but are not limited to:

- location of traditional territory (including maps where available);
- location of reserves and communities;
- location of hunting camps and cabins and traditional gathering or teaching grounds;
- drinking water sources (permanent, seasonal, periodic, or temporary);
- habits regarding the consumption of country foods;
- commercial activities (for example, fishing, trapping, hunting, forestry, outfitting);
- recreational uses of the project area;
- traditional uses currently practiced or practiced in recent history;
- fish, wildlife, birds, plants or other natural resources of importance for traditional use;
- places where fish, wildlife, birds, plants or other natural resources are harvested;
- access and travel routes for conducting traditional practices;
- frequency, duration or timing of traditional practices;
- cultural values associated with the area affected by the project and the traditional uses identified;
- physical and cultural heritage[19] (including any site, structure or thing of archaeological, paleontological, historical or architectural significance).

Any other baseline information that supports the analysis of predicted effects on Aboriginal peoples will be included as necessary. The environmental impact statement will also indicate how input from Aboriginal groups was used in establishing the baseline conditions related to health and socio-economics, physical and cultural heritage and current use of lands and resources for traditional purposes;

6.1.8. Human Environment (other than Aboriginal)

- rural and urban settings likely to be affected by the project;

[19] Heritage resources to be considered will include but not be limited to, physical objects (e.g. middens, culturally-modified trees, sacred objects, historic buildings), sites or places (e.g. burial sites, sacred sites, cultural landscapes, sites with potential for archaeological artifacts) and attributes (e.g. language, beliefs).

- federal lands and lands located in another province or outside Canada that are likely to be affected by the project;
- current use of land in the study area, including a description of hunting, recreational and commercial fishing, trapping, gathering, outdoor recreation, use of seasonal cabins and outfitters;
- current and proposed protected areas, special management areas, and conservation areas in the regional study area;
- sources of drinking water and water used for industrial purposes in the regional study area, indicating surface water and groundwater collection facilities, private wells, wells serving more than 20 people, and municipal water intakes;
- current use of all waterways and water bodies in the study area that will be directly affected by the project, including commercial and recreational uses, where available;
- location of and proximity of any permanent, seasonal or temporary residences or camps, community and institutional facilities (hospitals, schools, day care centres, etc.);
- health[20] and socio-economic conditions, including the functioning and health of the socio-economic environment, encompassing a broad range of matters that affect communities in the study area in a way that recognizes interrelationships, system functions and vulnerabilities;
- landscape character of the area surrounding the project site which can be perceived from sensitive receptor locations and valued sites;
- physical and cultural heritage, including structures, sites or things of historical, archaeological, paleontological or architectural significance.

6.2. Changes to the Physical Environment

The assessment will include a consideration of the predicted changes to the environment as a result of the project being carried out or as a result of any powers duties or functions that are to be exercised by the federal government in relation to the project. These predicted changes to the environment are to be considered in relation to each phase of the project (construction, operation, decommissioning, and abandonment) and are to be described in terms of the importance of adverse environmental effects, their geographic extent, the duration and frequency of change, and whether the changes to the environment are reversible or irreversible. As changes to various parts of the physical environment, listed below, may be inter-related as part of an ecosystem, the environmental impact statement will explain and describe the connections between the changes described.

6.2.1. Changes to the Atmospheric Environment

- changes in air quality : In order to estimate the contaminant concentrations present in the entire area that could potentially be affected by atmospheric emissions (see section 6.1.1, part 2), the proponent will carry out atmospheric dispersion modelling[21] of the main contaminants from the different project activities (sources) including, but not limited to, those resulting from the use of

[20] The proponent should refer to Health Canada's *Useful Information for Environmental Assessments* document in order to include the appropriate baseline information relevant to human health. This document can be obtained at http://publications.gc.ca/collections/collection_2015/sc-hc/H128-1-10-599-eng.pdf

