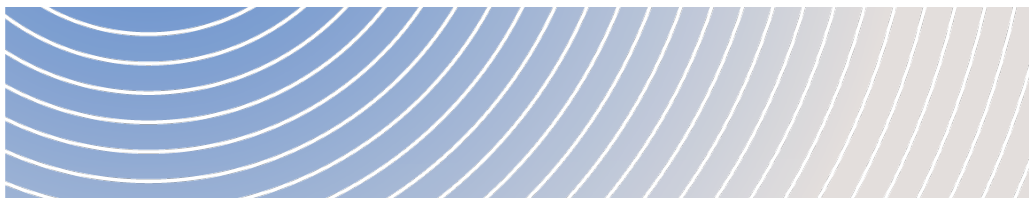




Agence d'évaluation  
d'impact du Canada

Impact Assessment  
Agency of Canada

# Timiskaming Dam- Bridge of Quebec Replacement Project



INFORMATION REQUEST NO. 1 (PART 1)

18 May 2023

PSPC Response 20 March 2024



Canada



# Table of contents

<b>Methodology of Analysis .....</b>	<b>2</b>
Information requests directed to the proponent .....	2
<b>Project Background .....</b>	<b>11</b>
Information requests directed to the proponent .....	11
Comments and advice for the proponent.....	12
<b>Alternative Means of Carrying out the Project.....</b>	<b>15</b>
Information requests directed to the proponent .....	15
Comments and advice for the proponent.....	18
<b>Atmospheric Environment.....</b>	<b>19</b>
Information requests directed to the proponent .....	19
Comments and advice for the proponent.....	34
<b>Surface Water .....</b>	<b>37</b>
Information requests directed to the proponent .....	37
Comments and advice for the proponent.....	51
<b>Riparian, Wetland and Terrestrial Environments.....</b>	<b>55</b>
Information requests directed to the proponent .....	55
Comments and advice for the proponent.....	73
<b>Fish and Fish Habitat .....</b>	<b>75</b>
Information requests directed to the proponent .....	75
Comments and advice for the proponent.....	99
<b>Birds and Bird Habitat.....</b>	<b>108</b>
Information requests directed to the proponent .....	108
<b>Species at Risk .....</b>	<b>128</b>
Information requests directed to the proponent .....	128
Comments and advice for the proponent.....	143
<b>Indigenous Peoples.....</b>	<b>145</b>
Information requests directed to the proponent .....	145
Comments and advice for the proponent.....	198
<b>Human Environment .....</b>	<b>205</b>
Information requests directed to the proponent .....	205



Comments and advice for the proponent.....	207
<b>Archaeological Resources.....</b>	<b>209</b>
Information requests directed to the proponent .....	209
Comments and advice for the proponent.....	236
<b>Accidents or Failures .....</b>	<b>238</b>
Information requests directed to the proponent .....	238
Comments and advice for the proponent.....	240
<b>Effects of the Environment on the Project .....</b>	<b>242</b>
Information requests directed to the proponent .....	242
<b>Cumulative Effects .....</b>	<b>245</b>
Information requests directed to the proponent .....	245
Comments and advice for the proponent.....	267
<b>Monitoring and Follow-up Programs .....</b>	<b>269</b>
Information requests directed to the proponent .....	269
Comments and advice for the proponent.....	275



# Important information to consider when responding to the information request

## Rationale for missing elements of information

The proponent must answer all the following questions to allow the Impact Assessment Agency of Canada (the Agency) to continue its analysis. Referring to the sector studies is not a sufficient response. These studies support the Environmental Impact Statement (EIS). The proponent must clearly indicate how it considered these studies in its environmental assessment and decisions.

If the proponent chooses to provide a single answer for more than one question, the proponent must clearly identify which questions the answer relates to.

The proponent must provide a rationale if no information is submitted for any of the items requested in this information request.

## Review of the environmental effects assessment

For any questions that require a revision of the project's environmental effects assessment, the proponent must also update the following aspects:

- description of potential environmental effects
- mitigation measures
- description and assessment of the significance of residual environmental effects
- cumulative effects assessment
- follow-up and monitoring programs

## Mitigation measures

In responding to the questions in this information request, the proponent must describe the practices, policies and commitments that constitute mitigation measures, i.e., technically and economically feasible measures for the elimination, reduction or control of the project's environmental effects. In its analysis of the significance of the effects, the Agency assesses whether the mitigation measures proposed by the proponent are adequate to mitigate the anticipated effects on the various valued components. In the absence of adequate mitigation measures proposed by the proponent, the Agency may conclude that there are significant adverse environmental effects and present its conclusions in the environmental assessment report submitted to the Minister.

# Methodology of Analysis

## Information requests directed to the proponent

### IAAC-1-1 Valued component and applicable legislation

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 1, section 3.2.2 (Valued components to consider)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 4, 5.1 and 10.1.2 and Chapters 18 to 20*

#### Context

Sections 4 and 5.1 of the EIS state that the entire project is located on land owned by the proponent, Public Services and Procurement Canada, a federal government department. The entire property would therefore be on federal land, which implies that subparagraph 5(1)(b)(i) of the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) applies to the project. As such, any potential changes to the environment on federal land must be assessed by the proponent.

In Section 5.1 of the EIS, it is noted that additional federal authorizations would be required to allow the project to proceed, including from Transport Canada under the *Canada Navigable Waters Act* (CNWA). As such, sections 5.2(a) and 5.2(b) of the CEAA 2012 apply to the project. In other words, the EIS must include the changes that are likely to be caused to the environment in connection with this authorization, as well as the impacts of those changes on non-Indigenous people in terms of health and socio-economic conditions and physical and cultural heritage (including any structures, sites or things of historical, archaeological, paleontological or architectural significance).

The Agency notes that, in the table in section 10.1.2 and in those in chapters 18 to 20 of the EIS, CEAA 2012 is not mentioned for several components, but should apply. Also, for some components, the section of CEAA 2012 that is referred to is incorrect. For example, in the table in section 10.1.2, for the component “Health and socio-economics – Indigenous Groups,” subsection 5(2) of CEAA 2012 is listed, whereas this component refers to subparagraph 5(1)(c)(i). Note also that the “Aboriginal or Treaty rights – Indigenous Groups” component should refer to section 35 of the *Constitution Act, 1982*, and not to a section of CEAA 2012.

As another example, subparagraph 5(1)(b)(i) (Health and socio-economic conditions) should be applied in the summary table of effects on the physical environment in Chapter 18 and in the summary table of effects on the human environment in Chapter 20. In other words, the effects of the project on the environment (air, soil and water quality, noise, etc.) that could affect the health of the non-Indigenous population must be considered in the assessment.

The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) for each component of the tables in section 10.1.2 and Chapters 18 to 20, check the applicable section numbers of CEAA 2012 or any other applicable legislation, make the necessary corrections and submit revised tables; and

PSPC Response:

The revised tables of Section 10.1.2 are as follows (changes in *italic*):

The Physical Environment VC category includes *nine* components from the due diligence analysis:

Physical components		Concordance with Canadian Acts, Laws, Regulations	Justification/Rationale
Air	Air quality	<i>Section 5(1) b) (i) CEAA 2012</i>	Yes, local receptors could be affected by increased in airborne dust and pollutant from the Project.
	Noise	<i>Section 5(1) b) (i) CEAA 2012</i>	Yes, local receptors could be affected by increased noise from the Project.
Soil	Volumes and sediment quality	<i>Section 5(1) b) (i) CEAA 2012</i>	Yes, sediment is an important ecosystem component since it provides habitat for aquatic biota (benthic invertebrates and fish), with different sediment types having different habitat value for different species. Sediment also supports growth of aquatic vegetation and plays an important role in water quality, since suspended sediment causes turbidity, and materials (e.g. metals and nutrients) can leach from sediment into the overlying water. Changes in sediment erosion, transport and deposition can cause instability in the water channel equilibrium. Past deposition of contaminated sediments from Rayonier or other projects are important concerns for Indigenous groups.
	Volume and soil quality	<i>Section 5(1) b) (i) CEAA 2012</i>	Yes, soil supports both important biological forms and provides wildlife habitat. Movement of soil from an area could potentially have a negative effect on the area in which the soil is deposited. Soil physical characteristics affect the movement of surface and groundwater through retention and infiltration processes. Finally, soil quality can potentially affect human health or the biota, if it were to be contaminated.
Water	Groundwater dynamics	<i>Section 5(1) b) (i) CEAA 2012</i>	Yes, excavation for the new dam foundation could potentially cause changes to groundwater hydrology (levels and flows) and hydraulics (direction of movement and velocity) since the excavation will be below the groundwater table. Groundwater is a pathway to aquatic and terrestrial VCs, which they could be affected by a change in groundwater quality.
	Groundwater quantity	<i>Section 5(1) b) (i) CEAA 2012</i>	Yes, groundwater is use as a source of potable water in the vicinity of the Project location. Residents on the Ontario side have water wells. The Témiscaming city water intake is not located in

Physical components		Concordance with Canadian Acts, Laws, Regulations	Justification/Rationale
			the vicinity of the Project but the Rayonier's emergency water intake for fire is located right upstream of the Quebec dam.
	Surface water quality	<i>Section 5(1) b) (i)</i> CEAA 2012	Yes, surface quality is important in sustaining aquatic habitat and biota as well as recreational use of the Ottawa River.  Water quality (especially related to sediments and contaminants) were identified as VCs by Indigenous groups. Shared / co-management of the Ottawa River and the Ottawa River Watershed is value to Indigenous groups.
	Surface water dynamics	<i>Section 5(1) b) (i)</i> CEAA 2012 <i>Canada Navigable Waters Act (L.R.C. (1985), ch. N-22</i>	Yes, the construction will change the surface water hydrology (levels and flows) and hydraulics (direction of water movement and hydrology) which could impact a number of other ecosystem components, including aquatic habitat and biota, surface water quality, erosion, sedimentation, recreational use (navigation) and aesthetics.
	Ice	<i>Section 5(1) b) (i)</i> CEAA 2012 <i>Canada Navigable Waters Act (L.R.C. (1985), ch. N-22</i>	Yes, ice regime will be modified during construction, which could affect navigation, among others.

For the biological environment VCs, there are six components:

Biological components		Concordance with Canadian Acts, Laws, Regulations	Justification/Rationale
Aquatic	Aquatic species at risk Fish Species (e.g. Sturgeon, Eel) Freshwater Mussel Species (e.g. Hickorynut Mussel) Turtles Species (e.g. Snapping Turtle, Midland Painted Turtle, etc.)	Species at risk Act (LC 2002, ch.29) and <i>Section 5(1) a) (ii)</i> CEAA 2012	Yes, under CEAA 2012 <i>Section 5(1) a) (ii)</i> and Species at Risk Act, the environmental effects that are to be taken into account in relation to a project include aquatic species at risk. The lake sturgeon, the eel and the Hickorynut Mussel (even if the likelihood that those two last species be present in the area is really low) and turtles are species that could be impacted by the Project.  These aquatic species were identified as VCs by Indigenous groups.
	Fish and fish habitat . Lake Whitefish . Walleye . Other Fish Species (Bass, Yellow Perch,	<i>Section 5(1) a) (i)</i> CEAA 2012 Fisheries Act (1985)	Yes, under CEAA 2012 <i>Section 5(1) a) (i)</i> , the environmental effects that are to be taken into account in relation to a project include fish as defined in Section 2 of the Fisheries Act (1985) and fish habitat as defined in Subsection 34(1). The Project has the potential to affect some spawning areas located downstream of the Quebec dam.

Biological components		Concordance with Canadian Acts, Laws, Regulations	Justification/Rationale
	Northern Pike, Lake Trout, Speckled/Brook Trout, Muskellunge, Perch, Sunfish, Carp and Sucker)		These species of fish were identified as VCs by Indigenous groups.
Terrestrial	Migratory birds (including Waterfowl Species such as Ducks, Geese, Common Loon	Migratory Birds Convention Act (L.C. 1994, ch.22) et Section 5(1) a) (iii) CEEA 2012	Yes, under CEEA Section 5(1) a) (iii), the environmental effects that are to be taken into account in relation to project include migratory bird as defined in Subsection 2(1) of the Migratory Birds Convention Act (MBCA, 1994)
	Wildlife species and habitats	Section 5(1) b) (i) CEEA 2012	Yes, the habitat on the island and on the shores of the Ottawa River can be affected by the Project. Wildlife, wildlife habitat and harvesting wildlife were identified as VCs by Indigenous groups.
	Terrestrial species at risk	Species at risk Act (LC 2002, ch.29)	Yes, terrestrial species at risk as defined in Subsection 2(1) of the Species at Risk Act (SARA, 2002) and by the Quebec and Ontario legislation. No terrestrial species at risk, except bats, are expected to inhabit terrestrial study area since no species at risk have been confirmed during field survey and the habitat present could provide only marginal habitat.
	Wetland and vegetation, including riparian and medicine species (e.g. staghorn sumac, chokecherry, red raspberry, wolf willow, Sweetgrass, Puffball Mushroom)	Section 5(1) b) (i) CEEA 2012	There are no wetlands in the Project footprint and the immediate area (however, there is wetland vegetation in the riparian zone around the Gordon Creek and downstream of the dam, in the Ottawa River). There is some terrestrial vegetation on the island and the Quebec side of the river, but mainly sparse trees and shrubs given most of the shore are artificialized with rock to minimise erosion. However, some riparian vegetation are presents on the shores and medicines species were also surveyed.  These plants were identified as VCs by Indigenous groups.

Finally, the Human Environment VC category encompasses *five* components:

Indigenous / Non Indigenous Assessment Component		Concordance with Canadian Acts, Laws, Regulations	Justification/Rationale
Indigenous Groups	Health and socio-economics	Section 5(1) c) (i) CEEA 2012	Yes, health and socio-economics could be impacted by the Project, positively or negatively. Indigenous groups have noted that economic development, employment and business opportunities are of value.



Indigenous / Non Indigenous Assessment Component		Concordance with Canadian Acts, Laws, Regulations	Justification/Rationale
			<p>Health and well-being are closely tied to cultural land, water and resource uses and are valued by Indigenous groups.</p> <p>Use of natural and Indigenous laws for land and water stewardship is valued by Indigenous groups.</p> <p>Ecosystem integrity including areas that are free from pollution, overexploitation and crowding are valued by Indigenous groups.</p>
	Physical and cultural heritage	Section 5(1) c) (ii) CEAA 2012	<p>Yes, any cultural and physical heritage feature for Indigenous people will be evaluated.</p> <p>Cultural continuity (the ability to pass on Indigenous language, culture, knowledge) is valued by Indigenous groups.</p> <p>The Ottawa River and Long Sault Island have historical cultural heritage value to Indigenous groups.</p> <p>The WLFN Algonquin Canoe Company Location on Long Sault Island is valued by Indigenous groups as a contemporary land use and occupancy, and cultural heritage feature.</p>
	<p>Current use of land and resources for traditional purposes</p> <p>Access and Travel throughout Algonquin Lands and Waters (e.g. canoe and portage routes, boat launches, shore and boat based angling locations)</p> <p>The Kichi-Sibi (Ottawa River)</p> <p>Long Sault Island</p>	<p>Section 5(1) c) (iii) CEAA 2012</p> <p>Canada Navigable Waters Act (L.R.C. (1985), ch. N-22</p>	<p>Yes, fishing, hunting and other land use and occupancy sites in the Project area could be impacted by the construction and operation of the dam.</p> <p>There is an interest in retaining or enhancing Long Sault Island for contemporary use.</p> <p>Indigenous groups value the historical importance of Long Sault Island and the area in general for Algonquin people.</p> <p>The ability to access lands and water bodies (Ottawa River, Gordon Creek) for harvesting and to exercise other Indigenous rights is valued by Indigenous groups.</p>
	Structure, site or thing with historical, archaeological, paleontological or Architectural significance	Section 5(1) c) (iv) CEAA 2012	The Ottawa River and Long Sault Island are significant sites with value to Indigenous groups.
	Aboriginal or Treaty rights	Section 35 of the 1982 Constitutional Act	Land jurisdiction, stewardship, harvesting rights, Algonquin governance systems were noted as values held by Indigenous groups.

Revised tables of Chapters 18 to 20 are below.

Table 18.1 Summary of Effects on the Physical Environment (changes in *italic*)

Valued component affected	Area of federal jurisdiction (✓)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Extent	Geographic extent	Duration	Frequency	Reversibility		
Air quality	<i>Section 5(1) b) (i) CEAA 2012</i>	Construction	Air contaminant emissions	<ol style="list-style-type: none"> <li>Requirement to limit idling (shut off engines when truck or vehicle is stopped for extended periods of time).</li> <li>Off-road construction equipment and on-road transport truck engines would be required to meet the latest Tier 4 emission standards of the U.S. Environmental Protection Agency (EPA).</li> <li>Machinery and transportation trucks should be well maintained and kept in good working condition (e.g., exhaust system in good condition).</li> <li>Manage loading and unloading activities to minimize idling time.</li> <li>Cover loads on trucks transporting materials to and from the site.</li> <li>Minimize any blasting.</li> </ol>	Low	Local	Medium	Continuous	Reversible	Non-significant	N/A
	<i>Section 5(1) b) (i) CEAA 2012</i>	Construction	Dust emissions	<ol style="list-style-type: none"> <li>Visual inspection and monitoring of dust emissions on and around the Project site should be carried out on a regular basis (i.e. daily or weekly).</li> <li>Activities involving significant emissions of dust, or causing nuisance due to air emissions, should be identified, and mitigation measures should be implemented if necessary (i.e. dust clouds reaching privately owned or publicly accessible areas).</li> <li>Complaints from neighbours regarding dust or air quality should be registered, analyzed, and addressed with the adequate mitigation measures.</li> <li>Water work areas (water-based dust suppressants due to the proximity of an aquatic environment).</li> <li>Clean public roads with sweeper trucks, cover stored materials.</li> <li>Sweeping the access roads and circulation areas.</li> <li>Cover truck loads with tarps.</li> <li>During the cutting of concrete, water the work area.</li> <li>During demolition, all measures must be put in place to limit dust emissions. Work should be stopped during high winds if a significant amount of dust is moved.</li> <li>Limit speed to 20 km/h on on-site roads.</li> <li>Prevent dirt track-out from the Project site to the public road network, using track-out grates or other technology.</li> <li>Applying water to stockpiles that are causing dust emissions due to wind erosion.</li> <li>Cover stockpiles that are causing dust emissions due to wind erosion.</li> <li>When available, dust control systems such as wet suppression systems (water sprays) and enclosures should be used. This applies most notably to drilling, crushing, and screening activities.</li> </ol>	Low	Project footprint to local	Medium	Cyclic	Reversible	Negligible to non-significant	N/A
	<i>Section 5(1) b) (i) CEAA 2012</i>	Construction	GHG emissions	<ol style="list-style-type: none"> <li>Explore the option to install a portable concrete plant near the site to reduce transportation distances.</li> <li>Assess the possibility of using materials with a lower carbon footprint, particularly low-carbon concrete.</li> <li>Explore options for carbon neutrality.</li> </ol>	Low	Local to regional	Medium	Continuous	Reversible	Non-significant	N/A
	<i>Section 5(1) b) (i) CEAA 2012</i>	Construction	Increased noise level	<ol style="list-style-type: none"> <li>If levels are too high based on actual site conditions, quickly adopt solutions to meet the Project targets as set out in the project noise monitoring plan.</li> <li>During certain construction phases, the noise can affect the staff and costumers of the Algonquin Canoe Company. If the proposed measures do not mitigate adequately the effects, modifications to the mitigation measures will be discussed and determined in consultation with WLFN.</li> </ol>	Low	Local	Medium	Continuous	Reversible	Non-significant	N/A

Valued component affected	Area of federal jurisdiction (v)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Extent	Geographic extent	Duration	Frequency	Reversibility		
				<ol style="list-style-type: none"> <li>3. Provide advance notification to residents and Indigenous communities concerning construction duration, activities and their expected duration.</li> <li>4. Provide information to neighbours and Indigenous communities before and during construction through media.</li> <li>5. Install an information board in front of the Project site with contact information for Project and the Project's website address.</li> <li>6. Regularly train workers and contractors to use equipment in ways that minimize noise.</li> <li>7. Ensure that site managers periodically check the site, nearby residences and other noise-sensitive receptors to identify and quickly address problems.</li> <li>8. Avoid the use of radios and stereos outdoors and the overuse of public address systems where neighbours can be affected.</li> <li>9. Keep truck drivers informed of designated vehicle routes, parking locations, acceptable delivery hours and other relevant practices (e.g. minimizing the use of engine brakes and periods of engine idling).</li> <li>10. Examine and implement, where feasible and reasonable, alternatives to rock-breaking work methods, such as hydraulic splitters for rock and concrete, hydraulic jaw crushers, chemical rock and concrete splitting, and controlled blasting, such as penetrating cone fracture.</li> <li>11. Consider alternatives to diesel and gasoline engines and pneumatic units, such as hydraulic or electric-controlled units, where feasible and reasonable. When there is no electricity supply, consider using an electrical generator located away from residences.</li> <li>12. The shock absorbers on dump trucks help reduce noise levels during trucking operations. There should also be ongoing monitoring to remind truck drivers who needlessly bang the panels on their dump trucks.</li> <li>13. Avoid the use of reversing alarms by designing the site layout to avoid reversing, such as by including drive-through for parking and deliveries.</li> <li>14. Smart alarms can be used for the contractor's equipment that will be on site throughout the work. However, it would be hard to install reversing alarms for suppliers or subcontractors who occasionally come to the site.</li> <li>15. The smart alarm must be adjusted to a maximum of 10 dB(A) above the ambient noise on the site. However, the installation of smart reversing alarms must take into account the safety of workers on the site.</li> <li>16. The ECCO SA914, GROTE 73080 and PRECO 1048 models are examples of smart reversing alarms that can be used for equipment on the site.</li> <li>17. When materials or equipment are delivered, they must be carefully placed on the ground and not dropped, to avoid impact noises.</li> <li>18. The use of engine brakes is prohibited on site and on access roads except where safety may be compromised.</li> <li>19. To limit noise and air pollution, idling of truck engines is limited to a maximum of five minutes. After that time, the engine must be shut down.</li> <li>20. If blasting is required, ensure that a 150 m radius around the site to be blasted is cleared and ensure that there is a delay between charges.</li> </ol>							
	Section 5(1) b) (i) CEAA 2012	Operation	Change in noise level	None	Low or nil	Local	Permanent	Continuous	Irreversible	Non-significant or NIL	N/A

Valued component affected	Area of federal jurisdiction (✓)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Extent	Geographic extent	Duration	Frequency	Reversibility		
Soil	Section 5(1) b) (i) CEEA 2012	Construction	Contaminated or non-contaminated sediment emission	<ol style="list-style-type: none"> <li>1. Install and maintain sediment barriers around the areas of the site. This turbidity curtain will be secured to the riverbed and all contours</li> <li>2. Conduct sampling by divers where sediment is visible once the existing dam is closed and turbidity curtain is in place (and before the construction of the cofferdam). Sediment will be managed based on their level of contamination. If the sediments are contaminated, a protocol will be developed to recover them before the cofferdam is built.</li> <li>3. Install and maintain a turbidity curtain downstream of the cofferdam throughout Phase 1, and when possible, during Phases 2 and 3).</li> <li>4. Develop appropriate work methods with adequate measures to protect the shoreline.</li> <li>5. Train employees to react and take action quickly in case of an accidental spill.</li> <li>6. Recover most particles from the cofferdam before removing the turbidity curtain.</li> <li>7. Use the new dam as a cofferdam during the demolition of the current dam and install a turbidity curtain upstream of the work area (Phase 4).</li> <li>8. Develop appropriate work methods for the demolition of the existing dam.</li> <li>9. Recover all debris and fine particles from the demolition of the current dam before opening the new dam.</li> <li>10. Provide preventive measures to avoid accidental spills and prepare an emergency plan in the event of a spill.</li> <li>11. Conduct regular checks for floating rafts of organic matter and recover them, as needed.</li> <li>12. If measures to limit the erosion and transportation of sediment are deficient, stop the work until more effective measures are in place or the current measures are corrected.</li> <li>13. Prepare a soil and sediment management plan and an erosion and sediment control plan.</li> </ol>	Low	Local	Medium	Cyclic	Reversible	Non-significant	N/A
	Section 5(1) b) (i) CEEA 2012	Construction/Operation	Soil contamination	<ol style="list-style-type: none"> <li>1. Inspect machinery on a daily basis to detect the presence of hydrocarbon leaks, etc.</li> <li>2. Have an accidental spill recovery kit on the site at all times.</li> <li>3. Limit storage of hydrocarbons onsite for one work week for the equipment used during that week.</li> <li>4. Require double containment structures for the storage of hydrocarbons.</li> <li>5. Prohibit the storage of hazardous equipment or materials in the area drained by the cofferdam.</li> <li>6. Report any spill as soon as possible in order to react quickly.</li> <li>7. Develop and implement a detailed environmental emergency plan.</li> <li>8. Require the use of vegetable-based hydraulic oils in machinery when working in water and in close proximity to water.</li> <li>9. Prepare a sediment and soil management plan to address unexpected, contaminated sediments and soils.</li> </ol>	Low	Project footprint	Short	Punctual	Reversible	Negligible	N/A
Water	Section 5(1) b) (i) CEEA 2012	Construction	Change to the water table level	None	Low	Project footprint	Short	Cyclic	Reversible	Negligible	N/A

Valued component affected	Area of federal jurisdiction (v)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Extent	Geographic extent	Duration	Frequency	Reversibility		
	Section 5(1) b) (i) CEAA 2012	Construction/Operation	Groundwater contamination	<ol style="list-style-type: none"> <li>1. Limit storage of hydrocarbons onsite for one work week for the equipment used during that week</li> <li>2. Require secondary containment for the storage of hydrocarbons.</li> <li>3. Report any spill as soon as possible in order to react quickly.</li> <li>4. Develop and implement a detailed environmental emergency plan.</li> </ol>	Low	Project footprint	Short	Punctual	Reversible	Negligible	N/A
	Section 5(1) b) (i) CEAA 2012 Canada Navigable Waters Act (L.R.C. (1985), ch. N-22	Construction	Change in flows, velocities and levels during construction	<ol style="list-style-type: none"> <li>1. Prepare an emergency plan for high flow rates during phases when a cofferdam is present and follow the communication procedure included in the Emergency plan presented in Chapter 15.</li> <li>2. Ensure construction staging area and activities don't impact the dam operations.</li> </ol>	Low	Local	Medium	Cyclic	Reversible	Non-significant	N/A
	Section 5(1) b) (i) CEAA 2012	Construction/Operation	Change in surface water quality (SS and other contaminants)	<p><u>Work preparation</u></p> <ol style="list-style-type: none"> <li>1. Begin work on the start-work date.</li> <li>2. Limit work to the designated work areas.</li> <li>3. Recover trees and arable land.</li> <li>4. Follow natural drainage patterns.</li> <li>5. Avoid work and storage in the riparian strip (RS).</li> <li>6. Provide areas for disposing of waste materials (and prepare a Waste Management Plan that will include waste reduction workplans).</li> <li>7. Provide sediment and erosion control plan.</li> <li>8. Provide a spill response plan.</li> <li>9. Provide a health and safety plan.</li> <li>10. Stabilize soils and plant vegetation.</li> </ol> <p><u>Construction</u></p> <p><u>Motors</u></p> <ol style="list-style-type: none"> <li>11. Ensure they are in good condition, maintained and inspected.</li> <li>12. Circulate in designated areas, outside waterways and RS, except when required and providing for cleanup.</li> <li>13. Provide a response plan in the event of a leak or spill.</li> <li>14. Handle petroleum products outside waterways and at least 30 m from them.</li> </ol> <p><u>Turbidity, SS and other contaminants.</u></p> <ol style="list-style-type: none"> <li>15. Sample and analyze sediments between the current dam and the turbidity curtain before the cofferdam is in place and manage them based on their level of contamination.</li> <li>16. Avoid the discharge of turbid water (treat pump water before discharging it into an aquatic environment).</li> <li>17. Control waters with sediment or other barriers and treat waters using appropriate methods, settling tanks, etc.</li> <li>18. Install a turbidity curtain downstream before construction of the cofferdam</li> </ol>	Low	Local	Medium	Cyclic	Reversible	Non-significant	N/A

Valued component affected	Area of federal jurisdiction (✓)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Extent	Geographic extent	Duration	Frequency	Reversibility		
				<p>begins. This turbidity curtain will be secured to the riverbed and all contours.</p> <p>19. Install a turbidity curtain upstream before the demolition of the current dam.</p> <p>20. Provide appropriate cleaning areas.</p> <p>21. Recover all debris from the demolition of the existing dam before the new dam is opened.</p> <p>22. Use clean equipment and avoid cleaning it in the waterways or in the RS.</p> <p>23. Provide portable toilets.</p> <p>24. Work in the waterway in designated areas and ensure containment of all work in water.</p> <p>25. Sample concrete mixer wash water daily and treat them, if needed, so they respect water quality criteria before its release in the environment (prepare a Waste Water Management Plan)</p> <p>Debris and residual materials</p> <p>26. Contain materials outside the waterway.</p> <p>27. Provide appropriate storage areas.</p> <p>28. Place residual hazardous materials (RHM) at least 30 m from the waterway.</p> <p>29. Ensure that all discharged material is removed from the waterway.</p> <p>30. Refuel equipment more than 30 metres from the river.</p> <p>End of work</p> <p>31. Recover at least 97.5% of the cofferdam construction material from Phase 1 during removal.</p> <p>32. Provide for site cleanup.</p> <p>33. Plant vegetation and stabilize the site and shoreline.</p> <p>34. Restore the riverbed.</p> <p><u>Operation period</u></p> <p>35. Ensure the containment of work to avoid discharges in the water.</p> <p>36. Decontaminate and restore sites in the event of a spill.</p> <p><u>Emergency situations</u></p> <p>37. Provide an emergency procedure.</p> <p>38. Provide sediment and erosion control measures.</p> <p>39. Stabilize soils and plant vegetation.</p> <p>40. Decontaminate and restore sites in the event of a spill.</p>							
	Section 5(1) b) (i) CEAA 2012 Canada Navigable Waters Act (L.R.C. (1985), ch. N-22	Construction	Change to the extent of ice cover	None	Low	Project footprint to local	Medium	Cyclic	Reversible	Negligible to non-significant	N/A

Table 19.1 Summary of Effects on the Biological Environment (changes in *italic*)

Valued component affected	Area of federal jurisdiction (✓)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Magnitude	Geographic range	Duration	Frequency	Reversibility		
Vegetation (terrestrial and riparian vegetation, wetlands, species at risk)	Section 5(1) b) (i) CEAA 2012 <i>Species at risk Act (LC 2002, ch.29)</i>	Pre-construction, construction, emergencies	Permanent and temporary loss of vegetation	<u>Pre-construction</u> <ol style="list-style-type: none"> <li>1. Install temporary construction fencing to delineate vegetation clearing areas.</li> <li>2. During clearing, all trees and shrubs should be removed from work area to avoid damage to remaining vegetation.</li> <li>3. During clearing and earthmoving, do not push materials against remaining vegetation to protect plant communities beyond the limits of the work area.</li> <li>4. Protect trees and vegetation at clearing limits.</li> <li>5. Instruct site workers to always remain in designated work areas to avoid trampling plants and to minimize disturbance to remaining vegetation.</li> <li>6. Limit machinery traffic in the work area to avoid soil compaction at the edge of the vegetation.</li> <li>7. Keep equipment, storage sites and stored material away from remaining trees in the work area to prevent root damage from soil compaction.</li> <li>8. Install a barrier 1 m beyond the drip line around residual trees that may be affected by the work. Keep barriers in good condition throughout the construction period.</li> <li>9. Properly prune damaged residual trees.</li> <li>10. If a substantial portion of a branch 25 mm Ø or wider is damaged, cut cleanly at the break or within 10 mm of its base.</li> <li>11. Cut off any exposed roots that are 25 mm Ø or wider from the soil surface within five calendar days of exposure to the air.</li> <li>12. Cut off damaged bark to an uninjured patch, without causing further injury, within five calendar days of damage.</li> <li>13. Restore disturbed areas upon completion of the work through appropriate planting and seeding (restoration plan developed in consultation with Indigenous communities). If the topsoil in place is suitable for revegetation (according to the results of the soil analysis), salvage and stockpile it for reuse during restoration;</li> <li>14. Define disposal areas for materials and excess excavated material outside of natural environments.</li> <li>15. Require contractors to clean machinery prior to arrival at work sites and to ensure that it is free of mud, animals or plant fragments and invasive alien species (IAS).</li> <li>16. Prepare and implement an IAS management plan (including a pre-work inventory in the work areas);</li> <li>17. Rapidly revegetate exposed soils with native species to re-create habitats present prior to construction.</li> <li>18. Do not import topsoil or other materials that may contain invasive alien species.</li> <li>19. Allow representatives of Indigenous communities to access raspberry, wild blackberry, American elm, white pine, balsam poplar, yarrow, white</li> </ol>	Low	Project footprint	Medium	Continuous	Reversible (revegetation plan)	Non-significant	N/A

Valued component affected	Area of federal jurisdiction (√)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Magnitude	Geographic range	Duration	Frequency	Reversibility		
				birch and cedar for traditional uses prior to the commencement of work if these species will be affected. 20. If the large white pine near the cofferdam construction area is cut down, offer it to Indigenous communities for traditional crafts. 21. In consultation with Indigenous communities, prepare a revegetation plan for the island and areas disturbed by the work. Recommendations presented by the Kitchi Sibi Technical Team in Chapter 6 of Appendix 12.3 (see the above Section 12.2.2.1) will be considered when developing the revegetation plan. <u>Construction</u> 22. Same as above.  <u>Emergencies</u> 23. Develop emergency response procedures 24. Develop sediment- and erosion-control measures 25. Stabilize soils and restore vegetation 26. Decontaminate and remediate sites in the event of spills							
Fish and fish habitat	Section 5(1) a) (i) CEAA 2012 Fisheries Act (1985)	Pre-construction, construction, operation, emergencies	Fish mortality, permanent and temporary habitat alteration, permanent and temporary effects	1. Evaluate the four options for the fishway in conjunction with DFO experts and Indigenous communities and select one of the options. <u>Pre-construction</u> 2. Develop and implement a Construction Environmental Management Plan, that will include, among other things, an Erosion and Sediment Control Plan, a Spill prevention and Response Plan, an IAS Management Plan, etc.) 3. Comply with construction start date. Take water temperature in the downstream area of the dam and begin the work in water for Phase 1 only after a 10-day period following a temperature of 18°C (which should be around mid-July). 4. Implement sediment- and erosion-control measures 5. Educate workers on waste management <u>Construction</u> 6. Adhere to dam closure dates and periods and in-water work dates (see section 7.1.2 and see Measure #3 above). 7. Avoid work that could affect critical fish spawning dates 8. Work must be done during low flow conditions, outside of the period from April 15 to June 30. The materials used must be free of fine particles for in-water works, while the machinery used must contain biodegradable oil 9. Minimize the water footprint of the structures and works. The size of the work site and the equipment installed should be optimized to minimize the direct footprint on fish habitat, destruction or alteration, or incidental mortality of individuals. 10. Ensure that the cofferdam is installed quickly (mid-July to late September). 11. Implement an erosion and sediment control and mitigation plan that includes all the measures and additional measures suggested by the contractor 12. Install erosion and sediment barriers	Low	Local	Medium	Cyclic	Reversible (offsetting measures)	Non-significant	N/A
					Medium to high	Project footprint	Long	Continuous	Reversible (offsetting measures)	Non-significant	N/A



Valued component affected	Area of federal jurisdiction (√)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Magnitude	Geographic range	Duration	Frequency	Reversibility		
				13. Educate and train workers in relation to the fish and fish habitat constraints and the measures that will be implemented during the project 14. Provide work-containment and sediment- and erosion-control measures for all in-water work 15. Filter pumped water when dewatering the area inside the cofferdam to reduce SS before they are discharged into the river 16. Install a turbidity curtain prior to installation and removal of the rockfill cofferdam and during demolition 17. Capture fish in the area between the old dam and the turbidity curtain and relocate them prior to the installation of the cofferdam. Redo the same process during the dewatering phase (Phase 1). Capture fish in the area between the turbidity curtain upstream and the new dam before the demolition of the existing dam (Phase 4) 18. Install filters on pumps during dewatering to prevent fish from entering (according to the criteria from DFO's Interim Code of Practice for End of Pipe Fish Screens ( <a href="#">Interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater (dfo-mpo.gc.ca)</a> ) 19. Use clean and appropriate-sized materials for in-water work 20. Clean all equipment and boats that may come into contact with river water to prevent the spread of invasive alien species (IAS) 21. Prepare and implement an IAS management plan 22. Report any IAS sightings and eliminate them properly 23. Minimize the use of explosives near or in fish habitat. If necessary to use blasting, follow DFO measures for blasting near or in Canadian waters. 24. Before removing the upstream turbidity curtain and reopening the new dam after demolition, sample the pH inside that area. If the pH is higher than the criteria (>9) and if the pH does not naturally decrease after few hours or days, the water could be treated to lower the pH before removing the turbidity curtain and reopening the dam. The water treatment to be used and the methodology will be discussed with Indigenous groups. 25. Develop a contingency plan for excessive flood flows 26. Monitor the work and planned measures 27. Restore shoreline after the cofferdam is removed 28. Restore habitat at the existing dam site 29. Stabilize soil and restore vegetation 30. Implement an offsetting plan and a monitoring program <u>Operation period</u> 31. Apply the Operational Management Plan (if needed, bonify it) 32. Contain work to avoid discharges into water 33. Decontaminate and restore sites in the event of spills <u>Emergencies</u> 34. Develop an emergency response procedure 35. Develop sediment- and erosion-control measures 36. Stabilize soils and restore vegetation							

Valued component affected	Area of federal jurisdiction (v)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Magnitude	Geographic range	Duration	Frequency	Reversibility		
				37. Decontaminate and restore sites in the event of spills							
Aquatic species at risk	Section 5(1) a) (ii) of CEAA (2012)	Pre-construction, construction, operation, emergencies	Fish mortality (species at risk), permanent and temporary habitat alteration (species at risk), permanent and temporary effects (species at risk)	1. Evaluate the four options for the fishway in conjunction with DFO experts and Indigenous communities and select one of the options.	Low	Local	Medium	Cyclic	Reversible (offsetting measures)	Non-significant	N/A
				<p><u>Pre-construction</u></p> <p>2. Develop and implement a Construction Environmental Management Plan, that will include, among other things, an Erosion and Sediment Control Plan, a Spill prevention and Response Plan, an IAS Management Plan, etc.)</p> <p>3. Comply with construction start date. Take water temperature in the downstream area of the dam and begin the work in water for Phase 1 only after a 10-day period following a temperature of 18°C (which should be around mid-July)</p> <p>4. Implement sediment- and erosion-control measures</p> <p>5. Educate workers on waste management</p> <p><u>Construction</u></p> <p>6. Adhere to dam closure dates and periods and in-water work dates (see section 7.1.2 and see Measure #3 above)</p> <p>7. Avoid work that could affect critical fish spawning dates</p> <p>8. Work must be done during low flow conditions, outside of the period from April 15 to June 30. The materials used must be free of fine particles for in-water works, while the machinery used must contain biodegradable oil</p> <p>9. Minimize the water footprint of the structures and works. The size of the work site and the equipment installed should be optimized to minimize the direct footprint on fish habitat, destruction or alteration, or incidental mortality of individuals.</p> <p>10. Ensure that the cofferdam is installed quickly (mid-July to late September).</p> <p>11. Implement an erosion and sediment control and mitigation plan that includes all the measures and additional measures suggested by the contractor</p> <p>12. Install erosion and sediment barriers</p> <p>13. Educate and train workers in relation to the fish and fish habitat constraints and the measures that will be implemented during the project</p> <p>14. Provide work-containment and sediment- and erosion-control measures for all in-water work</p> <p>15. Filter pumped water when dewatering the area inside the cofferdam to reduce SS before they are discharged into the river</p> <p>16. Install a turbidity curtain prior to installation and removal of the rockfill cofferdam and during demolition</p> <p>17. Capture fish in the area between the old dam and the turbidity curtain and relocate them prior to the installation of the cofferdam. Redo the same process during the dewatering phase (Phase 1). Capture fish in the area between the turbidity curtain upstream and the new dam before the demolition of the existing dam (Phase 4)</p> <p>18. Install filters on pumps during dewatering to prevent fish from entering (according to the criteria from DFO's Interim Code of Practice for End of</p>							

Valued component affected	Area of federal jurisdiction (√)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Magnitude	Geographic range	Duration	Frequency	Reversibility		
				<p>Pipe Fish Screens (<a href="#">Interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater (dfo-mpo.gc.ca)</a>)</p> <p>19. Use clean and appropriate-sized materials for in-water work</p> <p>20. Clean all equipment and boats that may come into contact with river water to prevent the spread of invasive alien species (IAS)</p> <p>21. Prepare and implement an IAS management plan</p> <p>22. Report any IAS sightings and eliminate them properly</p> <p>23. Minimize the use of explosives near or in fish habitat. If necessary to use blasting, follow DFO measures for blasting near or in Canadian waters.</p> <p>24. Before removing the upstream turbidity curtain and reopening the new dam after demolition, sample the pH inside that area. If pH is higher than the criteria (&gt;9) and if the pH does not naturally decrease after few hours or days, the water could be treated to lower the pH before removing the turbidity curtain and reopening the dam. The water treatment to be used and the methodology will be discussed with Indigenous groups.</p> <p>25. Develop a contingency plan for excessive flood flows</p> <p>26. Monitor the work and planned measures</p> <p>27. Restore shoreline after the cofferdam is removed</p> <p>28. Restore habitat at the existing dam site</p> <p>29. Stabilize soil and restore vegetation</p> <p>30. Implement an offsetting plan and a monitoring program</p> <p><u>Operation period</u></p> <p>31. Apply the Operational Management Plan (if needed, bonify it)</p> <p>32. Contain work to avoid discharges into water</p> <p>33. Decontaminate and restore sites in the event of spills</p> <p><u>Emergencies</u></p> <p>34. Develop an emergency response procedure</p> <p>35. Develop sediment- and erosion-control measures</p> <p>36. Stabilize soils and restore vegetation</p> <p>37. Decontaminate and restore sites in the event of spills</p>							
Wildlife and habitats	Section 5(1) b) (i) CEAA 2012	Pre-construction, construction, emergencies	Temporary and permanent loss of habitat	<p><u>Pre-construction</u></p> <p>1. Limit vegetation clearing and other interventions to required areas</p> <p>2. Optimize movement in the work area to minimize disturbance to wildlife.</p> <p>3. Protect trees adjacent to the site by erecting a two-metre-high barrier situated one metre from the drip line.</p> <p>4. Prune any tree branches damaged during pre-construction.</p> <p>5. Clear vegetation and grade the site between early September and early March, which is outside the general wildlife breeding season.</p> <p>6. Conduct a daily visual inspection of the work site and equipment to confirm the absence of animal species before work begins.</p> <p>7. If an active animal is found in the work area, all work in the immediate area must cease. A standard wildlife-management protocol should be implemented to relocate animals that enter the work area. If individuals are observed, they will either be directed out of the work area (mammals) or captured by a designated employee trained in the safe</p>	Low	Local	Medium	Continuous	Reversible (revegetation plan)	Non-significant	N/A

