**ATTACHMENT: October 5, 2020**
**Federal Authority Advice Record**
**Response due by November 12, 2020.**
Please submit the form to: *iaac.deltaport.aeic@canada.ca*
GCT Deltaport Expansion, Berth Four Project – GCT Canada Limited Partnership
Agency File: 81010

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**1. Is it probable that your department or agency may be required to exercise a power or perform a duty or function related to the Project to enable it to proceed?**

**If yes, specify the Act of Parliament and that power, duty or function.**

Please note the following requirement that may apply to this Project:

**Disposal at Sea permits, as per Part 7, Division 3 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999)**

"Disposal" is defined in Part 7, Division 3 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999) to include any disposal activity that takes place from a ship, aircraft, platform, or other structure into the marine or estuarine environment, including the storage of material on or below the seabed. More broadly, it includes the disposal of dredged material from any source. Disposal at sea is prohibited without a permit issued by Environment and Climate Change Canada (ECCC) under CEPA 1999, which is valid for a maximum of a one-year period. Permits can only be issued for substances listed in Schedule 5 of CEPA (e.g. dredged material). Material proposed for disposal at sea must undergo a detailed waste assessment and characterization process in accordance with Schedule 6 of CEPA. This includes the requirement for an alternatives assessment to examine alternative waste management options in accordance with environmental, human health, and economic considerations. Disposal at sea permits will only be considered for material that both meets characterization criteria and where disposal at sea is demonstrated to be the preferred waste management option.

ECCC administers the Disposal at Sea Program and permitting process and should be contacted directly to help in determining whether project-related activities would trigger the requirement for a permit. The Proponent should identify any anticipated need for a disposal at sea permit in their Detailed Project Description. This should include figures showing the proposed dredge area ($m^2$), estimates of disposal volumes ($m^3$), depth of proposed dredge cut(s), source(s) of the material, and proposed disposal location(s) that cover all phases of the Project.

If a disposal at sea permit is likely to be sought, the Proponent is strongly encouraged to discuss this with ECCC as soon as possible. Plans for a detailed sediment characterization program must be reviewed by ECCC prior to

implementation. The Proponent is strongly encouraged to apply for a disposal at sea permit during the impact assessment process.

Upon receipt of a complete disposal at sea permit application, ECCC will circulate the permit application and associated information to other relevant government departments for review. ECCC will also contact potentially affected Indigenous communities who have established, asserted or Treaty rights that overlap with the permit request and provide an opportunity for review. The public are notified of a disposal at sea permit application through a Notice of Application that must be published in a locally circulated newspaper. The Notice provides contact information through which the public can seek additional information or provide comment. The permit is also posted publicly on the CEPA Registry for a 7-day period prior to coming into effect (https://pollution-waste.canada.ca/environmental-protection-registry/permits). Consultation on disposal at sea permits will be coordinated with consultation during the impact assessment where possible.

Further information about the Disposal at Sea Program can be found here:

- Disposal at Sea website (https://www.canada.ca/en/environment-climate-change/services/disposal-at-sea.html)
- The Disposal at Sea permit application guide (https://www.canada.ca/en/environment-climate-change/services/disposal-at-sea/permit-applicant-guide.html)

Further information regarding disposal at sea permits will be provided in the IAAC Permitting Plan.

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**2. Is your department or agency in possession of specialist or expert information or knowledge that may be relevant to the conduct of an impact assessment of the Project?**

**Specify as appropriate.**

ECCC has specialist or expert information that may be relevant to the impact assessment in the areas listed below, as well as information regarding federal policies, standards, and regulations that may be relevant to the assessment. Once the scope of the Project and the assessment are established by the Agency, this list may change if additional project activities or components should come into scope.

**Air quality**: ambient air quality; sources of emissions; emissions estimation and measurement; dispersion modelling; and follow-up monitoring.

**Greenhouse gas emissions and climate change**: estimations of greenhouse gas (GHG) emissions (net and upstream); GHG mitigation measures and determination of Best Available Technologies/Best Environmental practices (BAT/BEP); climate change science to inform evaluation of potential changes to the environment and project resilience to effects of climate change; climate change policies; and national GHG projections.