[21] Refer to the guide produced by the Direction du suivi de l'état de l'environnement du Québec; at this website: http://www.mddelcc.gouv.qc.ca/air/atmosphere/guide-mod-dispersion.pdf

heavy machinery during construction, from the operation of the port terminal, as well as from the road, rail and maritime transportation (including approach and docking operations and use of tugboats). The proponent must compare the anticipated air quality with the *Canadian Ambient Air Quality Standards*[22]for particulate matter and ozone and the *Quebec air quality standards and criteria*[23];

- a description of all methods or practices to be implemented to minimize or control atmospheric emissions, during the complete project's lifecycle. If the best available technologies are not selected for the design of the project, the proponent will justify its choices;
- an estimate of the direct greenhouse gas emissions associated with all phases of the Project as well as any mitigation measures proposed to minimize greenhouse gas emissions. This information is to be presented by individual pollutant and should also be summarized in CO_2 equivalent per year;
    - ✓ justify all estimates and emission factors used in the analysis;
    - ✓ provide the methods and calculations used for the analysis;
    - ✓ compare and assess the level of estimated emissions to the regional, provincial and federal emission targets.
- should residual greenhouse gas emissions remain after mitigation is applied, an analysis of the cumulative greenhouse gas emissions of current (e.g., facilities in operation) and reasonably foreseeable (e.g., proposed) projects should also be included in the cumulative effects assessment;
- changes in ambient noise levels: Compare current noise levels (without the project) with total projected noise levels. The proponent must compare the projected noise levels with the criteria of the Quebec government's *Note d'instructions 98-01 sur le bruit*[24], the *Night noise guidelines* from World Health Organization[25] (especially regarding sleep) and those of municipal or regional regulations of the study area, where applicable;
- changes in night-time light levels.

6.2.2. Changes to Groundwater, Surface Water and Watercourses

- changes in the physicochemical quality of the surface water (contaminant concentrations, turbidity, oxygen content, etc.) and comparison of the projected water quality with the applicable values of the *Canadian Environmental Quality Guidelines*[26] and the Quebec *Critères de qualité de l'eau de surface*[27];
- changes in the physicochemical quality of the groundwater associated to terrestrial disposal sites for dredged sediments (if any), and with any other potential sources of contaminants on land associated to the project. The proponent will :

[22] See the website: http://www.ccme.ca/en/current_priorities/air/caaqs.html?
[23] See the website: http://www.mddelcc.gouv.qc.ca/air/criteres/index-en.htm
[24] See the website: http://www.mddelcc.gouv.qc.ca/publications/note-instructions/98-01.htm
[25] The document containing the Guidelines is available at the website: http://www.euro.who.int/en/publications/abstracts/night-noise-guidelines-for-europe
[26] See the website: http://ceqg-rcqe.ccme.ca/en/index.html?
[27] See the website: http://www.mddelcc.gouv.qc.ca/eau/criteres_eau/index.asp

- ✓ compare the expected water quality with the applicable values of the *Canadian Environmental Quality Guidelines* and the Quebec's criteria for groundwater;
- ✓ modelize the migration of groundwater contaminants that could be caused by the project;
- ✓ evaluate the physicochemical quality and the flow of the groundwater that discharge in receiving water bodies; and
- ✓ compare the quality of resurgence of groundwater with the applicable federal guidelines and provincial criteria.

– changes in the physicochemical quality of surface waters and groundwater associated with runoff or drainage, and comparison with the applicable values of the *Canadian Environmental Quality Guidelines* and the Quebec criteria for groundwater and surface waters;

– specifically for the St.Lawrence river:

- ✓ the changes in hydrodynamic conditions (current velocity and distribution), the ice regime and the thermal regime;
- ✓ riverbed erosion around the dredging areas;
- ✓ the changes in the sedimentologic regime, of the hydro-sedimentary conditions and identification of potential areas of resedimentation of suspended particulates following the construction of the new wharf;
- ✓ the modelling of the dispersion plume from sediments that could be resuspended during dredging or disposal in the aquatic environment (if any);
- ✓ changes in environmental quality caused by resuspension of contaminated sediment;
- ✓ changes in underwater noise levels.