Valued component affected	Area of federal jurisdiction (√)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Magnitude	Geographic range	Duration	Frequency	Reversibility		
				handling and transport of wildlife, transported to the nearest available off-site location and released. 8. Control noise levels by using silencers on heavy equipment and portable generators. 9. Inspect equipment regularly and operate vehicles only when necessary. 10. Enforce the speed limit on the construction site to minimize the risk of wildlife mortality. 11. Keep the site clean to avoid attracting wildlife. 12. Record all incidental captures and accidents involving wildlife, and if significant levels are recorded at a particular location (more than 5), a biologist should be consulted to determine, with Indigenous peoples, if additional mitigation measures are required (develop, in collaboration with Indigenous groups, and implement a wildlife management plan). 13. Notify Indigenous groups in the event of high wildlife mortality (more than 5). 14. Inform site workers of the potential presence of wildlife and of the measures that must be taken to avoid adverse impacts. 15. Install signage at the edge of habitats indicating the potential presence of wildlife. <u>Construction</u> 16. Same as above. <u>Emergencies</u> 17. Develop an emergency response procedures 18. Decontamination and remediation of site in the event of a spill							
Wildlife species at risk	<i>Species at risk Act (LC 2002, ch.29)</i>	Pre-construction, construction, emergencies	Temporary and permanent loss of habitat	<u>Pre-construction</u> 1. Limit vegetation clearing and other interventions to required areas 2. Protect trees adjacent to the site. 3. Clear and grade the site between early September and early March, which is outside the general wildlife breeding season. 4. If an active animal is found in the work area, work in the immediate area should cease. A standard wildlife-management protocol should be implemented to relocate animals that enter the work area. If individuals are observed, they will either be directed out of the work area or captured by a designated employee trained in the safe handling and transport of wildlife, transported to the nearest available off-site location and released 5. Use sediment barriers along the Long Sault Island shoreline and along the western shoreline of the province to prevent snapping turtles from entering the construction site. The barriers must be biodegradable and designed to minimize entrapment. 6. Control noise levels by using silencers on heavy equipment and portable generators. 7. Inspect equipment regularly and operate vehicles only when necessary. 8. Enforce the speed limit on the construction site to minimize the risk of wildlife mortality. 9. Keep the site clean to avoid attracting wildlife. 10. Record all incidental captures and accidents involving wildlife, and if significant levels (one for the species at risk) are recorded at a particular location, a biologist should be consulted to determine if	Low	Local	Medium	Continuous	Reversible (revegetation plan)	Non-significant	N/A

Valued component affected	Area of federal jurisdiction (√)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Magnitude	Geographic range	Duration	Frequency	Reversibility		
				additional mitigation measures are required (develop, in collaboration with Indigenous groups, and implement a wildlife management plan). 11. Inform site workers of the potential presence of wildlife and of the measures that must be taken to avoid adverse impacts. 12. Install signage at the edge of habitats indicating the potential presence of wildlife. 13. Notify Indigenous groups in the event of any wildlife species at risk mortality. <u>Construction</u> 14. Same as above. 15. Prior to demolition of the dam, in the spring before bats emerge from hibernation, install a curtain over the existing dam to prevent bats from using or settling in the gaps of the existing dam. <u>Emergencies</u> 16. Develop an emergency response procedures 17. Decontamination and remediation of site in the event of a spill							
Migratory birds	Section 5(1) a) (iii) of CEAA (2012)	Pre-construction, construction, emergencies	Temporary and permanent loss of riparian and terrestrial habitat in the work area; temporary loss of aquatic habitat in Phase 1 (mid-July to end of December); noise may deter birds	<u>Pre-construction</u> 1. Limit vegetation clearing and work to the required areas 2. Clear and grade the site between early September and early March, which is outside the bird breeding season in the area 3. Protect trees adjacent to the site. 4. If clearing and grading cannot be scheduled to avoid the bird nesting season, prior to the start of the breeding season, install an audible bird scaring device to prevent birds from nesting in the planned work areas. A biologist should conduct bird surveys during the two days before the work is started. If nests are identified, develop a mitigation plan to minimize disturbance and access to the nest and wait until the chicks leave the nest to cut the tree or backfill the area. If this is not possible due to the work schedule, the work will be completed and incidental captures will be recorded, unless it is a SARA, COSEWIC or LEMV species, in which case, the chicks must have left the nest before the tree and any nearby trees can be cut. 5. If a nest of active migratory birds is discovered during the work, all work in the immediate area must cease and a biologist must be contacted to develop a mitigation plan. 6. Control noise levels by using silencers on heavy equipment and portable generators. 7. Inspect equipment regularly and operate vehicles only when necessary. 8. Enforce the speed limit on the construction site to minimize the risk of wildlife mortality. 9. Keep the site clean to avoid attracting wildlife. 10. Record all incidental captures, and if significant levels are recorded at a particular location (more than 5 or more than one event for species at risk), notify Indigenous groups and consult a biologist to determine, in collaboration with Indigenous groups, if additional mitigation measures are required. 11. Inform site workers of the potential presence of migratory birds and nesting sites, and of the measures that must be taken to avoid negative effects.	Low	Local	Medium	Continuous	Reversible (revegetation plan)	Non-significant	N/A

Valued component affected	Area of federal jurisdiction (√)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Magnitude	Geographic range	Duration	Frequency	Reversibility		
				12. Install signage indicating the potential presence of the migratory bird nest on the construction site at the edge of the habitats.  <u>Construction</u> 13. Same as above. 14. Revegetation of banks (measures included in the revegetation plan). <u>Emergencies</u> 15. Develop an emergency response procedures 16. Decontamination and remediation of site in the event of a spill							
Bird species at risk	<i>Species at risk Act (LC 2002, ch.29)</i>	Pre-construction, construction, emergencies	Temporary and permanent loss of riparian and terrestrial habitat in the work area; temporary loss of aquatic habitat in Phase 1 (mid-July to end of December); noise may deter birds	<u>Pre-construction</u> 1. Limit vegetation clearing and other interventions to required areas 2. Carry out clearing and grading of the site between early September and early March, which is outside the general bird breeding season in the area 3. Protect trees adjacent to the site. 4. If clearing and grading cannot be scheduled to avoid the bird nesting season, prior to the start of the breeding season, install an audible bird scaring device to prevent birds from nesting in the planned work areas. A biologist should conduct bird surveys during the two days before the work is started. If nests are identified, develop a mitigation plan to minimize disturbance and access to the nest and wait until the chicks leave the nest to cut the tree or backfill the area. If this is not possible due to the work schedule, the work will be completed and incidental captures will be recorded, unless it is a SARA, COSEWIC or LEMV species, in which case, the chicks must have left the nest before the tree and any nearby trees can be cut. 5. If a nest of active special status birds is discovered during the work, all work in the immediate area must cease and a biologist must be contacted to develop a mitigation plan. 6. Control noise levels by using silencers on heavy equipment and portable generators. 7. Inspect equipment regularly and operate vehicles only when necessary. 8. Enforce the speed limit on the construction site to minimize the risk of wildlife mortality. 9. Keep the site clean to avoid attracting wildlife. 10. Record all incidental captures, and if significant levels are recorded at a particular location (more than 5 or more than one event for species at risk), notify Indigenous groups and consult a biologist to determine, in collaboration with Indigenous groups, if additional mitigation measures are required. 11. Inform site workers of the potential presence of migratory birds and nesting sites, and of the measures that must be taken to avoid negative effects. 12. Install signage indicating the potential presence of nests of special status bird species on the construction site at the edge of the habitats. 13. Notify Indigenous groups in the event of any bird species at risk mortality. <u>Construction</u> 14. Same as above.	Low	Local	Medium	Continuous	Reversible (revegetation plan)	Non-significant	N/A



Valued component affected	Area of federal jurisdiction (√)	Project activities	Potential effects	Proposed mitigation measures	Key criteria for determining the significance of effects					Significance of residual adverse effects	Likelihood of significant residual adverse effects
					Magnitude	Geographic range	Duration	Frequency	Reversibility		
				<u>Emergencies</u> 15. Develop an emergency response procedures 16. Decontamination and remediation of site in the event of a spill.							

Table 20.1 Summary of Effects on the Biological Environment (changes in *italic*)

Valued Component affected	Area of federal jurisdiction (√)	Project Activity	Potential effects	Proposed mitigations or enhancements	Direction of Effect	Main criteria to determine the significance of effects					Significance of residual adverse effect	Likelihood of significance of residual adverse effect
						Magnitude	Geographical extent	Duration	Frequency	Reversibility		
Health and Socio-economic conditions and activities – AN, the AOO, AOPFN, MNO	<i>Section 5(1) c) (i) of CEAA (2012)</i>	Dam construction	Direct and indirect employment and business opportunities	<ol style="list-style-type: none"> <li>1. Prioritize local and Indigenous service providers and workers to optimize direct and indirect employment in the region</li> <li>2. Encourage joint ventures when local capacity does not exist to create benefits for local and Indigenous communities</li> <li>3. Ensure equal pay and employment opportunities</li> <li>4. Encourage contractor to use qualified local and Indigenous-owned services</li> </ol>	Positive	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Health and Socio-economic conditions and activities – AN, the AOO, AOPFN, MNO	<i>Section 5(1) c) (i) of CEAA (2012)</i>	Dam construction	Barriers to employment	<ol style="list-style-type: none"> <li>1. Institute a zero-tolerance policy for racism and sexism</li> <li>2. Provide cultural awareness and sensitivity training</li> <li>3. Monitor Indigenous women and marginalized worker concerns and respond to issues as they arise</li> <li>4. Institute confidential whistle-blower / grievance system for the workplace</li> <li>5. Encourage implementation of workplace diversity measures and incentives</li> <li>6. Discuss and address barriers to employment during development of Indigenous Participation Plan (IPP)</li> </ol>	Negative	Low	Local	Medium	Continuous	Reversible	Non-significant	N/A
Health and Socio-economic conditions and activities – AN, the AOO, AOPFN, MNO	<i>Section 5(1) c) (i) of CEAA (2012)</i>	Dam construction	Skills and capacity development	<ol style="list-style-type: none"> <li>1. Develop IPP to support economic benefits, and to encourage the contractors to provide training and apprenticeship opportunities</li> <li>2. Support environmental monitoring training to local, impacted Indigenous groups</li> <li>3. Support creation and long-term sustained use of local Indigenous guardianship initiatives</li> <li>4. Share monitoring results with Indigenous and non-Indigenous communities</li> <li>5. Implement measures through IPP to ensure opportunities for local Indigenous groups to benefit</li> </ol>	Positive	N/A	N/A	N/A	N/A	N/A	Positive	N/A
Health and Socio-economic conditions and activities – AN, MNO [Confirm KFN, TFN, WLFN]	<i>Section 5(1) c) (i) of CEAA (2012)</i>	Dam construction	Decreased participation in cultural events /activities and traditional economy	<ol style="list-style-type: none"> <li>1. Provide cultural awareness and sensitivity training</li> <li>2. Discuss cultural leave, and flex scheduling with Indigenous employees</li> <li>3. Encourage wellness and family leave policies</li> <li>4. Implement measures through IPP</li> </ol>	Negative	Low	Local	Medium	Cyclic	Reversible	Non-significant	N/A
Health and Socio-economic conditions and activities – AN, AOPFN, MNO [Confirm KFN, TFN, WLFN]	<i>Section 5(1) c) (i) of CEAA (2012)</i>	Dam construction	Increased land use by non-Indigenous workers	<ol style="list-style-type: none"> <li>1. Give preference to local and Indigenous workers to minimize changes to harvesting</li> <li>2. Provide cultural awareness and sensitivity training</li> <li>3. Ensure all workers are aware of, and follow, provincial rules and regulations regarding hunting and fishing; work with provincial conservation officers to monitor/enforce rules</li> </ol>	Negative	Low	Local	Medium	Cyclic	Reversible	Non-significant	N/A



Valued Component affected	Area of federal jurisdiction (√)	Project Activity	Potential effects	Proposed mitigations or enhancements	Direction of Effect	Main criteria to determine the significance of effects					Significance of residual adverse effect	Likelihood of significance of residual adverse effect
						Magnitude	Geographical extent	Duration	Frequency	Reversibility		
Health and Socio-economic conditions and activities – Non-Indigenous	Section 5(1) c) (i) of CEAA (2012)	Dam construction	Direct and indirect employment and business opportunities	<ol style="list-style-type: none"> <li>1. Prioritize local and Indigenous service providers and workers to optimize direct and indirect employment in the region</li> <li>2. Encourage joint ventures when local capacity does not exist to create benefits for local and Indigenous communities</li> <li>3. Ensure equal pay and employment opportunities</li> <li>4. Encourage contractor to use qualified local and Indigenous-owned services</li> </ol>	Positive	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Health and Socio-economic conditions and activities – Non-Indigenous	Section 5(1) c) (i) of CEAA (2012)	Dam construction	Increased use of local businesses by construction workforce	<ol style="list-style-type: none"> <li>1. Encourage non-local workers to stay in local accommodations and use local businesses and services</li> <li>2. Discuss workforce needs with local business organizations (Chambers of Commerce, etc.) so that they may provide goods and services that are needed / wanted by the workers</li> </ol>	Positive	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Health and Socio-economic conditions and activities – Non-Indigenous	Section 5(1) c) (i) of CEAA (2012)	Dam construction	Disruption of community life due to construction activity and temporary workers	<ol style="list-style-type: none"> <li>1. Provide information about peak season availabilities to contractor to ensure best use of local temporary accommodations</li> <li>2. Encourage renting local housing rather than using hotels and local campgrounds and other tourism-based accommodations</li> <li>3. Request listing of local accommodation establishments and number of rooms that are willing to provide long-term rentals</li> <li>4. Liaise with hotel owners in advance of construction to secure the needed Project accommodation, if required</li> <li>5. Create short-term accommodations (work camp/trailers) on vacant lands rented from willing local municipal, Indigenous or private property hosts, if required</li> <li>6. Provide community orientation to workers and contractors stressing requirement for respectful behaviour and use of community facilities</li> <li>7. Ensure adherence to contractor health, safety, and environmental policies</li> <li>8. Institute zero-tolerance policy for inappropriate behaviour on the job and in communities, where appropriate</li> <li>9. Communicate early and regularly with contractor, local police, social services, and municipalities to establish working relationships and ongoing exchange of information, incident tracking, corrective actions, and other strategies, as required</li> </ol>	Negative	Low	Local	Medium	Continuous	Reversible	Non-significant	N/A
Health and Socio-economic conditions and activities – Non-Indigenous	Section 5(1) c) (i) of CEAA (2012)	Dam construction	Change in population and demographics during construction	None proposed	Positive	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Health and Socio-economic conditions	Section	Dam construction	Increased demand on health care	<ol style="list-style-type: none"> <li>1. Ensure contractors have excellent safety records</li> <li>2. Recommend employees access regular medical care in their own communities</li> </ol>	Negative	Low	Local	Medium	Cyclic	Reversible	Non-significant	N/A

Valued Component affected	Area of federal jurisdiction (√)	Project Activity	Potential effects	Proposed mitigations or enhancements	Direction of Effect	Main criteria to determine the significance of effects					Significance of residual adverse effect	Likelihood of significance of residual adverse effect
						Magnitude	Geographical extent	Duration	Frequency	Reversibility		
and activities – Non-Indigenous	5(1) c) (i) of CEAA (2012)		facilities during construction	<ol style="list-style-type: none"> <li>Hire locally to avoid pressure on existing medical services by increasing the population</li> <li>Enforce worksite best practices to reduce spread of contagious disease, as required</li> <li>Implement testing or vaccination requirements, as required</li> <li>Deliver a health and safety program for all workers before and during construction employment so that the industry's excellent safety record is maintained</li> <li>Provide first-aid facilities on site and having first aid responders on site at all times</li> </ol>								
Health and Socio-economic conditions and activities – Non-Indigenous	Section 5(1) c) (i) of CEAA (2012)	Dam construction	Increased land use during construction	<ol style="list-style-type: none"> <li>Give preference to local and Indigenous workers to minimize changes to harvesting</li> <li>Provide cultural awareness and sensitivity training</li> <li>Ensure all workers are aware of, and follow, provincial rules and regulations regarding hunting and fishing; work with provincial conservation officers to monitor/enforce rules</li> </ol>	Negative	Low	Local	Medium	Cyclic	Reversible	Non-significant	N/A
Physical and cultural heritage; Historical, archaeological, paleontological or architectural elements of importance – the AOO, AN, AOPFN, MNO and Non-Indigenous	Section 5(1) c) (ii) and (iv) of CEAA (2012)	Dam construction	Destruction of archaeological resources on Long Sault Island	<ol style="list-style-type: none"> <li>Halt activities if any archaeological resources are discovered, protect the site, notify Indigenous groups and relevant authorities (provincial archaeological authorities)</li> <li>Comply with the Ontario Heritage Act</li> <li>Involve interested Indigenous groups in archeological studies</li> <li>PSPC will work with Indigenous groups prior to construction to prepare a protocol for the protection and management of any recovered artefacts based on the archaeological intervention plan (refer to Phase 4)</li> <li>If artefacts are found, they will be held in trust by PSPC until the protocol can be implemented</li> </ol>	Neutral	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Physical and cultural heritage; Historical, archaeological, paleontological or architectural elements of importance - AN, the AOO, AOPFN, MNO and Non-Indigenous	Section 5(1) c) (ii) and (iv) of CEAA (2012)	Dam construction	Destruction of marine archaeological resources	<ol style="list-style-type: none"> <li>Conduct an underwater archaeological potential assessment (Phase 1), underwater archaeological surveys (Phase 2, if recommended and deemed feasible), an underwater archaeological impact assessment (Phase 3) and develop an archaeological intervention plan (Phase 4)</li> <li>Comply with the Ontario and/or Quebec Standards and Guidelines for Consultant Archaeologists</li> <li>Conduct archaeological investigation based on the archaeological intervention plan in the dewatered area once cofferdam installed, document and recovery any archaeological resources, if discovered, to prevent destruction</li> <li>Involve interested Indigenous groups in archeological studies</li> <li>PSPC will work with Indigenous groups prior to construction to prepare a protocol for the protection and management of any recovered</li> </ol>	Neutral	N/A	N/A	N/A	N/A	N/A	NA	N/A

Valued Component affected	Area of federal jurisdiction (√)	Project Activity	Potential effects	Proposed mitigations or enhancements	Direction of Effect	Main criteria to determine the significance of effects					Significance of residual adverse effect	Likelihood of significance of residual adverse effect
						Magnitude	Geographical extent	Duration	Frequency	Reversibility		
				artefacts based on the archaeological intervention plan 6. If artefacts are found, they will be held in trust by PSPC until the protocol can be implemented.								
Physical and cultural heritage; Historical, archaeological, paleontological or architectural elements of importance – Non-Indigenous	Section 5(1) c) (ii) and (iv) of CEAA (2012)	Dam construction	Conflicts between recreation vehicles and pedestrian traffic on the dam	1. Install appropriate fencing and signage to limit pedestrian-recreational vehicle conflicts on the walkway	Negative	Low	Footprint	Permanent	Cyclic	Reversible	Non-significant	N/A
Physical and cultural heritage; Historical, archaeological, paleontological or architectural elements of importance – the AOO, AN, AOPFN, MNO	Section 5(1) c) (ii) and (iv) of CEAA (2012)	Dam construction	Physical and cultural heritage value of Long Sault Island	1. Discuss opportunities with Indigenous groups for re-establishing natural vegetation on Long Sault Island 2. Invite Indigenous groups to harvest any trees and plants with cultural value prior to the construction of the new dam 3. Involve Indigenous groups in the planning, design, siting, installation and maintenance of a plaque or other permanent structure that provides the history of the Ottawa River and Long Sault Island and their importance to Algonquin cultural and physical heritage and recognition of the Project on Algonquin territory 4. Respect and allow space for Indigenous groups to conduct cultural ceremonies prior to the construction of the new dam to bring recognition and awareness to the historical alteration of the island and Ottawa River which may subsequently help to heal these historical impacts and build reconciliation with the impacted Indigenous groups 5. Upon completion of the dam, erect signage and information to ensure proper acknowledgement of the significance of the area to the Algonquin Peoples	Negative	Medium	Footprint	Long-term	Continuous	Irreversible	Non-significant	N/A
Physical and cultural heritage; Historical, archaeological, paleontological or architectural elements of importance – AN, the AOO, AOPFN, MNO	Section 5(1) c) (ii) and (iv) of CEAA (2012)	Dam construction	Physical and cultural heritage value of Ottawa River	None proposed	Negative	Medium	Footprint	Long-term	Continuous	Irreversible	Non-significant	N/A
Current use of land and resource for traditional purpose – AN	Section	Dam construction	Lights on dam affecting fish abundance and harvesting	1. Direct lights toward working area during construction	Negative	Low	Footprint	Medium	Cyclic	Reversible	Non-significant	N/A

Valued Component affected	Area of federal jurisdiction (√)	Project Activity	Potential effects	Proposed mitigations or enhancements	Direction of Effect	Main criteria to determine the significance of effects					Significance of residual adverse effect	Likelihood of significance of residual adverse effect
						Magnitude	Geographical extent	Duration	Frequency	Reversibility		
	5(1) c) (iii) of CEAA (2012)											
Current use of land and resource for traditional purpose – AN	Section 5(1) c) (iii) of CEAA (2012)	Dam construction	Perceived/real impacts on fish health due to contaminants	<ol style="list-style-type: none"> <li>1. Install turbidity curtain and remove sediments from behind it</li> <li>2. Inspect turbidity curtain after it is installed</li> <li>3. Monitor for organic mats downstream of the dam construction site within the Project area and remove if observed</li> <li>4. Share information on water/fish quality</li> <li>5. Share information on construction/demolition material composition and risks to health</li> <li>6. Involve Indigenous groups in monitoring fish and fish habitat during construction and post-construction Project phases</li> <li>7. Improve fish habitat through offsets approved by DFO</li> <li>8. Include Indigenous knowledge in fish monitoring and species restoration or recovery activities, as appropriate</li> </ol>	Negative	Medium	Local	Medium	Continuous	Reversible	Non-significant	N/A
Current use of land and resource for traditional purpose – the AOO, MNO	Section 5(1) c) (iii) of CEAA (2012)	Dam construction	Perceived/real impacts on fish health due to contaminants	<ol style="list-style-type: none"> <li>1. Install turbidity curtain and remove sediments from behind it</li> <li>2. Inspect turbidity curtain after it is installed</li> <li>3. Share information on water/fish quality</li> <li>4. Share information on construction/demolition material composition and risks to health</li> <li>5. Improve fish habitat through offsets approved by DFO</li> <li>6. Involve Indigenous groups in monitoring activities</li> <li>7. Include Indigenous knowledge in fish monitoring and species restoration or recovery activities, as appropriate</li> </ol>	Negative	Low	Local	Medium	Continuous	Reversible	Non-significant	N/A
Current use of land and resource for traditional purpose – AN, the AOO, MNO	Section 5(1) c) (iii) of CEAA (2012)	Dam construction	Changes to access to fishing areas near the dam from fencing and signage	<ol style="list-style-type: none"> <li>1. Provide cultural awareness and sensitivity training (including Indigenous rights) to Project workers involved in constructing the fencing and signage, as well as those communicating the safety features to Algonquins and other Indigenous communities</li> <li>2. Communicate early and regularly with communities about access to fishing areas close to the dam</li> </ol>	Negative	Low	Footprint	Long-term	Continuous	Irreversible	Non-significant	N/A
Current use of land and resource for traditional purpose – AN	Section 5(1) c) (iii) of CEAA (2012)	Dam construction and operation	Loss of fishing equipment from snagging on blocks on dam apron	<ol style="list-style-type: none"> <li>1. Investigate alternatives to habitat creation options for the Quebec apron, such as boulders rather than blocks</li> <li>2. Use blocks of a different design that are less likely to snag</li> </ol>	Neutral	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Current use of land and resource for traditional purpose – the AOO, AN, AOPFN	Section 5(1) c) (iii) of CEAA (2012)	Dam construction and operation	Loss of fishing habitat and spawning grounds leading to loss of	<ol style="list-style-type: none"> <li>1. Improve fish habitat through offsets approved by DFO</li> <li>2. Collaborate with Indigenous groups to develop a fish habitat compensation and monitoring plan that includes Indigenous knowledge, including</li> </ol>	Negative	Low	Local	Long-term	Continuous	Reversible	Non-significant	N/A

Valued Component affected	Area of federal jurisdiction (√)	Project Activity	Potential effects	Proposed mitigations or enhancements	Direction of Effect	Main criteria to determine the significance of effects					Significance of residual adverse effect	Likelihood of significance of residual adverse effect
						Magnitude	Geographical extent	Duration	Frequency	Reversibility		
			abundance and fishing opportunities	temperature monitoring during spawning seasons								
Current use of land and resource for traditional purpose – AN, the AOO, AOPFN, MNO	Section 5(1) c (iii) of CEAA (2012)	Dam construction and operation	No Fish passage or fish passage for American eel (only)	None proposed	Neutral	NA	NA	NA	NA	NA	N/A	NA
Current use of land and resource for traditional purpose – AN, the AOO, AOPFN, MNO	Section 5(1) c (iii) of CEAA (2012)	Dam construction and operation	Fish passage (for multiple fish species) changing abundance of certain species	1. Delay fish passage until mitigation measures can be assessed (option 4)	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown/not evaluated
Current use of land and resource for traditional purpose – AN, the AOO, AOPFN, MNO	Section 5(1) c (iii) of CEAA (2012)	Dam construction and operation	Fish passage delayed until watershed wide plan in place and assessed	None proposed	Positive	NA	NA	NA	NA	NA	N/A	NA
Current use of land and resource for traditional purpose – AN, the AOO, AOPFN, MNO	Section 5(1) c (iii) of CEAA (2012)	Dam construction	Wildlife mortality from Project activity traffic	1. Implement traffic control measures at the Project site, for example, speed limits 2. Monitor wildlife mortality during the Project activities and address issues if mortality rate is high	Negative	Low	Local	Medium	Cyclic	Reversible	Non-significant	N/A
Current use of land and resource for traditional purpose – AN, the AOO	Section 5(1) c (iii) of CEAA (2012)	Dam construction and operation	Changes in health and abundance of wildlife that rely on fish	None proposed	Neutral	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Current use of land and resource for traditional purpose – the AOO MNO	Section 5(1) c (iii) of CEAA (2012)	Dam construction	Impacts of construction noise on wildlife and migratory birds and wildlife habitat	1. Mitigations to avoid impacts to wildlife and migratory birds as noted in Chapter 12. 2. Keep noise pollution to a minimum and establish quiet hours, especially during the night to help provide a more suitable environment for wildlife, where possible (see Section 11.2.3 for more measures related to noise).	Negative	Low	Local	Medium	Cyclic	Reversible	Non-significant	N/A
Current use of land and resource for traditional purposes - AN, AOPFN	Section 5(1) c (iii) of CEAA (2012)	Dam construction	Impacts on wildlife that rely on fish	None proposed	Neutral	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Current use of land and resource for	Section	Dam construction	Plant and natural material harvesting	1. Invite Indigenous groups to harvest any trees and plants of cultural value prior to the construction of the new dam	Neutral	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Valued Component affected	Area of federal jurisdiction (√)	Project Activity	Potential effects	Proposed mitigations or enhancements	Direction of Effect	Main criteria to determine the significance of effects					Significance of residual adverse effect	Likelihood of significance of residual adverse effect
						Magnitude	Geographical extent	Duration	Frequency	Reversibility		
traditional purpose – AN, AOPFN, MNO	5(1) c) (iii) of CEAA (2012)	and operation		2. Discuss opportunities with Indigenous groups to re-establish natural vegetation on Long Sault Island which could include the following: <ul style="list-style-type: none"> <li>a) Plant new pioneer species in disturbed areas, including thistle, asters, goldenrod, mugwort, dandelion, nettles, sumac, etc., to restore disturbed sites</li> <li>b) Discuss a species restoration plan with interested Indigenous communities, which could include a plant re-introduction strategy for all stages of restoration</li> <li>c) Make efforts to re-establish the Wolf Willow away from the construction activities on Long Sault Island, so that Algonquins represented by the AOO can continue to harvest it for medicinal and ceremonial use</li> <li>d) Invite Indigenous communities to apply Indigenous knowledge to decision-making to determine which plants to seed, manage, and monitor in the Project footprint</li> <li>e) Communicate restoration activities through signage other appropriate communication methods</li> <li>f) Restrict access to planting sites while vulnerable to human disturbance</li> <li>g) Monitor growth rates of vegetation planted to support restoration and the development of habitat</li> <li>h) Include Indigenous groups in monitoring restored plants</li> </ul>								
Current use of land and resource for traditional purpose – the AOO	Section 5(1) c) (iii) of CEAA (2012)	Dam construction and operation	Physical removal and/or disturbance of shoreline plants during construction	1. Invite Indigenous groups to harvest any trees and plants of cultural value prior to the construction of the new dam 2. Discuss opportunities with Indigenous groups to re-establish natural vegetation on Long Sault Island which could include the following: <ul style="list-style-type: none"> <li>a) Plant new pioneer species in disturbed areas, including thistle, asters, goldenrod, mugwort, dandelion, nettles, sumac, etc., to restore disturbed sites</li> <li>b) Discuss a species restoration plan with interested Indigenous communities, which could include a plant re-introduction strategy for all stages of restoration</li> <li>c) Make efforts to re-establish the Wolf Willow away from the construction activities on Long Sault Island, so that Algonquins represented by the AOO can continue to harvest it for medicinal and ceremonial use</li> <li>d) Invite Indigenous communities to apply Indigenous knowledge to decision-making to determine which plants to seed, manage, and monitor in the Project footprint</li> </ul>	Negative	Low	Footprint	Medium	Punctual	Reversible	Non-significant	N/A

Valued Component affected	Area of federal jurisdiction (√)	Project Activity	Potential effects	Proposed mitigations or enhancements	Direction of Effect	Main criteria to determine the significance of effects					Significance of residual adverse effect	Likelihood of significance of residual adverse effect
						Magnitude	Geographical extent	Duration	Frequency	Reversibility		
				<ul style="list-style-type: none"> <li>e) Communicate restoration activities through signage other appropriate communication methods</li> <li>f) Restrict access to planting sites while vulnerable to human disturbance</li> <li>g) Monitor growth rates of vegetation planted to support restoration and the development of habitat</li> <li>h) Include Indigenous groups in monitoring restored plants</li> </ul>								
Current use of land and resource for traditional purpose – the AOO	Section 5(1) c) (iii) of CEAA (2012)	Dam construction and operation	Reduced harvesting of plants for food and medicine due to actual or perceived contamination of plants and medicines from dust, or plant absorption of chemicals from road runoff, or construction spills.	<ol style="list-style-type: none"> <li>1. Manage dust during construction with water</li> <li>2. Restore any areas that do become contaminated by spills</li> <li>3. Discuss a vegetation restoration plan with Indigenous groups for the Project footprint/construction areas and/or other parts of Long Sault Island</li> <li>4. Install silt fence during construction to capture contaminants from running into the Ottawa River</li> <li>5. Design roadway to include ditching and sedimentation ponds to capture run-off of contaminants exists currently</li> <li>6. Explore the creation of other areas that are accessible for harvesting medicinal plants so the need to harvest on this shoreline is reduced</li> </ol>	Negative	Low	Local	Medium	Cyclic (seasonal)	Reversible	Non-significant	N/A
Current use of land and resource for traditional purpose – AN, the AOO, AOPFN, MNO	Section 5(1) c) (iii) of CEAA (2012)	Dam construction and operations	Changes in water or land access or travel from Project activities	None proposed	Neutral	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Current use of land and resource for traditional purpose – AOPFN	Section 5(1) c) (iii) of CEAA (2012)	Dam construction	Avoidance of the Ottawa River due to construction activities that may release contaminants in sediment and from dam construction materials	<ol style="list-style-type: none"> <li>1. Monitor water quality changes during the Project activities</li> <li>2. Provide water quality data to communities</li> <li>3. Provide material safety information about dam components to AOPFN</li> </ol>	Negative	Low	Local	Medium	Cyclic	Reversible	Non-significant	N/A
Current use of land and resource for traditional purpose – AN	Section 5(1) c) (iii) of CEAA (2012)	Dam construction	Avoidance of the Ottawa River for drinking, swimming, and bathing because of real or perceived contaminants in sediment and dam	<ol style="list-style-type: none"> <li>1. Involve Indigenous groups in monitoring water quality during construction Project phases</li> <li>2. Provide water quality data to communities</li> </ol>	Negative	Medium	Local	Medium	Cyclic	Reversible	Non-significant	N/A



Valued Component affected	Area of federal jurisdiction (√)	Project Activity	Potential effects	Proposed mitigations or enhancements	Direction of Effect	Main criteria to determine the significance of effects					Significance of residual adverse effect	Likelihood of significance of residual adverse effect
						Magnitude	Geographical extent	Duration	Frequency	Reversibility		
			construction materials									





- B) ensure that, for each of the components to which CEAA 2012 applies, the effects on these components have been assessed by the proponent. If not, assess the effects on the components that have not been assessed, identify and describe the mitigation and follow-up measures to be implemented, and assess the residual effects.

PSPC Response:

As is requested in AEIC 1-70 to AEIC 1-76 the effects of the project on the health, socio-economic conditions and traditional land uses is being assessed by SART communities and will be contained in the responses to those information requests.

As is requested in AEIC 1-80 the effect of the project on AOPFN health and socio-economic conditions will be assessed once their health and socio-economic study has been received by PSPC (expected November 2023) and will be contained in the responses to those information requests.

An assessment of effects of the three project options on cultural heritage sites/features is contained in the response to AEIC 1-88.

## IAAC-1-2 Legislative framework

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, Section 1.4 (Regulatory framework and the role of government)*.

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.1.3.1.*

### Context

Several laws and regulations are named in relation to protected areas in the first bullet of section 12.2.3.1 of the EIS.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) for each law and regulation, specify whether it is under the jurisdiction of the government of Quebec, of Ontario or of Canada.

PSPC Response:

#### Section 12.1.3.1 Literature Review

The available reference documents and field data were consulted to prepare a historical overview of the fish species that are present in the study areas and the potential presence of habitats.

First, an overview of the ASA and TSA is provided based on the information available in the literature, such as data banks and previous studies.

The following components were documented to develop a portrait of the surrounding environment:

- Protected areas within a 5 km radius of the Project, including:

- Protected areas regulated under the *Natural Heritage Conservation Act* (Québec) or the *Parks Act* (Québec);
- Exceptional forest ecosystems or biological refuges classified or designated under the *Sustainable Forest Development Act* (Québec);
- Wildlife habitats mapped under the *Regulation respecting wildlife habitats* (Québec) and the *Act respecting the conservation and development of wildlife* (Québec);
- Wildlife sites of interest;
- Wildlife preserves established under the *Act respecting the conservation and development of wildlife* (Québec).

### IAAC-1-3 Studies carried out to identify wildlife species using the dam site as a feeding ground

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.7 (Birds and bird habitat) and 7.1.8 (Species at Risk)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.1*

## Context

Section 12.1 of the EIS presents the wildlife species that are likely to be found in the project area, but does not specify whether these species are likely to use the dam site as a feeding ground.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) identify which benthic studies have been conducted to substantiate the feeding of fish species in the project area and in the area of influence of the dam operation; and

### PSPC Response:

No such study was undertaken given the unsuitable substrate around the existing and future dam-bridge for benthos and high water velocity. However, section 12.1.6.5.2.1 of the report details the methodology applied to identify fish habitat use for the complete study zone. It specifies:

« The approach used is the one recommended by the Department of Fisheries and Oceans (DFO) for characterizing fish habitat in large rivers or in the St. Lawrence River, which is based on the method for the characterization of fluvial type habitats, adapted from Armellin *et al.* (1997) ».

Section 3.1.2.1 of Appendix 12.1 gives more detail on this methodology:

« In order to characterize the fish communities and habitat, two fishing expeditions were conducted in the spring of 2021. The aquatic habitat survey was conducted during the second fishing campaign (June 2021) across the entire ASA, that is, 1.5 km downstream of the dam and 500 m upstream of the dam. The approach used is the one recommended by the Department of Fisheries and Oceans (DFO) for characterizing fish habitat in large rivers or in the St. Lawrence River, which is based on the method for the characterization of fluvial type habitats, adapted from Armellin *et al.* (1997).

Aquatic habitats in the study area were evaluated based on four biophysical attributes: flow velocity, average depth, substrate grain size, and presence or absence of aquatic vegetation. This approach makes it possible to identify the main habitats present and classify them into 24 habitat types according to their specific parameters. The classification matrix for identifying the 24 aquatic habitats is set out in Appendix 5. The equipment used consisted of a Garmin GPSMAP 64st GPS device and a Garmin Striker Plus 5cv GPS depth sounder. A detailed bathymetric survey conducted in 2019 near the dams was used to supplement the depth-related data collected. The delineation of the swift water was in part based on photo-interpretation of CNES/Airbus (Google Earth) satellite imagery taken in August 2021.

A Vexilar Fishphone underwater camera system and an anchor were used to characterize the substrate and document the presence of aquatic vegetation. The transects and characterization points were spaced approximately 50 m apart at right angles to the banks in order to form an equidistant survey grid. The photos and video images of the transects and covering the study area were georeferenced and catalogued. Current speeds were measured using a Swoffer Model 2100 current meter near the surface at all characterization points with a perceptible current. Lastly, a YSI PRO multi-parameter probe was used to measure the physical and chemical properties of the water.

The ArcGis Pro 2.8.3 software package with a Spatial Analyst extension was used to manage the spatial data, produce isobaths and conduct overlay analysis.

Once the habitat types have been defined, it is possible to quickly identify their main functions and their respective degree of sensitivity. However, habitat sensitivity may vary from region to region, depending on the fish species found in a particular ecosystem (e.g., presence of walleye, lake sturgeon, catostomids, salmonids). Habitats generally considered sensitive or non-sensitive by Armellin *et al.* (1997) are as follows:

- Sensitive: 1, 2, 3, 4, 6, 8, 12, 13, 13a, 14, 16, 18, 21 and 22;
- Non-sensitive: 1a, 5, 7, 9, 10, 11, 15, 17, 19, 20, 23 and 24.

Habitat sensitivity depends on the functions performed (reproduction for swift- or still-water species, rearing, feeding, etc.) and the species present. Type 1 habitat corresponds to the floodplain which may be used for spawning by phytophilous and phytolithophilous species. Habitats considered sensitive that have aquatic vegetation (2, 4, 6, 8, 12, 14, 16 and 18) are likely to be used by phytophilous and phytolithophilous species for spawning and rearing, and as a feeding area for several species. Habitat types 3, 13, 13a, 21, and 22 are habitats that have no aquatic vegetation, but show some sensitivity. Habitat types 13, 17, 21, and 22 have spawning potential for lithophilous swift-water species, while habitat types 3 and 13a represent potential summer feeding areas.”



Identified fish habitats were mapped on Figure 3.5 of Appendix 12.1 of the report:

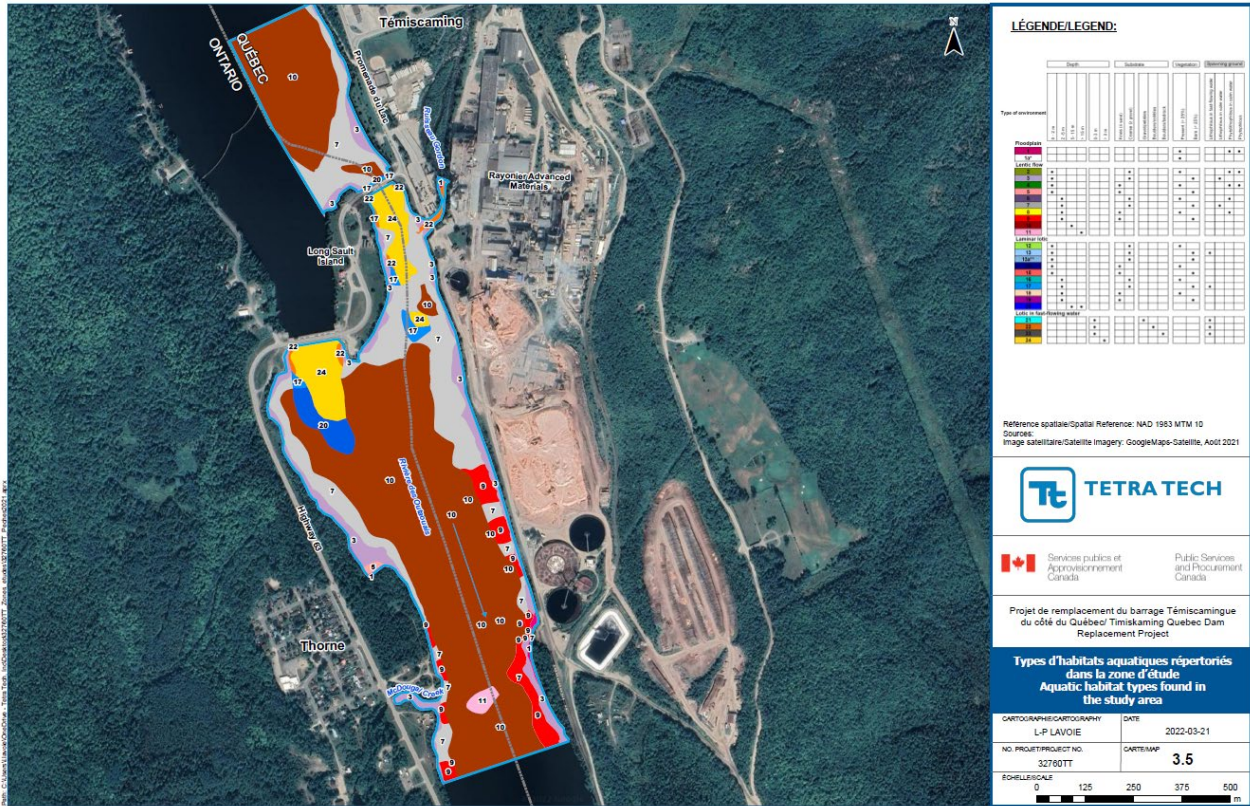


Table 3.6 of Appendix 12.1 summarizes various fish habitats found in the study zone:

Type	Flow	Depth (m)	Current (m/s)	Substrate	Vegetation	Type of spawning ground	Surface area (ha)
1	Floodplain	NA	NA	Undetermined	Present	Phytophilous still-water species	0.33
3	Lentic	0-2	0-0.3	Coarse	Bare	Lithophilous still-water species	6.05
5	Lentic	0-2	0-0.3	Fine	Bare	<b>Not defined as a spawning ground</b>	0.09
7	Lentic	2-5	0-0.3	Coarse	Bare	Lithophilous still-water species	11.93
9	Lentic	2-5	0-0.3	Fine	Bare	<b>Not defined as a spawning ground</b>	2.29



Type	Flow	Depth (m)	Current (m/s)	Substrate	Vegetation	Type of spawning ground	Surface area (ha)
10	Lentic	5-15	0-0.3	Undetermined	Bare	<b>Not defined as a spawning ground</b>	35.06
11	Lentic	> 15	0-0.3	Undetermined	Bare	<b>Not defined as a spawning ground</b>	0.35
17	<b>Lotic laminar</b>	2-5	> 0.3	Coarse	Bare	Swift-water lithophilous species in white water	0.54
20	<b>Lotic laminar</b>	5-15	> 0.3	Coarse	Undetermined	<b>Not defined as a spawning ground</b>	1.12
22	<b>Swift-water lotic</b>	0-3	> 0.3	<b>Boulders cobble</b>	Undetermined	Swift-water lithophilous species	0.52
24	<b>Swift-water lotic</b>	> 0.3	> 0.3	Undetermined	Undetermined	<b>Not defined as a spawning ground</b>	3.58

Fish habitat of categories 10, 17, 20, 22 and 24 are found in the immediate proximity of the « dam site ».