**Water quality and quantity**: surface water quality; contamination sources for surface water; wastewater, seepage and runoff effects; management of contaminated soils or sediments; marine and freshwater dredging; hydrology (streamflow rates data and modelling, flooding and extreme events management, drainage control, water levels, water balances); follow-up and monitoring.

**Wildlife, species at risk, and habitat:** migratory birds, their nests, eggs, and habitat; species at risk and their habitat, their residences and critical habitat, as identified through recovery strategies and management plans; ecological function of wetlands; wildlife emergency response; ecotoxicology.

**Environmental emergencies:** emergency response planning and guidance; atmospheric transport and dispersion modelling of contaminants in air; fate and behaviour, hydrologic trajectory modelling of contaminants in water.

**Climate and meteorology:** long-term climate patterns and norms; marine winds, waves, and weather; and sea ice and icebergs.

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**3. Has your department or agency considered the Project; exercised a power or performed a duty or function under any Act of Parliament in relation to the Project; or taken any course of action that would allow the Project to proceed in whole or in part?**

**Specify as appropriate.**

No

**4. Has your department or agency had previous contact or involvement with the Proponent or other party in relation to the Project? (for example, enquiry about methodology, guidance, or data; introduction to the Project)**

**Provide an overview of the information or advice exchanged.**

On August 20, 2020, representatives of ECCC met with the Proponent and the IAAC to discuss the requirements under the Strategic Assessment of Climate Change (SACC). ECCC answered the Proponent's questions with respect to the SACC's information requirements for an Initial Project Description.

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**5. Does your department or agency have additional information or knowledge not specified, above?**

**Specify as appropriate.**

Not at this time.

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**6. From the perspective of the mandate and area(s) of expertise of your department or agency, what are the issues that should be addressed in the impact assessment of the Project, should the Agency determine that an impact assessment is required?**

**For each issue discussed, provide a concise, plain-language summary that is appropriate for inclusion in the Summary of Issues and Engagement.**

**Air Quality**

Generally, emissions of air contaminants from construction and operations can result in local or regional cumulative degradation of ambient air quality. This can lead to potential impacts on sensitive ecosystem receptors and contamination of nearby land and waterbodies, including effects on plants, wildlife, and on fish and fish habitat.

To estimate the impact of a project on air quality, dispersion modelling is used to generate predicted ambient concentrations of air pollutants. These modelling results should be compared to the most stringent federal, provincial or regional air quality standards or objectives. The comparison with air quality standards or objectives may be considered in determining the nature and severity of the Project's impact on air quality, as well as mitigation measures that may be required to maintain good air quality and/or to prevent exceedances.

The Project is also likely to require a transboundary air notification as per the Canada-US Air Quality Agreement requiring notification to the US of pollution sources within 100 km of the Canada/US border. The Agreement seeks to control and reduce transboundary air pollution between Canada and the US and includes commitments on notification of potential new sources of transboundary pollution, consultation on existing sources of possible transboundary pollution, and biennial progress reports.

Further information is available at: https://www.canada.ca/en/environment-climate-change/services/air-pollution/issues/transboundary/canada-united-states-air-quality-agreement.html

Marine emissions

Projects which involve marine vessels (e.g. container terminal expansions), and projects which involve shipping (e.g. projects where product will be exported by ship) have the potential to adversely affect air quality. More specifically, the combustion of fossil fuels to power the vessel engines can result in the emission of air contaminants such as sulfur oxides ($SO_x$), nitrogen oxides ($NO_x$), volatile organic compounds (VOCs), and fine particulate matter ($PM_{2.5}$). When some contaminants settle out of the air in the surrounding environment, their deposition may result in acidification and potential exceedance of ecosystems' critical loads. Based on emission rate calculations and resulting air pollutant concentrations as well as the impacts to regional air quality, the Proponent may be requested to implement marine vessel emission reductions.