6.2.3. Changes to Riparian, Wetland and Terrestrial Environments

– a description of the changes to riparian, wetland (including changes to the ecological functions[28]) and terrestrial environments associated with the project. Erosion (associated with the project, eg, that caused by wave action), of shorelines and banks adjacent to the project, of those of Bouchard Island and of those of the Îles de Contrecoeur National Wildlife Area will also be described;

– changes to migratory and non-migratory bird habitat, distinguishing the two categories of bird, including losses, structural changes, fragmentation of riparian (eelgrass beds, fens, etc.), wetland and terrestrial habitats used by birds (cover types, ecological land unit in terms of quality, quantity, diversity, distribution and functions);

– changes to critical habitat or residence by species at risk and of special-status that appear on the federal and provincial lists;

– changes to key habitat for wildlife and flora, including those that are important to Aboriginal and non-Aboriginal current use of resources.

[28] The proponent can refer to the two following documents to prevent loss of wetland functions that can be affected by the project on federal lands: "*The Federal Policy on Wetland Conservation*" and "*The Federal Policy on Wetland Conservation: Implementation Guidelines for Federal Land Managers*" These two documents are available at the Environment and Climate Change Canada Website: https://www.ec.gc.ca/tho-wlo/default.asp?lang=En&n=FB7123A4-1.

6.3. Predicted Effects on Valued Components

Based on the predicted changes to the environment identified in section 6.2 (part 2), the proponent is to assess the environmental effects of the project on the following valued components, as per Section 5 of CEAA 2012:

6.3.1. Fish and Fish Habitat

- the identification of any serious harm to fish and fish habitat under subsection 2(2) of the *Fisheries Act*, including the calculations of any potential habitat loss (temporary or permanent) in terms of surface area (for example, spawning grounds, fry-rearing areas, feeding areas), together with the relative importance of these habitats for fish in the area (rarity and resilience of habitat, availability of alternative habitat, etc.). The proponent shall calculate, in particular, the area of encroachment in the water environment below the natural high water mark[29];
- the proponent must take into account the surface areas of the natural habitats that are affected by dredging, digging or backfilling in the aquatic environment at the planned work sites, as well as in peripheral areas likely to be affected.
- the analysis must take into account the following elements:
    - ✓ the geomorphological changes and their effects on hydrodynamic conditions and fish habitats (for example, modification of substrates, dynamic unbalance, silting of spawning beds, changes to eelgrass beds, habitat fragmentation);
    - ✓ the modifications of hydrological and hydrometric conditions on fish habitat and on the fish species' life cycle activities (for example, reproduction, fry-rearing, movements);
    - ✓ potential impacts on riparian areas that could affect aquatic biological resources and productivity taking into account any anticipated modifications to fish habitat;
    - ✓ any potential unbalances in the food web in relation to baseline conditions.
- the effects of changes to the aquatic environment on fish and fish habitat, including;
    - ✓ the anticipated changes in the composition and characteristics of the populations of the various fish species, including shellfish, forage fish as well as species at risk and of special-status included on the federal and provincial lists;
    - ✓ any modifications in migration or local movements (upstream and downstream migration, and lateral movements) following the construction and operation of works (physical and hydraulic barrier);
    - ✓ any decrease in fish populations resulting from potential overfishing due to better access to the project area;
    - ✓ any modifications and use of habitats, critical habitats, and residence by federally or provincially fish species at risk and of special-status.
- a discussion of how project construction timing correlates to key fisheries windows for freshwater and diadromous species, and any potential impacts resulting from overlapping periods;

[29] To establish the natural high water mark, the proponent can refer to the *Politique de protection des rives, du littoral et des plaines inondables* of the Government of Quebec at the website: http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R35.HTM

- a discussion of how vibration and sound level caused by blasting or in-stream work, including work that generates high noise levels (for example, sheet piles driving), may affect fish behaviour, such as spawning, rearing or migrations.