B) specify which wildlife species are likely to use the dam site as a feeding ground and specify the methodology used to find this information.

PSPC Response:

Considering preferred habitat for various fish species susceptible to be found in the study zone as presented in Appendix 12.1 of the report, use of the « dam site » as foraging habitat can be determined as follow:

Name	Habitat	Diet
<b>Common: Walleye (Pickerel)</b> <b>French: Doré jaune (doré, doré blanc, doré bleu)</b> <b>Indigenous: Ogaa</b> <b>Scientific: <i>Sander vitreus</i></b>	Cool (13 to 21 °C), shallow (less than 15 m), and turbid water. Abundant in large lakes and rivers, also present in smaller lakes, reservoirs, and rivers with a moderate current. Often seeks pools at the base of rapids. Less demanding in terms of habitat, more abundant, and more widespread than sauger.  <b>Corresponds to habitat 10 (slow current).</b>	Predominantly piscivorous. Also eats insects, leeches, crayfish, slugs, small garter snakes and salamanders, frogs and small mammals. Cannibalism is also possible. Feeds throughout the day in turbid water, in shallow areas at sunrise and in clear water at sunset (light sensitive eyes). At night, often feeds throughout the water column. In turbid waters, it is more active during the day.
<b>Common: Longnose sucker</b> <b>French: Meunier rouge</b> <b>Indigenous: Namebinikaa (sucker)</b> <b>Scientific: <i>Catostomus catostomus</i></b>	Clear, cold waters (10 to 15 °C) at all depths, mainly between 0.1 and 3 m in the northern latitudes. In the south, the deep parts of lakes and large rivers, very rarely in small rivers. Small streams and shoals at spawning time. Generally, in colder, deeper waters than the white sucker. Prefers gravelly or cobbled bottoms.	Feeds on various invertebrates, such as insect larvae and pupae, worms, molluscs and small crustaceans.

Name	Habitat	Diet
	<p><b>Corresponds to habitats 17, 22, 24 (shallow water).</b></p>	
<p><b>Common: White sucker</b>  <b>French: Meunier noir</b>  <b>Indigenous: Namebin</b>  <b>Scientific: <i>Catostomus commersonii</i></b></p>	<p>Small streams, rivers, ponds and lakes, on rocky or muddy bottoms, with or without vegetation. Warm or cold waters (7.2 to over 10 °C), with or without current. Usually avoids deep water.</p> <p><b>Corresponds to habitats 10, 17, 20, 22, 24.</b></p>	<p>Feeds on various invertebrates, such as insect larvae and pupae, worms, molluscs and small crustaceans.</p>
<p><b>Common: Northern pike</b>  <b>French: Grand brochet</b>  <b>Indigenous: Ginoozhe</b>  <b>Scientific: <i>Esox lucius</i></b></p>	<p>Densely vegetated shallow waters of slow-flowing rivers, warm, grassy bays of lakes and reservoirs. Sometimes at depth during the summer heat. Presence of northern pike during the spawning period in the turbid waters of the floodplain along the St. Lawrence River in the spring. Thrives better than muskellunge in habitats where they are present together. Competes more effectively for space, food, and spawning grounds.</p> <p><b>No corresponding habitat.</b></p>	<p>Opportunistic carnivore, diet mainly composed of fish (yellow perch, suckers, crappie/bass, cyprinids, etc.), but also insects, crayfish, frogs, mice, muskrats and ducklings. Its prey can be as large as half its own size.</p>
<p><b>Common: Lake whitefish (whitefish)</b>  <b>French: Grand corégone</b>  <b>Indigenous: Atikamig</b>  <b>Scientific: <i>Coregonus clupeaformis</i></b></p>	<p>Cold water (10 to 13 °C). In southern lakes, cold waters of lakes below the thermocline in summer. All depths in northern lakes (0.25 to 18 m). Lakes and large rivers, sometimes anadromous: brackish coastal waters of James, Hudson, and Ungava bays and large rivers. Current speed from 0.04 to 2 m/s.</p> <p><b>Corresponds to habitat 10 (slow current).</b></p>	<p>Feeds mainly on the bottom. Varied diet consisting mainly of aquatic insect larvae, molluscs and some crustaceans; sometimes plankton, terrestrial insects (caught at the surface), small fish and fish eggs, including those of its own species.</p>
<p><b>Common: Sauger</b>  <b>French: Doré noir</b>  <b>Indigenous: Zhagashkaanaamikwesi</b>  <b>Scientific: <i>Sander canadensis</i></b></p>	<p>Turbid, shallow (usually &lt; 6.5 m) and cool water (especially between 0.6 and 3.7 m), stays in waters between 18 and 19 °C in summer. Large lakes and slow-moving rivers, occasionally in brackish water. Various substrates, from sand to boulders.</p> <p><b>Corresponds to habitat 10 (slow current).</b></p>	<p>Visual foraging in turbid water. Feeds on small fish (cyprinids, yellow perch, sticklebacks, etc.) and various invertebrates (leeches, crayfish, insects).</p>
<p><b>Common: Lake sturgeon*</b>  <b>French: Esturgeon jaune (esturgeon de lac, maillé, camus)</b>  <b>Indigenous: Namé</b>  <b>Scientific: <i>Acipenser fulvescens</i></b></p>	<p>Turbid, shallow (usually &lt; 6.5 m) and cool (18 to 19 °C) water. Large lakes and rivers with weak current (0.1 to 2 m/s), occasionally in brackish water. Prefers bottoms composed of gravel to boulders.</p> <p><b>Corresponds to habitat 10 (slow current).</b></p>	<p>Forages on the bottom using its sensory barbels. Sucks in a variety of small organisms, such as molluscs, aquatic insect larvae, crayfish, leeches, fish eggs and some plants. Feeds throughout the winter, but stops feeding during spawning migration.</p>
<p><b>Common: Smallmouth bass</b>  <b>French: Achigan à petite bouche</b>  <b>Indigenous: Noosa'owesi</b>  <b>Scientific: <i>Micropterus dolomieu</i></b></p>	<p>Cool (20 to 22 °C), shallow and clear water with a rocky or sandy bottom and shelter (large stones and submerged logs). Lakes and rivers with medium current. During the heat of the summer, it stays in deep water.</p> <p><b>Corresponds to habitats 17, 20, 22 (moderate current).</b></p>	<p>Diet composed mainly of crayfish, also fish (yellow perch, crappie/bass and cyprinids) and insects, sometimes frogs, tadpoles, fish eggs and plant material. Feeds at the surface, in midwater or near the bottom. Congregate near the bottom in winter, very inactive and do not feed.</p>

Name	Habitat	Diet
<p><b>Common:</b> Cisco (Whitefish)  <b>French:</b> Cisco de lac (cisco de l'Est, cisco de printemps, hareng de lac)  <b>Indigenous:</b> Odoonibiins  <b>Scientific:</b> <i>Coregonus artedii</i></p>	<p>In shallow waters of lakes or large rivers from the fall to the spring. Below the thermocline in summer. Anadromous populations in the northern part of its range, sometimes in brackish coastal waters near James, Hudson and Ungava Bays.</p> <p><b>Corresponds to habitats 17, 22, 24 (shallow water).</b></p>	<p>Feeds mainly on zooplankton, but also on insects and small fish.</p>
<p><b>Common:</b> Fallfish  <b>French:</b> Ouitouche  <b>Indigenous:</b> to come  <b>Scientific:</b> <i>Semotilus corporalis</i></p>	<p>Generally, in fast-flowing streams, rocky bottoms and areas of rapids that alternate with areas of still water. Also in lakes, with or without vegetation</p> <p><b>Corresponds to habitats 24 (fast flow).</b></p>	<p>Feeds on aquatic and terrestrial (surface) insects as well as crustaceans and small fish.</p>
<p><b>Common:</b> Mooneye  <b>French:</b> Laquaiche argentée  <b>Indigenous:</b> to come  <b>Scientific:</b> <i>Hiodon tergisus</i></p>	<p>Typically found in small and medium-sized rivers, small lakes and shallow, muddy areas of large lakes. Tolerates moderate current speeds well. Less tolerant of turbidity than the goldeye.</p> <p><b>No corresponding habitat.</b></p>	<p>Feeds on insects, molluscs, plankton and small fish. Feeds at night on terrestrial insects at the surface.</p>
<p><b>Common:</b> Rock bass  <b>French:</b> Crapet de roche  <b>Indigenous:</b> to come  <b>Scientific:</b> <i>Ambloplites rupestris</i></p>	<p>Warm (18 to 24 °C), shallow, clear water with dense vegetation and a rocky bottom, rarely on soft substrates. Lakes, ponds and slow-moving rivers. Adults are gregarious and often found in association with other species of the same family (smallmouth bass, sunfish, etc).</p> <p><b>No corresponding habitat.</b></p>	<p>Feeds mainly on the bottom and sometimes at the surface. Diet composed mainly of aquatic insects, crayfish and small fish (minnows, yellow perch, sometimes young rock bass).</p>
<p><b>Common :</b> Logperch  <b>French :</b> Fouille-roche zébré  <b>Indigenous :</b> to come  <b>Scientific :</b> <i>Percina caprodes</i></p>	<p>Lakes and rivers on sandy and gravelly substrates with slow to fast current speeds.</p> <p><b>No corresponding habitat.</b></p>	<p>Feeds on insect larvae, small crustaceans, molluscs, flatworms, and insects at the water surface.</p>
<p><b>Common:</b> Shorthead redhorse  <b>French:</b> Chevalier rouge  <b>Indigenous:</b> Moxostoma spp.  <b>Scientific:</b> <i>Moxostoma macrolepidotum</i></p>	<p>Shallow, clear to moderately turbid waters of lakes and streams with sand or gravel bottoms.</p> <p><b>No corresponding habitat.</b></p>	<p>Feeds on the bottom, almost exclusively on insect larvae, especially mayflies and caddisflies.</p>
<p><b>Common:</b> Silver redhorse  <b>French:</b> Chevalier blanc  <b>Indigenous:</b> Moxostoma spp.  <b>Scientific:</b> <i>Moxostoma anisurum</i></p>	<p>More often in rivers than in lakes. Intolerant of turbidity and pollution.</p> <p><b>Corresponds to habitats 10, 17, 20, 22, 24.</b></p>	<p>Feeds mainly on insect larvae and pupae, as well as various benthic invertebrates.</p>
<p><b>Common:</b> Creek chub  <b>French:</b> Mulet à cornes  <b>Indigenous:</b> to come  <b>Scientific:</b> <i>Semotilus atromaculatus</i></p>	<p>Streams with weak to moderate current, in cool to warm, clear water over gravelly or rocky bottoms. Less common in lakes and large rivers.</p> <p><b>Corresponds to habitats 17, 20, 22 (moderate current).</b></p>	<p>Varied diet. Feeds on zooplankton, aquatic and terrestrial insects, crayfish, frogs and small fish. Sometimes algae and aquatic plants.</p>
<p><b>Common:</b> Brown bullhead  <b>French:</b> Barbotte brune  <b>Indigenous:</b> to come  <b>Scientific:</b> <i>Ameiurus nebulosus</i></p>	<p>Generally close to the bottom in shallow (although sometimes up to 13 m), warm (26 to 28 °C) water with or without vegetation. Ponds, small lakes, bays of larger lakes, slow-moving rivers with sand or mud bottoms. Tolerant of temperature, oxygen</p>	<p>Omnivorous. Varied diet consisting of debris, molluscs, insects, crayfish and other crustaceans, worms, leeches, algae, aquatic plants, fish and fish eggs. Mainly nocturnal, uses its barbels (very</p>

Name	Habitat	Diet
	<p>and pollution conditions in which other fish species cannot survive.</p> <p><b>Corresponds to habitat 10 (slow current).</b></p>	<p>developed sense of taste) to find its food on the bottom.</p>
<p><b>Common:</b> Freshwater drum <b>French:</b> Malachigan <b>Indigenous:</b> to come <b>Scientific:</b> <i>Aplodinotus grunniens</i></p>	<p>Frequents large, shallow bodies of water and, although it prefers clear water, it can adapt to high levels of turbidity. Little information but may be found at depths of 12 to 18 m.</p> <p><b>Corresponds to habitats 17, 22, 24 (shallow water).</b></p>	<p>Feeds on aquatic insects, amphipods, crayfish, molluscs and fish.</p>
<p><b>Common:</b> Brook trout (brook char) <b>French:</b> Omble de fontaine <b>Indigenous:</b> to come <b>Scientific:</b> <i>Salvelinus fontinalis</i></p>	<p>Cool, clear, well-oxygenated water in streams, rivers and lakes. Seeks temperatures below 20 °C. Anadromous populations (sea trout) in estuaries and coastal marine waters.</p> <p><b>Corresponds to habitats 17, 20, 22, 24 (oxygenated water).</b></p>	<p>Carnivorous diet that varies according to the availability of prey: worms, leeches, molluscs, crustaceans, insects, spiders and small fish. Sometimes frogs, salamanders, garter snakes and mice. Possible cannibalism (eggs and young).</p>
<p><b>Common:</b> Goldeye <b>French:</b> Laquaiche aux yeux d'or <b>Indigenous:</b> Wiibijinh <b>Scientific:</b> <i>Hiodon alosoides</i></p>	<p>Particularly in turbid waters but also in large rivers with clear water or shallow areas of lakes. More tolerant of turbidity than the mooneye. Adapted to low light conditions.</p> <p><b>No corresponding habitat.</b></p>	<p>Diet composed of aquatic insects, small fish, molluscs and crayfish.</p>
<p><b>Common:</b> Lake trout <b>French:</b> Touladi <b>Indigenous:</b> to come <b>Scientific:</b> <i>Salvelinus namaycush</i></p>	<p>Cold (10 °C), clear and well-oxygenated water of deep lakes, sometimes below the thermocline in the summer. Also in shallow lakes and rivers farther north. Occasionally in brackish waters at high latitudes.</p> <p><b>Corresponds to habitats 17, 20, 22, 24 (oxygenated water).</b></p>	<p>Carnivorous diet mainly composed of fish: mainly cisco, but also lake whitefish, smelt, suckers and sculpins. In some lakes, feeds on plankton, crustaceans and insects, resulting in slower growth.</p>
<p><b>Common:</b> Trout-perch <b>French:</b> Omisco <b>Indigenous:</b> to come <b>Scientific:</b> <i>Percopsis omiscomaycus</i></p>	<p>In deep areas of lakes and rivers or hidden along sheltered banks. At night, in shallower water. Prefers temperatures of 15–16 °C. Tolerant of turbidity.</p> <p><b>Corresponds to habitats 10, 20 (deep water).</b></p>	<p>Feeds on aquatic insects, crustaceans and small fish.</p>
<p><b>Common:</b> Yellow perch <b>French:</b> Perchaude <b>Indigenous:</b> to come <b>Scientific:</b> <i>Perca flavescens</i></p>	<p>Clear, generally shallow (&lt; 9 m), cool (19–21 °C) water with moderate amounts of vegetation and gravelly, muddy or sandy bottoms. Open areas of large lakes, ponds, slow-moving rivers, occasionally in brackish water.</p> <p><b>Corresponds to habitat 10 (slow current).</b></p>	<p>Feeds mainly at dusk on aquatic insects, crayfish and other invertebrates, small fish and fish eggs. Gregarious. Active in winter, feeds under the ice.</p>
<p><b>Common:</b> White perch <b>French:</b> Baret <b>Indigenous:</b> to come <b>Scientific:</b> <i>Morone americana</i></p>	<p>Although favoring brackish waters, it is also found in fresh water and coastal areas. Occasionally in temperate rivers and lakes.</p> <p><b>No corresponding habitat.</b></p>	<p>Feeds on a wide variety of prey, including zooplankton, insect larvae and several species of fish.</p>
<p><b>Common:</b> Mottled sculpin <b>French:</b> Chabot tacheté <b>Indigenous:</b> to come <b>Scientific:</b> <i>Cottus bairdii</i></p>	<p>Gravelly or rocky bottoms of cold water streams and rivers. Sometimes in deep waters of lakes. Favoring well-oxygenated and clear water.</p> <p><b>Corresponds to habitats 17, 20, 22, 24 (oxygenated water).</b></p>	<p>Consuming primarily aquatic insect larvae, worms and small crayfish.</p>



Name	Habitat	Diet
<p><b>Common: Banded killifish</b>  <b>French: Fondule barré</b>  <b>Indigenous: to come</b>  <b>Scientific: <i>Fundulus diaphanus</i></b></p>	<p>In shallow, calm and clear waters of lakes, ponds and meandering streams with sand, mud and gravel substrate with sparse aquatic vegetation. Tolerant to high temperatures (up to 29 °C) and low oxygen levels.</p> <p><b>No corresponding habitat.</b></p>	<p>Feeds on insect larvae and small planktonic crustaceans like copepods.</p>
<p><b>Common: Burbot</b>  <b>French: Lotte</b>  <b>Indigenous: to come</b>  <b>Scientific: <i>Lota lota</i></b></p>	<p>Deep lakes with cold water, typically found in the colder water below thermocline (15 to 18 °C) during summer. Moves to shallower water on summer nights. Also in large cold rivers further north (summer: channels at the mouths of tributaries, rocky shores, sometimes grassy places in tributaries).</p> <p><b>Corresponds to habitats 10, 20 (deep water).</b></p>	<p>Ravenous predator. Feeds at night mainly on fish (ciscos, whitefish, walleye, yellow perch, sculpins, sticklebacks), but also aquatic insects and crayfish. In winter, mostly grazes on invertebrates on the bottom, although fish are always available.</p>
<p><b>Common: Eastern silvery minnow</b>  <b>French: Méné d'argent</b>  <b>Indigenous: to come</b>  <b>Scientific: <i>Hybognathus regius</i></b></p>	<p>Found in shallow areas of slow-moving stream over a substrate of sand, gravel, blocks and organic matter. Often found in quiet pools. Gregarious species sensitive to turbidity and silt deposits on the substrate.</p> <p><b>No corresponding habitat.</b></p>	<p>Feeds on algae and detritus filtered from bottom ooze, sometimes cladocerans and chironomids.</p>
<p><b>Common: Lake chub</b>  <b>French: Méné de lac</b>  <b>Indigenous: to come</b>  <b>Scientific: <i>Couesius plumbeus</i></b></p>	<p>Wide variety of freshwater habitats, mainly in lakes in the southern part of Quebec and in streams and rivers in the northern part. Clear and turbid waters with sandy or rocky bottom.</p> <p><b>Corresponds to habitats 10, 17, 20, 22, 24.</b></p>	<p>Feeds on insect larvae and small crustaceans, sometimes small fish.</p>
<p><b>Common: Emerald shiner</b>  <b>French: Méné émeraude</b>  <b>Indigenous: to come</b>  <b>Scientific: <i>Notropis atherinoides</i></b></p>	<p>Congregating in large groups near the surface of the water. Large open rivers and lakes at temperatures varying between 22 and 25 °C. Clear or slightly turbid waters.</p> <p><b>Corresponds to habitat 10.</b></p>	<p>Observation of nycthemeral migration (move with a planktonic food source up toward the surface at dusk) to feed on zooplankton and aquatic or terrestrial insects.</p>
<p><b>Common: Blackshin shiner</b>  <b>French: Menton noir</b>  <b>Indigenous: to come</b>  <b>Scientific: <i>Notropis heterodon</i></b></p>	<p>Strictly in grassy, clean and clear waters of the littoral zone of lakes, quiet areas of streams and rivers. Prefers clear waters.</p> <p><b>No corresponding habitat.</b></p>	<p>Feeds on zooplankton (water flea and copepod), as well as insects.</p>
<p><b>Common: Johnny darter</b>  <b>French: Raseux-de-terre noir</b>  <b>Indigenous: to come</b>  <b>Scientific: <i>Etheostoma nigrum</i></b></p>	<p>Small watercourses and the littoral zone of lakes. prefer clear water with sandy and gravelly bottoms. In shallow and calm water. Avoid areas with vegetation.</p> <p><b>No corresponding habitat.</b></p>	<p>Feeds on small crustaceans, insect larvae and organic debris of all kinds.</p>

Of the 32 fish species cited in the report, 21 can may find suitable foraging habitat in the study zone.

**IAAC-1-4 Wildlife data sources**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, Sections 7.1.6 (Fish and fish habitat), 7.1.7 (Birds and bird habitat) and 7.1.8 (Species at Risk)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Chapter 12*

## Context

For several species, only the Quebec wildlife databases were cited and added to the EIS. The study area should include Ontario even though the work site is in Quebec. The information available in the Ontario databases must be added to the EIS.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) provide data from Ontario wildlife databases and available studies on the various wildlife species present and potentially present in the study areas and consider these data in the analysis of the effects of the project on these species. If not, provide a rationale as to why this data was not considered in the study.

### PSPC Response:

As stated in Section 12.1.3.1, for the preparation of the Environmental Effect Evaluation of the Ontario dam replacement project, Hatch has consulted Ontario wildlife databases and also conducted various studies and field work on the Ontario side of the dam providing our team with firsthand data on Ontario flora and fauna in the study zone, hence the limited consultation of Ontario databases. For example, for fish, it is stated:

« In 2013, Hatch conducted fish surveys under the Timiskaming Ontario Dam Replacement Project (Hatch, 2014). Surveys were also conducted in 2017, 2018, and 2020 as part of the post-construction monitoring of the Ontario dam; these inventories covered part of the Quebec dam (Hatch, 2017; 2018; 2021).”

Data from the Hatch reports were fully considered in this impact assessment report.



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## Project Background

### Information requests directed to the proponent

#### IAAC-1-5 Controlled Harvesting Areas

##### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, Section 1.3 (Project location)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 4.4*

##### Context

Section 4.4 of the EIS mentions the presence of the Kipawa controlled harvesting area (ZEC) 70 kilometres northeast of the project. Three other ZECs are located in the vicinity of the project.

The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) name and locate the other three ZECs to complete the picture of ecologically sensitive areas in the project area.

##### PSPC Response:

Near the Project location, there is a cluster of six ZECs that are all connected, as seen in Figure 1-5 bellow. The closest ZECs to the Project include Kipawa, Restigo, and Maganasipi. South east of the Project location are ZECs Dumoine, Rapides-des-Joachims, and St-Patrice, each of which border the Ottawa River.



Figure 1-5

## Comments and advice for the proponent

### Comment 1-1 Approval under the *Canadian Navigable Waters Act*

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 1.4 (Regulatory framework and the role of government)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 1 of the Summary and Appendix 5.1*

#### Comments and advice

Section 1 of the EIS Summary and item F-4 of the table in Appendix 5.1 refer to the need to apply for approval under the *Canadian Navigable Waters Act* from Transport Canada's Navigation Protection Program.

Transport Canada suggests making one application for the project, but clearly distinguishing the different phases. Depending on the project and the assessment, safety booms may be required during the construction work. In addition, when applying to the Navigation Protection Program, the following additional points should be provided:

- the choice of scenario (location of the work and methodology)
- the coordinates of the structures directly on the plans
- a general arrangement drawing (to show all existing and proposed works as a whole)



- a plan for temporary works and a plan for permanent works, **or**
- a plan of all structures, with a distinction between temporary and permanent structures
- the following points, already present in the environmental assessment, should be retained:
  - bathymetry maps
  - tables and maps on the effects on water levels and current speeds
  - plans of the construction works (top down and side view)

### Comment 1-2 Projects and activities in the project area

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 1, section 3.2 (Factors to be considered)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 4.1.3*

#### Comments and Advice

The Agency notes that a reference to the Kipawa Rare Earths Project is present in section 4.1.3 of the EIS and wishes to clarify that the environmental assessment of this project under CEAA 2012 ended on August 28, 2022, as the proponent of this project has exceeded the deadline for submitting the required information and studies.

### Comment 1-3 Permits under the *Explosives Act*

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 1.4 (Regulatory framework and the role of government)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Appendix 5.1A*

#### Comments and advice

Natural Resources Canada (NRCan) wishes to inform the proponent that the information regarding the licence that may be required is not accurate. It is suggested that the information in line F-6 of the table in Appendix 5.1 be corrected. Under the column “Requirements,” instead of “Permit for the handling of explosive”, it should read “Licence for the storage of explosives.” Under the column “Applicability to the Project,” replace the term “permit” with “licence” and remove the last sentence: “The permit is required when quantities exceed 75 kg or 100 blasting caps.”

**PSPC Response:**

Correction to line F-6 of Appendix 5.1 now reads as follows:

Item	Requirements	Governing Agency	Legislation/ Regulations	Applicability to the Project	Project Phase	Technical or Regulatory Requirements
F-6	Licence for the storage of explosives <i>Explosives Act</i>	NRCan	<i>Explosives Act (R.S.C., 1985, c. E-17) Section 7(1) and Explosives Regulations (C.R.C., c. 599)</i>	A licence for the storage of explosives will not be required unless it is necessary to store explosives for blasting.	Construction (General Contractor)	Submittal of an application to Natural Resources Canada, along with a plan and a diagram of the storage facilities, the types of explosives and the location of any item that presents risks.



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## Alternative Means of Carrying out the Project

### Information requests directed to the proponent

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#### IAAC-1-6 Comparison of options

##### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 2.2 (Alternative means of carrying out the project)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 6.3.1*

##### Context

In section 6.3.1, there is a difference in the colour ratings for the same value between “Option 1 – Downstream” and “Option 2 – Upstream” under the row “Residual materials – Metals – 40,000 kg.” in Table 6.7, which details the comparisons of the options on the basis of advantages and disadvantages.

##### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) check the colour ratings under the row “Residual materials – Metals – 40,000 kg.” in Table 6.7 for options 1 and 2; and

##### PSPC Response:

The color code is given for the global impact of « Residual materials » and not for the materials individually. For more clarity, see amended Table 6.7 bellow.

- B) correct these ratings where appropriate.

##### PSPC Response:

Correction was made to the “Nuisances” item to show correct color for Option 3 (green). Overall score remains the same. See amended Table 6.7 bellow.

Amended Table 6.7 of the EIS

Issues	Criteria	Option 1 - Downstream	Rating	Option 2 - Upstream	Rating	Option 3 – Current layout	Rating			
Environmental	Contaminated site	No impact, work outside contaminated site.	Green	No impact, work outside contaminated site.	Green	No impact, work outside contaminated site.	Green			
	Fish habitat	Loss of fish habitat of 12,361 m <sup>2</sup> ; temporary loss of 3,907 m <sup>2</sup> ; permanent loss of 8,454 m <sup>2</sup> .	Red	Loss of fish habitat of 13,315 m <sup>2</sup> ; temporary loss of 5,921 m <sup>2</sup> ; permanent loss of 7,394 m <sup>2</sup> .	Red	Loss of fish habitat of 11,153 m <sup>2</sup> ; temporary loss of 7,582 m <sup>2</sup> ; permanent loss of 3,571 m <sup>2</sup> .	Yellow			
	Fish passage	Requires further study.	Green	Requires further study.	Green	Requires further study.	Green			
	Residual materials	High volume (cofferdam and dam demolition).	Yellow	Very high volume (longer cofferdam and dam demolition).	Red	Lower volume (cofferdam and a portion of the dam).	Green			
		Concrete/asphalt.						7,075 m <sup>3</sup> .	7,204 m <sup>3</sup> .	2,290 m <sup>3</sup> .
		Metals.						40,000 kg.	40,000 kg.	32,000 kg.
		Granular materials.						9,695 m <sup>3</sup> .	15,695 m <sup>3</sup> .	9,695 m <sup>3</sup> .
Limited in-water work	Significant impact.	Red	Significant impact.	Red	Moderate impact.	Yellow				
Economic	Estimated construction cost, Class D, to start in 2019	Intermediate among the three options (\$56 M)	Yellow	Highest (\$58 M)	Red	Lowest (\$54 M)	Green			
	Indirect costs		Green	Displacement of the Rayonier water intake.	Red		Green			
	Risk costs	Lowest	Green	Highest	Red	Intermediate among the three options	Yellow			
Societal	Maintenance of mobility	Maintenance at all times at full capacity.	Green	Maintenance at all times at full capacity.	Green	Limited maintenance with alternating traffic.	Red			
	Tourism and recreation	Loss of one spawning season.	Yellow	Limited impact.	Green	Loss of one spawning season; travel made more complex by alternating traffic.	Yellow			
	Archaeology	Cofferdam near vestiges of the original dam.	Red	Cofferdam near possible vestiges on the Quebec side.	Yellow	Cofferdam near vestiges of the original dam.	Red			
	Nuisances	Negligible impact.	Green	Negligible impact.	Green	Negligible impact.	Green			
	Timeline	Substantial completion by November 2027.	Green	Substantial completion by December 2027.	Green	Substantial completion by August 2028.	Red			
	PSPC operations	No impact.	Green	No impact.	Green	Moderate impact.	Yellow			
Technical	Hydraulic regime		White		White		White			
	Evacuation capacity	Same as current.	Green	Same as current.	Green	Same as current.	Green			
	Flow management during work		White		White		White			
	Phase 1	100% manageable on the Ontario side.	Green	100% manageable on the Ontario side.	Green	100% manageable on the Ontario side.	Green			
	Phase 2	100% manageable on the Ontario side and 50% on the Quebec side.	Green	100% manageable on the Ontario side and 50% on the Quebec side.	Green	100% manageable on the Ontario side and 50% on the Quebec side.	Green			



Geotechnical	Infiltration control required.	Yellow	Infiltration control required.	Yellow	Infiltration control not required.	Green
Road infrastructure		Diagonal		Diagonal		Diagonal
Road configuration	Moderate impact.	Yellow	High impact.	Red	Low impact.	Green
Traffic	Maintained on existing structure.	Green	Maintained on existing structure.	Green	Alternating for 17 months.	Red
Natural gas line	Relocation upon completion of work.	Green	Relocation upon completion of work.	Green	Two relocations planned.	Red
Demolition	Partial on downstream apron and existing dam.	Red	Existing dam.	Yellow	Upstream end of existing piles.	Green
Operation and commissioning	Low impact.	Green	Low impact.	Green	Moderate impact.	Yellow
Design and regulatory requirements	Full implementation.	Green	Full implementation.	Green	Full implementation, but certain constraints possible for the existing structure.	Yellow
Land acquisition	Moderate encroachment on Rayonier property.	Yellow	Significant encroachment on Rayonier property.	Red	Low encroachment on Rayonier property.	Green
Service life	Meets 75-year objective.	Green	Meets 75-year objective.	Green	Meets 75-year objective.	Green
Risks	Known (similar to Ontario dam).	Green	Less known.	Yellow	Less known and more significant than for a new construction.	Red
Possibility of adding lift gates	Easy.	Green	Easy.	Green	Possible.	Yellow
Total		Green		Red		Yellow



## Comments and advice for the proponent

### Comment 1-4 Location and configuration of the eastern exit of the dam-bridge

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 2.2 (Alternative means of carrying out the project), 7.3.5 (Other valued components that may be affected by the project), 7.4 (Mitigation measures) and 7.6.1 (Effects of potential accidents or malfunctions)*

#### Comments and advice

An industry representative commented on the inconvenience to his company, the local population, trucking companies and city officials during the temporary construction on the existing causeway over the past two years. The main concern is the east exit of the dam-bridge, which restricted large vehicle traffic and could create a safety hazard for pedestrians and light vehicles. Trucking companies have also reportedly suffered property damage during this work.

The representative makes the four recommendations below. The Agency recommends that the proponent consider these recommendations in the context of the dam-bridge replacement project, that it evaluate them from a technical and economic standpoint and that it justify the decisions to implement them or not:

- a wide roadway with no safety issues allowing two lumber trucks to meet and pedestrians, cyclists and snowmobilers to travel on the side;
- approaches at each end of the dam-bridge that do not encroach on the right-hand side of the road. For example, truckers should not have to turn onto a sidewalk at the end of the roadblock
- The eastern end of the dam-bridge should be far enough away from the main entrance of the plant to allow semi-trucks to park between the exit of the dam-bridge and the main entrance of the plant, without restricting normal light vehicle traffic. More than four trucks can wait on the side. Consider that trucks need sufficient radius at the bridge exit to turn south and park safely.
- Adequate timing and organisation. The work should be completed as quickly as possible without limiting traffic to one lane.

#### PSPC Response:

Before the construction, PSPC will contact Rayonier to discuss any concerns they have regarding the project or the construction phases in order to find appropriate measures to address their concerns.



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# Atmospheric Environment

## Information requests directed to the proponent

### IAAC-1-7 Reduction of air contaminant emissions

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.2.1 (Changes to atmospheric, sound and light environments)*

Environment and Climate Change Canada, Government of Canada, 2022. *Achieving a Sustainable Future, Federal Sustainable Development Strategy 2022 to 2026. [2022 to 2026 Federal Sustainable Development Strategy.pdf \(fsds-sfdd.ca\)](#) p.123*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec), Environmental Impact Statement, sections 6.2.1 and 11.1.4*

#### Context

Section 11.1.4 of the EIS mentions that air quality is worse in the project area compared to the regional level. In addition, section 6.2.1 of the EIS mentions that noise and dust would have an impact on surrounding properties due to the heavy traffic of construction machinery and vehicles.

Since air pollution affects human health and food safety (ECCC, 2022), Health Canada recommends that all economically feasible mitigation measures be implemented to reduce air contaminant emissions associated with the project. Particular attention should be paid to emissions of sulphur dioxide, nitrogen dioxide and fine particulate matter from fossil fuel use, as well as coarser dust (e.g. PM<sub>10</sub> and above).

Health Canada would like to point out that electrical equipment usually generates less noise than fossil fuel equipment, and also reduces air emissions.

#### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) identify and describe measures to be implemented to minimize the amount of fossil fuel consumed in the project and the emissions of sulphur dioxide, nitrogen dioxide and fine and coarse particles; and

#### PSPC Response:

We would first like to underline that Section 6.2.1 concludes that the project would have a negligible impact on nuisances:

- d. Nuisances: negligible impact;

Anticipated nuisances for this option are as follows:

- Noise from the machinery and from construction activities. Demolition of the old dam will be a significant source of noise, but its distance from residences makes impacts fairly low;

- Dust from machinery movement, construction vehicle traffic and demolition of the old dam;
- Vibrations during construction and demolition, but impacts on existing facilities should be negligible.

This being said, mitigation measures for air emissions and dust are found in Section 11.2.1.1.1 in the following tables:

Possible effect: Emission of air contaminants during construction				
Potential interaction		Mitigation measures		
Machinery emissions (CO, NO <sub>x</sub> , SO <sub>2</sub> , VOC, PM <sub>2.5</sub> )		<ol style="list-style-type: none"> <li>1) Requirement to limit idling (shut off engines when truck or vehicle is stopped for extended periods of time).</li> <li>2) Off-road construction equipment and on-road transport truck engines would be required to meet the latest Tier 4 emission standards of the U.S. Environmental Protection Agency (EPA).</li> <li>3) Machinery and transportation trucks should be well maintained and kept in good working condition (e.g., exhaust system in good condition).</li> <li>4) Manage loading and unloading activities to minimize idling time.</li> <li>5) Cover loads on trucks transporting materials to and from the site.</li> <li>6) Minimize any blasting.</li> </ol>		
Residual effect				
Magnitude	Geographic extent	Duration	Frequency	Reversibility
Low	Local	Medium	Continuous	Reversible
Overall Assessment: Non-significant				
<b>Monitoring and follow-up</b>	Monitoring of the application of mitigation measures See Chapters 22 and 23 for more details			
<b>Comments</b>	During the work, monitor idling, machinery condition, site cleanliness and work schedules.			

Possible effect: Emission of dust during construction	
Potential interaction	Mitigation measures
Dispersal of dust (trucks, stored materials, exhaust soot)	<ol style="list-style-type: none"> <li>1) Visual inspection and monitoring of dust emissions on and around the Project site should be carried out on a regular basis (i.e. daily or weekly).</li> <li>2) Activities involving significant emissions of dust, or causing nuisance due to air emissions, should be identified, and mitigation measures should be implemented if necessary (i.e. dust clouds reaching privately owned or publicly accessible areas).</li> <li>3) Complaints from neighbours regarding dust or air quality should be registered, analyzed, and addressed with the adequate mitigation measures.</li> <li>4) Water work areas (water-based dust suppressants due to the proximity of an aquatic environment).</li> </ol>



<ol style="list-style-type: none"> <li>5) Clean public roads with sweeper trucks, cover stored materials.</li> <li>6) Sweeping the access roads and circulation areas.</li> <li>7) Cover truck loads with tarps.</li> <li>8) During the cutting of concrete, water the work area.</li> <li>9) During demolition, all measures must be put in place to limit dust emissions. Work should be stopped during high winds if a significant amount of dust is moved.</li> <li>10) Limit speed to 20 km/h on on-site roads.</li> <li>11) Prevent dirt track-out from the Project site to the public road network, using track-out grates or other technology.</li> <li>12) Applying water to stockpiles that are causing dust emissions due to wind erosion.</li> <li>13) Cover stockpiles that are causing dust emissions due to wind erosion</li> <li>14) When available, dust control systems such as wet suppression systems (water sprays) and enclosures should be used. This applies most notably to drilling, crushing, and screening activities.</li> </ol>				
<b>Residual effect</b>				
<b>Magnitude</b>	<b>Geographic extent</b>	<b>Duration</b>	<b>Frequency</b>	<b>Reversibility</b>
Low	Project footprint to local	Medium	Cyclic	Reversible
<b>Overall Assessment: Negligeable to non-significant</b>				
<b>Monitoring and follow-up</b>	Monitoring of the application of mitigation measures, particularly dust emissions See Chapters 22 and 23 for more details			
<b>Comments</b>				

B) explain how these measures would minimize these emissions and fossil fuel consumption.

**PSPC Response:**

We believe the mitigation measures would maintain the impact of air emission at a non-significant level and bring the dust impact from negligible to non-significant level.

**IAAC-1-8 Air quality – Baseline conditions**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.1 (Atmospheric, light and noise environment)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec), Environmental Impact Statement, section 11.1.4*

**Context**

Section 11.1.4 of the EIS mentions certain elements concerning baseline air quality conditions such as

- the air zone in which the project site is located with a brief description of the sources of contaminants within this zone;
- comparison of the concentrations of contaminants measured by the station (PM<sub>2.5</sub>, Ozone, SO<sub>2</sub>) to provincial standards and to the Canadian Ambient Air Quality Standards (CAAQS) (Figures 11-1 to 11-3 in section 11.1.4); and
- contaminants emitted by the pulp and paper mill (Rayonier) and their annual quantities (section 11.1.4). These data were obtained from the mill's reports to the National Pollutant Release Inventory (NPRI). The most important contaminants in terms of quantities are reported: CO, SO<sub>2</sub>, NO<sub>2</sub>, PM<sub>2.5</sub> and VOCs.

However, other contaminants and their quantities reported to the NPRI in the immediate project area, including from the Rayonier plant, are not mentioned. These other contaminants are: total particulate matter (TPM), PM<sub>10</sub>, ammonia, cadmium, cobalt, chromium, selenium, lead, manganese, formaldehyde, chlorine dioxide and methanol.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) Complete the description of ambient air quality conditions by providing the missing information, i.e., all other contaminants reported to the NPRI for the region that were not mentioned in the impact statement, and their quantities.

#### PSPC Response:

As stated in Section 11.1.4 of the report "Rayonier is the only industrial facility in the Témiscaming region that reports its atmospheric emissions under ECCC's National Pollutant Release Inventory (NPRI) program."

Complete air contaminant releases reported by Rayonier in the 2021 NPRI are:

- Total ammonia: 12.37 tons
- Cadmium (and components): 3.27 kg
- Hexavalent chromium (and components): 2.23 kg
- Cobalt (and components): 1.47 kg
- VOCs: 193.85 tons
- Chlorine dioxide: 8.03 kg
- Sulfur dioxide: 103.40 tons
- Formaldehyde: 5,10 tons
- Manganese (and components): 0,10 ton
- Total particulate matter: 430.13 tons
- Methanol: 212.10 tons
- Carbon monoxide: 1,030.87 tons
- Nitrous oxides: 607.37 tons
- Lead (and components): 10.56 kg
- PM<sub>10</sub>: 87.22 tons
- PM<sub>2.5</sub>: 76.36 tons
- Selenium (and components): 3.15 kg

**IAAC-1-9 Estimated quantities of contaminants emitted**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.2.1 (Changes to the atmospheric, sound and light environments)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec), Environmental Impact Statement, section 11.2.1 and 11.2.1.1.1*

## Context

Atmospheric dispersion modelling of contaminants was not required for this project. However, information on sensitive receptors and a quantification of atmospheric emissions of the main contaminants over the whole potentially affected area were required to complete the effects section. In addition, the detailed methodology for assessing atmospheric emissions was to be presented, taking care to identify, for all phases of the project, the project-related activities/equipment (sources) likely to produce maximum contaminant emissions, including blasting activities (worst-case emission scenario), the use of heavy machinery during construction and road transport.

In the final version of the EIS from February 2023, some of the information was provided, such as

- activities and equipment likely to produce contaminant emissions;
- quantities of contaminants emitted from fuel combustion on an annual basis for CO, NO<sub>x</sub>, SO<sub>2</sub> and PM<sub>2.5</sub>; and
- volatile organic compounds (VOCs) that were mentioned as part of machinery emissions, but not estimated (table at the end of section 11.2.1.1.1).

The references that were used to estimate the quantities of contaminants emitted are also provided. However, the tables presented as references do not allow for review and analysis of the information provided, which is insufficient without all the parameters required for this estimation. This information should be detailed and allow interested parties to reproduce the data provided in the impact statement (section 11.2.1).

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) provide full references and a detailed description of the methodology adopted to evaluate
- i. atmospheric emissions, including the types of equipment involved and the parameters used (emission factors and assumptions used for these calculations, power, model years, Groups or Tier, etc.); and

### PSPC Response:

As stated in Section 11.2.1.1.1 of the EIS: « The release of atmospheric contaminants due to fuel combustion by components of the Project has been estimated, using the U.S. EPA exhaust emission standards for heavy-duty nonroad engines (re: Footnote 17 of Section 11.2.1.1.1) and heavy-duty highway engines (re: Footnote 18 of Section 11.2.1.1.1). SO<sub>2</sub> emissions have been calculated considering the federal standard of 15 mg of sulfur per kg of diesel (re: Footnote 19 of Section 11.2.1.1.1).»