### Rail emissions

Projects which involve an increase in capacity for rail traffic (e.g. intermodal yard expansion) and projects which will result in an increase in demand for rail traffic as a direct result of the project (e.g. projects where product will be transported by rail) have the potential to adversely affect air quality. More specifically, the combustion of fossil fuels to power the rail engines can result in the emission of air contaminants such as sulfur oxides ($SO_x$), nitrogen oxides ($NO_x$), volatile organic compounds (VOCs), and fine particulate matter ($PM_{2.5}$). When some contaminants settle out of the air in the surrounding environment, their deposition may result in acidification and potential exceedance of ecosystems' critical loads. The emission of these air contaminants can result in local or regional degradation of ambient air quality, with potential impacts on human health as well as sensitive ecosystem receptors.

### Road emissions

Projects which involve on-road vehicles and mobile off-road machines for construction and operations and decommissioning, or that lead to an increase in road traffic (e.g. hauling materials to the site), have the potential to adversely affect air quality. More specifically, the combustion of fossil fuels can result in the emission of air contaminants such as sulfur oxides ($SO_x$), nitrogen oxides ($NO_x$), volatile organic compounds (VOCs), and fine particulate matter ($PM_{2.5}$). When some contaminants settle out of the air in the surrounding environment, their deposition may result in acidification and potential exceedance of ecosystems' critical loads. The emission of these air pollutants can result in local or regional degradation of ambient air quality, with potential impacts on human health as well as sensitive ecosystem receptors.

## Greenhouse Gas Emissions and Climate Change

The construction andoperation of the Project may result in greenhouse gas (GHG) emissions. The Project also has the potential to be affected by future climate change, possibly resulting in impacts to the environment.

The Strategic Assessment of Climate Change (SACC) provides guidance related to climate change throughout the impact assessment process. The SACC outlines information the Proponent should provide during the impact assessment on: GHG emissions, GHG mitigation measures, and climate change resilience; the circumstances in which an upstream GHG assessment will be required; and the circumstances in which a credible plan for achieving net-zero GHG emissions by 2050 will be required.

### GHG emissions

The Proponent provided an annual estimate of GHG emissions, over the life of the Project (construction 2025-2028, operating 2029-2050), in section 6.3.1 of the Initial Project Description. The Proponent also mentioned commodities that move through the Project area in section 2.3.2.

ECCC recommends the Proponent provide the following in the Detailed Project Description:

- An estimate of the maximum annual net GHG emissions for each phase of the Project, including a breakdown of each term of Equation 1 of the SACC (direct and acquired GHG emissions must be provided) and the methodology, data, emission factors and assumptions used (as stated in section 4.1.1 of the SACC).
- Revisit the approach for avoided domestic GHG emissions. Section 3.1.1 of the SACC states that the avoided domestic GHG emissions should represent reductions or removals that are real. Therefore, assuming emissions would be emitted by a project that does not currently exist does not qualify as avoided GHG emissions. The Proponent`s GHG mitigation measures can be discussed in the mitigation section.
- Identify the type and estimated quantities of energy products (such as coal) that will be handled in the Project area to allow ECCC to determine if an upstream assessment is required for the Project.

ECCC notes the Proponent has determined a scope that may not align with the scope established by the IAAC for other similar projects. The Proponent may need to revisit the scope and related air and GHG estimates once the IAAC has confirmed the scope of the Project.

### Carbon sinks

The Project, as described, could have adverse effects on carbon sinks (i.e., forests, oceans or other natural environments that absorb carbon dioxide from the atmosphere).

ECCC recommends the Proponent include, in the Detailed Project Description, the following information related to impacts of the Project on carbon sinks, as outlined in section 4.1.2 of the SACC: a description of the activities that would result in an impact on carbon sinks, and land areas expected to be impacted by the Project, by ecosystem type (forests, cropland, grassland, wetlands, built-up land) over the course of the Project lifetime, including any areas of restored or reclaimed ecosystems.

### GHG mitigation measures

The Proponent noted in the Initial Project Description that the Project will aim to avoid or reduce emissions by switching from fossil fuel equipment to low-carbon fuels, hybrid and electric equipment and reduce energy consumption through efficient operations and management systems. ECCC encourages the Proponent to describe in their Detailed Project Description the mitigation measures, which could include technologies and practices they are considering to reduce GHG emissions from all emission sources. Given the lifetime of the Project may be beyond 2050, ECCC encourages the Proponent to provide an overview of the measures being considered to ensure the Project is net-zero emissions by 2050.