6.3.2. Birds and their Habitat

- migratory and non-migratory bird mortality (distinguishing between the two categories of birds) that could be directly caused by the project, including site clearing, scouring, or birds and nests being in contact with contaminated substances;
- indirect effects caused by increased disturbance (e.g. noise, light, etc.), relative abundance of movements, as well as losses and changes in migratory and non-migratory bird habitat, considering breeding and migration of birds critical periods;
- the risk that migratory and non-migratory birds may collide with vehicles or with project infrastructure;
- the effects of this project on migratory bird colonies, including the Îles de Contrecoeur National Wildlife Area, identified as a significant site for migratory birds, and the heronry on Bouchard Island;
- analysis of the previously identified effects must also cover the species at risk and of special-status species included on the federal and provincial lists and the species assessed by the COSEWIC, as well as the critical habitat or residence of these species.

6.3.3. Aboriginal Peoples

With respect to Aboriginal peoples, a description and analysis of how changes to the environment caused by the project will affect:

- the current uses of lands and resources for traditional purposes, including, but not limited to:
    - ✓ resources (fish, wildlife, birds, plants or other natural resources) used for traditional uses and on the activities associated with the resources exploitation (for example, hunting, fishing, trapping, collection of medicinal plants, use of sacred sites);
    - ✓ access into the areas used for traditional uses, caused by development of new roads, closure or rehabilitation of access roads and changes to watercourses that affect navigation;
    - ✓ cultural value or importance associated with traditional uses or areas affected by the project (for example, inter-generational teaching of language or traditional practices, communal gatherings);
    - ✓ how project construction timing interacts with the timing of traditional practices, and any potential impacts resulting from overlapping periods;
    - ✓ the regional value of traditional use of the project area and the anticipated effects to traditional practice of the Aboriginal group, including alienation of lands from Aboriginal traditional use;
    - ✓ avoidance of the area by Aboriginal peoples due to increased disturbance (e.g. contamination, noise, light, presence of workers, etc.);
    - ✓ an assessment of the potential to return areas affected by the project to pre-disturbance conditions to support traditional practices.

- human health, considering, but not limited to potential changes in air quality, potential (or perceived) contamination of country foods, drinking water quality, and noise exposure. When risks to human health due to changes in one or more of these components are predicted, a complete Human Health Risk Assessment (HHRA) examining all exposure pathways for pollutants of concern may be necessary to adequately characterize potential risks to human health;
- socio-economic conditions, including potential effects on:
    - ✓ the use of navigable waters;
    - ✓ commercial fishing, hunting, trapping, and gathering activities;
    - ✓ commercial outfitters and recreational use.
- physical and cultural heritage, structure, site or thing of historical, archaeological, paleontological or architectural significance to Aboriginal groups, including, but not limited to:
    - ✓ the loss or destruction of physical and cultural heritage;
    - ✓ changes to access to physical and cultural heritage;
    - ✓ changes to landscape or cultural landscapes.

Other effects of changes to the environment on Aboriginal peoples should be reported as necessary

6.3.4. Other Values Components that May Be Affected by a Federal Duty or due to Effects on Federal lands, Another Province or Outside Canada

If there is the potential for a change to the environment arising as a result of a federal duty, for example an authorization under section 35 of the *Fisheries Act*, the environmental impact statement should include a description of the specific project components for which a federal authorization/decision is required, and an assessment of any other valued component (not already covered in sections 6.3.1 to 6.3.3 of these guidelines) that may be affected by the changes to the environment caused by these specific project components.

If there is the potential for the project to induce changes to the environment on federal lands, in another province, or outside Canada, then valued component of importance not already identified should be included. For example, if the project will result in the generation of greenhouse gas emissions, the environmental impact statement should include a description of the project's GHG emissions in a regional, provincial, national or international context if applicable.

The other valued components suggested are indicated below for this project.

Flora and fauna

- for each habitat unit, potential effects of the project on terrestrial flora and fauna;
- potential effects of the project on species at risk and of special-status included on the federal, provincial and COSEWIC lists, as well as the critical habitat or residence of those species. The proponent will consider especially the wood turtle, the western chorus frog (Great Lakes / St. Lawrence-Canadian Shield population) and their critical habitat;
- potential effects on species of social, economic, cultural or scientific interest, as well as invasive alien species.