SO<sub>2</sub> calculation used the following formula:

SO<sub>2</sub> emission factor [g-SO<sub>2</sub>/l-diesel]

$$= S \text{ [mg/kg]} \times 10^{-6} \text{ [kg/mg]} \times MM_{SO_2} \text{ [g/mol]} / MM_s \text{ [g/mol]} \times \text{Density}_{\text{Diesel}} \text{ [kg/l]} \times 10^3 \text{ [g/kg]}$$



$$= 15 \text{ mg/kg} \times 10^{-6} \text{ kg/mg} \times 64 \text{ g/mol} / 32 \text{ g/mol} \times 0.85 \text{ kg/l} \times 10^3 \text{ g/kg} = 0.0255 \text{ g-SO}_2\text{/l-diesel}$$

Footnotes 17, 18 and 19 further refers to:

- 17: U.S. EPA Nonroad Compression-Ignition Engines: Exhaust Emission Standards
- 18: U.S. EPA Heavy-Duty Highway Compression-Ignition Engines and Urban Buses: Exhaust Emission Standards
- 19: Sulphur in Diesel Fuel Regulations (SOR/2002-254)

For the detail of vehicle fleet composition, utilization rate, power output, etc., as the contractor has not been yet retained, assumptions were made using the experience of the Ontario dam and other similar projects in the area.

- ii. The quantities of VOCs emitted.

PSPC Response:

Non methanous VOC (NMVC) emissions have been estimated using the U.S. EPA standards referenced in the EIS. Total emissions from diesel consumption are 0.067 metric tonnes (offroad machinery: 0.043 t, transport trucks: 0.024 t).

**IAAC-1-10    Dust**

**References**

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.2.1 (Changes to the atmospheric, sound and light environments)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec), Environmental Impact Statement, sections 11.2, 11.2.1 and 11.2.1.1.2*

**Context**

In the final version of the EIS of February 2023, some information for ambient air quality was provided, such as

- activities and equipment likely to produce contaminant emissions; and



- quantities of dust emitted annually by the activities on the site (PM<sub>10</sub> and PM<sub>2.5</sub>).

The references that were used to estimate the dust quantities were also provided. However, although the reference is notable, it is insufficient without all the parameters required for this estimation.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

A) provide for each of the materials handled:

- the silt content and moisture percentage of the materials used in equations (1) and (1a) mentioned at the end of section 11.2.1.1.2;
- the average wind speed used in equation (1); and
- justification for the number of days of precipitation used (to derive a 40% mitigation rate).

#### PSPC Response:

- The type of handled material considered in the calculations is “Misc. fill materials” (U.S. EPA AP-42 Table 13.2.4-1). Silt content is 12%, moisture content is 11%.

Silt content of the unpaved road material considered in the calculations is 4.7%. This value was obtained by particle size analysis of a sample of 0—3/4" aggregate material used as road material on an industrial site.

- The closest weather station included in the Canadian Climate Normals 1981—2010 is North Bay. Annual average wind speed is 13.2 km/h or 3.7 m/s, a value used in the calculations.
- There are an estimated 150 days per year of precipitation, based on PSPC’s experience on various project sites in the Province of Quebec. The Canadian Climate Normals for North Bay indicate 180 days per year of precipitation, PSPC’s estimation is slightly conservative in terms of dust attenuation through precipitations.

## IAAC-1-11 Blasting activities

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.2.1 (Changes to atmospheric, sound and light environments) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec), Environmental Impact Statement, sections 11.2, 11.2.1 and 11.2.1.1.1*

### Context

The description of blasting activities is brief. According to the information the table in section 11.2.1.1.1, blasting would be “minimized,” and the planned mitigation measure would be to “minimize any blasting.” Little information is provided on the use of explosives during construction, estimated quantities, timing of blasting activities, etc. Blasting activities are an important part of the project. Blasting activities are sources of contaminant (NO<sub>2</sub> in particular) and dust emissions that cannot be neglected. Furthermore, no measures to mitigate the effects on air quality have been presented, other than reducing their use. Although this information may not be available at present, it should be considered under the worst-case scenario.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) provide a description of a conservative scenario involving blasting activities, as well as the quantities of explosives used, the time periods, the location of blasting and any other relevant information; and

### PSPC Response:

For blasting activities, the only possible scenario that PSPC would authorize, would be for the removal of some portions of the existing dam which could not be removed with standard jackhammer technique. It is impossible at this point in the project to assess explosive quantities and location. However, blasting activities would be conducted outside of critical fish spawning period.

- B) identify and describe, for the scenario presented in (A), the mitigation measures to be put in place to avoid emissions of contaminants into the atmosphere, including dust.

### PSPC Response:

Mitigation measures would be similar to the ones implemented for the Ontario dam project as agreed with DFO at the time:

*“non-ammonium nitrate explosives were used in the demolition of the former bridge piers, occurring in January and February of 2017. During all demolition activities, the new dam was closed and there was no flow in this area, as required by Condition 2.2.1. Mitigation measures outlined in the DFO Measures to Avoid Causing Harm to Fish and Fish Habitat were included in the demolition plan. No fish mortalities (floating fish) or impacts were observed or recorded during the contained-blast demolition of the bridge piers”*

Furthermore, blasting would be allowed under strict weather constraints, avoiding blasting activity under windy conditions to limit dust dispersion.

## IAAC-1-12 Missing elements

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.2.1 (Changes to atmospheric, sound and light environments)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec), Environmental Impact Statement, sections 11.2, 11.2.1, 11.2.1.1.3 and 11.2.1.1.3.1.2*

### Context

The source “Daily travel by workers” has not been included in the calculation of greenhouse gases (GHGs), since fuel use for workers’ travel to and from the project site has been estimated to be “negligible” compared to total project emissions. This may be the case, but this assessment would need to be more fully described, calculated or justified to support it.

Sources relating to the transport of materials have been considered (SSR 1 to SSR 4 in Table 11.14). However, it would appear that the fuel consumption of trucks waiting during loading and unloading of materials has not been considered as a potential source of GHG emissions.



The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) estimate, to the extent possible, the GHG emissions for worker travel to and from the project site (at least an order of magnitude). If applicable, provide a more detailed justification of why it is negligible; and

PSPC Response:

GHG emissions from workers commuting to and from the project site was estimated considering:

- 50 local workers, commuting daily to/from their home, daily distance traveled: 30 km return trip
- 50 specialized workers, commuting once per week from North Bay (130 km return trip) and staying at a local hotel during the week (2 km return trip)
- An estimated 100 weeks of work over the project period
- Fuel consumption: 10 liters per 100 km
- 2 employees per vehicle on average

GHG emissions associated with workers commuting to and from the project site are estimated at 190 tonnes eq.CO<sub>2</sub>. This amount to approximately 6% of the total GHG emissions estimated for the project.

- B) estimate GHG emissions from trucks and others during the loading and unloading of materials, if applicable.

PSPC Response:

GHG emissions due to idling are negligible compared to the total GHG emissions of the project. Considering: fuel consumption rate of 0.9 gal/h [ref.1], waiting time of 10 minutes per loading operation, total of 151 279 tonnes of soil and aggregates to be handled, capacity of 20 tonnes per load, and 2 handling operations of the materials, GHG emissions due to idling are estimated to be 23 tonnes eq.CO<sub>2</sub>, or 0.7 % of the total emissions of the project. This GHG source may therefore be excluded from the calculations.

Reference 1: <https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles>

Furthermore, PSPC has strict “no idling” requirements in its general specifications rendering this calculation nonessential. This is reflected in the mitigation measures found in Section 11.2.1.1.1.:

Possible effect: Emission of air contaminants during construction	
Potential interaction	Mitigation measures
Machinery emissions (CO, NO <sub>x</sub> , SO <sub>2</sub> , VOC, PM <sub>2.5</sub> )	<ol style="list-style-type: none"> <li>1) Requirement to limit idling (shut off engines when truck or vehicle is stopped for extended periods of time).</li> <li>2) Off-road construction equipment and on-road transport truck engines would be required to meet the latest Tier 4 emission standards of the U.S. Environmental Protection Agency (EPA).</li> <li>3) Machinery and transportation trucks should be well maintained and kept in good working condition (e.g., exhaust system in good condition).</li> <li>4) Manage loading and unloading activities to minimize idling time.</li> <li>5) Cover loads on trucks transporting materials to and from the site.</li> <li>6) Minimize any blasting.</li> </ol>
Residual effect	



Magnitude	Geographic extent	Duration	Frequency	Reversibility
Low	Local	Medium	Continuous	Reversible
<b>Overall Assessment: Non-significant</b>				
<b>Monitoring and follow-up</b>	Monitoring of the application of mitigation measures See Chapters 22 and 23 for more details			
<b>Comments</b>	During the work, monitor idling, machinery condition, site cleanliness and work schedules.			

**IAAC-1-13 Mitigation measures to reduce GHGs**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.2.1 (Changes to atmospheric, sound and light environments) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec), Environmental Impact Statement, section 11.2.1.1.3.6*

**Context**

The table at the end of section 11.2.1.1.3.6 presents measures to mitigate GHG emissions related to the operation of machinery and transport of materials. However, these measures represent only possibilities and not measures that would be adopted with certainty. Moreover, the terms used are “explore the option” or “assess the possibility.” Environment and Climate Change Canada (ECCC) recommends that a clear strategy for GHG reduction be adopted.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) compare the options of using a concrete plant close to the site (e.g. installing a portable concrete plant close to the site) versus other options to determine the best solution from a technical, economic and environmental point of view.

PSPC Response:

Installing a mobile concrete plant on the project site has many disadvantages. Such an installation would require sizable space on or near the work site for the mixing equipment itself but also to store raw material and allow truck movement, meaning a larger footprint for the project. The project site area being very limited, this would be a technical and health and safety challenge. Furthermore, the environmental gain of limiting GHG emissions from trucking the concrete from an outside source is outweighed by the increased potential nuisances associated with a mobile concrete plant such as noise and dust.

As the closest existing concrete plants are located 5.2 km and 70 km from the project site, sourcing concrete from either of these plants would be technically and economically sound. It would mean higher GHG emissions but less local nuisances.

The baseline scenario established for the GHG emissions calculations consider that the concrete plant

is located 70 km from the project site (Lafarge Canada in North Bay). GHG emissions from concrete trucks (return trips to and from the project site) are estimated to be 218 tonnes eq.CO<sub>2</sub>. The use of an on-site concrete plant would suppress this source of GHG emissions, however some level of GHG emissions would still occur to operate the plant and transport dry materials (cement and sand).

**IAAC-1-14 Mitigation measures – Vehicle emissions**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.2.1 (Changes to atmospheric, sound and light environments) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.2*

**Context**

Section 11.2 of the EIS mentions the use of Tier 4 vehicles as a measure to mitigate the effects of the project on air quality and GHG emissions. Overall emissions of air pollutants and GHGs are presented.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) include individual vehicle and engine descriptions, such as engine type, engine make and model, model year, emission class (e.g. Tier 4), fuel type, etc.; and

**PSPC Response:**

It is impossible at this point of the project to provide this information as the contractor has not been selected yet. However, Table 11.29 of Section 11.2.1.3.3 of the EIS presents a general description of the major equipment that may be required to complete the project.

Work area	Phase	Description	Equipment
-	1.0	<ul style="list-style-type: none"> <li>- Site mobilization and installation</li> <li>- Installation of temporary wastewater disposal measures</li> </ul>	-
Long Sault Island and Quebec shore	1.1	<ul style="list-style-type: none"> <li>- Installation of Berlin walls for the abutments on the right and left shores</li> <li>- Installation of temporary support for the culvert for the fish passage</li> <li>- Excavation behind the retaining walls</li> <li>- Excavation of the fish passage downstream</li> <li>- Construction of the downstream cofferdam and temporary access</li> <li>- Backfill of the depression downstream of the existing apron (bays 10 to 1)</li> <li>- Partial demolition of the new apron (bays 10 to 1)</li> <li>- Reconstruction of the apron (bays 10 to 1)</li> <li>- Construction of the new apron downstream (bays 10 to 1) with thresholds</li> <li>- Construction of piles 6 to 10, with built-in parts, of the abutment on the right shore and of retaining walls on the right and left shores</li> </ul>	<ul style="list-style-type: none"> <li>1 Crane</li> <li>1 Concrete mixer</li> <li>1 Jack drill</li> <li>1 Truck</li> <li>1 Tramak</li> <li>1 Scoop</li> <li>1 Diesel pump</li> <li>1 Bulldozer</li> </ul>
Quebec shore	1.2	<ul style="list-style-type: none"> <li>- Installation of sheet pile wall at pile 6 and downstream of the apron</li> <li>- Rock ballast behind the downstream apron</li> </ul>	<ul style="list-style-type: none"> <li>1 Pile driver</li> <li>1 Crane</li> </ul>

Work area	Phase	Description	Equipment
		- Dry testing of the beams upstream and downstream of bays 6 to 10	
Long Sault Island and Quebec shore	2.0	- Removal of downstream access on the left shore - Demolition of the downstream cofferdam - Reopening of bays 10 to 6	1 Scoop 1 Truck
Quebec shore	2.1	- Construction of piles 5 to 2 and the abutment on the left shore - Installation of built-in pieces and heating elements for the new keyways	1 Scoop 1 Crane 1 Truck 1 Concrete mixer
Long Sault Island and Quebec shore	2.2	- Construction of the bridge and operations aprons bays 10 to 1 - Construction of the metal footbridge upstream, the cable trough and the open-grate of the apron - Construction of the sidewalks and installation of guardrails and street lamps (bays 10 to 1) - Installation of the waterproof membrane (bays 10 to 1) - Installation of the hot water line	1 Crane 1 Concrete mixer
Long Sault Island	2.3	- Construction of the fish passage (downstream) - Construction of the fish passage foot bridge (downstream)	1 Pile driver 1 Scoop 1 Crane 1 Truck 1 Concrete mixer
Long Sault Island and Quebec shore	2.4	- Construction of the deviation road - Construction of the culvert for the fish passage - Modification of the road layout - Relocation of the Energir gas pipe - Paving of the roadway and connections, road marking	1 Compactor 1 Paver 1 Crane 1 Grader 1 Truck 1 Scoop
-	3.0	- Reopening of the road	-
Long Sault Island	3.1	- Removal of the diversion road - Construction of the electrical duct bank - Construction of the service building	1 Scoop 1 Truck
Long Sault Island	3.2	- Relocation of the Energir gas pipe - Construction of the fish passage (upstream) - Construction of the fish passage foot bridge (upstream)	1 Pile driver 1 Scoop 1 Crane 1 Truck 1 Concrete mixer
Quebec shore	3.3	- Installation of sluice gates and hoists - Installation of heating elements - Dry testing of the sluice gates for bays 5 to 1	1 Crane
Quebec shore	3.4	- Removal of the sheet piles on the apron	1 Crane
-	4.0	- Reopening of bays 5 to 1	-

Work area	Phase	Description	Equipment
Long Sault Island	4.1	<ul style="list-style-type: none"> <li>- Installation of the hydraulic crane for sluice gate handling</li> <li>- Tests in water of the sluice gates for bays 10 to 1</li> <li>- Tests in water of the sluice gates for bays 5 to 1</li> </ul>	1 Crane
Long Sault Island and Quebec shore	4.2	<ul style="list-style-type: none"> <li>- Demolition of the existing dam</li> </ul>	1 Scoop 1 Crane 1 Tramak 1 Truck 1 Concrete mixer
Long Sault Island and Quebec shore	4.2 (blasting, if needed)	<ul style="list-style-type: none"> <li>- Demolition of the existing dam using dynamite</li> </ul>	Blasting with dynamite

B) include assumptions with activity data and emission factors referenced for emission estimates for air pollutants and GHGs.

**PSPC Response:**

Fuel consumption of the machinery considered in the calculations is 20 liters of diesel per hour. This value is estimated from Caterpillar Performance Handbook, Edition 46 (2016), Section 8 “Hourly Fuel Consumption Tables – Track-Type Tractors”. It is a average value for medium-sized machinery under medium load. GHG emission factors for diesel consumption are from ECCC’s National Inventory Report 1990—2019 (2021) Part 3.

According to project planning estimate, total machinery time is 37,290 hours, total machinery diesel consumption is 745,800 liters, and total GHG emissions associated with this activity are 2,035 tonnes eq.CO<sub>2</sub>.

**IAAC-1-15 Air Quality Management Plan**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.1 (Atmospheric, light and noise environment), 7.1.9 (Indigenous peoples) and 7.2.1 (Changes to atmospheric, sound and light environments), and 7.3.4 (Indigenous peoples)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 23.7.1.1*

**Context**

Section 7.2.1. of the *Guidelines for the Preparation of an Environmental Impact Statement* (2018) states that the EIS must describe all methods or practices that will be implemented to minimize and control air emissions throughout the project life cycle. The Air Quality Management Plan in section 23.7.1.1 of the EIS is very brief. It is an example of an air quality management plan and not one developed specifically for the project.



The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) submit a detailed air quality management plan (including dust management) specific to the construction phase of the project or provide a justification for its absence. This plan must include, but not be limited to, key mitigation measures and details of follow-up and monitoring practices.

PSPC Response:

Table 23.1 of Section 23.7.1.1 was bonified with measures taken from Cheminfo Services inc., (2005) Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. The contractor will be required to submit his Air Emission Plan to comply or exceed these mitigation measures:

Potential Sources of Air Emissions	Contaminants	Proposed Mitigation Measures	Timing	Accountability	Mean
All activities	Dust	<ul style="list-style-type: none"> <li>- Visual inspection and monitoring of dust emissions on and around the Project site should be carried out on a regular basis</li> <li>- Activities involving significant emissions of dust or causing nuisance due to air emissions should be identified and mitigation measures should be implemented if necessary (i.e. dust clouds reaching privately owned or publicly accessible areas)</li> <li>- Complaints from neighbours regarding dust or air quality should be registered, analyzed, and addressed with the adequate mitigation measures</li> </ul>	Project duration	Contractor	Daily visual inspection  Complaints follow-up and results
Dust emissions from unpaved roads	Dust	<ul style="list-style-type: none"> <li>- Limit speed to 20 km/h on on-site roads</li> <li>- Applying water-based suppressants to exposed road surfaces that are causing dust emissions</li> <li>- Sweeping the access roads and circulation areas</li> </ul>	When required	Contractor	Daily visual inspection
Dust emissions from public paved roads	Dust	<ul style="list-style-type: none"> <li>- Prevent dirt track-out from the Project site to the public road network, using track-out grates or other technology</li> </ul>	Project duration	Contractor	Daily visual inspection
Open surface management	Dust	<ul style="list-style-type: none"> <li>- Stabilize surfaces of completed earthworks with vegetation</li> </ul>	When required	Contractor	Weekly visual inspection
Stockpile sites	Dust	<ul style="list-style-type: none"> <li>- Properly shape stockpiles to avoid sensitive areas</li> <li>- Applying water to active stockpiles that are causing dust emissions due to wind erosion</li> </ul>	When required	Contractor	Weekly visual inspection





Potential Sources of Air Emissions	Contaminants	Proposed Mitigation Measures	Timing	Accountability	Mean
		- Cover inactive stockpiles that are causing dust emissions due to wind erosion			
Machinery operations	Dust	- When available, dust control systems such as wet suppression systems (water sprays) and enclosures should be used. This applies most notably to drilling, crushing, demolition and screening activities	Project duration	Contractor	Daily visual inspection
Exhaust emissions of diesel machinery and trucks	SO <sub>2</sub> NO <sub>x</sub> CO PM <sub>2.5</sub> GHGs	- Off-road construction equipment and on-road transport truck engines would be required to meet the latest Tier 4 emission standards of the U.S. Environmental Protection Agency (EPA) - Machinery and transportation trucks should be well maintained and kept in good working condition (engine, exhaust and catalytic systems) - Manage loading and unloading activities to minimize idling time - Shut off engines when truck or vehicle is stopped for extended periods of time - Cover truck loads to suppress dust emission	Project duration	Contractor	Daily visual inspection
Exhaust emissions of diesel machinery and trucks	SO <sub>2</sub> NO <sub>x</sub> CO PM <sub>2.5</sub> GHGs	- Select local contractor or providers to limit travelled delivery distances	Tender period	PSPC	Contract requirement
Transportation of soil, aggregates, and other materials	Dust	- Cover loads on trucks transporting materials to and from the site	Project duration	Contractor	Daily visual inspection
Demolition	Dust	- Limit demolition activities during windy conditions - Apply dust suppression during deconstruction (water, fogging systems) - Minimize drop height for debris - Enclose chutes and cover bins	Project duration	Contractor	Daily visual inspection



Potential Sources of Air Emissions	Contaminants	Proposed Mitigation Measures	Timing	Accountability	Mean
		- Avoid prolonged storage of debris			
Blasting	Dust	- Limit only to demolition of structure not suited for regular jackhammer technique - Avoid windy conditions to limit dust dispersion	When required	Contractor	Inspection prior to blasting

## Comments and advice for the proponent

### Comment 1-5 Mitigation measures for the protection of air quality (1)

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 1, sections 7.2.1 (Changes to atmospheric, sound and light environments) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 23.7.1.1*

#### Comments and advice

Although the proponent provides a series of mitigation measures for the protection of air quality, it does not refer to the Cheminfo Services Inc. document (2005) [Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities](#). Health Canada encourages the proponent to consider the mitigation measures identified in this document and to improve its mitigation measures, where appropriate.

#### PSPC Response:

See response to AEIC-1-15 above where the Air Emission Plan was completed with additional measure taken from Cheminfo Services inc. (2005) Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities.

### Comment 1-6 Mitigation measures for the protection of air quality (2)

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.2.1 (Changes to atmospheric, sound and light environments) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec), Environmental Impact Statement, section 11.2.1.1.3.6*

## Comments and advice

The table on page 11-62 presents GHG mitigation measures related to the operation of machinery and transport of materials. However, these measures are only possibilities and not measures that will be adopted with certainty. The terms used are “explore” or “assess.” ECCC recommends that low-carbon materials, such as “decarbonised concrete,” be identified and described prior to project construction and that their use be ensured. ECCC also recommends that “options for carbon neutrality” be clarified and detailed and implemented.

### PSPC Response:

PSPC is exploring options for the use of low-carbon concrete for this project.

## Comment 1-7 Mitigation measures – Air quality and GHGs

### References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 1, sections 7.1.1 (Atmospheric, light and noise environment), 7.2.1 (Changes to atmospheric, sound and light environments) and 7.4 (Mitigation measures)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 11.1.4 and 23.7.1.1*

## Comments and advice

Section 11.1.4 of the EIS explains that “at the local level ... air quality is poorer in the Project area. Based on available data for the 2008 to 2019 period, air quality is good from 26% to 38% of the time and poor from 17% to 41% of the time.” Furthermore, although the annual average concentrations of fine particles (PM<sub>2.5</sub>) at the Timiskaming station of Quebec’s Ministère de l’Environnement et de la Lutte contre les changements climatiques (MELCC) seem to be gradually decreasing over the years, they exceed the limits established by the CAAQS (Figure 11-1).

However, according to the threshold values of the air zone management levels, the site would fall into the “Orange” management level whose objective is to “prevent exceedance of the CAAQS.” ECCC recommends that all necessary measures be taken to avoid exacerbating air quality during demolition and construction.

In order not to further reduce air quality, it would be useful to recall that:

- the mitigation measures planned to reduce the project’s effect on air quality should be based on best management practices. For example, the proponent could draw on the document issued by Environment Canada in March 2005: [Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities](#).
- To ensure effective and rigorous implementation of mitigation measures, it would also be useful to ensure that all planned air quality measures are taken into account by the various contractors involved in the project. Awareness of these measures among contractors should therefore be included in the specific air quality and GHG management plans mentioned in section 23.7.1.1.



Some examples of additional mitigation measures that could be considered in the project to reduce contaminant and GHG emissions include, but are not limited to, the following:

- optimizing machinery and vehicle movements
- developing a strategy for planning activities to reduce unnecessary movement of materials on site
- using fuel-efficient equipment
- using trucks that are in good working order and meet ECCC on- and off-road emissions standards
- carrying out prior and regular inspection of machinery to ensure that it is in good condition and working properly, including exhaust and emission control systems
- using low-carbon fuels such as alternatives to diesel and gasoline (renewable fuel such as B5, LNG, propane, etc.)
- washing material transport trucks (chassis, tires, etc.) before using public roads

PSPC Response:

Many of these above measures have been already incorporated in response to AEIC-1-15 above.

#### Comment 1-8 GHG emissions – operational and decommissioning phases

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.1 (Atmospheric, light and noise environment) and 7.2.1 (Changes to atmospheric, sound and light environments)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.2.1.1.3.2.3*

### Comments and advice

The *Guidelines for the Preparation of an Environmental Impact Statement* (2018) require that the EIS identify, describe and quantify all sources of GHGs during all phases of the project. The EIS does not present GHG emissions for the operational and decommissioning phases of the project. ECCC recommends that GHG emissions be estimated for the operational and decommissioning phases (end of life of the new structure), in accordance with the [Strategic Assessment of Climate Change](#). ECCC also recommends including emissions from acquired energy (electricity consumption) in the emissions estimate for the operational phase.



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## Surface Water

### Information requests directed to the proponent

#### IAAC-1-16 Areas used for the project and water mitigation measures

##### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 3.1 (Project components), 7.2.2 (Changes to surface water) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 7.1 and 11.2 and chapter 18*

##### Context

Figure 7.1 of the EIS maps several work areas that would be used as part of the project, and section 7.1.1 describes the use of some of these areas. Several would be located near the shoreline, and the EIS does not appear to present any mitigation measures to limit runoff and flow of these waters into the aquatic environment. However, section 11.2.2.1 of the EIS states that, during the vegetation clearing and earthworks for setting up the site during the pre-construction phase, sediment barriers will be placed along the edges of the construction areas to capture suspended solids (SS) from runoff from these sites and prevent them from entering the aquatic environment. ECCC is uncertain whether this measure will be implemented.

Furthermore, section 11.2.2.2 mentions the use and potential storage of a significant number of petroleum products. However, Figure 7.1 does not show any petroleum product storage or refuelling areas. Furthermore, the mitigation measures presented (e.g. effects table in section 11.2.3.4.8) indicate that these activities would have to take place more than 30 metres from a watercourse. As these areas are not identified, the relevance of this measure cannot be verified. In addition, no machinery maintenance areas are mentioned or described in the EIS.

A storage area of 818 m<sup>2</sup> is planned at the northwest of Long Sault Island and would overlap the shoreline as shown in Figure 7.1. No specific use or mitigation measures are presented for this area in relation to its proximity to the aquatic environment.

Finally, although the selected contractor would be responsible for supplying the concrete and may choose to build a temporary concrete plant, Figure 7.1 does not show an area related to a concrete plant or for washing of concrete mixers.

#### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) detail the mitigation measures planned to capture SS runoff from the edge of construction areas;

**PSPC Response:**

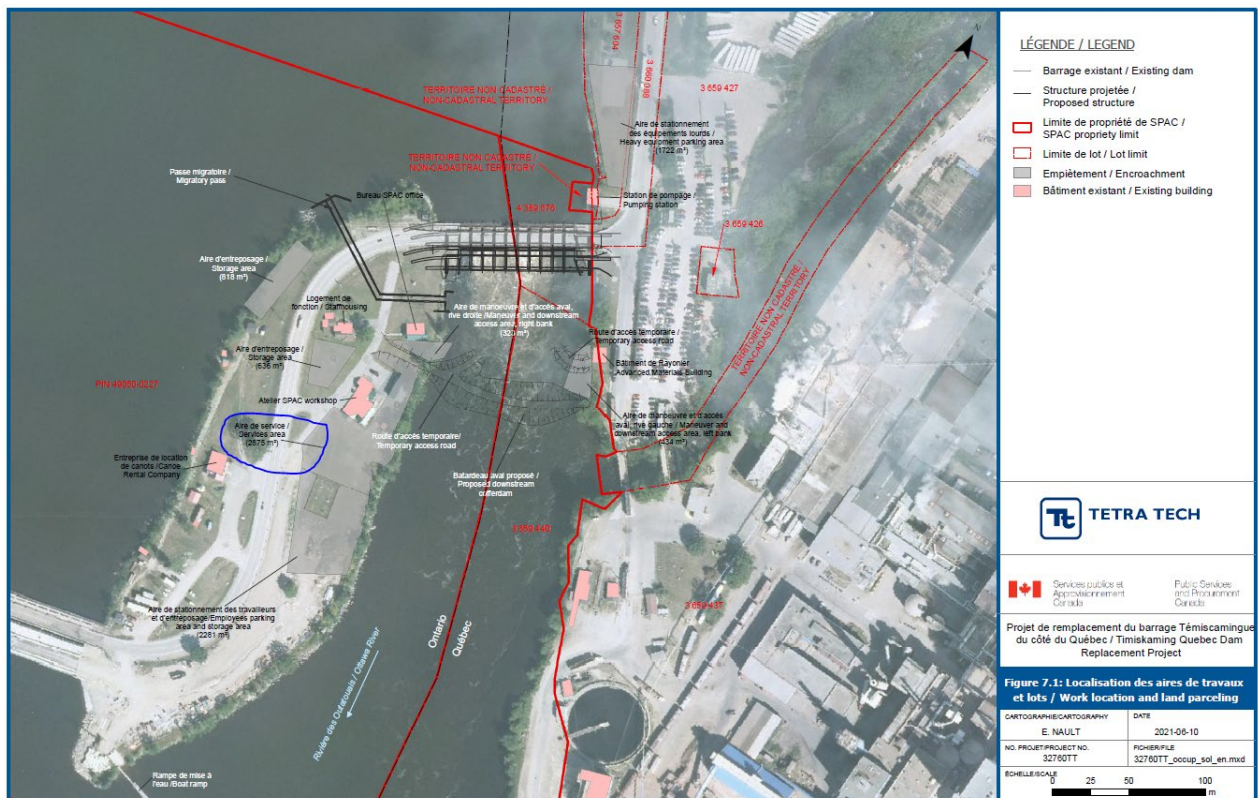
As design progresses, specific mitigation measures will be integrated in the project specifications from the Canadian National Master Specification (NMS) for construction. These will complement the mitigation measures found in the EIS, not only in Section 11.2.2.1 but also in Section 11.2.3.4.8. More specifically, mitigation measures to control suspended solids during construction include:

- Develop project specific sediment and erosion control plan;
- Avoid work and storage in riparian strip (set at 30 m);
- Avoid machinery movement, maintenance and parking in riparian strip;
- Avoid discharge of turbid water (plan for setting basins or tanks);
- Install sediment barriers at all work site adjacent to shoreline;
- Install turbidity curtain for in-water work (cofferdam installation and removal, demolition of existing dam);
- Install concrete mixer wash station at least 60 m from riparian strip;
- Plan for daily site cleanup;
- Plant vegetation and stabilize the site and shoreline as soon as work is over or area is left inactive for several months.

B) locate potential machinery maintenance, petroleum storage and machinery refuelling sites on a map and present additional mitigation measures if their distance from watercourses is less than 30 metres;

**PSPC Response:**

Machinery maintenance, petroleum product storage and machinery refueling will occur in the area designated as « Aire de service/Services Area » shown on Figure 7.1 below. All activities cited will take place more than 30 m away from the riparian strip.



- C) describe the intended use of the 818-m<sup>2</sup> storage area northwest of Long Sault Island and identify and describe specific mitigation measures to protect the aquatic environment; and

PSPC Response:

This storage area will be dedicated to inert material and will comply with mitigation measures set in response A) above.

- D) map the location of the concrete mixer washing area and the concrete plant, if applicable.

PSPC Response:

It is unknown at this point if a concrete plant will be allowed on site. Concrete mixer wash station will be located in the Services Area, at least 60 m from riparian strip.

### IAAC-1-17 Concrete work areas – concrete plant or washing area

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.2.2 (Changes to surface water) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.2.3.4.2*

## Context

Section 11.2.3.4.2 of the EIS states that the contractor would reuse or treat concrete mixer wash water before discharging it into the environment and that water will be conducted daily to ensure compliance with water quality criteria.

More information regarding containment measures, treatment targets and comparison criteria must be provided in order to assess the potential effect of concrete mixer wash water on the quality of the receiving environment. In addition, ECCC believes that wash water discharges may also result in the dispersion of SS in the aquatic environment and that these should be considered in the treatment and monitoring.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) describe methods of storing wash water prior to treatment and eventual discharge;

PSPC Response:

The more common technique to contain wastewater from concrete mixer washing is the installation of a washing basin lined with a geomembrane. Design of the basin is based on expected flow of concrete mixer for having sufficient retention capacity for sedimentation. Should the work site be too small for this, a smaller basin can be installed coupled with holding tanks.

- B) describe the wash water treatment that would be carried out to limit the effects on the receiving environment; and

PSPC Response:

Wastewater is maintained in basin or holding tanks until the deposition of suspended solids is occurred.

- C) explain the methods for managing and monitoring water quality in relation to the quality criteria for pH and SS to determine when discharge into the receiving environment would be possible.

PSPC Response:

Table of the EIS Section 11.2.3.4.8 specifies that concrete mixer wash water is to be sampled daily and analyzed for pH and suspended solids. This sampling protocol is to be integrated in the Contractor's Wastewater Management Plan. Wastewater will not be released until compliance with applicable criteria.

## IAAC-1-18 Sequence of construction work

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 3.2.1 (Site preparation and construction), 7.2.2 (Changes to surface water) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 7.1.2.1*

### Context

According to section 7.1.2.1 of the EIS, the Phase 1 of construction includes tasks that must be carried out in a dewatered area, inside a cofferdam. However, many of the activities presented in this section occur prior to the construction of the cofferdam that would dewater the work area. It is unclear whether some of the work, such as the temporary installations for the fishway culvert, are planned to be carried out in water.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

PSPC Response:

It should be first noted that the fish passage is for the moment under discussion as it raises numerous concerns from a variety of stakeholders. PSPC, DFO and IAAC are exploring the different options to make an informed decision.

- A) present a detailed sequence of works clearly showing the works that would be carried out in water and insert these into the works schedule;

PSPC Response:

A detailed schedule will not be available until the contractor is selected. Table 7.4 of the EIS Section 7.7 presents the 8 key milestones of the project that will direct the contractor's detailed scheduling. In-water work is planned at beginning of Step 3 (mid-July 2026 to mid-August 2026 – installation of cofferdam), at end of Step 4 (December 2026 – removal of part of cofferdam), at end of Step 5 (December 2028 – removal of remaining cofferdam), and Step 6 (mid-July 2029 to end of September 2029 – demolition of old dam).



**Table 7.4 Project Schedule**

Dates	Project Milestones	Constraints <sup>(1)</sup>
Beginning of May to the end of June 2026	Mobilization and construction site organization	No work in water
End of May to mid-July 2026	Preparation of the construction site area	No work in water
Mid-July to end of December 2026	Phase 1 (concrete structures) Entire cofferdam	Installation of the riprap cofferdam between July 15 and early October 2026
End of December 2026 to beginning of August 2027	Phase 2 (concrete and road) Half of the sheet pile cofferdam maintained	Demolition of the riprap cofferdam before the end of December 2026.
Beginning of August 2027 to end of December 2028	Phase 3 (mechanical and electrical work) Work without cofferdam	Removal of the entire sheet pile cofferdam before the end of December 2028
Mid-July 2029 to end of September 2029	Phase 4 (demolition of the old dam) Work without cofferdam (but with a turbidity curtain upstream)	Demolition of the old dam after July 15, 2029
2029-2104 (75 years)	Operation of the new dam	Structure and road maintenance
2104	End of the structure's useful life	Replacement of the dam in accordance with the legislation and regulations applicable at the time.

<sup>(1)</sup> Time restrictions imposed by human and natural environments.

The main constraints affecting this construction schedule are fish spawning periods (May 1<sup>st</sup> to July 15<sup>th</sup> and October 1<sup>st</sup> to December 15<sup>th</sup>), as well as PSPC obligations to keep the dam open to lower the water level in the upstream basin (February and March).

B) indicate in this sequence when the turbidity curtain would be installed and removed; and

**PSPC Response:**

As stated in Section 11.2.2.1 of the report, the turbidity curtain will be installed prior to installation of the riprap and sheet pile cofferdams and will remain in place throughout Phase 1 until end of removal of the riprap cofferdam (mid-July 2026 to end of December 2026). During Phase 2, a sheet pile cofferdam will be installed and will remain in place during Phase 3. This will result in a limited risk of sediment release. Turbidity curtain is considered should sediment release be observed. The turbidity curtain will be re-installed for the removal of the sheet pile cofferdam (December 2028). A turbidity curtain is planned to be installed upstream of the old dam for the demolition period (mid-July 2029 to end of September 2029). No turbidity curtain will be installed downstream of the old dam as the new dam will retain downstream sediments and debris from the demolition.

C) present the mitigation measures that would be implemented specifically during in-water works.

**PSPC Response:**

A series of mitigation measures are presented in Sections 11.2.2.1 and 11.2.3.4.8 of the EIS. Specifically, they include:

- Implement project specific sediment and erosion control plan;
- Implement work methods limiting shoreline disturbance;
- Implement stringent spill response procedure for speedy recovery of spills before reaching water body;
- Implement surface water quality monitoring program (preliminary selected parameters: suspended solids, pH, turbidity, BOD<sub>5</sub>, petroleum hydrocarbons, mercury);
- Install turbidity curtain downstream of in-water work, secured to the riverbed and shoreline;

- Sample sediments before installation of cofferdam to assess presence of contamination and apply proper decontamination measures, if required (non found to date);
- Recover all demolition material before opening new dam;
- Specific requirements for riprap cofferdam material (clean material, no fine material, etc.);
- In-water work allowed only outside fish habitat restriction periods;
- Ensure all machinery for in-water work is in good condition, maintained and inspected;
- Plan for riverbed restoration after removal of cofferdam.

## IAAC-1-19 Construction of cofferdam – concrete trenches

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 3.1 (Project components), 7.1.5 (Surface water), 7.2.2 (Changes to surface water), 7.4 (Mitigation measures) and 9 (Follow-up and monitoring programs)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 7.1.2, 7.4 and 22.5*

### Context

Section 7.1.2.1 of the EIS states that dredging will not be carried out as part of the project. However, according to Figure 7.3, the construction of the cofferdam would involve the excavation of two 1.5-metre-deep trenches, which would then be filled with concrete. We understand that this work would necessarily be carried out in water. The EIS does not describe the work associated with these trenches, the specific sediment characterization at this location, the assessment of effects, mitigation measures or monitoring and follow-up.

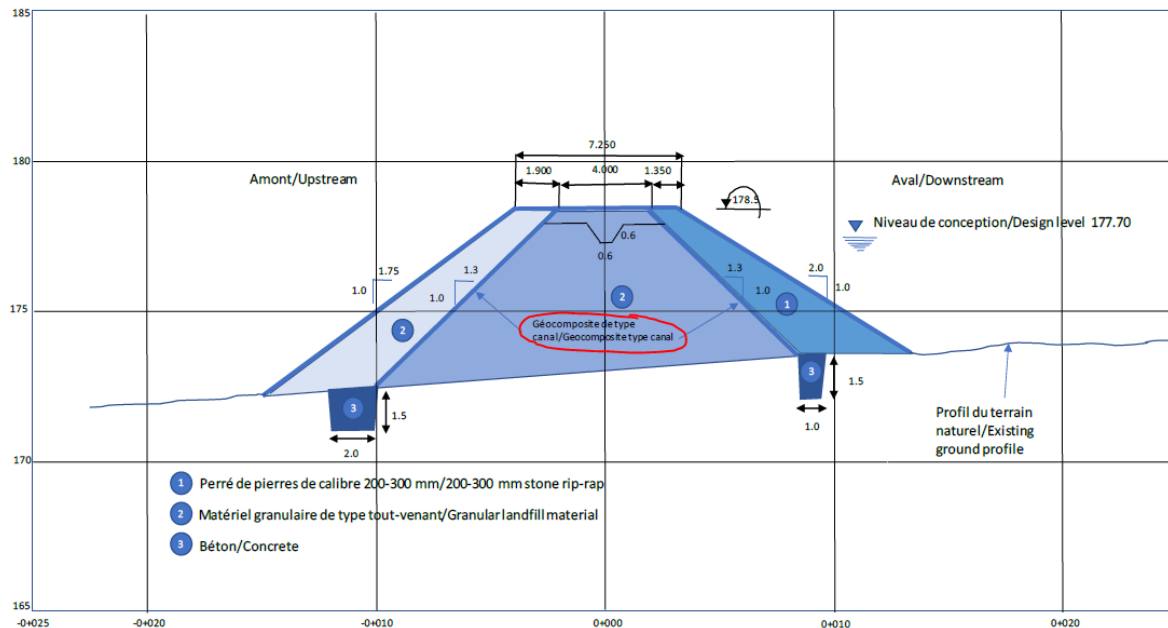
### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) describe the work involved in the planned trenches on either side of the cofferdam, including the pouring of concrete;

#### PSPC Response:

The trenches are needed to anchor the geomembrane that will waterproof the cofferdam (see indication in Figure 7.3 bellow). Trenches will be dug with machinery operating from top of the cofferdam or from a barge (downstream side). According to geotechnical surveys conducted in 2017, the riverbed where the trenches will be dug is made of roc boulders sitting on a till matrix of approximately 2 to 3 metres in depth. Concrete will be poured from top of the cofferdam and directed by divers from bottom to top of the trenches to limit sediment release. Turbidity curtain will be deployed for this operation. This design is based on lessons learned from similar projects conducted by PSPC (Ontario dam and Laniel dam). It aims to limit water infiltration in the cofferdam, hence reducing pumping energy needed to keep the work site dry and reducing need to treat pumping water before discharge to the river.

**Figure 7.3 Cross-section of the Cofferdam Required in Phase 1**



- B) include a characterization program for the sediments to be excavated specifically at this location to complement the characterization program presented in section 22.5 of the EIS. This program should provide a representative characterization of the mass of sediments to be removed (vertical [depth] and horizontal). Specify the volume to be dredged;

PSPC Response:

As described above, no sediment dredging is planned. Material to be excavated is made of roc boulders sitting on a 2 to 3-meter deep till matrix. Should there be sediment to sample, see response to AEIC-1-20 bellow.

- C) describe how excavated sediments will be managed;

PSPC Response:

No sediment is expected to be managed. The material retrieved from the trenches (roc boulders and till matrix) will be incorporated in the exterior layer of the cofferdam and retrieved from the site with the cofferdam material during the removal of the cofferdam.

- D) evaluate the effects of the excavation work and identify and describe the mitigation measures to limit or prevent the dispersion of SS in the aquatic environment;

PSPC Response:

As with all in-water work, a turbidity curtain will be deployed downstream to contain sedimentation. Trenches will be dug during low water season and with existing dam closed, reducing water flow and sediment dispersal risk. Concrete pour will be directed by divers to ensure precise deposition of the concrete to limit sediment dispersal. Impact anticipated is negligible.