### Climate change resilience

Because climate over the lifetime of a project is projected to be different from past and current climate in the area, and the lifetime of the Project is anticipated to be more than 50 years, climate change considerations are relevant to the Project review. There is potential for climate change to affect the Project which, in turn, may have impacts on the surrounding environment (e.g. through accidents or malfunctions). Climate changes in the Project area, such as possible changes in mean and extreme precipitation and temperature and related environmental conditions, may alter baseline conditions, with implications for climate sensitive aspects of project design and associated effects on the environment. For example, project components and activities for which climate change resilience could be important for this Project include operation and maintenance in consideration of global sea level rise.

Further information can be found in the Strategic Assessment of Climate Change (SACC):
https://www.strategicassessmentclimatechange.ca/

**Water Quality and Quantity**

The activities linked to the construction, and operation of marine terminal projects can have adverse effects on water quality (including fresh water, marine water, groundwater and sediment) as a result of on-site activities, in-water works, and incidental activities. Changes to water quality as a result of the Project may affect aquatic receptors (e.g., fish, marine mammals, aquatic plants).

During construction, the following in-water works and on-site activities may result in a change to water and sediment quality, which may impact aquatic receptors:

- Activities related to upgrades or expansions of marine terminals/berths (e.g., dredging, installation of piles, placement of fill, installation of construction materials), activities related to scour/erosion protection, and increased marine shipping traffic for material delivery could lead to increased total suspended solids (TSS).

- Dredging, handling or re-use of dredged material can lead to exposure or redistribution of historic contaminants.

- Site preparation, construction activities, material transfer, wind erosion from stockpiles and other activities could result in increased air emissions (including dust). The deposition of airborne particulate matter (dust) and other air pollutants could impact nearby water bodies.

- Upland activities such as paving/surfacing and construction of project-related infrastructure have the potential for erosion and sedimentation, and result in deposition of soils and sediments to waterbodies via surface water run-off.

- Precipitation and storm water management during construction could have an impact on groundwater. Precipitation or surface flow percolating into the ground and subsequently entering the marine environment as groundwater discharge could affect water and sediment quality.

During operations, the following on-site and incidental activities could result in a change to water and sediment quality, which may impact aquatic receptors:

- Wastewater and storm water management (including sanitary sewer discharges from workers facilities) could affect water and sediment quality.

- Terminal operations are likely to generate air pollutants. Deposition of airborne particulate matter (dust) or other air pollutants could impact water quality.

- Marine shipping (including ships at berth) could impact water quality directly through sediment redistribution from prop wash, direct discharges (e.g., bilge water or scrubber effluent), and aerial deposition of vessel emissions).

- Maintenance dredging (if required) may also result in increased TSS.

In addition, there is a potential for impacts to water quality from accidents or malfunctions, including from fuel or other spills or leaks during construction or operations, and the management of hazardous wastes.

**Wildlife, Species at Risk, and Habitat**

The activities linked to the construction and operation of a marine terminal have potential to affect wildlife, species at risk, and their habitat. This includes migratory birds and non-aquatic species at risk (i.e., lichens, mosses, and vascular plants, terrestrial invertebrates, herptiles, birds (terrestrial and marine), and terrestrial mammals) as identified by the *Species at Risk Act* (SARA), and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Habitat is considered to include that which supports one or more life requisites (e.g., habitat supporting staging, nesting, roosting or foraging) of the species described above, including residences and critical habitat defined under the SARA and wetlands.

Potential effects to wildlife, species at risk, and their habitat in the Project area can vary based on a number of factors, including: project location, duration of construction and operation, scale, and configuration; ancillary project activities (e.g., land clearing, dredging, marine shipping, vehicle traffic); cumulative effects; the type of habitat that may be disturbed through direct or indirect effects; and the sensitivity of individual species.