Human environment (other than Aboriginal)

As for the human environment, other than the Aboriginal environment discussed in the previous section, a description and analysis of the effects of any changes to the environment caused by the project on:

- health and socioeconomic conditions, including, but not limited to, the effects on:
    - ✓ resources (fish, wildlife, birds, plants or other natural resources) used for recreational or commercial purposes (for example, hunting, fishing, trapping);
    - ✓ human health associated with air quality, possible contamination of food resources in the area, exposure to light and noise, and drinking water quality. For this last point, the proponent will, among others, consider the effects of the project on the water supply of the city of Contrecoeur located downstream of the project. When risks to human health due to changes in one or more of these components are predicted, a complete Human Health Risk Assessment examining all exposure pathways for pollutants of concern may be necessary to adequately characterize potential risks to human health.
- the visual environment and the effects that changes to the aesthetic quality of the landscape might have on businesses that rely on the area's aesthetic and recreational attractions in the region;
- land use and access to Saint Lawrence river;
- tourist and recreational activities;
- navigation, including, if applicable, the distinction between the various types of navigation and boats (commercial, recreational, traditional), taking these distinctions into account in the descriptions and the assessment of the effects;
- physical and cultural heritage, structures, sites or things of historical, archaeological, paleontological or architectural significance, including, but not limited to, the effects on:
    - ✓ unique sites or special features such as environmentally sensitive areas, reserves or protected areas;
    - ✓ areas of commercial use by outfitters;
    - ✓ areas of recreational use.

6.4. Mitigation

Every environmental assessment conducted under CEAA 2012 will consider measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project. Each measure will be specific, achievable, measurable and verifiable, and described in a manner that avoids ambiguity in intent, interpretation and implementation. Mitigation measures may be considered for inclusion as conditions in the environmental assessment decision statement and/or in other compliance and enforcement mechanisms provided by other authorities' permitting or licensing processes.

As a first step, the proponent is encouraged to use an approach based on the avoidance and reduction of the effects at the source. Such an approach may include the modification of the design of the project or relocation of project components. When the principles of avoidance and reduction of the effects at the source have been applied, the loss of wildlife habitat may be compensated by creating or improving equivalent habitats.

The environmental impact statement will describe the standard mitigation measures, policies and commitments that constitute technically and economically feasible mitigation measures and that will be applied as part of standard practice regardless of location (including the measures directed at promoting beneficial or mitigating adverse socio-economic effects). The environmental impact statement will then describe the project's environmental protection plan and its environmental management system, through which the proponent will deliver this plan. The plan will provide an overall perspective on how potentially adverse effects would be minimized and managed over time. The environmental impact statement will further discuss the mechanisms the proponent would use to require its contractors and sub-contractors to comply with these commitments and policies and with auditing and enforcement programs.

The environmental impact statement will then describe mitigation measures, including compensation plans (if needed), that are specific to each environmental effect identified. Mitigation measures will be written as specific commitments that clearly describe how the proponent intends to implement them and the environmental outcome those mitigation measures are designed to address. Where mitigation measures have been identified in relation to species and/or critical habitat listed under the Species at Risk Act, the mitigation measures will be consistent with any applicable recovery strategy and action plans.

The environmental impact statement will specify the actions, works, minimal disturbance footprint techniques, best available technology, corrective measures or additions planned during the project's various phases to eliminate or reduce the significance of adverse effects. The impact statement will also present an assessment of the effectiveness of the proposed technically and economically feasible mitigation measures. The explanations for determining if the mitigation measure reduces the significance of an adverse effect will have to be specified.

The environmental impact statement will indicate what other technically and economically feasible mitigation measures were considered, and explain why they were rejected. Trade-offs between cost savings and effectiveness of the various forms of mitigation will be justified. The environmental impact statement will identify who is responsible for the implementation of these measures and the system of accountability.

Where mitigation measures are proposed to be implemented for which there is little experience or for which there is some question as to their effectiveness, the potential risks and effects to the environment should those measures not be effective will be clearly and concisely described. In addition, the environmental impact statement will identify the extent to which technology innovations will help mitigate environmental effects. Where possible, it will provide detailed information on the nature of these measures, their implementation, management and the requirements of the follow-up program.

Adaptive management is not a mitigation measure, but if the follow-up program indicates that corrective action is required, the proposed approach for managing the action should be identified.