- E) assess the effects of concrete pouring and identify and describe mitigation measures to limit the dispersion of SS and pH decrease; and

**PSPC Response:**

As the concrete volume is low (approx. 400 m<sup>3</sup>), and considering the mitigation measure presented in D) above, effect of the concrete on the water quality is negligible.

- F) identify and describe the monitoring and follow-up measures that would be applied during the excavation of the trenches and their filling with concrete.

**PSPC Response:**

Machinery to dig the trenches will be equipped with laser level meters to limit material retrieval to strict minimum required. Concrete pour will be directed by divers to ensure visual control of the operation. Global water quality monitoring is already planned as presented in Section 22.4 of the EIS:

« (...) three stations positioned on two transects, one at 100 m and the other at 300 m downstream of the cofferdam, will be monitored (...). A control station will also be positioned upstream of the dam. The parameters that will be monitored are SS, turbidity, temperature, pH, metals and mercury. Since SS requires laboratory analysis and cannot be used for rapid response, SS will be monitored indirectly by continuous in situ turbidity measurements. The instrument to be used should also be able to measure temperature and pH.»

**IAAC-1-20 Sediment characterization****References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.5 (Surface water)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 11.1.9.5 and 22.5*

**Context**

Section 22.5 of the EIS states that a characterization of sediment will be conducted following the closure of the existing dam-bridge between the turbidity curtain and the existing dam-bridge.

It is stated that the characterization results would be compared to the ECCC and MELCC (2007) sediment quality assessment criteria and that the sediments would be managed in a terrestrial environment.

Section 11.1.9.5 presents the results of a 2020 sediment study, and Figure 11-14, taken from this study, shows the location of three sampling sites within the study area. The scale of the map does not allow the precise location of these sites to be determined, in particular site 2, which would be closer to the project site. Table 11.5 shows that the mercury exceeds the occasional effects level (OEL) criterion at these three sites.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) describe the sampling effort planned to characterize the sediments prior to construction of the downstream cofferdam in terms of sample density and distribution (including number of surface and depth samples), sediments volume to be removed and parameters to be analyzed, particularly at the location of the concrete trenches planned for the cofferdam anchorage;

PSPC Response:

First, it should be noted that sedimentation is very limited in the study area. Structures such as concrete apron and riprap materials have been installed to limit erosive processes and sediment input to the study area. As stated in Section 22.5 of the EIS, should sediment be present, it will be sampled before installation of the cofferdam. Immediately after closure of the existing dam and installation of the turbidity curtain, a full inspection of the riverbed will be conducted to locate presence of sediment depot. Where sediment depot is located, samples will be taken. It is thus difficult at this point to precisely show sampling location on a map. Analysis criteria are stated in Section 22.5: metals (including mercury), PCBs, PAHs, C10-C50 hydrocarbons, TOC, particle size.

- B) determine which quality criterion/criteria would be used to determine whether the sediment should be managed on land and how they would be managed once on land; and

PSPC Response:

As stated in Section 22.5 of the EIS, analysis criteria are metals (including mercury), PCBs, PAHs, C10-C50 hydrocarbons, TOC, particle size. Sampling will be conducted in compliance with « Critères pour l'évaluation de la qualité des sédiments au Québec et cadres d'application : prévention, dragage et restauration » produced by ECCC and MELCCFP in 2007. Terrestrial management of the potential contaminated sediment will be conducted according to provincial guidelines as elimination will occur outside of the federal land. Main provincial guidelines considered are :

- Politique de protection des sols et de réhabilitation des terrains contaminés (Québec);
- Règlement concernant la traçabilité des sols contaminés excavés (Québec);
- Guide: site assessment, cleanup of brownfields, filing of records of site condition (Ontario).

- C) map sample site 2 of the Camila Arbour (2020) study at a scale to verify its proximity to the project and its relevance to the project.

PSPC Response:

According to Camila Arbour (2020), the sampling site #2 is located at 46.71052 – 79.09895 coordinates. See relative location on map bellow. Sampling site #2 is outside of the construction area and should not be impacted by construction.



**IAAC-1-21 Demolition of existing retaining walls**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 3.2 (Project activities), 7.2.2 (Changes to surface water) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 7.1.3*

**Context**

Section 7.1.3 of the EIS lists the work that would be carried out during the dismantling of the existing structure. It is not specified whether the bank retaining walls of the existing dam-bridge would be dismantled. Furthermore, measures or works specifically aimed at protecting the banks (and water quality) during the dismantling of the retaining walls are not presented.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) determine if the work to dismantle the existing structure includes the removal of the left and right bank retaining walls. If so, describe the mitigation measures that would be put in place during the works to avoid or minimize impacts on water quality at these locations.

**PSPC Response:**

PSPC intends to maintain the existing upstream retaining walls. For the downstream retaining walls, parts of it will be dismantled to make place to the new dam-bridge and an extension is planned downstream. All this work will be done in dry conditions within the cofferdam enclosure avoiding negative impact to surface water quality.

**IAAC-1-22 Work in connection with the fishway****References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 3.1 (Project components), 7.2.2 (Changes to surface water), 7.4 (Mitigation measures) and 9 (Follow-up and monitoring programs)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Chapters 7, 22, 23 and Appendix 7.1*

**Context**

The EIS lists, in Chapter 7 among others, possible works related to the fishway without presenting the details, particularly whether some of the work would be carried out in water. For example, for the upstream portion of the fishway, Figure 7.2 (Phase 4) suggests that there would be concrete structures built on the banks as well as certain facilities that are not described. In addition, very little information is provided on measures to avoid or minimize the resuspension of SS, including those aimed at protecting the banks during these works, or at increasing the pH or avoiding the release of concrete form oil into the receiving environment, where applicable. Finally, no monitoring and follow-up measures specific to this work are presented in chapters 22 and 23.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:****PSPC Response:**

It should be noted again that the fish passage is for the moment under discussion as it raises numerous concerns from a variety of stakeholders and Indigenous communities. PSPC, DFO and IAAC are exploring different options to make an informed decision.

- A) describe the works related to the fishway, both upstream and downstream. Identify any works that would likely cause effects on the water quality of the receiving environment, in particular those that would take place in water;

**PSPC Response:**

Should the fish passage be installed, the downstream section will be built within the confine of the cofferdam. No specific mitigation measure is needed to protect quality of water. For the upstream section of the fish passage, all applicable mitigation measures for in-water work will be implemented (turbidity curtain, sediment barriers, etc.). See also response to AEIC-1-16 above for mitigation measure to protect water quality.

- B) indicate whether concrete form oil would be used. If so, specify which ones;

PSPC Response:

Use of such oil is not considered for this project.

- C) present, to the extent possible, specific mitigation measures for these works aimed at avoiding or minimizing the resuspension of SS, the increase in the pH of the water in the receiving environment and, if applicable, the spread of concrete form oil in the aquatic environment; and

PSPC Response:

See responses A) and B) above.

- D) determine, to the extent possible, whether monitoring and follow-up measures targeting, among other things, SS, pH and concrete form oil (e.g. C10-C50 hydrocarbons), would be implemented during the fishway works, and present these measures, if applicable.

PSPC Response:

As stated in response to AEIC-1-19 F), a global water quality monitoring is already planned.

**IAAC-1-23 Rainwater drainage**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 3.2 (Project activities) and 7.2.2 (Changes to surface water)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, chapter 7*

## Context

The beginning of Section 7 of the EIS states that the road drainage system would be rebuilt to be similar to the existing drainage system, that it would include stormwater pipes that would discharge water into the river immediately downstream of the dam, and that it would include settling ponds. No description of these works or their effects are presented.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) present a description of the works related to the drainage of the new road and map the settling ponds; and

PSPC Response:

See stormwater drainage drawings in Appendix A. Drainage of the new road system will be similar to the existing system, made of a mix of open ditches and culverts. No catch basin is planned other than the lower points of the manholes. There will be a total of 4 outflows to the Ottawa River:

- Outflow A: draining area East of the road on Long Sault Island;
- Outflow B: draining PSPC service area West of the road on Long Sault Island;
- Outflow C: draining the area between this fish passage and the road next to the dam-bridge on Long Sault Island;
- Outflow D: draining the area on the Quebec shore.





- B) provide an assessment of the effects of the construction of these structures on the receiving environment.

PSPC Response:

Limited impact is anticipated from new stormwater drainage system. Excavation will be performed during road construction while the cofferdam is in place, limiting risk of releasing sediment to the river (Outflows B, C, D). As for Outflow A, point of release it is planned outside of the riverbed also limiting risk of releasing sediment during construction. As stated in Response AEIC-1-16, a complete set of mitigation measures are planned to protect quality of surface water during construction.

**IAAC-1-24 Increased flow upstream of the dam-bridge**

## Reference

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.2.2 (Changes to surface water)*

## Context

At a public consultation session on the EIS held by the Agency in April 2023, a non-governmental organization noted that if the Onimiki hydroelectric project on Gordon Creek were to proceed, it could increase the flow upstream of the Timiskaming dam-bridge.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) validate whether the Onimiki hydroelectric project could add an additional flow to that upstream of the dam-bridge, and specify these flows; and

PSPC Response:

The preliminary environmental and social impact assessment published for this project (OBVT, 2018) does not clearly states what flow would be diverted upstream of the Timiskaming Dam Complex by the Onimiki project. The best indication is a table presenting historical flow of the Kipawa river from which water would be diverted (see below).

Tableau 6 : Information sur le débit des cours d'eau impactés.

No Station	Nom Cours d'eau	Municipalité	Superficie du bassin versant (km <sup>2</sup> )	Débit (m <sup>3</sup> /s)			Période
				Moyenne	Maximum	Minimum	
42602	Rivière Kipawa	Laniel	5960	63	311	2,8	1962-75
42605	Rivière Kipawa	Laniel	5961	40	306	0	1927-55
42606	Rivière Kipawa	TNO les Lacs-du-Témiscamingue	2590	50,2	246	5	1965-75
42607	Rivière Kipawa	TNO les Lacs-du-Témiscamingue	2110	6,8	62,8	0	1967-97
48602	Ruisseau Gordon	Kipawa	5960	50,5	98,8	5,6	1927-75
48603	Ruisseau Gordon	Kipawa	6022	14,2	23,3	4,6	1987-

Assuming that the flow to be diverted is represented by data of station 42606 (maximum flow of 246 m<sup>3</sup>/s), and that a minimum of 50% of the flow would need to be maintained to protect ecological function of the Kipawa river (OBVT, 2018), a maximum of 126 m<sup>3</sup>/s of water may be added to the Lake Temiscaming upstream of the Timiscaming Dam Complex. The average maximum flow entering the Lake Temiscaming for the 1950-2019 period is 1,993 m<sup>3</sup>/s.

B) assess the effects of this additional flow on the capacity of the dam-bridge.

PSPC Response:

The design of the new dam-bridge is considering a 1,000-year+ maximum flow rate estimated at 6,533 m<sup>3</sup>/s (Tetra Tech, 2023). The hypothetical additional flow of 126 m<sup>3</sup>/s from the Onimiki project would have no effect on the new structure.

#### IAAC-1-25 Surface water quality – fecal coliforms

#### Reference

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.5 (Surface water)*

Tetra Tech, February 2023. *Timiscaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.1.13.2*



## Context

Section 11.1.13.2, the EIS presents fecal coliform concentrations in the waters of Gordon Creek. The data in question is from 2015 and 2016.

The Agency instructs the proponent (Public Services and Procurement Canada) to:

A) present in the EIS more recent data on fecal coliform concentrations in Gordon Creek waters, if available.

PSPC Response:

No recent data was found on fecal coliform for Gordon Creek near the project location.

## Comments and advice for the proponent

### Comment 1-9 Dispersion of sediments

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.2.2 (Changes to surface water)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.2*

#### Comments and advice

The Kebaowek, Wolf Lake and Timiskaming First Nations (SART) stated that they are still concerned about sediment dispersion patterns and existing contamination in the sediment and on the shoreline around the project area.

PSPC Response:

For sediment control, specific mitigation measures have been identified in the EIS to mitigate the project impacts on the environment. For example:

- A turbidity curtain will be installed to create a barrier for sediment. Particles from the dismantling of the cofferdam will be recovered before the turbidity curtain is removed.
- All debris and fine particles will be also recovered from the demolition of the old dam.
- If measures to limit erosion and transportation of sediment are deficient, the work will be stopped until more effective measures are in place or corrected.
- A soil and a sediment management plan and an erosion and sediment control plan will be developed.
- Sampling will be also conducted by divers where sediment is visible on the riverbed once the existing dam is closed and the turbidity curtain is in place; sediment will be managed based on their level of contamination, if required.

Discussion on the environmental management plan to be developed for this project is also included in the consultation and communication plan with the SART team.

**Comment 1-10 Turbidity curtain****References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.2.2 (Changes to surface water) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.2*

**Comments and advice**

Section 11.2 of the EIS states that turbidity curtains will be used to mitigate effects on the aquatic environment during construction. The Kitchi Sibi Technical Team, including the Kebaowek, Wolf Lake and Timiskaming First Nations (SART), specifies that turbidity curtains are only effective if they are properly installed and if they are monitored and maintained throughout their use. It is imperative that the contractor designs the curtain to form an adequate seal with the river bottom along its entire length. The curtain must also be anchored with sufficient weight to prevent its movement. The amount of weight used to anchor the curtain will be determined by the amount of potential wind and wave exposure at that location. The curtain should also be monitored regularly to ensure that there are no tears or openings, and that debris has not caused the floating part to sink. Maintenance of the curtain should be carried out as required.

Figures 11-31 and 11-32 show current velocities that are well in excess of 2 m/s where the downstream cofferdam would be constructed in Phase 1, and the end of section 11.2.3.4.1 states that a turbidity curtain is planned to be used when sluices 6 to 10 are reopened (scenario 9).

ECCC is of the opinion that excessive current speeds limit the effectiveness of the turbidity curtains and recommends that the proponent consult the [Recommendations for the management of suspended solids \(SS\) during dredging activities \(MDDELCC and ECCC, 2016\)](#) on this subject.

**PSPC Response:**

Before Phase 1, turbidity curtain will be installed during full closure of the Quebec Dam allowing installation in low-flow conditions. Turbidity curtain will not be in place during opening of sluice gates 6 to 10, but will be installed during full closure of the dam to retrieve sheet piles at end of the project.

**Comment 1-11 Dispersion of suspended sediments****References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.2.2 (Changes to surface water) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 11.1 and 22.4*



## Comments and Advice

The Kebaowek, Wolf Lake and Timiskaming First Nations (SART) noted the following with respect to the dispersion of suspended sediments.

Increasing the sediment load beyond the levels to which the aquatic biota of a given ecosystem is adapted can have significant negative effects on the health and survival of organisms in that body of water. An influx of suspended sediments into a system, whether as a result of natural or anthropogenic disturbance, can negatively influence water quality, biodiversity and biological community composition, decrease reproductive capacity and growth rates of fish, increase the incidence of fish diseases, alter fish migration patterns, and alter the feeding success of locally foraging species. High concentrations of sediments can kill fish by limiting their respiratory capacity. Thus, the potential impact on aquatic biota of the Timiskaming Dam-Bridge of Quebec Replacement Project (TDQRP) is also a potential impact on SART communities.

Aquatic biota respond to both the concentration of sediment in the water and the time of exposure to sediment levels. These parameters must be taken into account when considering the potential impacts of a non-avoidable sediment load entering a watercourse. The European Inland Fisheries Advisory Commission has developed the following guidelines on the effects of sediment loads on fisheries:

- <25 ppm, no harmful effects
- 25–80 ppm, good
- 80–400 ppm, unlikely to support good fishing
- 400 ppm and above – poor fishery
- ppm (parts per million) roughly corresponds to mg/l

In cases where there is already a background sediment load in a watercourse, it is the increase in sediment load relative to the background load that is the measure of interest, not the absolute value of the sediment concentration, as the biota will be adapted to living with this background sediment load. The Canadian Council of Ministers of the Environment (CCME) suggests a guideline of a maximum increase in sediment load relative to background load of 25 mg/l for the short term (<24 hours), and no more than 5 mg/l relative to background load for the long term (up to 30 days).

Risk levels for sediment concentrations have been established by the CCME and are as follows:

- 0 mg/l – no risk
- <25 mg/l – very low risk
- 25–100 mg/l – low risk
- 100–200 mg/l – moderate risk
- 200–400 mg/l – high risk
- >400 mg/l – unacceptable

The shape of the particles that make up suspended sediments can also play a part in the risk level presented to aquatic biota. It has been established that more angular particles result in higher fish mortality.



Sub-lethal effects of sediment concentration can be difficult to determine, and different species of organisms will have different levels of tolerance to sediment. Salmon reduced their feeding at 100 mg/l and stopped feeding completely at 300 mg/l of suspended sediment. Arctic Grayling had impaired feeding ability and reduced growth rates after exposure to 100 mg/l suspended sediment after six weeks.

The TDQRP presents the likelihood of a release of sediment into the Ottawa River as a result of construction of the new dam. The most likely circumstances where sediment loading may result from work on the new dam are during cofferdam removal and during deconstruction of the old dam. Modelling presented in the EIS by Tetra Tech in Chapter 11, section 11.2, Effects on the physical environment, indicates that in almost all circumstances the sediment load will remain below the thresholds set by the Department of Fisheries and Oceans (DFO). Tetra Tech's modelling indicates that, during cofferdam removal, it is possible to produce a sediment load to the Ottawa River that exceeds DFO thresholds for maximum concentration over a period of time. At no time does the modelling indicate that sediment levels will become high enough to be acutely toxic to aquatic life, which would correspond to a suspended sediment concentration in the order of 1,000 mg/l.



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# Riparian, Wetland and Terrestrial Environments

## Information requests directed to the proponent

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### IAAC-1-26 Construction – managing contaminated soil

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#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.3 (Topography, terrestrial environments and soil) and 7.2.3 (Changes to riparian, wetland and terrestrial environments)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 7.1 and 11.1.9 and Appendix 12.3*

#### Context

According to Map 11.3 and section 11.1.9.1 of the EIS, a sample from the F-A borehole on Long Sault Island had a manganese concentration of 1,100 mg/kg. There are no federal (CCME) or Ontario recommendations or criteria/standards for this parameter. The site is on the Ontario side of the border and on federal land. This concentration was compared to the values in the Quebec government's [Guide d'intervention – Protection des sols et réhabilitation des terrains contaminés \(Beaulieu, 2021\)](#) and would be in the B-C contamination range of this guide, which corresponds to the quality for commercial use. Finally, this borehole is located at the limit of one of the areas planned for storage (Figure 7.1), and it is mentioned that if these soils were to be excavated, they would be managed according to the applicable regulations towards a final disposal site.

According to section 11.1.9.4, sites S1 and S2 of the Kitchi Sibi Technical Team 2021 Study (Appendix 12.3 of the EIS) would have soil with metal concentrations in the A-B range of the Guide d'intervention – Protection des sols et réhabilitation des terrains contaminés (Beaulieu, 2021). These sites are located on the left bank downstream of the existing dam-bridge. Map 2 in Appendix 12.3 of the EIS does not indicate whether they are located on areas planned for construction (Figure 7.1) or whether they are on federal land. Finally, the EIS does not mention whether there will be any excavation work at these locations.

In both cases discussed, if soils were to be excavated and managed on site (on federal land), ECCC recommends to federal land managers that soils be managed according to the CCME Canadian Soil Quality Guidelines (CSQG), in addition to applicable provincial regulations and/or guidelines. In addition, ECCC recommends that the proponent follow the principle of avoiding degradation of the receiving environment, i.e., avoiding increasing contaminant concentrations in soils by considering aspects such as ambient concentrations.

## Comment:

As a precautionary principle, ECCC is of the opinion that land-based fill with concentrations of a substance above natural background concentrations should not be brought closer to an aquatic environment.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) determine the final disposal site for manganese-contaminated soils at the F-A borehole site on Long Sault Island if they were to be excavated and managed off-site;

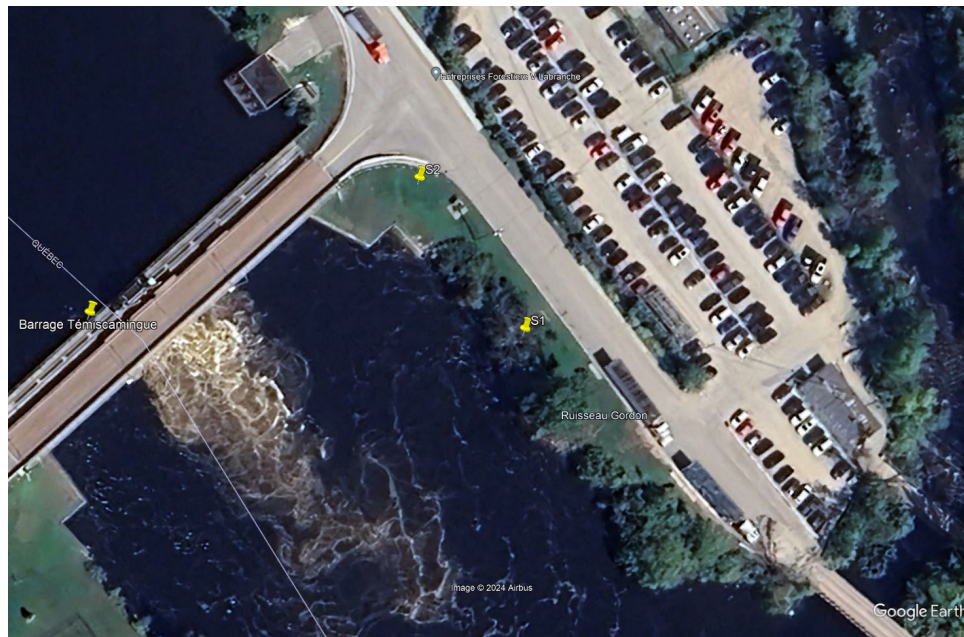
### PSPC Response:

No excavation will be done at the F-A drilling site.

- B) specify whether sites S1 and S2 of the 2021 Kitchi Sibi Technical Team study are located on a project-related work area and/or whether they are on federal land and, if so, describe the construction work that would take place there (e.g. excavation, backfill); and

### PSPC Response:

According to a recent SART communication, S1 and S2 would be located in the grassy area behind the retaining wall on the left bank of the river, downstream from the existing dam-bridge (see image below). As the new dam-bridge will be built a few meters downstream of the existing dam, S1 will be near the cofferdam location and S2 will be located near the work to be undertaken for this project. Installation of the cofferdam near S1 would consist mainly of filling activity without soil excavation for both installation and retrieval of the cofferdam. Work near S2 would include excavation and filling for the new road alignment and its drainage system. Soil excavation may also be required to build the left abutment for the new dam-bridge. Detailed design will be prepared once the environmental process is completed and exact excavated soil volume to manage will be then available. Most of this parcel is not on Crown land, but PSPC will discuss real estate transactions with Rayonier for this parcel.





- C) describe how the soil would be managed for these two sites (F-A borehole on Long Sault Island and the 2021 Kitchi Sibi Technical Team study sites), taking into account the CCME's CSQG, applicable provincial regulations and/or guidelines, and the principle of avoiding degradation if they were to be excavated, reused, or managed on or off site.

PSPC Response:

For site F-A on Long-Sault Island (in Ontario), mitigation measures will be implemented to avoid degradation of existing soil conditions. A protection layer will be mandatory (i.e. gravel) and only inert material will be allowed to be stored. As it is not expected to undertake any excavation at this site, no specific soil management measure is needed for this location.

For sites S1 and S2 (in Québec), the Contractor will be required to sample soil to be excavated with analysis results compared to Québec's *Guide d'intervention – Protection des sols et réhabilitation des terrains contaminés* (Beaulieu, 2021). Should the contamination be confirmed, contaminated soil will have to be eliminated off site in authorized sites with soil tracking as now required under Québec's *Environmental Protection Act*.

## IAAC-1-27 Identification of wetlands

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.4 (Riparian and wetland environments), 7.2.3 (Changes to riparian, wetland and terrestrial environments) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 10.1.2 and 12.1.5.1.1, Appendix 1 from Appendix 12.1 and Map 9-1*

### Context

Section 12.1.5.1.1 of the EIS, as well as section 5.3.1 of Appendix 1 (Biofilia, 2018) of Appendix 12.1 of the EIS, states that there are no wetlands in the study area.

However, in the table in section 10.1.2 of the EIS, wetlands are included as a valued component (VC) for the purposes of the environmental assessment, and it is indicated that there are no wetlands within the project footprint and its immediate vicinity, but that wetlands are present in the Gordon Creek area and further downstream in the Ottawa River.

Although, according to Map 9-1, Gordon Creek is partially located in the aquatic study area and just outside the terrestrial study area, it is nevertheless located in the immediate vicinity of the work. In this context, ECCC questions the reasons that led to the exclusion of this aquatic zone in the project's zone of influence.

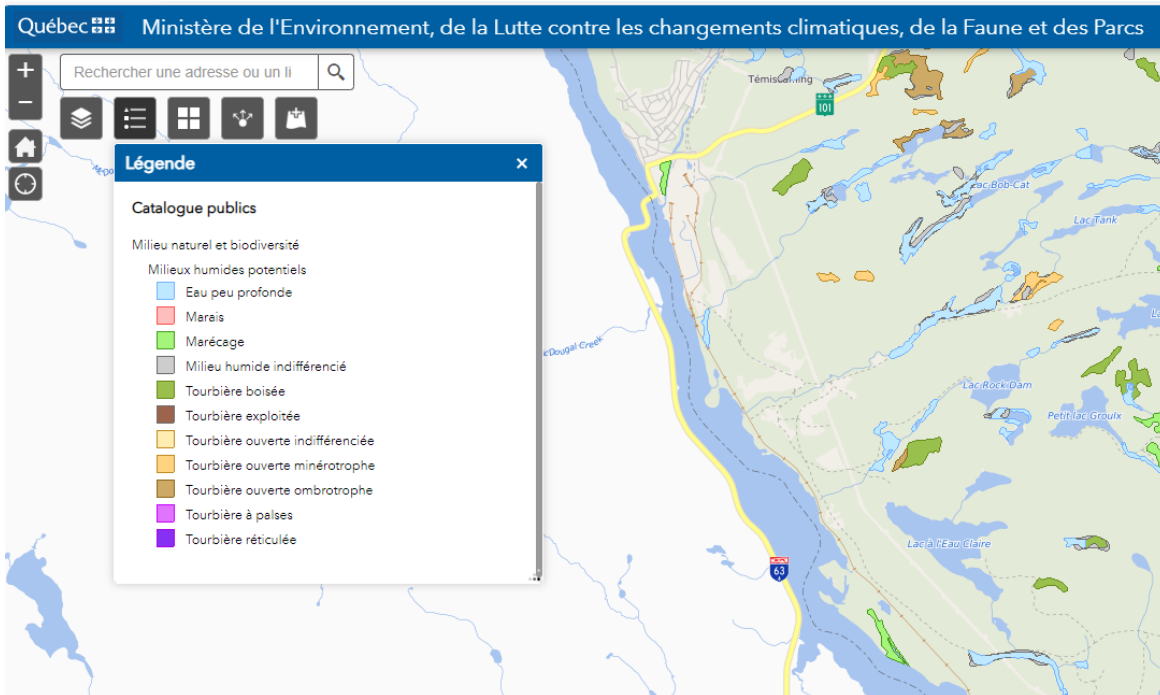
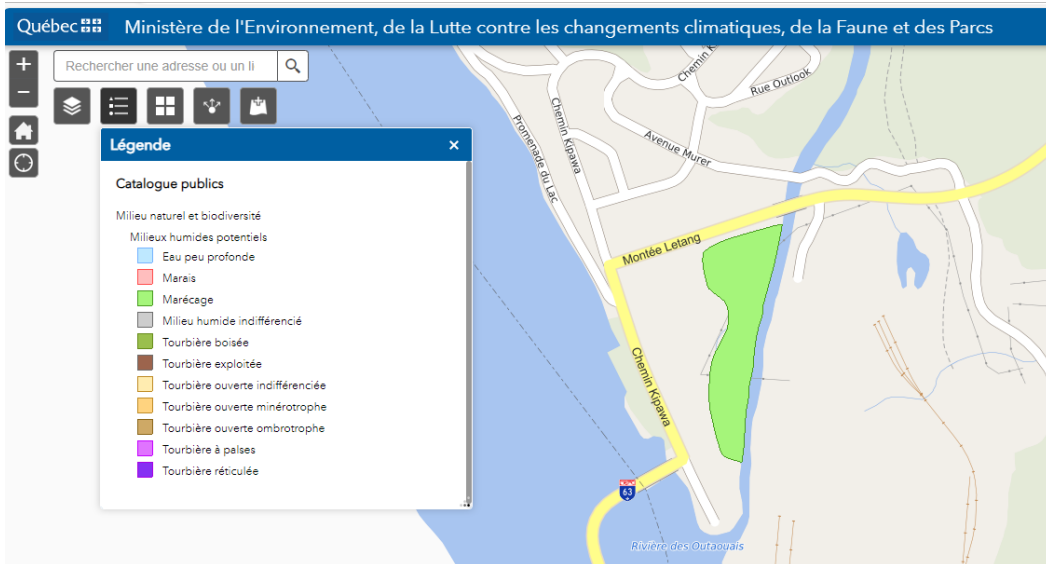
ECCC believes that, depending on the exact location of wetlands, their functions could be affected by the project (e.g. through indirect effects associated with changes in water levels downstream of the dam or changes to the atmospheric environment [noise and dust] of the Gordon Creek wetlands).

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) identify on a map at an appropriate scale the wetlands identified in the table in section 10.1.2 of the EIS;

**PSPC Response:**

Extracts from the MELCCFP map of potential wetlands ([Milieux humides potentiels - Jeu de données - Données Québec \(donneesquebec.ca\)](http://donneesquebec.ca)) are bellow. One is found just out site the terrestrial and aquatic study zones near Gordon creek (first map), and a second one 6 km downstream on the Ottawa River (second map).

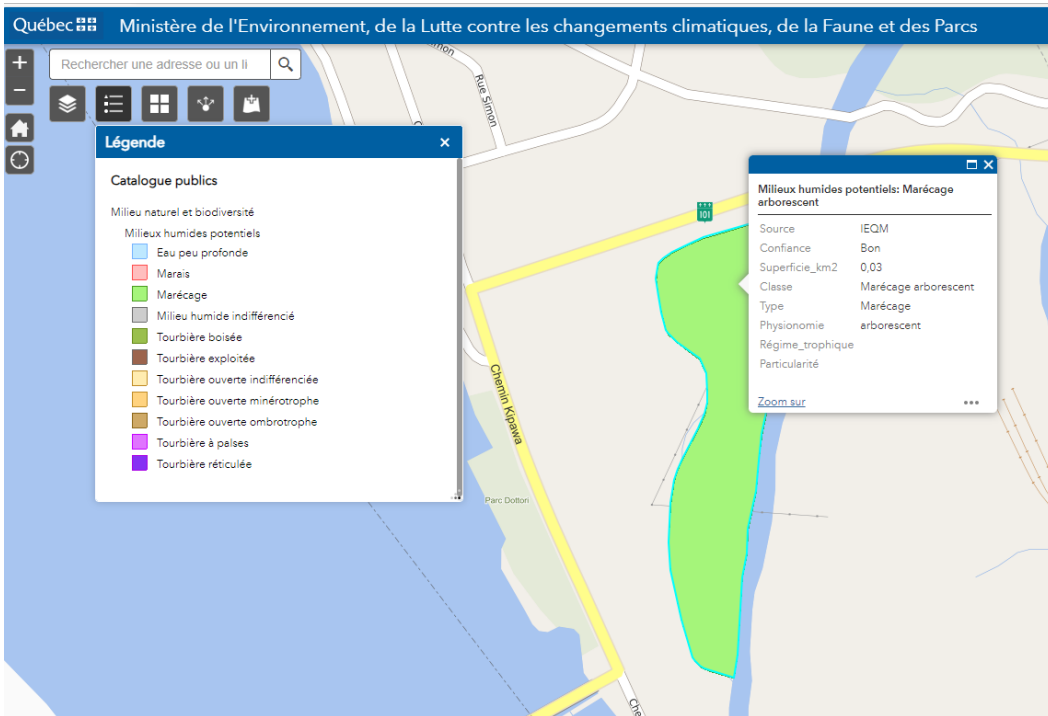


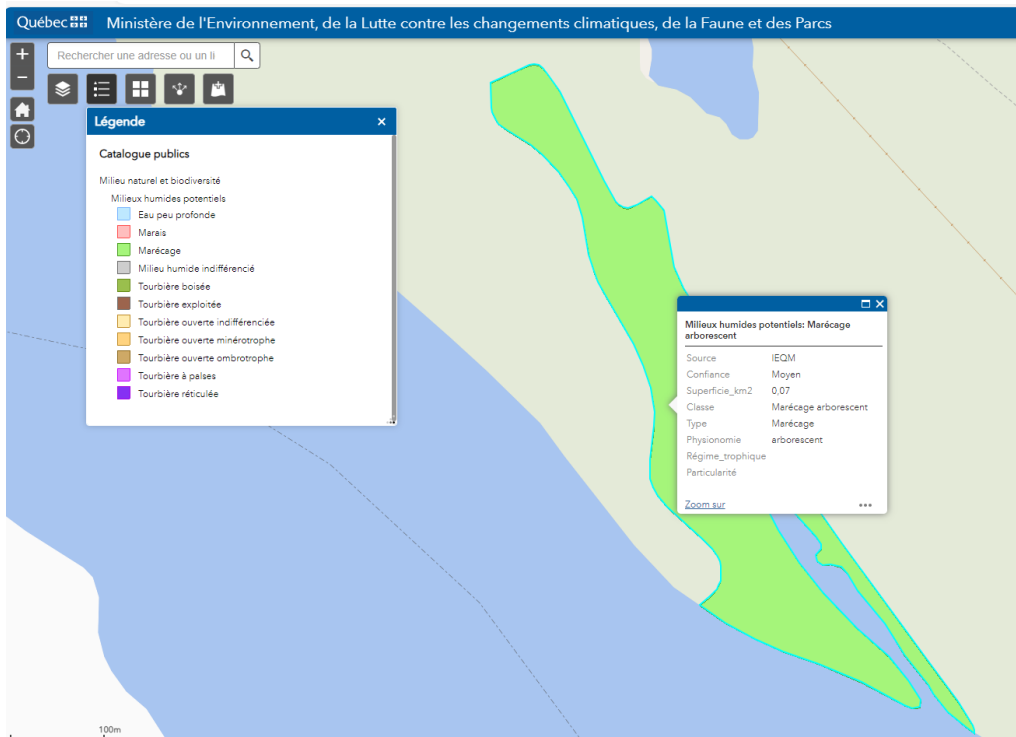


B) describe, quantify and identify on a map the wetland types listed in this table and describe their functions;

PSPC Response:

Again, extracts from the MELCCFP map of potential wetlands are bellow showing main characteristics of the potential wetlands. Both of these potential wetlands are tree swamps (marécages). The tree swamp adjacent to Gordon Creek has an area of 0.03 km<sup>2</sup> and the one downstream has an area of 0.07 km<sup>2</sup>. Tree swamp are known to have several ecological functions, mainly water filtration, flood control, carbon sequestration, habitat provision and erosion prevention.





- C) identify the direct and indirect, temporary and permanent effects of the project on these wetlands or justify why they are considered outside the project's area of influence; and

PSPC Response:

No water from the Ottawa river flows in the Gordon creek. As the level of water in the Ottawa river will be maintained as usual with the operation of the Ontario dam during the construction work on the Québec dam, no effect is expected on the Gordon creek and its associated wetlands found upstream of the creek. As for nuisance expected from work, it is unlikely that the Gordon creek wetlands would be impacted, as nuisance from the project will be negligible at this location. Mitigation measures planned for noise, dust and vibration control during construction and demolition work will prevent effect on this wetland. The same can be said of the wetland found 6 km downstream.

- D) identify and describe mitigation measures to be put in place to minimize effects on wetlands, where applicable.

PSPC Response:

No additional mitigation measures are required.

## IAAC-1-28 Most significant seismic event

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.2 (Geology and geochemistry)*



*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.1.7*

## Context

In order to properly assess the potential effects of earthquakes on the project site, further details on the most significant historical seismicity in the vicinity are required. The proponent mentions historical activity in the Western Quebec seismic zone but did not indicate the proximity or extent of damage caused by the 1935 earthquake near the City of Témiscaming. Information on the event is available at this [link](#).

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

A) provide the distance of this earthquake from the project site; and

### PSPC Response:

According to Natural Resources Canada (NRC) database, the 1935 earthquake was located 46.78° N and 79.07° W. This point is approximately 8 km North-East of the Timiskaming Québec Dam, although the NRC web site locate this earthquake 10 km East of Témiscaming.

B) provide the extent of damage caused by this seismic event.

### PSPC Response:

In or near the study zone, according to historical reports cited on NRC website, the majority (80%) of chimneys were damaged in Témiscaming and cracks were developed in some brick walls. Cracks in gravel and sand edges of islands and borders of lakes were also observed.

## IAAC-1-29 Regional seismic events

## References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.2 (Geology and geochemistry)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.1.7*

## Context

In order to assess the potential effects of earthquakes on the project site, detailed and correct information on nearby regional seismicity is required. According to section 11.1.7 of the EIS, the National Earthquake Database (NEDB) indicates that a single earthquake with low magnitude (M2.7) has occurred within 17 kilometres of the project site since 1990.

A search of the NEDB from 1985 to the present shows that more than 150 earthquakes have been recorded within a 50-kilometres radius of the site. Ten of these had a magnitude of 3 or larger. The largest event (magnitude 5.2, 2000/01/01) occurred within 20 kilometres of the site.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**



- A) revisit this database and update the information related to earthquakes within a radius of 0 to 50 kilometres of the project site.

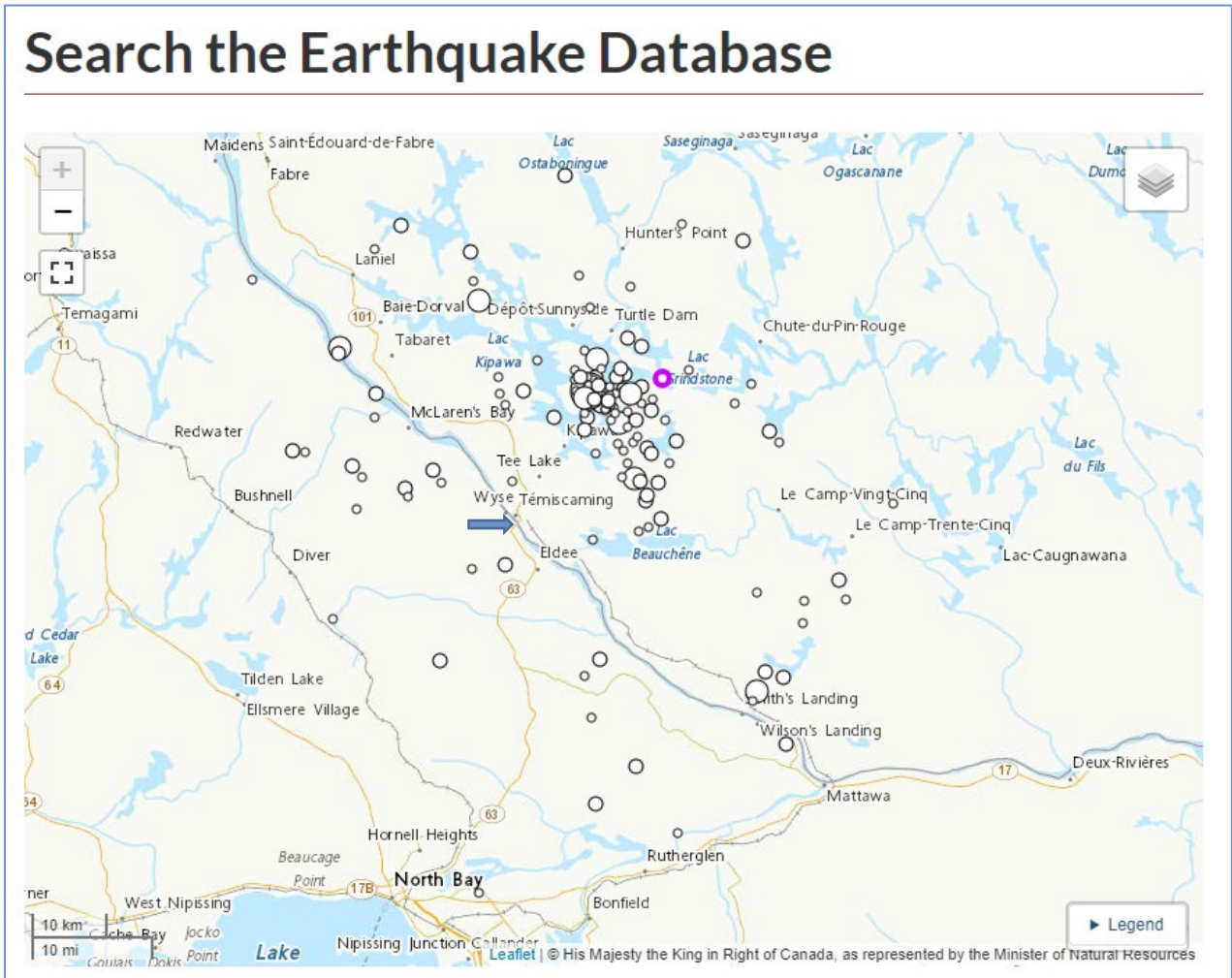
PSPC Response:

An updated version of the search on the NRC National Earthquake DataBase (NEDB) shows a total of 158 earthquakes in a 50 km radius from the project site between January 1985 and December 2023. The summary table below indicates most events were under magnitude 3.

**Summary**

Magnitude	< 2	2	3	4	5	≥ 6
<b>Total</b>	98	50	9	0	1	0

The map from this search shows most of the event to occur North-East of Témiscaming. The project site is located with a blue arrow.



The closest event from the Québec Dam-Bridge happened on February 14, 2006, 5 km North of Témiscaming, with a magnitude of 1.9. The second closest happened on August 7, 2010, 6 km South of Témiscaming, with a magnitude of 2.2. The strongest earthquake recorded in this 50 km radius for the 1985-2023 period was detected on January 1, 2000, 35 km East of Témiscaming with 5.2 magnitude. More than 20 aftershocks were detected for this event.

Detailed table of the 1985-2023 earthquakes recorded in the NEDB in the 50 km radius around the Timiskaming Québec Dam-Bridge is in the table below.