### Migratory birds and non-aquatic species at risk and their habitat

The activities during construction (e.g., land clearing, dredging, pile driving, labor camps) and operation (e.g., marine shipping, lighting, vehicle traffic) of marine terminals can affect habitat quality and quantity. Effects may include habitat loss, alteration or fragmentation, habitat avoidance, changes in predator/prey dynamics, changes to migration or movement patterns, destruction or disturbance to breeding birds and their nests or eggs, and sensory disturbance (e.g., noise, lighting).

Where a marine terminal project requires new road or rail infrastructure or an increase in capacity to existing linear transportation corridors, the increase in road or rail traffic volumes are likely to result in an increase in wildlife injury or mortality and the introduction of invasive species. There is a higher risk that the magnitude of effects would be higher for species at risk and in sensitive or rare ecosystems (e.g., wetlands) or where there is already a high degree of existing impact on specific habitats, species, or species groups.

Noise, vibration, artificial lighting, and other sensory disturbances caused by construction and operation activities (including marine shipping) may result in: changes to movement or migration patterns; avoidance of, or attraction to, an area; harm or mortality to individuals. Attraction to lights at night, or in poor visibility conditions during the day, may cause birds to collide with lit structures or their vertical support structures, resulting in injury or mortality. Birds may also be attracted to artificial light sources, resulting in circling behaviour, and may deplete their energy reserves and either die of exhaustion or drop to the ground where they are at risk of predation.

### Wetlands

Construction of the Project may result in a loss of estuarine wetlands, eelgrass, marsh, mud flats, and sand flats in intertidal and shallow subtidal areas. These habitats provide critical functions to a range of wildlife species, such as staging habitat for migrant shorebirds and as over-wintering habitat for dabbling and diving ducks and geese. Intertidal and shallow subtidal wetland habitats are dynamic environments where the introduction of engineered structures and activities have the potential to cause immediate and long term, adverse effects. For example, the placement of hard surfaces (e.g., terminal, causeway, piles) will result in a direct loss of habitat, and may cause changes in local geomorphological processes, which in turn may initiate erosional processes and a further loss of habitat (e.g., dendritic channel formation). Similarly, changes in geomorphological processes may affect sedimentation processes or changes in the water quality regime, which can affect critical habitat functions (e.g., a reduction in the provision of fatty acids to migrant shorebirds, and to wildlife and the ecosystem more generally). New or increased marine shipping can increase vessel wake and result in shoreline erosion, degradation and loss of wetlands.

### Wildlife environmental emergencies

During the construction and operation of marine terminals, there is the potential for harmful substances to enter or be spilled into the receiving environment, as a result of an accident or malfunction, and this may negatively affect wildlife, species at risk, and their habitats. Depending on the nature of the release (e.g., product type, toxicity, volume release, receiving environment, time of year, exposure pathways), potential effects to wildlife, species at risk, and their habitats could be acute, chronic or both. Contamination of the environment through accidents or malfunctions resulting in spills/release of hazardous substances at marine terminals can affect migratory birds through destruction or disturbance of nests and eggs, disruption of physical integrity of feathers, as well as contamination of soil/sediment, water, vegetation, and prey organisms used by migratory birds. Likewise, for species at risk and their habitats, release of harmful substances can result in acute injury or mortality to individuals, or cause chronic sublethal impacts. Remediation of terrestrial, foreshore, intertidal or marine habitats following an accident or malfunction has the potential to impact to wildlife, species at risk, and their habitats.

## Environmental Emergencies

The proposed marine terminal Project includes the presence of marine vessels, a container storage area, a rail yard, the storage and use of hazardous materials near water, and explosive gases with the potential to be released into the atmosphere. As such, there is potential for adverse environmental and human health effects from accidents and malfunctions, including collisions, grounding, allision and/or spills during the operation of marine vessels, hazardous material spills caused by a derailment and/or during operations of land based machinery. Adverse effects to air quality, water quality, and wildlife and wildlife habitat could result from the accidental release of hydrocarbons, explosives and other contaminants to the surrounding environment. Optimized and coordinated prevention, preparedness and response measures and systems will be important given the risk of spills of hazardous substances to water and environmentally sensitive areas, as well as risk of uncontrolled releases of explosive gases.

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Robyn McLean
Name of Departmental / Agency Responder

Senior Environmental Assessment Officer
Title of Responder

November 12, 2020
Date