6.5. Significance of Residual Effects

After having established the technically and economically feasible mitigation measures, the environmental impact statement will present any residual environmental effects of the project on the valued components identified in section 6.3. The residual effects, even if very small or deemed insignificant, will be described.

The environmental impact statement will then provide an analysis of the significance of the residual environmental effects that are considered adverse, using guidance described in section 4 of the Agency's reference guide *Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects.*[30]

The environmental impact statement will identify the criteria used to assign significance ratings to any predicted adverse effects. It will contain clear and sufficient information to enable the Agency, technical and regulatory agencies, Aboriginal groups and the public to review the proponent's analysis of the significance of effects. The environmental impact statement will document the terms used to describe the level of significance.

The methods and techniques selected for assessing the impacts must be objective, concrete and reproducible. Readers should find it easy to follow the reasoning given for determining and assessing the impact. The following criteria should be used in determining the significance of residual effects:

- magnitude;
- geographic extent;
- duration;
- frequency;
- reversibility;
- ecological and social context;
- existence of environmental standards, guidelines or objectives for assessing the impact.

In assessing significance against these criteria the proponent will, where possible, use relevant existing regulatory documents, environmental standards, guidelines, or objectives such as prescribed maximum levels of emissions or discharges of specific hazardous agents into the environment. The environmental impact statement will contain a section which explains the assumptions, definitions and limits to the criteria mentioned above in order to maintain consistency between the effects on each valued component.

Where significant adverse effects are identified, the environmental impact statement will set out the probability (likelihood) that they will occur, and describe the degree of scientific uncertainty related to the data and methods used within the framework of its environmental analysis.

6.6. Other Effects to Consider

6.6.1. Effects of the Environment on the Project

The environmental impact statement will take into account how local conditions and natural hazards, such as severe and/or extreme weather conditions and external events (for example, flooding, drought, ice jams, landslides, avalanches, erosion, subsidence, fire, hydrologic conditions, freezing rain and seismic events) could adversely affect the project and how this in turn could result in impacts to the environment (for example, extreme environmental conditions result in malfunctions and accidental events). These events will be considered in different probability patterns (for example, 5-

[30] See the Canadian Environmental Assessment Agency website : https://www.ceaa-acee.gc.ca/default.asp?lang=En&n=D213D286-1

year flood vs. 100-year flood). Longer-term effects of climate change will also be discussed up to the projected post-closure phase of the project. This discussion will include a description of climate data used, including a sensitivity study of the project to variations of climatic parameters (eg, the potential impacts of climate change on the Project and proposed mitigation measures, if necessary).

The environmental impact statement will provide details of planning, design and construction strategies intended to minimize the potential environmental effects of the environment on the project.

6.6.2. Effects of Potential Accidents or Malfunctions

The failure of certain works caused by human error or exceptional natural events (for example, flooding, earthquake) could cause major effects. The proponent will therefore conduct an analysis of the risks of accidents and malfunctions, determine their effects and present a preliminary emergency measures.

Taking into account the lifespan of different project components, the proponent will identify the probability of potential accidents and malfunctions related to the project, including an explanation of how those events were identified, potential consequences (including the environmental effects as defined in section 5 of CEAA 2012), the plausible worst case scenarios and the effects of these scenarios.

For each of these scenarios, this assessment will include an identification of the magnitude of an accident and/or malfunction, including the quantity, mechanism, rate, form and characteristics of the contaminants and other materials likely to be released into the environment during the accident and malfunction events and would potentially result in an adverse environmental effect as defined in section 5 of CEAA 2012.

The environmental impact statement will describe the safeguards that have been established to protect against such occurrences and the contingency and emergency response procedures in place if such events do occur. The emergency response procedures must describe the connection with municipal, provincial and federal authorities and how to transmit an alert.

Accidents or Malfunctions Related to Maritime and Rail Transportation

The proponent will describe and evaluate the potential effects to the environment caused by accidents and malfunctions resulting from marine and rail transportation associated with the project, including impacts on social, economic or cultural elements of the environment and on people's health in the vicinity of spilled contaminants.