**1985-2023 earthquakes in 50 km radius around the Timiskaming Québec Dam-Bridge (source: NEDB, 2024)**

Date/Time (UTC)	Latitude (°)	Longitude (°)	Depth (km)	Magnitude	Description
2023-12-14 19:14:11	46.832	-78.795	6.6	2.8 MN	15 km ENE of Kipawa, QC
2023-08-03 12:12:36	46.730	-78.905	18.0	1.4 MN	8 km SE of Kipawa, QC
2023-07-10 05:10:27	46.899	-79.282	18.0	2.1 MN	16 km S of Laniel, QC
2023-07-01 19:02:01	46.888	-78.913	18.0	1.4 MN	13 km NNE of Kipawa, QC
2023-06-01 07:35:12	46.778	-79.210	18.0	1.9 MN	11 km NW of Témiscaming, QC
2023-04-26 17:58:06	46.509	-78.668	18.0	2.0 MN	22 km N of Mattawa, ON
2023-04-22 15:53:30	46.618	-78.466	18.0	1.4 MN	39 km NNE of Mattawa, ON
2022-07-25 06:23:07	46.523	-78.586	18.0	1.6 MN	25 km NNE of Mattawa, ON
2022-07-21 06:31:31	47.066	-79.444	18.0	1.7 MN	13 km W of Laniel, QC
2022-01-18 21:44:47	46.828	-78.918	18.0	2.4 MN	7 km NE of Kipawa, QC
2021-05-27 19:17:43	46.956	-79.329	18.0	2.2 MN	32 km NW from Temiscaming, QC
2021-02-01 23:01:39	46.796	-78.948	18.0	2.0 MN	15 km NE from Temiscaming, QC
2020-12-18 00:15:05	46.464	-78.751	18.0	2.2 MN	17 km N from Mattawa, ON
2020-10-24 18:55:42	46.787	-78.875	18.0	1.8 MN	19 km NE from Temiscaming, QC
2020-06-28 11:23:02	46.883	-79.069	18.0	1.8 MN	19 km N from Temiscaming, QC
2019-07-10 15:47:33	46.843	-78.905	14.5	2.7 MN	20 km NE from Temiscaming, QC



2018-09-07 22:15:41	46.663	-78.901	18.0	1.6 MN	16 km E from Temiscaming, QC
2018-08-28 16:59:58	46.858	-78.931	18.0	2.0 MN	20 km NE from Temiscaming, QC
2018-07-05 11:47:43	46.820	-78.994	18.0	2.3 MN	14 km NE from Temiscaming, QC
2018-01-15 07:30:00	46.862	-79.074	18.0	1.4 MN	16 km N from Temiscaming, QC
2017-12-01 02:44:54	47.085	-79.170	18.0	2.5 MN	41 km N from Temiscaming, QC
2017-10-30 16:57:17	46.811	-78.820	18.0	1.7 MN	24 km NE from Temiscaming, QC
2015-12-20 01:49:24	46.773	-78.862	18.0	1.7 MN	19 km E from Temiscaming, QC
2015-10-10 22:02:00	46.770	-78.898	18.0	1.3 MN	17 km E from Temiscaming, QC
2015-08-26 08:09:39	46.807	-78.890	18.0	1.9 MN	19 km NE from Temiscaming, QC
2015-05-22 08:35:47	46.395	-79.007	18.0	2.3 MN	25 km W from Mattawa, ON
2015-05-02 08:34:25	46.834	-78.935	15.0	3.3 MN	18 km NE from Temiscaming, QC. Felt
2015-03-03 05:28:05	46.858	-79.447	18.0	2.2 MN	31 km NW from Temiscaming, QC
2014-07-23 05:17:50	46.652	-79.449	5.0	1.2 MN	28 km W from Temiscaming, QC
2014-04-04 08:03:54	46.772	-79.363	18.0	1.8 MN	21 km W from Temiscaming, QC
2013-11-25 04:35:31	46.453	-78.725	18.0	2.4 MN	15 km N from Mattawa, ON
2013-10-10 08:58:11	46.823	-78.896	18.0	2.1 MN	20 km NE from Temiscaming, QC
2013-08-06 13:40:51	46.573	-79.288	18.0	2.0 MN	22 km SW from Temiscaming, QC
2013-05-20 20:45:40	46.867	-78.940	18.0	1.9 MN	21 km NE from Temiscaming, QC
2012-08-22 07:04:53	46.839	-78.888	18.0	1.3 MN	19 km NE from Temiscaming, QC





2012-07-27 21:11:10	46.821	-78.900	18.0	1.7 MN	19 km NE from Temiscaming, QC
2012-01-29 19:32:40	46.667	-78.983	18.0	1.4 MN	11 km SE from Temiscaming, QC
2011-02-14 22:15:02	46.294	-79.320	18.0	1.5 MN	12 km E from North Bay, ON
2010-08-07 14:29:10	46.665	-79.138	18.0	2.2 MN	6 km SW from Temiscaming, QC
2010-06-11 22:29:46	46.799	-78.900	18.0	1.0 MN	19 km NE from Temiscaming, QC
2010-01-18 20:58:51	46.745	-78.889	18.0	1.6 MN	16 km E from Temiscaming, QC
2009-05-30 10:44:17	46.872	-79.294	18.0	1.5 MN	23 km NW from Temiscaming, QC
2008-12-31 21:18:23	46.890	-78.998	18.0	1.8 MN	21 km N from Temiscaming, QC
2008-11-03 21:04:54	46.846	-78.921	18.0	1.6 MN	20 km NE from Temiscaming, QC
2008-08-04 02:55:47	46.814	-78.904	18.0	1.2 MN	19 km NE from Temiscaming, QC
2008-07-21 22:31:40	46.839	-78.930	18.0	0.9 MN	20 km NE from Temiscaming, QC
2008-06-18 08:28:38	46.548	-78.588	18.0	2.2 MN	30 km N from Mattawa, ON
2008-04-07 03:08:59	47.004	-78.694	18.0	1.1 MN	45 km NE from Temiscaming, QC
2008-02-05 06:06:54	46.856	-78.943	18.0	1.2 MN	19 km NE from Temiscaming, QC
2008-01-22 13:26:53	47.035	-79.063	18.0	2.2 MN	35 km N from Temiscaming, QC
2007-12-13 15:01:52	46.670	-79.197	18.0	1.4 MN	9 km SW from Temiscaming, QC
2007-12-02 06:58:05	46.845	-78.923	18.0	1.7 MN	20 km NE from Temiscaming, QC
2007-09-10 15:42:28	46.833	-78.918	18.0	1.7 MN	19 km NE from Temiscaming, QC
2007-07-27 22:01:32	46.828	-78.891	18.0	1.6 MN	19 km NE from Temiscaming, QC



2007-03-14 07:50:21	46.834	-78.908	18.0	1.5 MN	17 km NE from Temiscaming, QC
2007-01-08 05:25:33	46.834	-78.749	5.0	1.4 MN	30 km NE from Temiscaming, QC
2006-03-04 18:20:03	46.856	-78.860	18.0	2.9 MN	21 km NE from Temiscaming, QC
2006-02-14 04:27:45	46.364	-79.090	18.0	2.0 MN	28 km E from North Bay, ON
2006-02-14 04:03:03	46.758	-79.091	18.0	1.9 MN	Temiscaming, QC
2005-12-03 21:31:42	46.829	-78.882	18.0	1.5 MN	21 km NE from Temiscaming, QC
2005-10-25 17:23:05	46.825	-78.899	18.5	0.8 MN	20 km NE from Temiscaming, QC. Aftershock
2005-10-25 17:21:37	46.812	-78.905	18.5	1.0 MN	18 km NE from Temiscaming, QC. Aftershock
2005-10-25 15:29:04	46.823	-78.857	18.5	3.3 MN	Felt in Temiscaming
2005-09-25 05:19:51	46.435	-78.785	18.0	1.8 MN	15 km NW from Mattawa, ON
2005-08-30 09:59:34	46.862	-78.894	18.0	1.3 MN	23 km NE from Temiscaming, QC
2005-07-13 20:42:07	46.844	-78.944	18.0	1.3 MN	18 km NE from Temiscaming, QC
2005-06-28 05:56:13	46.832	-78.857	18.0	1.5 MN	23 km NE from Temiscaming, QC
2005-05-28 08:19:17	47.066	-79.223	18.0	1.1 MN	40 km N from Temiscaming, QC
2005-04-26 17:56:04	46.815	-78.941	18.0	1.4 MN	16 km NE from Temiscaming, QC
2005-02-15 07:34:29	46.749	-78.847	18.0	2.3 MN	20 km E from Temiscaming, QC
2004-12-24 19:30:23	46.875	-78.816	8.5	2.8 MN	30 km NE from Temiscaming, QC
2004-12-22 07:53:35	46.783	-78.808	18.0	1.3 MN	24 km E from Temiscaming, QC
2004-09-09 12:41:39	46.533	-78.656	18.0	1.1 MN	24 km N from Mattawa, ON



2004-06-06 00:54:52	46.848	-78.871	14.5	2.8 MN	20 km E from Temiscaming, QC
2004-05-08 08:43:02	46.375	-78.748	18.0	2.5 MN	56 km E from North Bay, ON
2004-03-28 02:54:11	46.767	-78.871	18.0	1.7 MN	18 km E from Temiscaming, QC
2004-02-07 23:54:24	46.807	-79.341	18.0	1.7 MN	21 km NW from Temiscaming, QC
2003-10-19 11:14:29	46.771	-79.273	18.0	1.2 MN	52 km N from NORTH BAY, ONT.
2003-08-05 01:59:50	46.857	-78.921	18.0	1.8 MN	73 km NE from NORTH BAY, ONT. Aftershock
2003-08-05 01:57:05	46.810	-78.937	18.0	2.8 MN	68 km NE from NORTH BAY, ONT.
2003-07-09 10:51:16	46.852	-79.427	18.0	1.9 MN	67 km N from NORTH BAY, ONT.
2003-04-30 13:00:32	46.305	-78.967	18.0	1.4 MN	40 km E of North Bay, Ont.
2002-08-27 21:29:38	46.733	-78.820	18.0	1.7 MN	Temiscamingue region, Que.
2002-02-11 08:02:26	46.848	-79.070	18.0	1.8 MN	Temiscamingue region, Que.
2001-11-16 22:41:33	46.975	-78.892	18.0	1.4 MN	Temiscamingue region, Que.
2001-01-21 18:57:56	46.817	-78.861	18.0	1.4 MN	Temiscamingue region, Que.
2000-11-16 09:33:25	46.829	-78.872	18.0	1.9 MN	73 km NE from NORTH BAY, ONT.
2000-08-31 03:39:20	46.782	-78.686	18.0	1.7 MN	Temiscaming, Que.
2000-05-26 03:10:27	46.852	-78.912	18.0	1.5 MN	Temiscamingue region, Que.
2000-05-25 23:30:59	46.822	-79.352	18.0	2.1 MN	57 km N from NORTH BAY, ONT.
2000-05-17 19:40:45	46.794	-79.220	18.0	2.0 MN	56 km N from NORTH BAY, ONT.
2000-05-08 12:56:23	46.966	-78.600	18.0	2.5 MN	Lac Kikwissi, NE of Temiscaming, Que.



2000-02-06 06:26:51	46.840	-78.918	12.1	-0.2 ML	Temiscaming region, Que. Aftershock.
2000-02-04 14:24:02	46.837	-78.894	11.1	-0.5 ML	Temiscamingue region, Que. Aftershock
2000-01-22 18:48:31	46.804	-78.868	14.4	-0.7 ML	Temiscamingue region, Que. Aftershock
2000-01-16 17:53:36	46.840	-78.926	12.2	1.2 MN	Temiscamingue region, Que. Aftershock
2000-01-15 07:45:11	46.834	-78.905	12.2	-0.6 ML	Temiscamingue region, Que. Aftershock
2000-01-06 13:10:41	46.840	-78.925	12.0	0.2 ML	Temiscamingue region, Que. Aftershock
2000-01-05 15:01:34	46.840	-78.925	12.0	1.2 MN	Temiscamingue region, Que. Aftershock
2000-01-05 04:01:08	46.840	-78.925	12.0	-0.4 ML	Temiscamingue region, Que. Aftershock
2000-01-02 21:10:01	46.840	-78.925	12.0	1.3 MN	Temiscamingue region, Que. Aftershock
2000-01-02 00:22:48	46.840	-78.925	12.0	-0.5 ML	Temiscamingue region, Que. Aftershock
2000-01-01 16:08:29	46.840	-78.925	12.0	0.8 MN	Temiscamingue region, Que. Aftershock
2000-01-01 15:05:38	46.840	-78.925	12.0	-1.0 ML	Temiscamingue region, Que. Aftershock
2000-01-01 12:37:04	46.840	-78.925	12.0	-0.6 ML	Temiscamingue region, Que. Aftershock
2000-01-01 12:15:46	46.840	-78.925	12.0	-0.3 ML	Temiscamingue region, Que. Aftershock
2000-01-01 12:10:34	46.840	-78.925	12.0	1.3 MN	Temiscamingue Region, Que. Aftershock.
2000-01-01 12:03:43	46.840	-78.925	12.0	-0.5 ML	Temiscamingue region, Que. Aftershock
2000-01-01 11:54:22	46.840	-78.925	12.0	2.2 MN	Temiscamingue region, Que. Felt Aftershock
2000-01-01 11:53:16	46.840	-78.925	12.0	-0.1 ML	Temiscamingue region, Que. Aftershock
2000-01-01 11:50:23	46.840	-78.925	12.0	-1.0 ML	Temiscamingue region, Que. Aftershock



2000-01-01 11:44:45	46.840	-78.925	12.0	-1.2 ML	Temiscamingue region, Que. Aftershock
2000-01-01 11:39:31	46.840	-78.925	12.0	1.6 MN	Temiscamingue region, Que. Aftershock
2000-01-01 11:35:15	46.840	-78.925	12.0	1.2 MN	Temiscamingue region, Que. Aftershock
2000-01-01 11:22:58	46.840	-78.925	12.0	5.2 MN	Temiscamingue Region, Que. Felt.
1999-12-09 00:35:24	46.739	-78.638	18.0	2.2 MN	Temiscaming, Que.
1999-11-01 02:21:22	46.848	-78.856	18.0	2.9 MN	Felt, Temiscaming, Que.
1999-06-09 19:47:02	46.462	-79.060	18.0	1.8 MN	35 km NE from NORTH BAY, ONT.
1999-05-15 10:10:27	46.858	-79.033	18.0	2.4 MN	North of Temiscaming, Que.
1999-05-15 03:21:34	46.976	-79.071	18.0	3.0 MN	North of Temiscaming, Que. Felt.
1999-04-18 01:16:17	46.935	-78.887	18.0	1.6 MN	82 km NE from NORTH BAY, ONT.
1999-04-01 17:05:04	46.947	-78.809	18.0	1.7 MN	86 km NE from NORTH BAY, ONT.
1998-11-14 02:38:28	46.720	-78.878	18.0	2.2 MN	64 km NE from NORTH BAY, ONT.
1998-05-07 16:20:16	46.725	-78.886	13.5	3.4 MN	Felt, Temiscaming, Que.
1998-03-19 16:37:53	46.792	-78.856	18.0	2.4 MN	Felt aftershock, Temiscamingue, Que.
1998-03-19 14:21:05	46.794	-78.888	18.0	3.2 MN	Strongly Felt, Temiscamingue, Que.
1998-02-26 10:31:18	46.761	-78.892	18.0	1.7 MN	WESTERN QUEBEC SEISMIC ZONE.
1997-12-12 02:46:41	46.816	-78.892	18.0	1.7 MN	WESTERN QUEBEC SEISMIC ZONE.
1997-08-28 04:24:05	46.850	-78.914	18.0	2.5 MN	TEMISCAMING AREA, QUE.
1997-05-20 19:57:26	46.514	-79.053	18.0	1.6 MN	TEMISCAMING AREA, QC.



1997-05-03 12:03:33	46.724	-78.629	18.0	1.5 MN	WESTERN QUEBEC SEISMIC ZONE.
1997-03-05 09:10:48	46.837	-78.899	18.0	2.2 MN	72 km NE from NORTH BAY, ONT.
1996-10-29 03:56:47	46.702	-78.871	18.0	2.0 MN	TEMISCAMING AREA.
1996-09-28 12:33:17	46.799	-78.648	18.0	1.8 MN	TEMISCAMING AREA.
1996-03-01 03:31:34	46.697	-78.876	18.0	2.1 MN	WESTERN QUEBEC SEISMIC ZONE.
1996-02-04 16:31:51	46.665	-78.884	18.0	1.5 MN	TEMISCAMING AREA, QUE.
1996-01-28 07:52:09	46.755	-78.801	18.0	2.1 MN	TEMISCAMING AREA, NEAR LAC KIPAWA, QUE.
1995-10-30 22:47:01	46.766	-78.940	18.0	1.2 MN	WESTERN QUEBEC SEISMIC ZONE.
1995-10-10 07:19:20	46.445	-78.774	18.0	3.5 MN	WESTERN QUEBEC SEISMIC ZONE. FELT.
1995-03-11 13:58:05	46.813	-78.889	18.0	1.9 MN	WESTERN QUEBEC, TEMISCAMINGUE REGION. 70 KM NE OF NORTH BAY, ONT.
1995-01-05 10:59:50	46.558	-78.732	18.0	1.6 MN	TEMISCAMINGUE REGION, QUE.
1994-07-16 19:02:00	46.781	-79.273	18.0	2.2 MN	TEMISCAMING REGION
1994-07-06 00:43:53	46.831	-78.866	18.0	2.0 MN	EAST OF TEMISCAMING,QUE.
1994-06-20 20:26:50	46.714	-78.847	18.0	2.6 MN	TEMISCAMINGUE REGION, QUE.
1993-06-11 06:33:16	46.757	-78.851	18.0	2.4 MN	9 KM E OF KIPAWA, QUE. 67 KM NE OF NORTH BAY, ONT.
1992-12-25 01:15:20	46.889	-78.836	10.0	2.3 MN	WEST QUEBEC 69 KM NE OF NORTH BAY, ONT.



1992-11-19 16:48:27	46.528	-79.021	10.0	2.5 MN	41 KM NE OF NORTH BAY, ONT. WESTERN QUEBEC
1992-10-31 10:43:18	47.094	-78.871	10.0	2.3 MN	97 KM NE OF NORTH BAY, ONT.
1992-02-16 23:42:21	46.962	-79.325	10.0	3.0 MN	72 KM N OF NORTH BAY, ONT. FELT IN TEMISCAMING REGION, QUE.
1991-04-15 13:26:06	46.853	-78.906	18.0	2.9 MN	73 KM NE OF NORTH BAY, ONT. TEMISKAMING QUE
1988-10-15 01:55:41	46.810	-78.840	10.0	1.2 MN	TEMISCAMINGUE REGION, QUE.
1988-10-11 18:24:03	46.798	-78.829	10.0	2.6 MN	TEMISCAMINGUE REGION, QUE.
1988-09-29 16:46:56	46.823	-78.907	18.0	3.1 MN	TEMISKAMING REGION
1988-08-22 22:24:24	46.828	-78.834	10.0	2.3 MN	WESTERN QUEBEC
1988-02-17 11:27:54	46.671	-78.859	18.0	2.1 MN	NEAR TEMISCAMING, QUE
1987-08-17 01:32:10	46.874	-78.897	18.0	3.2 MN	WESTERN QUEBEC REGION NW OF TEMISCAMING
1986-10-01 05:25:04	47.000	-79.070	18.0	1.7 MN	31 km N of Temiscaming, QC
1985-05-20 11:44:39	46.820	-78.919	12.2	1.6 MN	SIMIALR EVENT ON MAY 22 AT 09:09

## IAAC-1-30 Regional seismicity map

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.2 (Geology and geochemistry)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.1.7*

### Context

Figure 11-10 is incorrectly titled “Earthquakes Recorded in Quebec Since the Beginning of the Century.” In fact, the figure shows a selection of earthquakes of magnitude greater than 3 for the western Quebec seismic zone only, from the earlier 1700s until 2013.



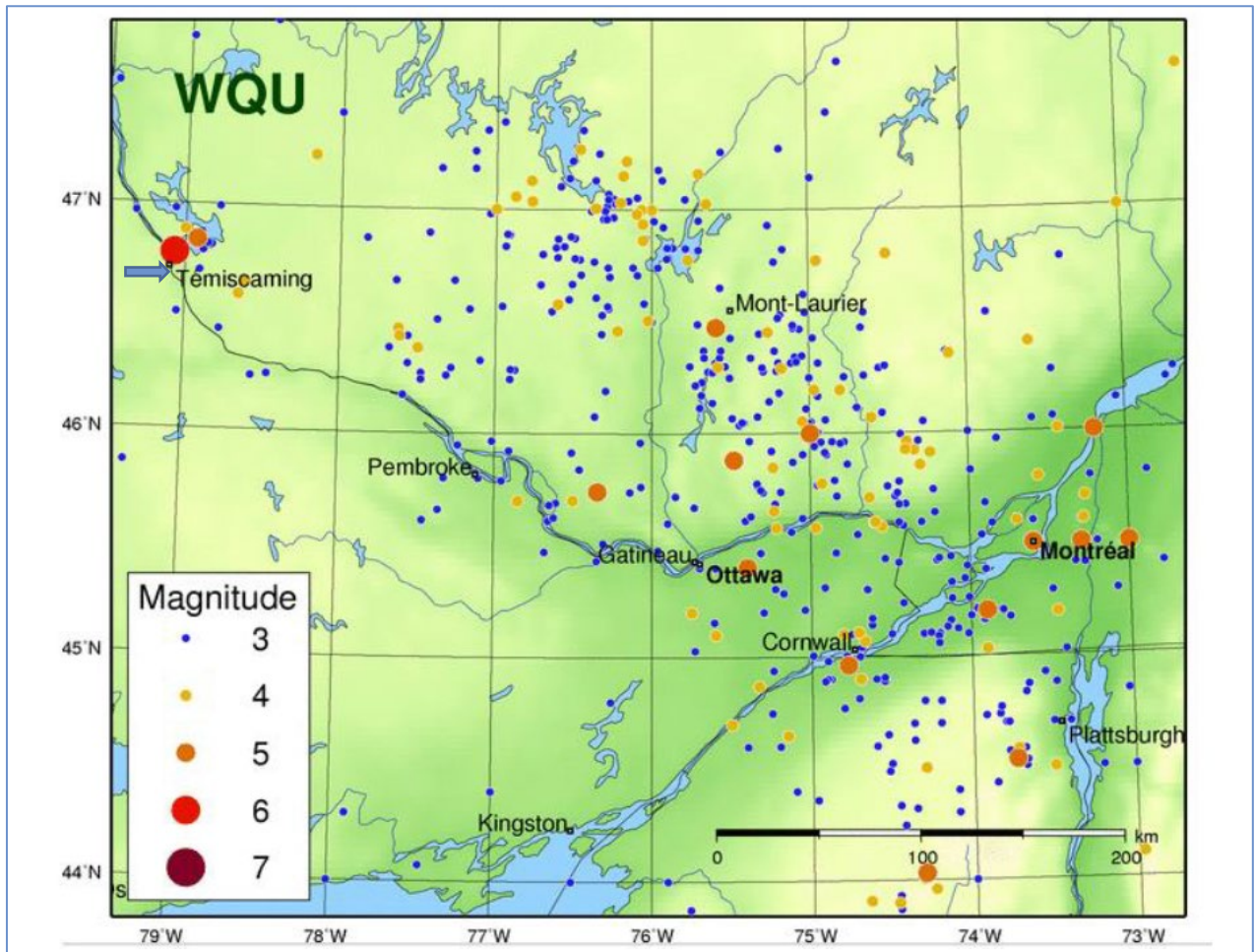
In addition, the location of the dam-bridge site is not indicated. This would provide context and show the proximity of the site to the magnitude 6.3 earthquake of 1935 and the magnitude 5.0 earthquake of 2000.

The Agency instructs the proponent (Public Services and Procurement Canada) to:

A) update Figure 11-10 and identify the location of the project site.

PSPC Response:

Please find below the updated Figure 11-10 Earthquakes Recorded in Quebec and in Ontario Between Early 1700s and 2013 with a magnitude higher than 3:



➡ Blue arrow indicates project location.





## Comments and advice for the proponent

### Comment 1-12 Seismic hazard map for Quebec

#### References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.2 (Geology and geochemistry)*

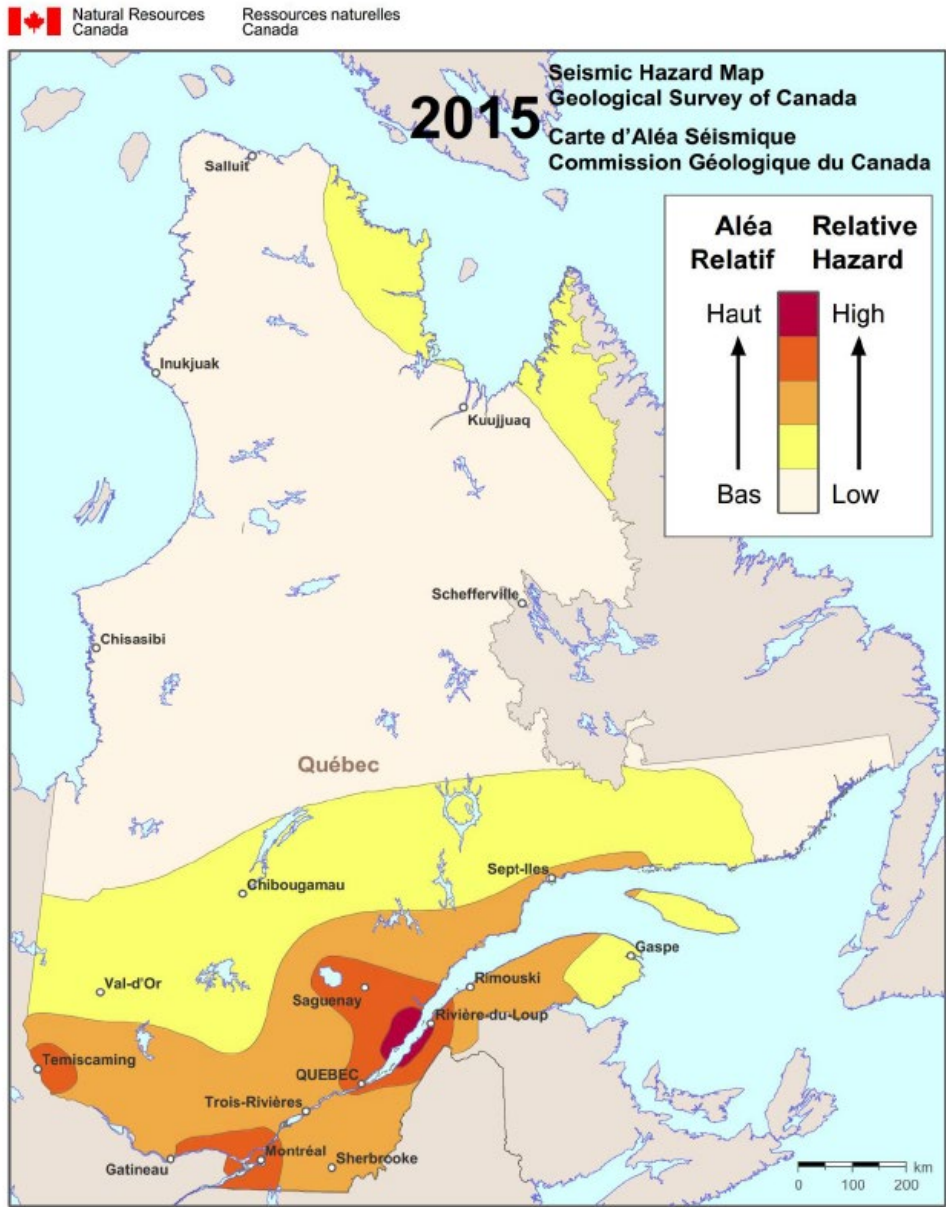
*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.1.7 and figure 11-9*

#### Comments and Advice

Figure 11-9 shows the simplified seismic hazard map for the province of Quebec. NRCan suggests that the proponent identify the location of the project site on the figure to help orient the reader to the relative level of risk at that location.

#### PSPC Response:

Please find Figure 11-9 Seismic Hazard in Quebec including the location of the Timiskaming Quebec dam.





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# Fish and Fish Habitat

## Information requests directed to the proponent

### IAAC-1-31 Habitat type, species use and encroachment

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.6 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.2.3.2 and Appendix 6 of Appendix 12.1*

#### Context

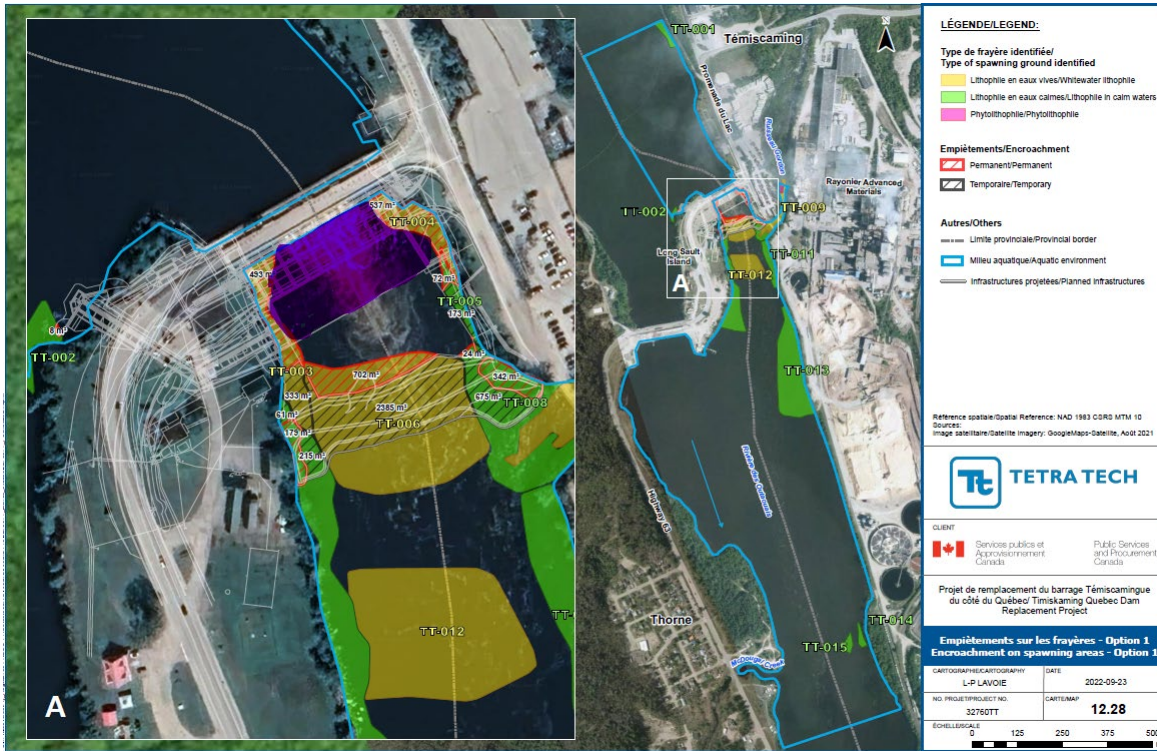
In order to properly assess the types of habitats that would be affected by the project, a habitat characterization is essential prior to the project's implementation. The proponent carried out the necessary characterizations of the habitats that would be temporarily and permanently encroached upon and provided sufficient detail on the spawning habitat that would be impacted by the project for the fish species present in this area. The proponent also gave some detail on the habitats used for other functions (growth and feeding) and provided in Appendix 6 of the EIS the habitat characteristics sought by the species.

#### The Agency instructs the proponent (Public Services and Procurement Canada) to:

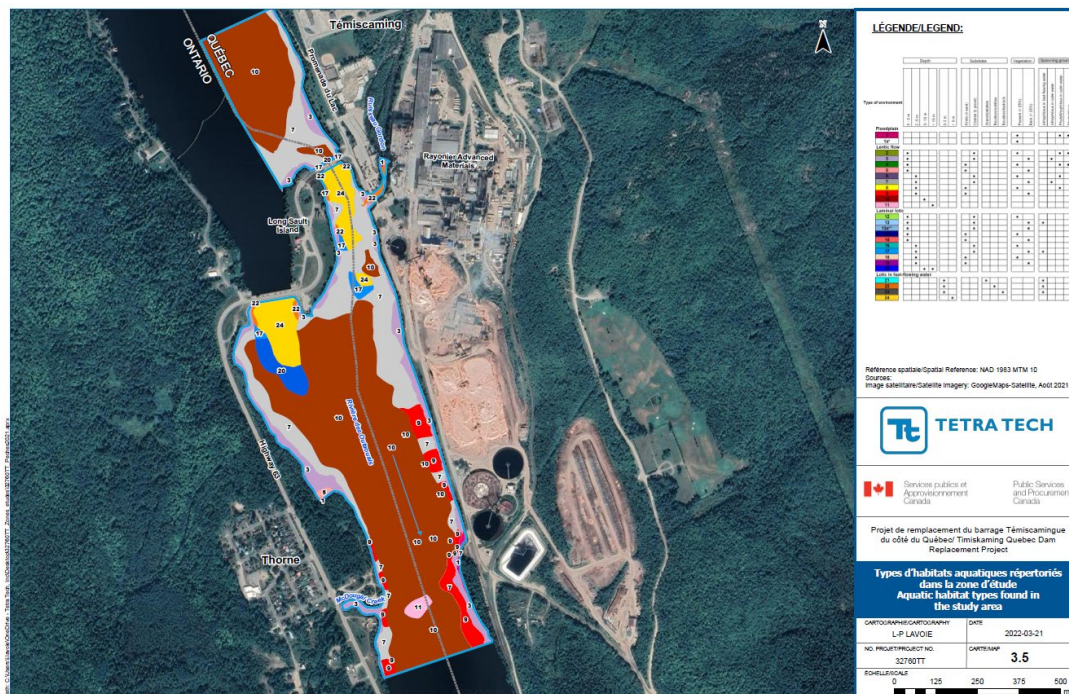
- A) provide a more detailed description, based on existing information, of the other habitats (nursery, feeding and wintering) whose surface area is reported in Table 12.35 (chapter 12) and which total 6,162 m<sup>2</sup>;

#### PSPC Response:

The « other habitats » being encroached on are located under the new dam-bridge and the apron immediately downstream of the existing dam-bridge as highlighted in purple below on Figure 12.28.



This 6,162 m<sup>2</sup> of habitat is characterized as Type 24 fish habitat according to DFO’s methodology as shown in Figure 3.5 presented below. This habitat is described as “swift-water lotic” with a current over 0.3 m/s. During field surveys conducted for this EIS, no vegetation was observed in this area as the riverbed is dominated by the existing dam apron and a coarse substrate.



B) identify the species that would use these other habitats;

PSPC Response:

As stated in PSPC response to AEIC-1-3 B), species susceptible to use Type 24 fish habitat are Longnose sucker (*Catostomus catostomus*), White sucker (*Catostomus commersonii*), Whitefish (*Coregonus artedii*), Fallfish (*Semotilus corporalis*), Silver redhorse (*Moxostoma anisurum*), Freshwater drum (*Aplodinotus grunniens*), Brook trout (*Salvelinus fontinalis*), Lake trout (*Salvelinus namaycush*), Mottled sculpin (*Cottus bairdii*), and Lake chub (*Couesius plumbeus*).

C) describe how Indigenous knowledge and systems have been integrated into the surveys;

PSPC Response:

Section 12.1.6.9 of the EIS gives a first indication on how traditional knowledge was considered:

“During consultations with Indigenous communities, it was pointed out that fish and other aquatic species are used for food and cultural purposes. Fish are often shared throughout Indigenous communities by means of informal sharing networks between family, friends, and Elders. Several fish species continue to be harvested within 20 km of the Project. Fishing is also an important cultural activity that supports the physical, mental, emotional, and spiritual health of Indigenous Peoples. For example, AOPFN noted that fish were important for health, and the loss of access to fishing areas, and the depletion of American eel, have contributed to negative effects on health, cultural practices, socio-economic conditions, and well-being. The AOO have included the Kichi Sibi Pimisi (American eel), lake sturgeon, lake whitefish, pickerel, bass, yellow perch, northern pike, and lake trout as VCs as listed in Section 13.3.2. Beyond these species, the MNO have also reported in their TKLUS that they harvest walleye, sauger, catfish, muskellunge, sucker, burbot, smelt, and minnows in the region as identified. Their TKLUS also notes the importance of fishing within the community as community members often fish with their friends, family, or alone, and learn to fish from a young age”

PSPC also acknowledge concerns raised by the Social, Cultural and Environmental Impact Assessment (SCEIA) produced by SART representing First Nations of Québec:

“Of particular concern is the dam’s anticipated effect on the fishery, as fishing has been shown in the baseline to be so important to the SART communities, not only as a significant source of nutrition, but for the transition of culture and the building of community. Sturgeon was identified numerous times as one of their most important non-human relatives. For that reason, the placement of the dam is of crucial importance to the First Nations. Of the options for dam placement, one will destroy a sturgeon spawning bed, another will create difficulties for Rayonier Advanced Materials, the other ‘in situ’ causing traffic inconvenience for 17 months. The choice appears to be between additional costs to a multinational forest products company, human convenience and destruction one of the most sacred (and endangered) animal relatives.” (p. 129 of the SCEIA)

Furthermore, PSPC submitted all of fish survey protocols to the Indigenous groups before undertaking field work to integrate traditional knowledge where applicable, and to ensure species being Value Components (VC) were considered.

For further fish monitoring and follow-up program, in developing its field work protocols, PSPC will also consider Indigenous knowledge presented in the two following SART publications (see full documents in Appendix B):

- Neme (Lake Sturgeon) Conservation Plan for the Ottawa River, SART, March 2023;
- SART Neme Lake Sturgeon and Hickorynut Mussel Population Assessment and Monitoring Protocol.

D) revise the total permanent and temporary encroachment of other habitats in Table 12.35 to provide the actual encroachment, as there appears to be an error (6,907 m<sup>2</sup> + 65 m<sup>2</sup> = 6,162 m<sup>2</sup>); and

PSPC Response:

Revised Table 12.35 is presented below:

**Table 12.35 Summary of Fish Habitat Encroachments and Disturbance**

Spawning ground (name)	Area (m <sup>2</sup> )	Permanent encroachment		Temporary encroachment		Total	
		m <sup>2</sup>	%	m <sup>2</sup>	%	m <sup>2</sup>	%
TT-001	1,619	–	0	-	0	-	0
TT-002	464	8	14	0	0	8	2
TT-003	830	493	59	333	40	826	100
TT-004	537	537	100	-	-	537	100
TT-005	248	72	29	173	70	245	99
TT-006	4,958	702	14	2,385	48	3,087	62
TT-007	7,376	179	2	276	4	455	6
TT-008	3,032	366	12	675	22	1,041	34
TT-009	2,094	0	-	-	0	-	0
TT-010	209	0	-	-	0	-	0
TT-011	2,676	0	-	-	0	-	0
TT-012	4,960	0	-	-	0	-	0
TT-013	19,446	0	-	-	0	-	0
TT-014	877	0	-	-	0	-	0
TT-015	946	0	-	-	0	-	0
<b>Total spawning area</b>	<b>50,272</b>	<b>2,357</b>	<b>5</b>	<b>3,842</b>	<b>8</b>	<b>6,199</b>	<b>12</b>
Other habitats (growth, feeding)	–	6,907	N/A	65	N/A	6,972	N/A
<b>Total</b>	<b>50,272</b>	<b>9,264</b>	<b>N/A</b>	<b>3,907</b>	<b>N/A</b>	<b>13,171</b>	<b>N/A</b>

- E) specify whether the areas encroached upon by the project would affect the types of habitats sought by the species mentioned in the Appendix 6 table. An addition could be made to this table to confirm whether the areas that would be encroached upon serve certain useful functions (other than reproduction) for the species present in this sector.

PSPC Response:

The EIS does not include an Appendix 6. If this refers to the table found in Appendix 6 of EIS Appendix 12.1, we refer the reader to PSPC response to AEIC-1-3 B) where this exercise has been completed.

**IAAC-1-32 Hickorynut – avoidance and mitigation measures**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.1.10.2.4 and 12.1.10.3*

## Context

Hickorynut is an Endangered species under the *Species at Risk Act* (SARA) and therefore benefits from the terms and conditions of protection provided by this Act. It is likely to be designated as threatened or vulnerable in Quebec and is considered endangered in Ontario. The species is also a concern for Indigenous communities because of its role in the aquatic ecosystem. Its distribution has been studied little in the region. Sightings in the Ottawa River used in the last status report on the species are over a decade old but showed the presence of Hickorynut upstream of the Timiskaming Dam. There is reason to believe that the species may occur in different areas of the Ottawa River.

According to the proponent's EIS, there would be no potential habitat for the species because the substrate downstream from the dam-bridge is not sandy. The proponent's preferred location for the proposed dam-bridge would encroach mainly on coarse substrate. However, data show that Hickorynut can be present in rivers with coarse substrates in the presence of substrates that still allow burrowing. According to the results of a Hickorynut survey conducted in five Montérégie rivers (MFFP, 2019), the granulometry of the substrate where the species can be found is variable. The species is most often found on sandy bottoms (58%), but it is also present in areas with silty bottoms (38%), gravelly bottoms (2%) and bottoms with debris (2%). Hickorynut may therefore use a wider range of substrate types, and the effects of the project on the species may extend beyond the construction area.

No mollusc surveys were conducted as part of the EIS. Surveys over a distance upstream and downstream of the existing dam-bridge would confirm or rule out the presence of Hickorynut. As this is a relatively small area in terms of encroachment and it may be difficult and dangerous to conduct surveys in the vicinity of a dam, Fisheries and Oceans Canada (DFO) believes that avoidance and mitigation measures for the species would be the approach to consider. For example, the fine substrate exposed by the cofferdam (either upstream or downstream of the dam, depending on the dam-bridge location option selected) could be inspected at shallow depths to remove and relocate any Hickorynut individuals buried in the dewatered area.

Considering the status of the species, its value and its potential presence in the project's area of influence, the proponent must ensure that the effects of the project on the species are mitigated. The following reference documents may guide the proponent in the event that survey and relocation of specimens must be carried out:

[Protocol for the detection and relocation of freshwater mussel species at risk in Ontario-Great Lakes Area \(OGLA\)](#) (Mackie, G., Morris, T.J., and Ming, D., 2008)

[Inventaire de l'obovarie olivâtre \(\*Obovaria olivaria\*\) dans cinq plans d'eau de la Montérégie](#) (Ministère des Forêts, de la Faune et des Parcs, 2019)

Périodes pour la conduite des inventaires de moules d'eau douce et des travaux de relocalisation (Ministère des Forêts, de la Faune et des Parcs, 2019; Annexe I)

The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) explain and detail the avoidance and mitigation measures that would be implemented to ensure that the effects of the project on the species in the project's area of influence are eliminated or reduced; and

PSPC Response:

PSPC intends to apply the above DFO recommendation of inspecting the area between the cofferdam and the existing dam when dewatering to assess presence of hickorynut mussel and relocate specimens downstream in suitable substrate. PSPC would retain services of specialized divers familiar with cited methodology above or having conducted similar relocation of hickorynut mussel for bridge/dam projects.

- B) reassess the residual effects of the project on this component.