If serious accidents or malfunctions are likely to occur and if the necessary data are available, the proponent will determine whether it is necessary to carry out an assessment of the probability that such an event occur and an assessment of its consequences, taking into account the contributing factors such as weather conditions or external events.

The proponent will also assess the potential of minor and major accidental release of fuel, or loss of dangerous goods. If necessary, the proponent will also provide an analysis of the potential environmental effects of these discharges on aquatic and terrestrial environments and on human health in spatial boundaries described in this document.

The proponent will also describe existing emergency preparedness and response systems and existing arrangements with the responsible response organizations in the maritime and rail

transportation spatial boundaries associated with the project, including exercise and training plans for spill emergency response. The proponent will describe the role he will play in case of spill, collision, grounding or other accidents or malfunctions related to rail and maritime transportation associated with the project and within the area of jurisdiction of the Montreal Port Authority or close to it (in the context of marine transportation).

6.6.3. Cumulative Effects Assessment

The proponent will identify and assess the project's cumulative effects using the approach described in the Agency's Operational Policy Statement *entitled Assressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012*[31].

Cumulative effects are defined as changes to the environment due to the project combined with the existence of other past, present and reasonably foreseeable physical activities. Cumulative effects may result if:

- implementation of the project being studied may cause direct residual adverse effects on the valued components, taking into account the application of technically and economically feasible mitigation measures; and
- the same valued components may be affected by other past, present or reasonably foreseeable physical activities.

Valued components that would not be affected by the project or would be affected positively by the project can, therefore, be omitted from the cumulative effects assessment. A cumulative effect on an environmental component may, however, be important even if the assessment of the project's effects on this component reveals that the effects of the project are minor.

In its environmental impact statement, the proponent will:

- identify and provide a rationale for the valued components that will constitute the focus of the cumulative effects assessment, emphasizing this assessment on the valued components most likely to be affected by the project and other project and activities. To this end, the proponent must consider, without limiting itself thereto, the following components likely to be affected by the project:
    - ✓ fish and fish habitat;
    - ✓ migratory and non-migratory birds (including the Bank Swallow);
    - ✓ species at risk;
    - ✓ Aboriginal peoples;
    - ✓ any other relevant component.
- identify and justify the spatial and temporal boundaries for the cumulative effect assessment for each valued component selected. The boundaries for the cumulative effects assessments will generally be different for each valued component considered. These cumulative effects boundaries will also generally be larger than the boundaries for the corresponding project effects;

[31] See the Canadian Environmental Assessment Agency website : https://www.ceaa-acee.gc.ca/default.asp?lang=En&n=1DA9E048-1

- identify the sources of potential cumulative effects. Specify other projects or activities that have been or that are likely to be carried out that could cause effects on each selected valued component within the boundaries defined, and whose effects would act in combination with the residual effects of the project. This assessment may consider the results of any relevant study conducted by a committee established under section 73 or 74 of CEAA 2012. Any subsequent expansions of the port terminal that are reasonably foreseeable must be considered in assessing the cumulative effects;
- assess the cumulative effects on each valued component selected by comparing the future scenario with the project and without the project. Effects of past activities (activities that have been carried out) will be used to contextualize the current state of the valued component. In assessing the cumulative effects on current use of lands and resources for traditional purposes by Aboriginal peoples, the assessment will focus on the cumulative effects on the activity (e.g., hunting, fishing, trapping, plant harvesting).
- describe the mitigation measures that are technically and economically feasible. The proponent shall assess the effectiveness of the measures applied to mitigate the cumulative effects. In cases where potential measures exist that are beyond the scope of the proponent's responsibility that could be effectively applied to mitigate these effects, the proponent will identify these effects and the parties that have the authority to act. In such cases, the environmental impact statement will summarize the discussions that took place with the other parties in order to implement the necessary measures over the long term;
- determine the significance of the cumulative effects;
- develop a follow-up program to verify the accuracy of the assessment or to dispel the uncertainty concerning the effectiveness of mitigation measures for certain cumulative effects.