PSPC Response:

The substrate where temporary and permanent encroachments are expected (concrete apron, bedrock, boulders) is quite different of the substrate where hickorynut mussel is usually found (sand, silt, gravel, debris) as cited in MFFP 2019. In addition, hickorynut mussel was not observed in field work undertaken for this EIS. Even though no specific inventory was deployed to assess presence of this species in the study zone, presence of any mussel would have been noted in field notes, as prescribed by our protocols.

Hence, the probability of having hickorynut mussels where temporary and permanent encroachments are expected is deemed really low. Should there be presence of this species, application of the mitigation measure described above would reduce residual effect to negligible level.

## IAAC-1-33 Potential Lake Sturgeon habitats

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.6 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.1.6.5*

### Context

Lake Sturgeon is present throughout the Ottawa River, which has several dams identified as impassable barriers to fish passage. The sturgeon population in each area between these dams has been assigned a status relative to its precariousness. It appears that the segment where sturgeon numbers are the most precarious (very low status) is the river between the Timiskaming Dam Complex and the Otto Holden dam, a little over 50 kilometres downstream.





Furthermore, the surveys conducted on Lake Sturgeon by the proponent in recent years, including the dam replacement project on the Ontario side, confirm this status by a limited number of captures from one survey to the next.

Since 2006, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has designated the Lake Sturgeon as a Threatened species in the Great Lakes and Upper St. Lawrence River.

Certain habitat functions could be limiting for the maintenance of the species in this river segment. Breeding habitat could be one of these functions.

The Timiskaming Dam-Bridge has favoured the creation and maintenance of Lake Sturgeon spawning habitat characteristics, since it provides sufficient current at the foot of the structure and the coarse substrate is present and is unlikely to become clogged with such high-water velocity. Such conditions may be rare or non-existent further downstream in this segment of river, which is confined between two dams.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) identify, using existing information or information held by other organisations, potential breeding habitats for Lake Sturgeon or any other habitat function that may be limiting in this river segment.

#### PSPC Response:

PSPC did additional review of existing data and knowledge upstream and downstream of the Timiskaming Québec Dam-Bridge (from head of the Lake Témiscaming to Otto Holden Dam). Little information of existing or potential spawning areas are documented in this segment of the Ottawa River. See technical note produced in Appendix C.

## IAAC-1-34 Information on Lake Whitefish

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.6 (Fish and fish habitat) and 7.3.1 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.1.6.5.3.1.3, 12.1.6.5.4.2.13 and 12.2.3.2.1.4 and Appendix 12.1*

Hatch, 2014. *Environmental Effects Evaluation Report for Timiskaming Ontario Dam Replacement. 737 pages including appendix*

Hatch, 2018. *Timiskaming Ontario Dam – Year One Monitoring Report For Timiskaming Ontario Dam Replacement. 23 p. + appendix*

Hatch, 2019. *Post-Construction Environmental Monitoring – Year Two For Timiskaming Ontario Dam Replacement. 39 p. + appendix*

Tetra Tech, 2018. *Offsetting plan. 7 p. + annexes*

Tetra Tech and Biofilia. 2017. *Environmental Effects Assessment – Replacement of the Quebec Timiskaming*



*Dam – Draft Report (October 20, 2017). Report submitted to Public Services and Procurement Canada for comment (109 pages + appendices)*

## Context

The presence of Lake Whitefish has been confirmed on a few occasions in the segment of the Ottawa River downstream of the Timiskaming Dam-Bridge (Quebec side). However, the EIS indicates that no spawning grounds have been identified in the study area (sections 12.1.6.5 and 12.2.3.2).

In contrast to the pre-construction surveys, Lake Whitefish spawning in the post-construction period on the Ontario side of the dam was confirmed during the 2017 and 2018 surveys according to the two Hatch monitoring reports (2018 and 2019). Potential Lake Whitefish spawning sites were also identified for the Quebec side of the dam-bridge (Tetra Tech and Biofilia, 2017). An offsetting plan by Tetra Tech (2018) includes this information in a summary table that mentions which spawning grounds could potentially host the species during its spawning.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) consider information on the monitoring of Lake Whitefish by Hatch, information on potential spawning grounds referred to by Tetra Tech in its offsetting plan, and any information on Lake Whitefish spawning grounds upstream or downstream of the Timiskaming Dam-Bridge, update information on Lake Whitefish in terms of available habitat and surveys, as well as any mitigation and offsetting measures that may be required for the species.

### PSPC Response:

Fish habitat was characterized and mapped in Appendix 12.1 of the EIS for both the Québec and Ontario Dams. Figure 3.5 and Table 3.6 of Appendix 12.1 are found below. Of the 11 fish habitats identified, 5 are considered to be spawning grounds as per DFO methodology: 1, 3, 7, 17 and 22.

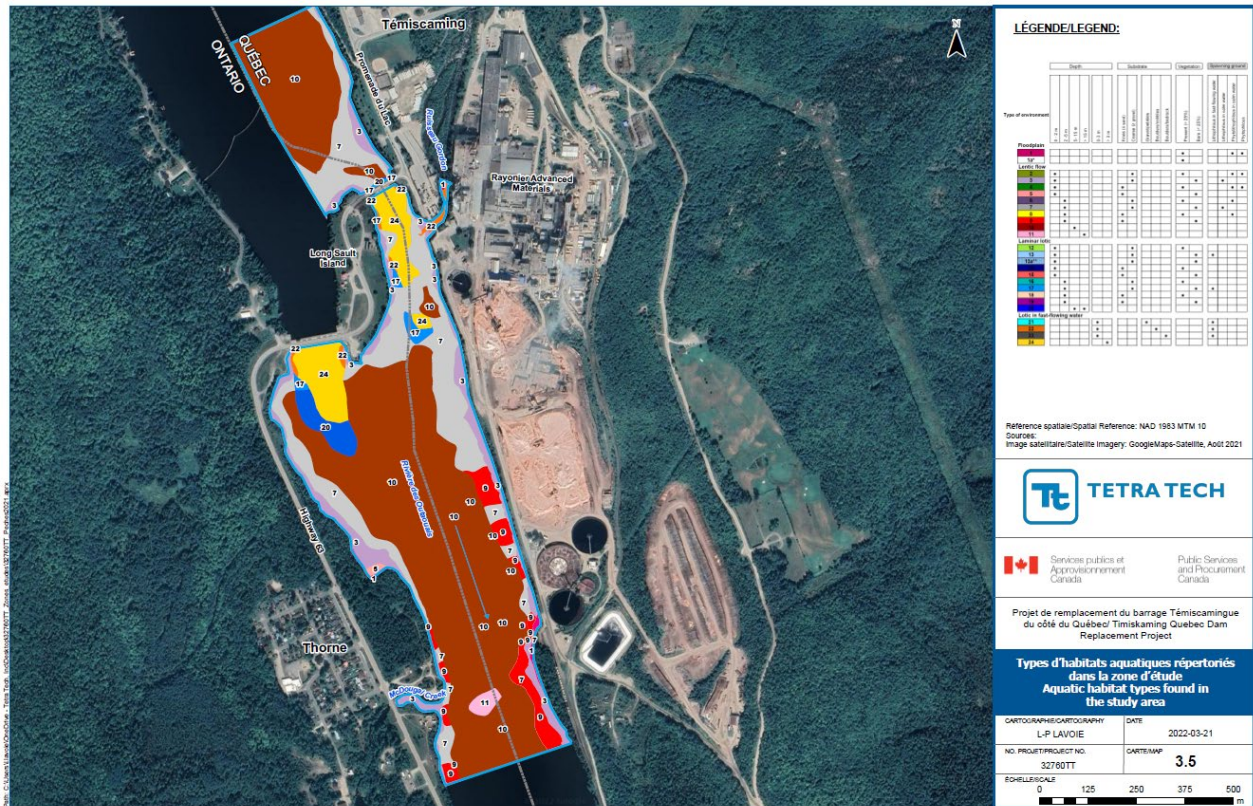


Table 3.6

Type	Flow	Depth (m)	Current (m/s)	Substrate	Vegetation	Type of spawning ground	Surface area (ha)
1	Floodplain	NA	NA	Undetermined	Present	Phytophilous still-water species	0.33
3	Lentic	0-2	0-0.3	Coarse	Bare	Lithophilous still-water species	6.05
5	Lentic	0-2	0-0.3	Fine	Bare	<b>Not defined as a spawning ground</b>	0.09
7	Lentic	2-5	0-0.3	Coarse	Bare	Lithophilous still-water species	11.93
9	Lentic	2-5	0-0.3	Fine	Bare	<b>Not defined as a spawning ground</b>	2.29
10	Lentic	5-15	0-0.3	Undetermined	Bare	<b>Not defined as a spawning ground</b>	35.06



Type	Flow	Depth (m)	Current (m/s)	Substrate	Vegetation	Type of spawning ground	Surface area (ha)
11	Lentic	> 15	0-0.3	Undetermined	Bare	<b>Not defined as a spawning ground</b>	0.35
17	<b>Lotic laminar</b>	2-5	> 0.3	Coarse	Bare	Swift-water lithophilous species in white water	0.54
20	<b>Lotic laminar</b>	5-15	> 0.3	Coarse	Undetermined	<b>Not defined as a spawning ground</b>	1.12
22	<b>Swift-water lotic</b>	0-3	> 0.3	<b>Boulders cobble</b>	Undetermined	Swift-water lithophilous species	0.52
24	<b>Swift-water lotic</b>	> 0.3	> 0.3	Undetermined	Undetermined	<b>Not defined as a spawning ground</b>	3.58

The Hatch 2018 report found 75 lake whitefish in areas corresponding mainly to Type 3, 7, 10, 17 and 22 fish habitats. The Hatch 2019 report found 22 lake whitefish in areas corresponding mainly to Type 3, 7, 10 and 17 fish habitats (see Figures 2-2 and 2-5 below taken from Hatch 2018 and 2019).

Similar Type 3, 7, 17 and 22 fish habitats are found where temporary and permanent encroachments are planned for the project, but only for limited surface area. This explains in part why fewer lake whitefish were caught during the 2017 and 2021 inventory campaigns on the Québec side. However, sizable Type 3 and 7 fish habitat is found immediately downstream of the project site providing greater potential for lake whitefish spawning ground and fish habitat compensation.

Main mitigation measures planned to avoid or limit impact on lake whitefish population and habitat include:

- Prohibition of in-water work during spawning period;
- Implementation of a water quality protection plan throughout the construction period to avoid or limit release of sediment and other pollutants in the river;
- Implementation of a water monitoring program to closely follow water quality in order to rapidly implement additional mitigation measures, when required;
- Installation of a sediment curtain for installation and retrieval of the cofferdam;
- Relocation of fish during cofferdam dewatering under biologist supervision.

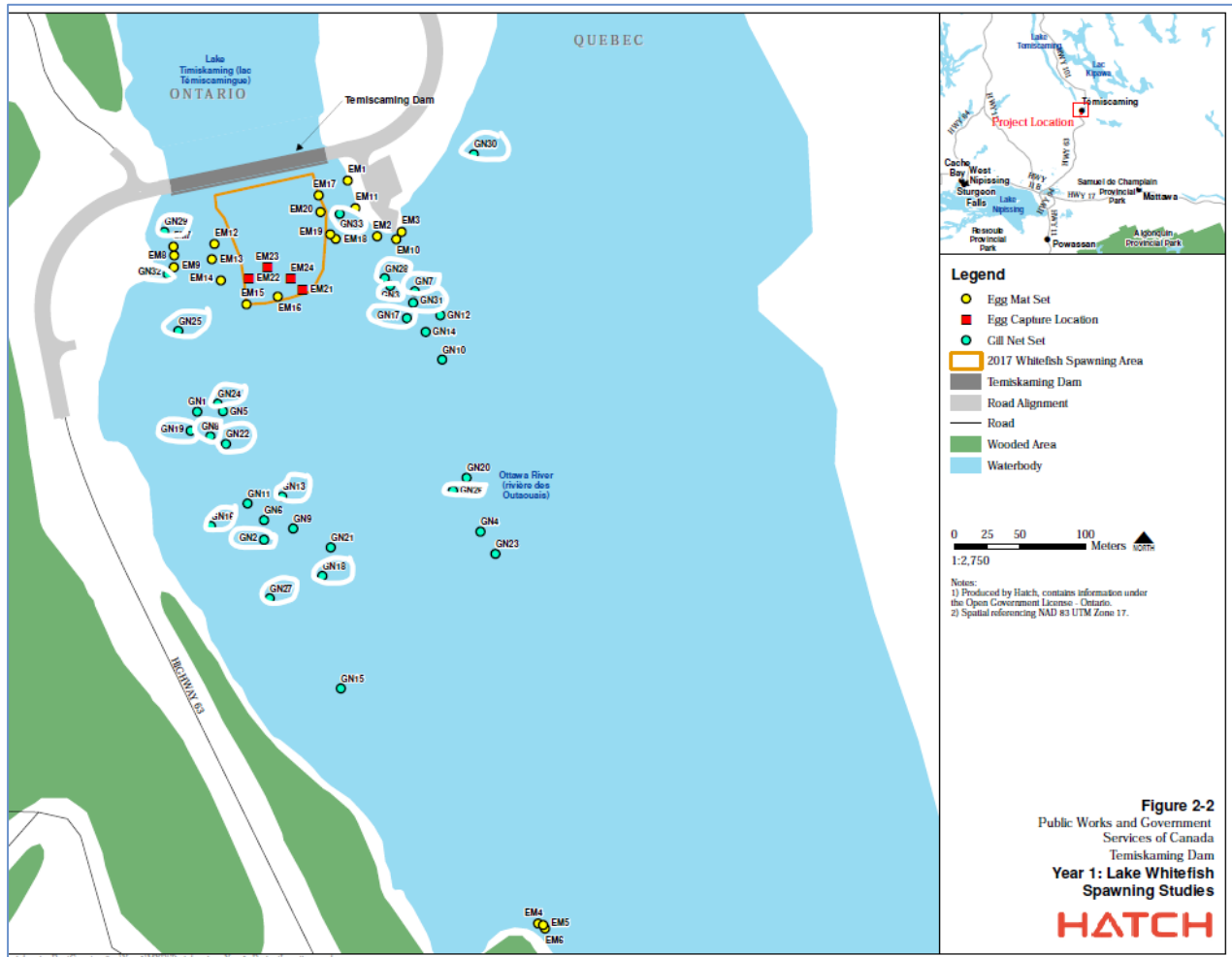


Figure 2-2 taken from 2018 Hatch report (lake whitefish capture locations circled in white)

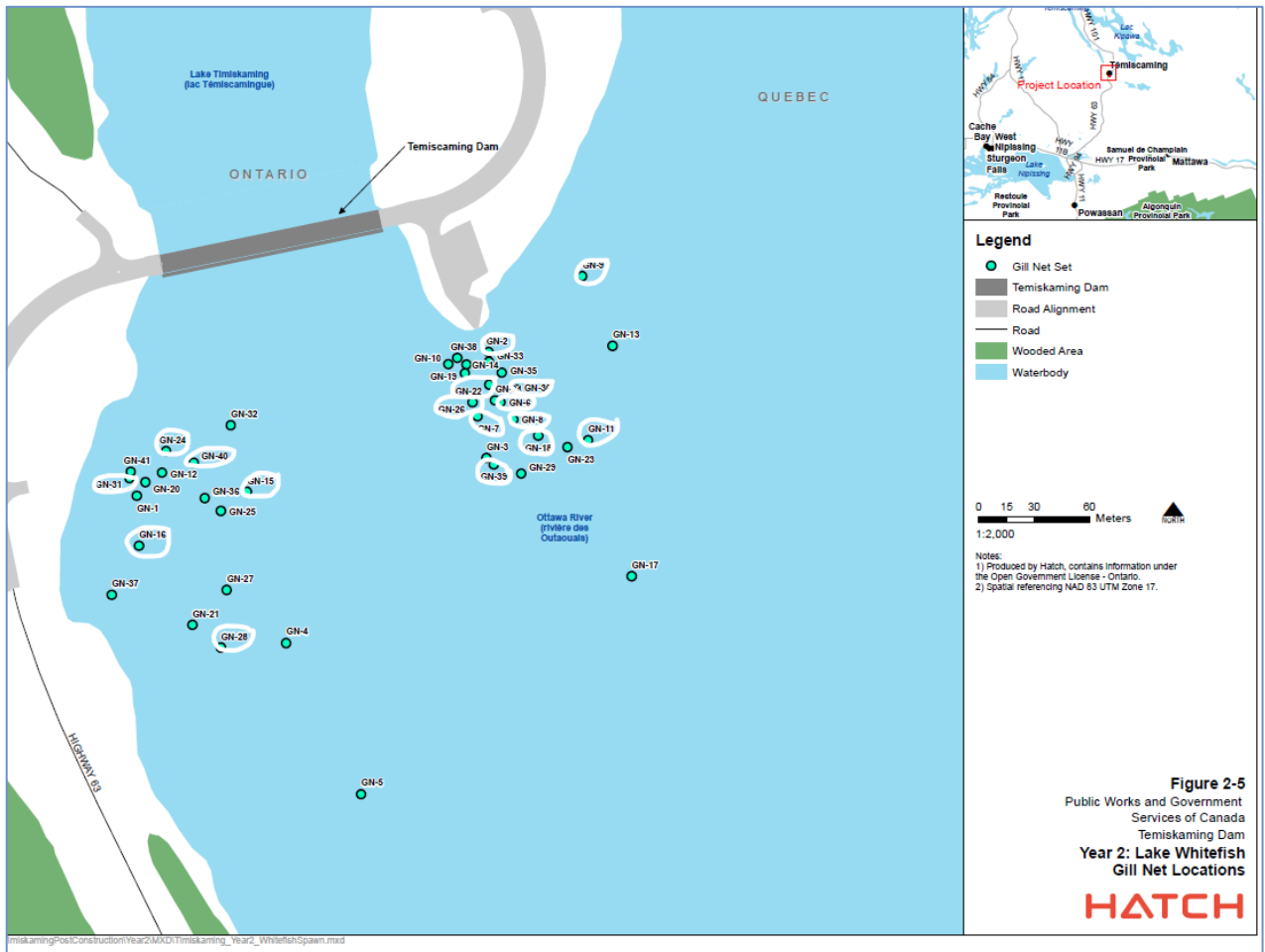


Figure 2-5 taken from 2019 Hatch report (lake whitefish capture locations circled in white)

**IAAC-1-35 Options for the location of the dam-bridge**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 2.2 (Alternative means of carrying out the project)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 6.3.1*

**Context**

The proponent proposed three location options for the dam-bridge reconstruction, and a preference for option 1 emerged for various reasons. According to DFO, option 3 is favoured for the following reasons:

- Lake Sturgeon (Great Lakes and Upper St. Lawrence populations) has been assessed by COSEWIC as Threatened, and its status is under review for addition to Schedule 1 of SARA.

- The Lake Sturgeon population is particularly precarious between the Timiskaming Dam-Bridge and the Otto Holden dam.
- The breeding habitat at the foot of the dam may be the only one available for Lake Sturgeon and other species in this river segment.
- The amount of fish habitat destroyed and to be offset by option 1 is more than double that generated by option 3 for the species of interest, namely Walleye, Lake Sturgeon and Lake Whitefish.
- The priority is to avoid and minimize impacts before opting for offsetting.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

A) detail and compare the risks discussed for options 3 and 2 against option 1; and

#### PSPC Response:

Before considering impacts of Option 2 and Option 3, it must be reminded that lake sturgeon spawning ground usually consists of impassible obstacle with high water flow (i.e. rapids, dams). Regardless of the option considered, the same conditions will be reproduced at the conclusion of the project. Egg development, a very sensitive stage for reproduction success, requires a gravel substrate to provide shelter. This is being offered by Type 3 and 7 fish habitats found downstream of the Québec Dam-Bridge (see Map 3.5 in response to AEIC-1-34 above) and will not be affected by Options 1, 2 or 3. It is expected that all options will offer same spawning conditions for lake sturgeon at the conclusion of the project during the operation stage of the new dam-bridge.

During construction, all 3 options require complete water flow closure at the Québec dam-bridge at some point, limiting spawning opportunity for lake sturgeon at the foot of the Ontario dam-bridge.

#### Option 2 (new dam-bridge upstream of the existing one)

This option represents 2 major constraints compared to Option 1. This option would require installation of a cofferdam upstream of the new structure; the existing dam-bridge serving as the downstream barrier. To do so, the Long Sault Island would have to be extended North in order to connect the cofferdam properly from the island to the left bank of the river. The extension of the island would also be required to mitigate risk of erosion induced by the change in the river pattern and facilitate integration of the fish passage. This would represent larger permanent and temporary encroachments in fish habitat than Option 1 (13,315 m<sup>2</sup> vs 12,361m<sup>2</sup>). The other major constraint is the need to relocate Rayonier's water intake located just North of the existing dam-bridge. This in turn would necessitate further work on the left riverbank inducing additional impact and potential encroachments. It should be also noted that this option still requires rip-rap material at the foot of the existing apron to limit further erosion and scouring of the riverbed. Figure 6.2 below of the EIS illustrates these constraints. Required extension of the island is highlighted in purple, water intake to relocate is circled in blue, and rip-rap material to fill at the foot of the existing apron is circled in red. As for Option 1, water flow will be return to normal operation during phase 2 through 5 new sluice gates on the right bank, recreating lake sturgeon spawning conditions early in the project.

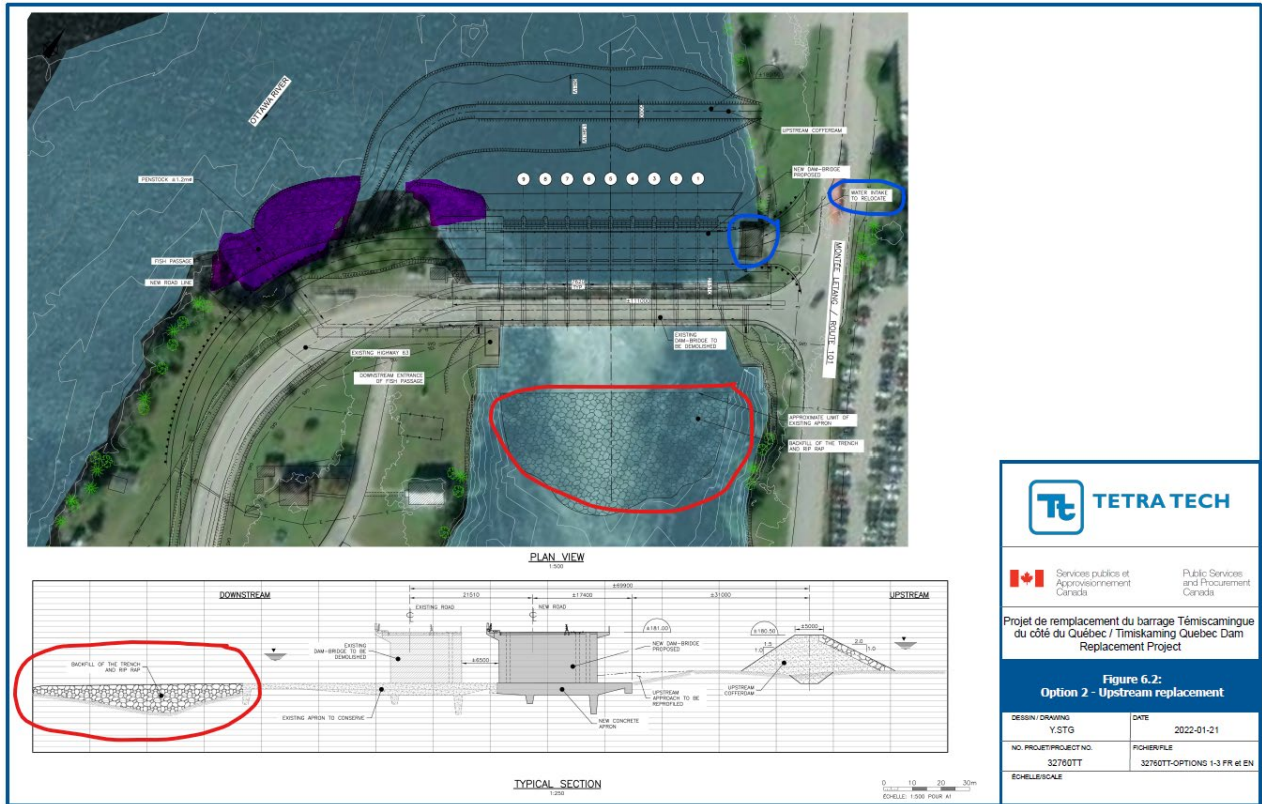


Figure 6.2 taken from Section 6.1.2 of the EIS illustrating Option 2

### Option 3 (new dam-bridge in same location)

This option requires the same cofferdam as the one required for Option 1, and rip-rap material at the foot of the existing apron for scouring and erosion control. There might also be a need for a second cofferdam upstream of the existing dam. Permanent and temporary fish habitat loss would be less than Option 1 (11,153 m<sup>2</sup> vs 12,361m<sup>2</sup>). The first major constraint of this option is the significant impacts this option would have on the regular operation of the dam. Given the construction period would be extended for a long period of time, the management of the spring freshet or any potential flooding would be impacted. The work requires the dam to be fully closed and only the Ontario dam will be available to manage the water during significant periods of the year such as spring and fall periods. Other major constraint is the traffic limitation for Phases 3 and 4 of the project (17 months), with the need for full road traffic closure for a period of time. Also, the project schedule may be unpredictable. Should the existing dam-bridge have more extensive degradation than expected, longer work period may be required and even the full closure of the dam-bridge for a certain period of time during construction. Other major constraint is the longer period without water flow on the Québec side. Lake sturgeon spawning conditions would be only recreated after a long period of time. Partial water flow will only be possible during Phase 3 to allow construction of the new road deck across the entire length of the dam.



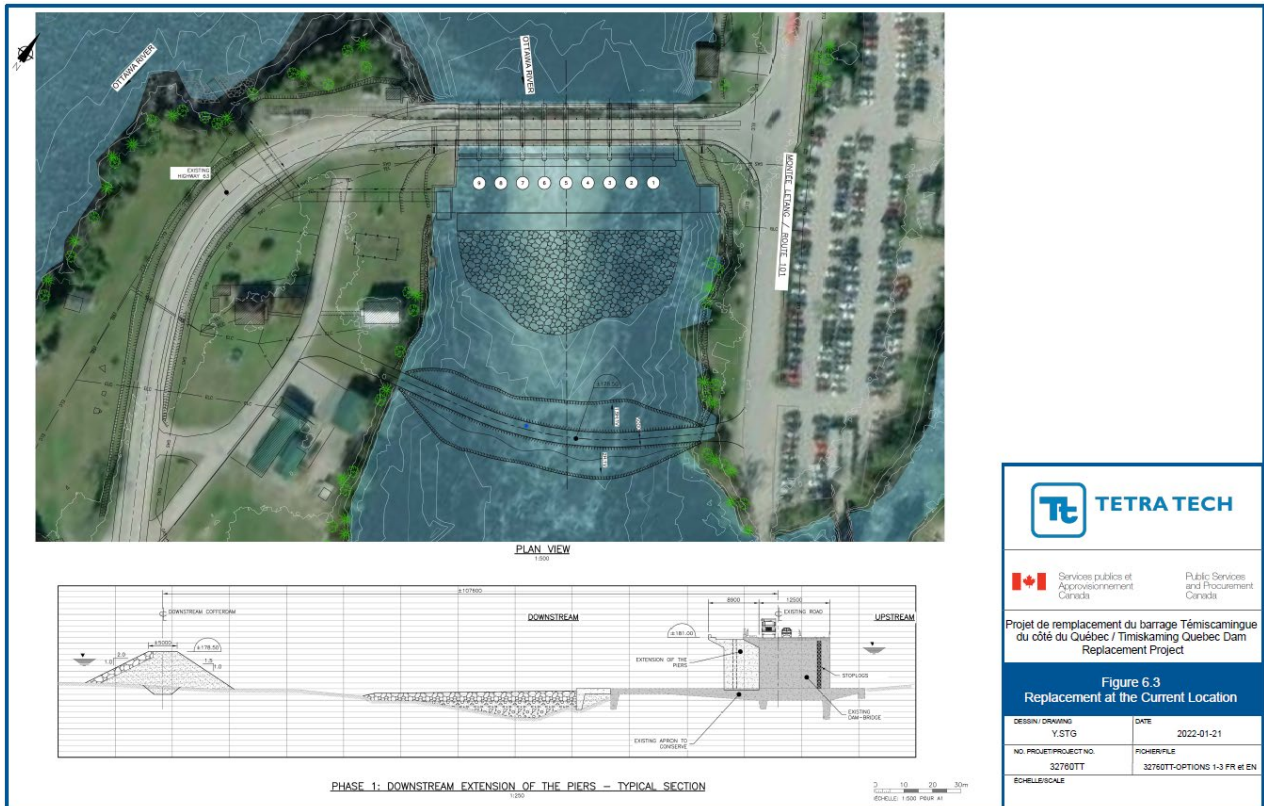


Figure 6.3 taken from Section 6.1.3 of the EIS illustrating Option 3

- B) explain whether these risks can be avoided and allow a bridge to be built with a life span as long as that of option 1.

**PSPC Response:**

Both Option 2 and Option 3 can ensure same life expectancy than Option 1, but avoidance of impacts and risks identified above are limited. There is no alternative to the cofferdam (Option 2 and Option 3). A sheet pile structure was studied but flow pressure is too strong in this section of the river, and the nature of the river bed makes it difficult to ensure watertightness. For the operation of the dam, Options 2 and 3 don't provide same flexibility in terms of the project schedule and only the Ontario Dam would be available for water management which is a significant risk for the operation of the dams or should an extreme event occur. As for road traffic interruption or limitation, the limited width of the existing and future dam-bridges cannot allow further mitigation measures.

**IAAC-1-36 Potential effects on fish – operation of dams**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

Algera, D. A., Rytwinski, T., Taylor, J. J., Bennett, J. R., Smokorowski, K. E., Harrison, P. M., ... & Cooke, S.

J. (2020). *What are the relative risks of mortality and injury for fish during downstream passage at hydroelectric dams in temperate regions? A systematic review. Environmental Evidence, 9(1), 1-36*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 11.2.3.4.6, 12.2.3.2.1.4 and 19*

## Context

The EIS only discusses the impacts of changes in flows and levels associated with the dam operations that may impact aquatic ecosystems, including behaviour and reproduction. The EIS does not contain a detailed assessment of the construction and operational impacts of the project and the dam on the full life cycle and life stages of fish. The proponent did not fully assess the potential effects on fish between the wooden truss system (currently in use) and the use of mechanized gates, or the impact on all fish life cycles. The shift in operation from top to bottom may alter the impact of the project on downstream fish passage. The difference in current strength and water temperature between the two types of water flow mechanisms could potentially affect fish habitats downstream of the dam. The operations of a dam can also have an impact on the thermal regime of a water body or river. This could have a negative impact on several life stages of fish and wildlife.

Chapter 19 of the EIS (second paragraph) states that a fish offsetting program will be developed to offset the loss of spawning grounds (walleye and sturgeon) downstream of the dam. This program will be implemented in collaboration with Indigenous groups and DFO, and its effectiveness will be monitored.

However, larval and rearing stages have not been sufficiently considered for most, if not all, of the fish species mentioned in the EIS. Additional efforts should be made to ensure that all life stages important for the survival and perpetuation of the species are properly considered.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) characterize and describe the potential effects related to dam operation (power, thermal regime, etc.), because of the change from top operation (timber beams) to bottom operation (mechanised gates), on the whole life cycle of fish, including the construction and operation phase;

### PSPC Response:

As stated in Section 11.2.3.4.6 of the EIS, water becomes shallower in the Lake Témiscaming upstream of the Québec Dam-Bridge limiting occurrence of thermoclines.

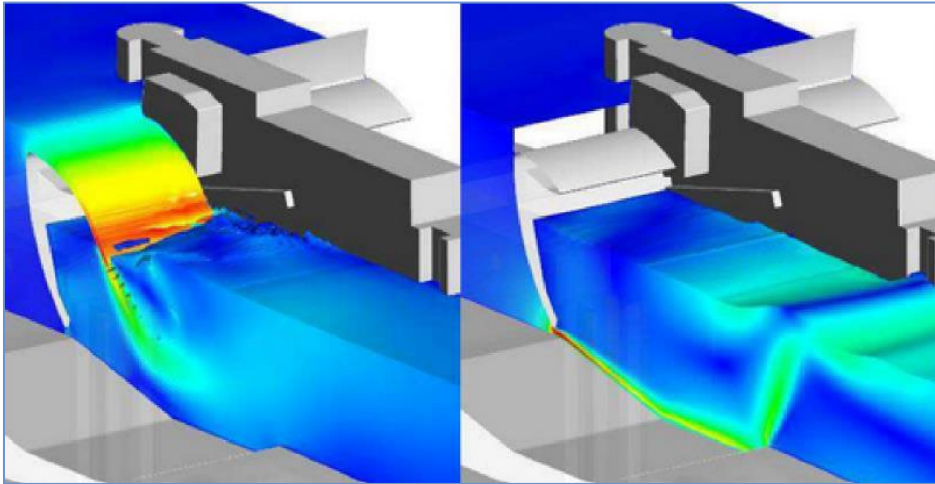
“However, the reach upstream from the dam is much shallower than the rest of the lake and the disruption of water from high velocities on the approach to the dam is significant, such that it is very likely that there will be no thermocline there in the summer and that the water will be the same temperature throughout the water column. In addition, as it goes through the dam, there is a significant mixing of the water column, which also mitigates potential temperature differences compared to the current situation. In short, it would be highly unlikely that there would be a significant difference in water temperature downstream from the dam compared to the current situation”

Operation a sluice-gate system instead of stop-log system should have no effect on thermal regime downstream, limiting effect on fish and fish habitat conditions.

Flow pattern from the sluice-gate system is expected to be different with increased bottom flow observed within a 50 m length downstream of the dam-bridge, as stated in Section 11.2.3.3.2.5 of the EIS:

*“The new dam will be equipped with sluice gates rather than wood beams as seen in the current structure. In this context, the water flows through the base (the bottom), so under pressure under the sluice, rather than by overflowing above the beams. Figure 11.33 shows an example of these two types of flow. On the left, we see a flow above the beams, creating more turbulence on the water surface, while the right shows water flowing below the sluice, creating higher velocities at the bottom of the river”.*

Figure 11-33 Example of Flow below a Sluice Gate vs. a Beam



As it is the case for the existing Dam Operation Plan, the operation of the new sluice-gate system will be sequenced such as to limit effect of flow on fish in general, and more specifically during spring/summer and fall spawning seasons.

As for potential effects to fish passing through sluice gates going downstream, the Algera & al (2020) article cited provides interesting data, even though it focuses on hydroelectrical dams. The authors conclude that most damage is caused by turbines, spillways and sluiceways. Bypass structures have the smallest impact on fish being designed to direct fish where fall heights are lesser and without moving parts. When considering the Timiskaming Québec Dam-Bridge project, its nature is closer to a bypass structure, with limited mechanical components and limited water column height. It is therefore expected that the operation of a sluice-gate system would have limited effects on fish, larvae and eggs going downstream.

- B) describe the impact on the reproductive success of fish spawning downstream of the dam, on rearing habitat or on forage or prey species, where applicable; and

PSPC Response:

As stated in PSPC response to AEIC-1-35 and AEIC-1-36, water flow pattern downstream of the Québec Dam-Bridge will remain the same as the current conditions. High water velocity spawning ground will be lost the left and right bank of the river where the new structure will be built, for which compensation measures will need to be implemented. However, most the incubation/hatching of eggs and development of juveniles will occur downstream away from the construction zone. It is thus expected that reproduction success should be maintained with proper compensation plan.

As for forage species, the high-water velocity in the work area, and the absence of suitable substrate makes it a poor habitat for such species. Limited impact is expected on this.



- C) as these effects may be difficult to quantify, investigate them as part of the research and follow-up monitoring of the project. The proponent will need to work with stakeholders to adaptively manage potential adverse effects on fish.

PSPC Response:

PSPC commits to including forage species to monitoring and follow-up programs, and to collaborate with stakeholders to discuss methodology.

## IAAC-1-37 Fishway options

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.2.3.3.2*

### Context

As mentioned in the EIS, the authorization issued by DFO for the replacement of the Timiskaming Dam-Bridge on the Ontario side states that a fishway for American Eel is planned for one of the two Timiskaming dams. It was also determined that the Quebec side would be the most interesting for the various species present in this segment of the Ottawa River.

In the meantime, discussions with some Indigenous communities and organisations have led to an interest in providing multi-species passage over this dam.

Also, in August 2019, the new *Fisheries Act* came into force, and section 34.3 dealing with free passage of fish aims to promote the restoration of fish habitat connectivity.

Four options as to whether or not a fishway should be installed are discussed in the EIS. It is also mentioned that with the current knowledge and data, it might be preferable to carry out additional studies or surveys to address the remaining uncertainties.

### DFO comment:

In particular, in the absence of threats to biodiversity (e.g. the presence of aquatic invasive species downstream) or barriers in the vicinity of the project, restoration of connectivity is recommended by DFO. While some species may be lost in the short term by providing access to another historically accessible segment of the watershed, critically endangered species will have access to higher quality habitat, and this restored habitat connectivity would allow for increased exchange between downstream and upstream fish populations.

Without intervention or the application of other protective measures for the fish and its habitat, a species such as Lake Sturgeon in the segment of the river between the dam-bridge and the Otto Holden dam is



unlikely to see its population grow, and this in the event that further study confirms that the population has insufficient numbers to persist in this segment of the river.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

A) specify and explain what additional information and data the proponent considers necessary to eliminate uncertainties in the choice of the fishway option; and

PSPC Response:

The following information is required to make an informed decision on the fish passage:

- Clear recommendations on what type of fishways to be installed based on the various factors listed below (see response to AEIC 1-38)
- Guidance on which fish species the fishway should be built for
- Guidance on the location of the fish passage
- Clear understanding of the effects of fishways on the environment
- Better understanding of the advantages and disadvantages for the watershed, carried out under a Fisheries Management Plan for the Ottawa River
- Studies or research on the effectiveness of fishways for species observed within the study area

B) include detailed assessment of the designs, efficiencies, and potential impacts of each fishway option.

PSPC Response:

Unfortunately, this question cannot be answered. Despite extensive research from the project team, we have only found very limited scientific papers to help understand the potential impacts of fish passages or its effectiveness for the species observed in the project area. We rely on subject matter experts from DFO to assess the different options. However, we are confident that the ongoing monthly meetings with DFO and the Agency on the fish passage will help to analysis the different options and will lead to an informed decision. We commit to continue engaging and discussing with DFO to find the best option.

## IAAC-1-38 Location of the fishway

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 7.6*

### Context

Ideally, a fishway should be constructed at the location that is most favourable to fish passage. Generally, this is the section of the watercourse where fish are naturally directed because of different characteristics of the watercourse (e.g. current speed, depth, obstacles, etc.).

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) present data, Indigenous knowledge or information to support the view that the proposed fishway location is the optimal location to maximise fish passage (e.g. recent surveys show significantly higher catch numbers along the left bank at the foot of the dam).

PSPC Response:

Over the last few years, numerous meetings were held between PSPC, Tetra Tech and DFO Ontario Region to discuss the fish passage. DFO was highly involved in the preliminary design of the fish passage by providing specific requirements, comments and suggestions. The current fishway design took into account various factors such as the period of the operation of the fishway, the species to migrate from downstream to upstream areas, the various swimming capabilities, the flow speeds and the great variations in water levels. Resulting from the discussions with DFO and based on the analysis of those factors, the recommendation was to build a fish passage with multiple step pools and full-depth slots. Given this type of structure required space to construct and considering the east side is constrained by the road and parking for the paper mill plant, the preferred location was on the west side, passing on the island. However, it has to be noted that this is still a preliminary design and ongoing discussions with DFO Quebec Region might result in design changes. No indigenous knowledge has been shared to date related to whether the fish passage is in an optimal location for fish passage.

## IAAC-1-39 American Eel fishway

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.2.3.3.2*

### Context

According to the latest status report from COSEWIC (COSEWIC 2013), American Eel is not present upstream from the Carillon dam near Montreal.

Several dams downstream of the Timiskaming Dam-Bridge do not have a fishway in their structure and therefore represent an impassable or difficult obstacle for eels.

Also, the authorization issued by DFO for the replacement of the Timiskaming Dam-Bridge (Ontario side) mentions that the American Eel-specific fishway could only be installed once the arrival of American Eel upstream of the Otto Holden dam is imminent. Since several downstream dams do not yet have such a fishway for eels, this additional structure could be installed at a later date.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) clarify and explain whether the concept of a multi-species fishway could allow the passage of the American Eel;

PSPC Response:

The American eel tolerates a wide variety of water depth but is a weak swimmer and is susceptible to obstacle drops. As the limiting species for the design of multi-specific fish passage is the lake sturgeon



requiring slower water flow and large scales, the American eel should succeed going through it, given no drop is present.

- B) if not, indicate and justify where the eel-specific fishway should be located to maximise the number of eels making the ascent (on the dam or in the multi-species fishway); and

PSPC Response:

No response required (see A) above).

- C) Considering that some types of eel fishways are rather simple to install, specify whether such a specific eel fishway could be installed at a later stage in this project. If so, identify and describe the potential effects on fish and fish habitat.

PSPC Response:

A specific American eel passage could be integrated in the project at a later stage. As such specific fish passage only allows eel to pass (see image bellow), limited impact would be expected on fish and fish habitat, other than limited construction impacts (sedimentation risk, water quality).



Eel fish passage (source: Ottawa River Keeper, 2021)

**IAAC-1-40 Habitat function protection**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 7.4*

## Context

Downstream spawning grounds could be degraded if the measures implemented are not sufficient or adequate. Some downstream spawning grounds would be directly encroached upon by the cofferdam or rendered inaccessible (area dewatered by the cofferdam). Other spawning areas or portions of spawning areas downstream would be partially encroached upon, and there will be changes in current velocities that could also alter spawning habitat.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) identify and describe measures to be put in place to ensure protection of the shoreline substrate at the location of temporary encroachments (e.g. cofferdam) to ensure the same habitat functions thereafter.

### PSPC Response:

The riverbed substrate where the cofferdam will be installed include several remains of the former 1909-1934 dam (concrete blocks, metal debris), and other coarse material. The limited amount of sediment in the work zone is described in Section 11.1.12 of the EIS report:

*“However, sedimentation is very limited in the study area, as evidenced by the small extent of the fine sediment veneer observed in the riverbed during underwater inspections. Similarly, shoreline armouring (concrete or riprap revetments) along the Ottawa River upstream of the dam substantially limit erosive processes and sediment input to the study area.*

*Near the dam, velocities of approximately 1.5 to 2 m/s were observed. At these velocities, clay and silt are transported by the current without sedimentation. Such velocities also contribute to erosion and the transport of larger particles (Figure 11.25 – the grey band illustrates the velocity range of 1.5 to 2 m/s). It is not surprising then, that larger particles (course gravel, boulders, pebbles) that can withstand these velocities are found downstream of the dam, rather than fine particles.”*

Mitigation measures to protect the riverbed substrate include use of clean material for construction of the cofferdam, installation of a turbidity curtain downstream of in-water work, recovering all demolition debris before opening the new dam, and complete retrieval of cofferdam material at end of construction work.