The proponent is encouraged to consult with key stakeholders and Aboriginal groups prior to finalizing the choice of valued components and the appropriate boundaries to assess cumulative effects.

7. SUMMARY OF ENVIRONMENTAL EFFECTS ASSESSMENT

The environmental impact statement will contain a table summarising the following key information:

- potential environmental effects;
- proposed mitigation measures to address the effects identified above;
- potential residual effects and the significance of the residual environmental effects.

The summary table will be used in the environmental assessment Report prepared by the Agency. An example of a format for the key summary table is provided in Appendix 1 of this document.

In a second table, the environmental impact statement will summarize all of the key mitigation measures and the proponent's commitments that will help to mitigate more specifically the significant adverse effects of the project on valued components (i.e., measures that are critical to ensure that the project will not cause significant adverse environmental effects).

8. MONITORING AND FOLLOW-UP PROGRAMS

The goal of a monitoring program is to ensure that proper measures and controls are in place in order to decrease the potential for environmental degradation during all phases of project development, and to provide clearly defined action plans and emergency response procedures to account for human and

environmental health and safety. A follow-up program is designed to verify the accuracy of the effects assessment and to determine the effectiveness of the measures implemented to mitigate the adverse effects of the project.

8.1. Monitoring

The proponent will prepare an environmental monitoring program for all phases of the project. This program will help ensure that the project is implemented as proposed, that the mitigation or compensation measures proposed to minimize the project's environmental effects are effectively implemented, and that the conditions set at the time of the project's authorization and the requirements pertaining to the relevant laws and regulations are met. The monitoring program will also make it possible to check the proper operation of works, equipment and facilities. If necessary, the program will help reorient the work and possibly make improvements at the time of construction and implementation of the various elements of the project.

Specifically, the environmental impact statement shall present an outline of the preliminary environmental monitoring program, including the:

- identification of the interventions that pose risks to one or more of the components and the measures and means planned to protect the environment;
- description of the characteristics of the monitoring program where foreseeable (e.g., location of interventions, planned protocols, list of measured parameters, analytical methods employed, schedule, human and financial resources required);
- description of the proponent's intervention mechanisms in the event of the observation of non-compliance with the legal and environmental requirements or with the obligations imposed on contractors by the environmental provisions of their contracts;
- guidelines for preparing monitoring reports (number, content, frequency, format) that will be sent to the authorities concerned.

8.2. Follow-up Program

The duration of the follow-up program shall be as long as required for the environment to regain its equilibrium and to evaluate the effectiveness of the mitigation measures.

The environmental impact statement shall present a preliminary follow-up program in particular for valued components where scientific uncertainty exists in the prediction of effects. This program shall include:

- objectives of the follow-up program and the valued components targeted by the program;
- list of elements requiring follow-up;
- number of follow-up studies planned as well as their main characteristics (list of the parameters to be measured, planned implementation timetable, etc.);
- intervention mechanism used in the event that an unexpected deterioration of the environment is observed;
- mechanism to disseminate follow-up results among the concerned populations;
- accessibility and sharing of data for the general population;

- opportunity for the proponent to take advantage of the participation of Aboriginal groups and stakeholders on the affected territory, during the implementation of the program;
- involvement of local and regional organizations in the design, implementation and evaluation of the follow-up results as well as any updates, including a communication mechanism between these organizations and the proponent.

Appendix 1 Example - Summary Table of Environmental Assessment

Valued Component affected	Area of federal jurisdiction [32] (√)	Project Activity	Potential adverse effects	Proposed mitigation measures	Residual adverse effects	*Magnitude*	*Geographic extent*	*Duration*	*Frequency*	*Reversibility*	*Other criteria used to determine significance*	Significance of residual adverse effect
Fish and fish habitat												
Migratory birds												
Current use of land and resource for traditional purpose	√ 5(1)(c)(iii)											
Human environment												
Any other valued components identified												

[32] Indicate by a check mark which valued components can be considered "environmental effects" as defined in section 5 of CEAA 2012, and specify which subsection of this Act is relevant. For example, for the valued component "Use of land and resources by Aboriginal people", the appropriate cell would indicate, section 5(1)(c)(iii).