## IAAC-1-41 Use of explosives – avoidance and mitigation measures

## References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 6 and 7.1.1*

## Context

DFO recommends that the use of explosives be avoided as much as possible, as it may result in fish mortality prohibited by the *Fisheries Act*.





## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) identify alternatives that could be used to avoid the use of explosives during the construction; and

### PSPC Response:

Please refer to response to AEIC 1-11.

- B) if there is no alternative, explain what additional mitigation measures it would put in place to limit the maximum overpressure threshold inherent in blasting in or near watercourses by aiming for a threshold at 30 kPa (210 dB re 1 µPa).

### PSPC Response:

PSPC intends to comply with recommendations found in DFO's *Guidelines for the use of explosive in or near Canadian fisheries waters*. PSPC would retain services of a licenced specialized contractor for blasting operations if any, and contract an acoustical expert to ensure blasting methodology would comply with the 30 kPa limit.

## IAAC-1-42 Effects of climate change on fish – mitigation measures

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 2.2 (Alternative means of carrying out the project), 7.3.1 (Fish and fish habitat) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 6 and 7.9*

### Context

Climate change poses a significant threat to the communities of Kebaowek, Wolf Lake and Timiskaming (SART) who exercise their Indigenous fishing rights on the project site.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) specify how the dam's technology could be modified, or operations adjusted, to consider the effects of climate change on fish spawning or other species' life cycle and population concerns.

### PSPC Response:

A Fisheries Act Authorization (FAA) was issued for the Ontario dam replacement project and to satisfy Condition 4.2.2 of FAA #14-HCAA-00814, PSPC was required to enhance spawning opportunities for some specific fish species. To maximize the functionality of the spawning area created downstream of the Ontario dam, a Fish Spawning Optimization Plan was prepared which includes considerations for flows for fish spawning, other operational influences and priorities and recommendations to support practical and holistic operation of the Ontario dam. Given the Ontario and Quebec dams are operated as one complex, this plan will serve and be adapted for the Quebec dam replacement project for fish spawning optimization based on the Ontario dam experiences. This plan was submitted in September 2023 to DFO Ontario Region for review. Over time, as effect of climate change on fish spawning is better understood, the Fish Spawning Optimization Plan can be adjusted to offer optimized conditions.

**IAAC-1-43 Construction schedule – larval drift**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.6 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 19*

## Context

The Kebaowek, Wolf Lake and Timiskaming First Nations (SART) indicate that mortality during the egg stage can be high, due to predation by other fish and crayfish species, as well as poor water quality and siltation. The number of larvae that reach the drift stage is imperative for Lake Sturgeon. According to SART, there does not appear to be a strong correlation between depth and the number of drifting larvae, based on the literature. Sampling for larval drift in a new environment may require testing various depths and locations to optimise larval catch. SART indicated that, to date, the survey work at the Timiskaming Dam complex does not appear to have been extensive enough to determine the timing of larval drift. Mid-July may be too early.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

A) justify the construction schedule with the larval drift periods; and

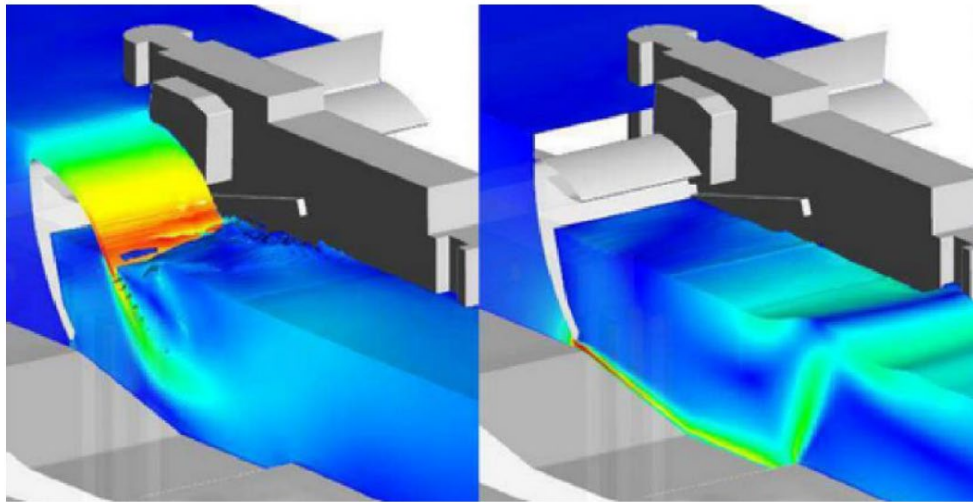
#### PSPC Response:

As stated in Section 12.2.3.2 of the EIS: "Given lake sturgeon spawns between 8 to 18°C (Scott and Crossman, 1974) and the hatching period lasts approximately 7-10 days, to ensure more protection for spawning and hatching, temperature will be taken in the downstream area of the dam and in-water work for Phase 1 will only begin after a 10-day period following a temperature of 18°C (which should be approximately mid-July)." This has been included as a mitigation measure in Section 12.2.3.6 and Section 12.2.4.1 of the EIS.

B) describe how the operation of dams can contribute to the success of post-spawning larval sturgeon drift each year.

#### PSPC Response:

The use of sluice-gates instead of stoplogs for the new Quebec dam-bridge is the main difference from the existing operational conditions for larvae drift. It is expected that existing stoplog operation exposes lake sturgeon larvae to impact and water pressure as they go above the dam and fall to the river downstream. Passage through sluice-gates in future operation of the Quebec dam-bridge would expose larvae to similar water pressure but limit effect of falling, as water flows from the bottom instead of falling from the top. Figure 11-33 taken from the EIS illustrates this.

**Figure 11-33 Example of Flow below a Sluice Gate vs. a Beam**

A Fisheries Act Authorization (FAA) was issued for the Ontario dam replacement project and to satisfy Condition 4.2.2 of FAA #14-HCAA-00814, PSPC was required to enhance spawning opportunities for some specific fish species. To maximize the functionality of the spawning area created downstream of the Ontario dam, a Fish Spawning Optimization Plan was prepared which includes considerations for flows for fish spawning, other operational influences and priorities and recommendations to support practical and holistic operation of the Ontario dam. Given the Ontario and Quebec dams are operated as one complex, this plan will serve and be adapted for the Quebec dam replacement project for fish spawning optimization based on the Ontario dam experiences. This plan was submitted in September 2023 to DFO Ontario Region for review. Over time, as effect dam operation on larvae drift understood, the Fish Spawning Optimization Plan can be adjusted to offer optimized conditions.

## Comments and advice for the proponent

### Comment 1-13

### Molluscs

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.6 (Fish and fish habitat) and 7.3.1 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.1.10 and 12.2.4*

#### Comments and advice

The Agency notes that, for the baseline condition, molluscs are discussed with insects and treated in a different section than fish and notes that, for the assessment of effects, Hickorynut, a mollusc species, is



assessed with aquatic Species at Risk. The Agency notes that molluscs fall within the definition of “fish” as defined in subsection 2(1) of the *Fisheries Act* and are therefore included in the components of the environment that are within the legislative authority of Parliament and referred to in paragraph 5.(1)(a) of CEAA 2012, specifically the component of “fish and fish habitat, as defined in subsection 2(1) of the *Fisheries Act*.”

PSPC Response:

This is noted for future publications.

### Comment 1-14 Habitat offsetting

#### References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.2.3.5*

#### Comments and advice

Each of the three options for the location of the dam replacement project would destroy fish habitat that would need to be offset. DFO considers that there would be a destruction of habitat for a multitude of species, of which Lake Sturgeon, Walleye and Lake Whitefish would be the three species primarily impacted. The offsetting proposal should minimally represent gains for these three species and allow a more specific gain for Lake Sturgeon in terms of spawning grounds. Also, for Walleye, the breeding habitat characteristics of this species overlap with the breeding habitat characteristics of Lake Whitefish. The creation of spawning habitat for Walleye and Lake Whitefish would be potentially feasible if the characteristics of the watercourse allow for such a development. DFO remains open to proposals for offsetting projects and encourages an exchange with its department and any other stakeholders or Indigenous communities that wish to participate or receive information. The proponent must engage directly with the Algonquins of Pikwakanagan First Nation (AOPFN) in the development and implementation of the fish habitat offsetting plan. At a minimum, the commitment must address the suitability, stability, function and monitoring of all spawning grounds or other areas important to fish. This commitment should involve clear communication, reasonable timelines and capacity funding.

PSPC Response:

PSPC commits to engaging directly with the AOPFN to develop and implement a fish habitat compensation plan. PSPC commits to addressing the suitability, stability, function, and monitoring of all spawning grounds or other areas important to fish as part of the fish habitat compensation plan. The plan will further outline commitments to communications, timelines, and related capacity funding. DFO will also directly consult with Indigenous groups on the fish habitat compensation plan.

**Comment 1-15 Water management and influence on spawning habitats**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.2.3.3.2.5*

## Comments and advice

DFO indicates that the quality and quantity of fish spawning habitat downstream of dam-bridges is influenced by water management. It is important to avoid variations in habitat characteristics during the spawning periods of some species and also to some extent during incubation. Otherwise, this could cause fish or embryo mortality or lead to non-use of habitats. It is stated that flows and openings would be managed in the same way after the replacement of the dam as before. However, it would be useful to model under what conditions fish spawning habitat is maximized consistently during the spawning periods of the various fish species for the two Timiskaming dams, since they are interdependent.

The Kitchi Sibi Technical Team of the Kebaowek, Wolf Lake and Timiskaming First Nations (SART) states that operational flows from dams pose a significant threat to aquatic species populations due to the lack of attention to their life cycle in the management of water levels and flows, and that this can pose a threat to sustainable Indigenous fisheries performance and food security. In addition, the inability to predict rapid changes in water levels and flows makes current on-water and net fishing activities difficult.

The SART Kitchi Sibi Technical Team also mentions that the current mid-July dewatering period in the construction schedule is inadequate to protect the sturgeon spawning period, as it does not support the early development of Lake Sturgeon eggs into larvae and the timing of their downstream drift. It is essential to define the extent and duration of post-spawning larval drift at the dam, and consistent monitoring methodologies are needed to determine this. The SART Kitchi Sibi Technical Team recommends that the proponent refer to the study by Auer and Baker (2002)<sup>1</sup> and ask if the construction schedule for Phase 1 and future management of the dam can be modified to accommodate the water level, flow, sediment and temperature requirements of Lake Sturgeon or other fishery and benthic species related to their life cycle and population dynamics.

### PSPC Response:

Please refer to response to AEIC-1-43. We believe that this measure is sufficient to protect the larval drift of the lake sturgeon.

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<sup>1</sup> N.A. Auer, E.A. Baker. Duration and drift of larval lake sturgeon in the Sturgeon River, Michigan. *J. Appl. Ichth.* 18 (2002), pp. 557-564



## Comment 1-16 Aquatic invasive species

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.6 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Section 4.1.5 and Environmental Impact Statement Summary*

### Comments and Advice

The Wolf Lake First Nation community secured funding in 2022 to install a boat wash on Long Sault Island to control aquatic invasive species. The acquisition of the wash station has been completed, and it remains to be installed on site. The Government of Quebec's Wildlife and Parks sector suggests that the proponent add this information to the study and describe the most up-to-date developments on this project, where applicable.

Furthermore, at a public consultation session on the EIS held by the Agency in April 2023, a non-governmental organization suggested that the proponent consider the possibility of improving the washing station project in order to prevent the introduction of invasive species into Lake Timiskaming upstream of the dam-bridge.

#### PSPC Response:

The boat washing station will be located next to the Algonquin Canoe Company near the centre of Long Sault Island off ON-63 as outlined in red on the map below. To respond to this question, our team made multiple attempts to gather additional details from WLFN. Unfortunately, no other details were shared.





## Comment 1-17 Options for the migration fishway

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 7.6 and 12.2.3.3.2*

### Comments and advice

The authorization obtained from DFO for the Ontario portion of the dam included the condition of constructing an eel fishway in this project. This condition was considered a mitigation measure to restore free movement of fish. Following consultations with some Indigenous communities, a multi-species fishway was also considered. Each of the two options presents advantages and disadvantages, involves uncertainties and raises concerns from certain First Nations regarding their fishing rights and the effects on fish populations upstream and downstream from the dam. In light of this, the proponent presents four options in its impact statement: (1) eel-only fishway; (2) multi-species fishway; (3) no fishway; and (4) delay the possible construction of a fishway by first conducting a detailed assessment of the effects as part of a fisheries management plan for the Ottawa River.

Sections 7.6 and 12.2.3.3.2 of the EIS state that further discussions between the proponent, DFO experts and Indigenous communities are required before deciding on one of the four options. The proponent must support engagement and consultation on the multi-species fishway (Option 2) in a meaningful way to allow the AOPFN and other Indigenous groups to provide early input into the assessment and decision-making on the fishway. Specific activities with the AOPFN should be negotiated directly with the AOPFN and may include timely information sharing, transparent communication, and community workshops/meetings in the community with knowledge holders, elders and independent professional advisors.

The Government of Quebec's Wildlife and Parks sector wishes to participate in discussions on the options and asks the proponent to involve it in these discussions.

#### PSPC Response:

PSPC commits to meaningfully engaging with the AOPFN, and the other impacted Indigenous groups, on the multi-species fish passage (Option 4) and to support discussions with DFO. Specific activities will be negotiated directly with the AOPFN and the other Indigenous groups as described in the consultation and communication plans developed for each Indigenous group. Based on each community's interests, engagement on the fish passage may include information sharing, ongoing transparent communication, and community workshops/meetings with knowledge holders, Elders, and independent technical advisors.

The Quebec Ministère des Forêts, de la Faune et des Parcs interest in participating in these discussions has been included in the consultation and communication plan for each community.

## Comment 1-18 Considerations for the fishway – TCO

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement*

## Comments and advice

The table de concertation de la rivière des Outaouais (TCO), whose mandates include developing and maintaining integrated management of the water resources of the Ottawa River (Quebec section between downstream of the Première-Chute dam and downstream of the Carillon dam) in order to identify and detail the issues deemed to be priorities, points out that the destruction of wildlife and plant habitats is one of the priority issues identified on the Ottawa River.

The Centre de données sur le patrimoine naturel du Québec (CDPNQ) lists 74 species of fish in the Ottawa River, many of which have threatened, vulnerable or likely-to-be-threatened status. American Eel once represented 50% of the fish biomass in the Ottawa River. The impassability of many of the dams during the upstream migration and mortality due to turbines during their downstream migration are the main causes of the decrease in its range and the loss of 90% of its population.

The presence of dams leads to fragmentation of the territory and therefore of the habitats that aquatic species require to move, reproduce and feed. In the case of American Eel, the addition of species-specific fishways is a recognised and effective solution to enable it to cross obstacles in its path. The TCO is in favour of integrating such an installation on the proposed dam-bridge, despite the absence of the species in the section of the Ottawa River linked to the project.

For almost 20 years, efforts have been made to restore American Eel populations, including a major effort to raise awareness among dam owners and managers so that they include a fishway in their structure. This means that it is not impossible that the American Eel will return to the Ottawa River.

However, in addition to the concern about habitat fragmentation caused by the presence of dams, the invasion and occupation of the aquatic ecosystem by invasive alien species has also been raised as an important issue of concern for the Ottawa River. When present, an invasive alien species usually colonizes the environment very quickly and can form dominant populations, thus becoming a threat to native species. The presence of invasive alien species can have serious impacts on biodiversity, the environment, the economy and communities. Given that invasive alien species already occupy the Ottawa River ecosystem, the TCO believes that the choice of a multi-species fishway, which is one of the options under consideration, would only amplify the circulation of invasive alien species in the river. The risk of invading new sections of the river is considered to be higher by allowing the passage of various fish species. Furthermore, the type of fishway for the passage of a variety of species is not appropriate for the American Eel, which will not be able to use it.

In conclusion, taking into account the above-mentioned considerations, the TCO recommends the installation of a fishway specific to the American Eel, which, in the long term, could support the recovery efforts of the





species in the Ottawa River. In the event that the installation of a fishway is not possible during the replacement of the dam, the TCO recommends that the owner of the structure create a fund containing the necessary funds to carry out the work required to install a fishway for American Eels at the appropriate time.

However, at a public consultation session on the EIS held by the Agency in April 2023, another non-governmental organization stated that it was in favour of allowing sturgeon to return to Lake Timiskaming but was concerned about the risk that a fishway could also promote the passage of invasive species. It suggested that the proponent explore the idea of a fishway to filter species.

PSPC Response:

Noted – we appreciate and thank you for the suggestion.

### Comment 1-19 Considerations for the fishway – AOPFN

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.1 (Fish and fish habitat)*

MacGregor, R., Casselman, J., Greig, L., Dettmers, J., Allen, W., McDermott, L., & Haxton, T. (2013). *Strategy for the American Eel (Anguilla rostrata) in Ontario. Ontario Recovery Strategy Series. Peterborough, Ontario: Ontario Ministry of Natural Resources*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement*

#### Comments and advice

The AOPFN recommends the construction of an eel fishway (option 1) and the completion of a detailed study to evaluate the potential for a multi-species fishway (option 4). This is important, as there is a broad agreement that the dam should be ready for the potential passage of eel in the future. Moreover, the cost-savings and design flexibility to construct a functional eel fishway during construction will be much more favourable than if the structure is built after the project is completed. It would therefore be preferable to construct the eel fishway as part of the project. This would align recommendations put forward in the Recovery Strategy for the American Eel (MacGregor, et al., 2013).

The AOPFN states that a detailed impact assessment and fishway decisions should be conducted as part of the environmental assessment of this project and must be completed before the end of that process.

PSPC Response:

Regular meetings with DFO are ongoing and we expect to come to an informed decision for the best fish passage option.

**Comment 1-20 Objectives for describing the baseline condition**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.6 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.1.6.1*

## Comments and advice

Section 12.1.6.1 of the EIS specifies the following objectives for the fish population and habitat description:

- confirm that spawning activities take place
- assess the presence, absence, and distribution of fish species
- determine the availability of spawning habitats

The Government of Quebec's Wildlife and Parks sector considers that the proponent must also ensure the presence and sustainability of all elements essential to the fish species present in the sector to complete their life cycle (e.g. nursery sites, feeding sites, shelters, spawning sites, etc.).

### PSPC Response:

Please see above responses for additional information.

**Comment 1-21 Marginal species**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.6 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.1.6.3.1.1 and 12.1.6.3.1.2*

## Comments and advice

The Government of Quebec's Wildlife and Parks sector has noted and informed the proponent that certain species captured during the surveys conducted by Hatch and Biofilia are marginally present in the sector, notably Lake Trout and Walleye.

### PSPC Response:

Thank you for the information. This is noted.

**Comment 1-22 Information to come – conservation plan and flesh survey**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.6 (Fish and fish habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.2.3.2, 17.1 and 20.1*

## Comments and advice

SART indicates that the SART Lake Sturgeon Conservation Plan and the results of the flesh survey should be considered, when available, as part of the 2020 cooperative project with the Ottawa Riverkeeper.

### PSPC Response:

PSPC received two reports from SART on lake sturgeon (see appendix B) and will consider them for the related project activities (i.e. fish monitoring and follow-up program).

## Birds and Bird Habitat

### Information requests directed to the proponent

#### IAAC-1-44 Baseline conditions for avian fauna

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.7 (Birds and bird habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.1.9*

#### Context

ECCC notes that no avian-specific surveys were conducted for this project. Indeed, surveys conducted in 2017 and 2021 did not target avian fauna, and only incidental observations were recorded. No details are provided on the sampling effort (e.g. time effort, area effort, and the specific dates and time of day observers were present) and on the observers' skills in identifying birds.

Furthermore, the *eBird* data do not seem to have been used for the nesting period, a period when construction generating sensory disturbances is planned. This data would improve the survey data and could possibly improve the use of the project's area of influence by avian fauna during this critical phase.

ECCC believes that the information provided from existing data and field observations is not sufficient to allow for the description of current conditions for birds in the study area. There needs to be an evaluation of alternative options, and the prediction of effects. ECCC believes that it is important to select survey methods that take into account the predicted effects of the project on birds and focus on measuring appropriate response variables. To obtain reliable and reproducible results, it is important to conduct field surveys following standard protocols.

#### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) carry out additional surveys to document the use on the project's area of influence by avian fauna during the nesting period or justify why such surveys are not required;

#### PSPC Response:

PSPC considers that sufficient effort was given for bird inventories for both 2017 and 2021 field surveys.

Appendix 1 of Appendix 12.1 of the EIS details bird inventory efforts deployed for the 2017 season. A total of 700 hours of observation were made in three distinct periods: May, June-July, and November 2017 (early morning and end of day). The opportunistic approach implemented, inspired of the « belvedere » or « adapted visit » techniques, was chosen as the noise caused by the water flowing from the dam made difficult the application of the usual UDPC and IPA techniques. The implemented approach was also well adapted to the open landscape found in the study zone. The observations were

generated by a team of six field employees having either a biologist or a bio-ecology technician degree, working under the supervision of a biologist specialized in bird surveys with more than 30 years of experience. A specific technical note on methodology implemented in 2017 is found in Appendix D of this document.

Appendix 9 of Appendix 12.1 of the EIS gives information on complementary bird surveys made in 2021. The same approach as in 2017 was implemented as noise coming from the dam was still unfavorable for the UDPC or IPA techniques. Field notes indicate that 400 hours of complementary observation were made in two campaigns in May and June 2021, at suitable survey period (early morning and end of day). The complementary bird survey produced data on the dam and Gordon creek areas where little data was collected in the 2017 survey. Observations were made by a team of the three field employees having either a biologist or a bio-ecology technician degree, working under the supervision of a biologist with more than 40 years of personal and professional experience in bird surveys. Data collected is presented in Appendix E of this document.

PSPC considers that no additional bird survey is needed.

- B) provide all the necessary methodological information on the observations made of avian fauna in 2017 and 2021, in order to assess the probability of occupation of the dam-bridge structure and the probability of detection of individuals, including: the effort in terms of time spent observing the structure, the precise dates and time of day when the observers were present, and the skills of the observers in identifying the birds; and

PSPC Response:

See A) above.

- C) review the description of the use of the study area by migratory birds considering the different sources of information available.

PSPC Response:

Appendix 1 of Appendix 12.1 of the EIS shows that many sources of information were already considered in planning the 2017 field work and interpreting the field data:

- Hatch (2014). *Environmental effects evaluation report for the Temiskaming Ontario Dam Replacement Project*.
- IUCN, Nature Serve data base (2017)
- MELCCFP - Centre de données du patrimoine naturel du Québec (CPDNQ) (2017)
- Regroupement Québec Oiseaux - Atlas des oiseaux nicheurs du Québec (2017)
- Regroupement Québec Oiseaux – SOS-POP data base (2016)

In planning the 2021 complementary bird survey, the same sources were considered with updated data from the CPDNQ.

PSPC considers that combination of field surveys, Indigenous traditional knowledge, bird studies and consulted data bases allows for a sufficient assessment of use of the study area by migratory birds.

## IAAC-1-45 Use of the dam-bridge structure during the nesting period

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.7 (Birds and bird habitat), 7.3.2 (Birds and bird habitat), 7.4 (Mitigation measures) and 9 (Follow-*



up and monitoring programs)

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.1.9.4 and 12.2.8*

## Context

ECCC notes that several bird species were incidentally observed near the dam in 2017 and 2021.

The last paragraph of section 12.1.9.4 of the EIS describes opportunistic bird observations (passerines, swallows, starlings) made in May 2021 and provides reasons to suggest that the dam-bridge structure is not used by birds for nesting. It is also mentioned in section 12.2.8 that no Barn Swallow nests have ever been observed on this structure, although it could be suitable for nesting.

The ECCC notes that the surveys carried out in 2017 and 2021 did not target avian fauna. For example, in 2021, only incidental observations of migratory birds were made between May 11 and 28. No details are provided on the sampling effort (e.g. effort in time, area, specific dates and time of day observers were present) and the skills of observers in identifying birds.

ECCC is of the opinion that several species are likely to nest on a man-made structure such as the dam-bridge in the project area, e.g. House Finch, Eastern Phoebe (observed species), Cliff Swallow, Barn Swallow (observed species and threatened under SARA), Peregrine Falcon, Merlin, etc.

Each of these species has its own nesting season. In the case of the Barn Swallow, the nesting period in the project area only begins at the end of May. It may therefore be quite normal that the individuals observed in 2021 were not seen landing or entering the dam-bridge structure, since at the time the observations took place, the species may not have started to nest.

This is therefore not a valid reason to determine that the species does not use the structure for nesting, nor is the fact that the dam manager has never observed any nests.

ECCC is of the opinion that, at a minimum, the combined knowledge from existing data and field surveys should make it possible to assess the probability of occupation of the dam-bridge structure, and the probability of detecting individuals.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) carry out additional surveys to document the use of the dam-bridge structure by avian fauna during the nesting period or justify why such surveys are not required;

### PSPC Response:

Nesting on the existing dam-bridge is an operational and health and safety risk for PSPC. PSPC staff is thus vigilant to report any nesting activity on the structure, and information provided by site staff bears credibility. The absence of nesting activity reported by site staff was corroborated by bird surveys conducted in 2017 and 2021.

However, PSPC will undertake complementary nesting surveys on the structure during final design phase. Survey approach will be similar to the 2017 and 2021 campaigns (methodology and dates) with efforts focused on the entire length of the dam-bridge. It will be supplemented by physical inspection on the structure to identify indication of actual or past nesting activity. Should nesting activity be confirmed,

adequate mitigation measures would be integrated to the project specifications to avoid negative effects, such as integrating nesting opportunity on the new structure and preventing further nesting on the existing dam to direct birds to new nesting site before dismantling of the old dam. This approach was privilege at the Champlain bridge project with success, displacing a white-fronted swallow colony from the old bridge to the new one.

- B) review the assessment of the potential for use of the dam-bridge structure by avian fauna during the nesting period, as well as the assessment of the negative effects of the project on avian fauna; and

PSPC Response:

As bird nesting activity has not been observed on the existing dam-bridge (see A) above), negative impact is negligible on bird.

- C) where appropriate, revise the identification and description of mitigation, monitoring and environmental follow-up measures to be implemented.

PSPC Response:

See A) above.

#### IAAC-1-46 Swallow identification

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.7 (Birds and bird habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.1.9.5.1*

### Context

The EIS states that Barn Swallow individuals have nested under the cornice of the dam manager's house in the past. It is more common for Cliff Swallow individuals, which are very similar to Barn Swallow, to use the house ledges. There has been a decline in Cliff Swallow populations in recent decades according to the North American Breeding Bird Survey. A document attached (Appendix II) shows typical individuals and nests of both species to help distinguish between them.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) compare the type of nest observed in the past under the cornice of the dam manager's house with the types of nests shown in the document provided. Then identify which species of swallow nested under this ledge.

PSPC Response:

Past nesting observations made by PCPS staff on dam keeper house was communicated orally. No formal record exists to make this assessment.

## IAAC-1-47 Swallow nesting habitat

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part II, section 7.1.7 (Birds and bird habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.2.8, 12.1.9.4 and chapter 23*

## Context

The EIS mentions that the current dam, which would be replaced and then destroyed, provides a suitable structure for Barn Swallow, although no Barn Swallow nests have been observed there. It also states that Barn Swallow only frequent the Rayonier area and the adjacent bank. One of the main threats identified for Barn Swallow is the loss and degradation of its nesting habitat. Cliff Swallow, which is also experiencing a decline in its populations, also uses bridge structures for nesting. The presence of anthropogenic structures suitable for nesting by both swallow species is therefore very important.

Other types of structures can be used to promote the nesting of these two species. Appendix E of the [Guide de recommandations – Aménagements et pratiques favorisant la protection des oiseaux champêtres](#) (QuébecOiseaux, 2019) provides examples of these structures.

It should be noted that similar structures can also accommodate both bats and swallows.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) specify whether it plans to maintain habitat suitable for nesting barn swallows and cliff swallows, and provide details; and

### PSPC Response:

As stated above in PSPC response to AEIC-1-44, no nesting activity was noted on the existing dam-bridge structure, including barn swallow. It is therefore difficult to “maintain” favorable habitat for barn swallow and cliff swallow. However, PSPC will consider integrating nesting friendly structure to the final design of the new dam-bridge, considering recommendation of the Guide cited above and taking example from other successful initiatives (i.e. Samuel-de-Champlain Bridge).

- B) in the case where one or more favourable habitats are maintained:

- i. specify whether the structure of the new dam-bridge will be suitable for nesting or whether it is planned to incorporate nesting structures; and

### PSPC Response:

The bridge sitting on the new dam is most probably suitable to host a variety of nesting structures. However, the design, location and extent of such structures may be limited to ensure safe operation of the dam. Further precision will be available during final design phase. Should integration of nesting structure be practicable on the Quebec dam-bridge, PSPC will consider options on other land, structures and buildings composing the Timiskaming Dam Complex (Ontario dam-bridge, service buildings, etc.).

- ii. describe the monitoring program that would be carried out to check the use of the structures by birds (including, but not limited to, swallows) during construction.



**PSPC Response:**

Should nesting structure be included in the final design, nesting success monitoring would be integrated in the global follow-up program. The program would aim at documenting bird presence in the vicinity of the dam (around 1 km radius), signs of nesting on the new dam-bridge, signs of actual breeding (eggs), and survival rate of offspring. Specific monitoring dates would be set depending on expected nesting species, with sustained efforts to document breeding signs and survival rate. Monitoring would last for at least 3 seasons.

**IAAC-1-48 Critical habitat of the Chimney Swift****References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.7 (Birds and bird habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, appendix 12.5*

**Context**

In Table 2 of Appendix 12.5 of the EIS, it is explained that critical habitat for the Chimney Swift is designated in a recovery strategy and that this designation is based on the criteria of habitat occupancy and biophysical characteristics of suitable habitat. It is stated that the Chimney Swift habitat occupancy criterion would not be met and that the lack of information at building level in the wider study area makes it impossible to determine whether suitable habitat is likely present.

According to Table D-3 of the proposed recovery strategy for the species (ECCC, 2022), two critical habitat units are present in the City of Timiskaming.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) add information on these two critical habitat units to Table 2 in Appendix 12.5;

**PSPC Response:**

For more clarity, PSPC consulted the latest version of the Recovery Strategy for the Chimney Swift (ECCC, 2023) and extracted the data found below.



Programme de rétablissement du Martinet ramoneur							2023
Code d'identification du carré du quadrillage UTM de référence de 10 km × 10 km <sup>25</sup>	Type de bâtiment <sup>26</sup>	Latitude (DD)	Longitude (DD)	Voie de communication	Ville	Emplacement/description de la structure <sup>27</sup>	Régime foncier
18TXS40	Bureaux – public	46,04510	-73,10863	Rue de Ramezay	Sorel-Tracy		Non fédéral
18TXS40	Résidentiel et/ou commercial	46,04433	-73,11411	Rue du Prince	Sorel-Tracy		Non fédéral
18TXQ99	Résidentiel	45,11125	-72,57199	Ch. du Plateau	Sutton	À l'extrémité O. du bâtiment	Non fédéral
17TPM38	Bureaux – public	46,83175	-79,19189	Ch. Opémican	Témiscaming	Cheminée centrale	Non fédéral
17TPM47	Religieux	46,72134	-79,09895	Rue Boucher	Témiscaming		Non fédéral
18TXR06	Résidentiel	45,69297	-73,63077	Rue Chapleau	Terrebonne		Non fédéral
18TXR06	Résidentiel	45,69201	-73,63432	Rue Saint-André	Terrebonne		Non fédéral

The updated Table 2 of Appendix 12.5 of the EIS is found below.

Table 2 - Assessment of the Potential of Habitats in the Study Area for Species at Risk

Common name used by COSEWIC	Presence potential														Note(s) on potential presence and critical habitat	References
	Restricted study area					Extended study area								Aquatic Study Area		
	Grassy Area	Early Successional Herbaceous Habitat	Shrubby/forested Banks	Industrial Area	Commercial, Institutional and residential Areas	Meadow	Shrubs	Coniferous forest	Mixt Forest	Deciduous Forest	Wetland and Gordon Creek	Residential area	Industrial Area			
American Eel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No recovery strategy, so no critical habitat described. Species absent from study area due to presence of dams downstream.	<a href="#">Anguille d'Amérique (Anguilla rostrata) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a>
Lake Sturgeon	-	-	-	-	-	-	-	-	-	-	-	-	-	High (see Section 12.1.6.7.1)	No recovery strategy, so no critical habitat described. See Map 12.22a for habitat potential.	<a href="#">Esturgeon jaune (Acipenser fulvescens), Populations des Grands Lacs et du haut Saint-Laurent - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a>
Blanding's Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	Low to NIL	Critical habitat partially designated in a recovery strategy. Not mapped because potential for presence is low to NIL.	<a href="#">Tortue mouchetée (Emydoidea blandingii) - programme de rétablissement 2018 - Canada.ca</a>
Eastern Painted Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	High (movement area, nesting area, thermoregulation, hibernation)	No recovery strategy, so no critical habitat described. See Map A12.5-1.	<a href="#">Tortue peinte de l'Est (Chrysemys picta picta) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a>
Snapping Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	High (movement area, nesting area, thermoregulation, hibernation)	No recovery strategy, so no critical habitat described. See Map A12.5-1.	<a href="#">Tortue serpentine (Chelydra serpentina) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a> <a href="#">Tortue serpentine (Chelydra serpentina): plan de gestion 2020 - Canada.ca</a>



Table 2 - Assessment of the Potential of Habitats in the Study Area for Species at Risk

Common name used by COSEWIC	Presence potential														Note(s) on potential presence and critical habitat	References
	Restricted study area					Extended study area								Aquatic Study Area		
	Grassy Area	Early Successional Herbaceous Habitat	Shrubby/forested Banks	Industrial Area	Commercial, Institutional and residential Areas	Meadow	Shrubs	Coniferous forest	Mixt Forest	Deciduous Forest	Wetland and Gordon Creek	Residential area	Industrial Area			
Norther Myotis	Low	Low	Low	NIL	Low	Low	Low	High (resting and feeding area)	High (resting and feeding area)	High (resting and feeding area)	High (resting and feeding area)	Low	NIL	Low (feeding area)	Critical habitat partially designated in a recovery strategy. "Any site where little brown bat, northern bat, and/or eastern pipistrelle hibernation was recorded at least once between 1995 and 2018 is designated critical habitat." Lack of hibernacula in the study area. See Map A12.5-2.	<a href="#">Petite chauve-souris brune (Myotis lucifugus), de la chauve-souris nordique (Myotis septentrionalis) et de la pipistrelle de l'Est (Perimyotis subflavus) : programme de rétablissement 2018 - Canada.ca</a>
Little Brown bat	Low	Low	Low	NIL	Low	Low	Low	Medium (resting)	Medium (resting)	Medium (resting)	Medium (resting)	Low	NIL	High (above water for feeding)	Critical habitat designated in a recovery strategy. "Any site where little brown bat, northern bat, and/or eastern pipistrelle hibernation has been recorded at least once between 1995 and 2018 is designated critical habitat." Lack of hibernacula in the study area. See Map A12.5-2.	<a href="#">Petite chauve-souris brune (Myotis lucifugus), de la chauve-souris nordique (Myotis septentrionalis) et de la pipistrelle de l'Est (Perimyotis subflavus) : programme de rétablissement 2018 - Canada.ca</a>
Tri-colored bat	Low	Low	Low	NIL	Low	Low	Low	Medium (resting)	Medium (resting)	Medium (resting)	Medium (resting)	Low	NIL	High (above water for feeding)	Critical habitat designated in a recovery strategy. "Any site where little brown bat, northern bat, and/or eastern pipistrelle hibernation has been recorded at least once between 1995 and 2018 is designated critical habitat." Lack of hibernacula in the study area. See Map A12.5-2.	<a href="#">Petite chauve-souris brune (Myotis lucifugus), de la chauve-souris nordique (Myotis septentrionalis) et de la pipistrelle de l'Est (Perimyotis subflavus) : programme de rétablissement 2018 - Canada.ca</a>
Eastern whip-poor-Will	NIL	NIL	NIL	NIL	NIL	NIL	Medium (feeding)	Medium (nesting)	Medium (nesting)	Medium (nesting)	Medium (feeding)	NIL	NIL	NIL	Critical habitat designated in a recovery strategy. Critical habitat designation for the Whip-poor-will is based on two criteria: habitat occupancy and habitat suitability. The criterion of habitat occupancy by Whip-poor-will is not met in parcel 17PM47 of the Quebec Breeding Bird Atlas, the parcel where the study area is located. See map A12.5-4.	<a href="#">Engoulement bois-pourri (Antrostomus vociferus) : programme de rétablissement de l'engoulement 2018 - Canada.ca</a> <a href="#">Atlas des oiseaux nicheurs du Québec - (atlas-oiseaux.qc.ca)</a>
Common Nighthawk	Low	Medium (nesting and feeding)	Medium (nesting and feeding)	Low	Low	Medium (nesting and feeding)	Medium (nesting and feeding)	Low	Low	Low	Medium (nesting and feeding)	Low	Low	High (above water for feeding)	There is a recovery strategy, but at this time, the available information does not identify critical habitat for the species. See Map A12.5-4.	<a href="#">Programme de rétablissement de l'Engoulement d'Amérique (Chordeiles minor) au Canada - 2016 - Canada.ca</a>

Table 2 - Assessment of the Potential of Habitats in the Study Area for Species at Risk

Common name used by COSEWIC	Presence potential														Note(s) on potential presence and critical habitat	References
	Restricted study area					Extended study area								Aquatic Study Area		
	Grassy Area	Early Successional Herbaceous Habitat	Shrubby/forested Banks	Industrial Area	Commercial, Institutional and residential Areas	Meadow	Shrubs	Coniferous forest	Mixt Forest	Deciduous Forest	Wetland and Gordon Creek	Residential area	Industrial Area			
Peregrine Falcon <i>anatum/tundrius</i>	NIL	Low	Low	Low	NIL	Low	Low	Low	Low	Low	Low	NIL	NIL	Low	No recovery strategy	<a href="#">Faucon pèlerin anatum/tundrius (Falco peregrinus anatum/tundrius) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a> <a href="#">Faucon pèlerin anatum/tundrius (Falco peregrinus anatum/tundrius) (canada.ca)</a>
Golden-winged Warbler	NIL	NIL	Low	NIL	NIL	NIL	Medium (nesting and feeding)	Low	Low	Low	Medium (nesting and feeding)	NIL	NIL	Low	For the golden-winged warbler, we are at the northern limit of its range in the study area.  Critical habitat designated in a recovery strategy. Designation of critical habitat for the golden-winged warbler is based on the following two criteria: habitat suitability and habitat occupancy by the species.  The criterion of habitat occupancy by the Golden-winged Warbler is not met in parcel 17PM47 of the Quebec Breeding Bird Atlas, the parcel where the study area is located.  See Map A12.5-5	<a href="#">Paruline à ailes dorées (Vermivora chrysoptera) : programme de rétablissement 2016 - Canada.ca</a> <a href="#">Atlas des oiseaux nicheurs du Québec - (atlas-oiseaux.qc.ca)</a>
Rusty Blackbird	NIL	NIL	Low	NIL	NIL	NIL	NIL	Low	Low	Low	Medium (nesting and feeding)	Low	NIL	NIL	No recovery program, so no critical habitat described.  See Map A12.5-5	<a href="#">Quiscale rouilleux (Euphagus carolinus) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a>
Barn Swallow	NIL	Medium (feeding)	Medium (feeding)	NIL	Medium (nesting)	Medium (feeding)	Low	NIL	NIL	NIL	Medium (feeding)	Medium (nesting)	NIL	Medium (banks)	No recovery program, so no critical habitat described.  Residence Description Under SARA, the barn swallow has only one type of residence: the nest. Under SARA, the prohibition on destroying the residence of this migratory bird species automatically applies on all lands.  No nests were identified during the field surveys.  See Map A12.5-6.	<a href="#">Hirondelle rustique (Hirundo rustica) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a> <a href="#">Hirondelle rustique (Hirundo rustica): description de la résidence - Canada.ca</a>



Table 2 - Assessment of the Potential of Habitats in the Study Area for Species at Risk

Common name used by COSEWIC	Presence potential														Note(s) on potential presence and critical habitat	References
	Restricted study area					Extended study area								Aquatic Study Area		
	Grassy Area	Early Successional Herbaceous Habitat	Shrubby/forested Banks	Industrial Area	Commercial, Institutional and residential Areas	Meadow	Shrubs	Coniferous forest	Mixed Forest	Deciduous Forest	Wetland and Gordon Creek	Residential area	Industrial Area			
Chimney Swift	NIL	Low	Medium (feeding)	NIL	Low	Low	NIL	Low	Low	Low	Medium (feeding)	Medium (nesting)	NIL	Medium (feeding)	Critical habitat designated in a recovery strategy. The designation of critical habitat for the Chimney Swift is based on two criteria: habitat occupancy and biophysical characteristics of suitable habitat. Based on the information presented in the impact statement, the chimney swift habitat occupancy criterion is not met in the restricted study area. In the extended study zone, two critical habitats are identified in Temiscaming city (public building chimney and church). See Map A12.5-6.	<a href="#">Martinet ramoneur (Chaetura pelagica) : programme de rétablissement 2023 - Canada.ca</a>
Wood Thrush	NIL	NIL	Low	NIL	NIL	NIL	Low	Low	Medium (nesting and feeding)	Medium (nesting and feeding)	Low	Low	NIL	NIL	No recovery strategy, so no critical habitat described. See Map A12.5-7.	<a href="#">Grive des bois (Hylocichla mustelina) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a>
Eastern wood-pewee	NIL	NIL	Low	NIL	NIL	NIL	Low	Low	Medium (nesting and feeding)	Medium (nesting and feeding)	Low	Low	NIL	Low	No recovery strategy, so no critical habitat described. See Map A12.5-7.	<a href="#">Pioui de l'Est (Contopus virens) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a>
Olive-sided flycatcher	NIL	NIL	Low	NIL	NIL	NIL	Medium (feeding)	Medium (feeding)	Medium (feeding)	Low	Medium (feeding)	Low	NIL	Medium (banks) (feeding)	There is a recovery strategy in place, but the information available from Environment Canada does not support the designation of critical habitat at the landscape level. "Consideration of the species' geographic range, habitat specificity, population size, and threats to the species indicates that critical habitat should be designated at the landscape scale." See Map A12.5-8.	<a href="#">Programme de rétablissement du Moucherolle à côtés olive (Contopus cooperi) au Canada - 2016 - Canada.ca</a>
Short-eared Owl	NIL	Low	NIL	NIL	NIL	Low	Low	NIL	NIL	NIL	Low	NIL	NIL	NIL	No recovery strategy, so no critical habitat described. No map because potential for presence is low to nil.	<a href="#">Hibou des marais (Asio flammeus) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a> <a href="#">Hibou des marais (Asio flammeus) : plan de gestion, 2018 - Canada.ca</a>



Table 2 - Assessment of the Potential of Habitats in the Study Area for Species at Risk

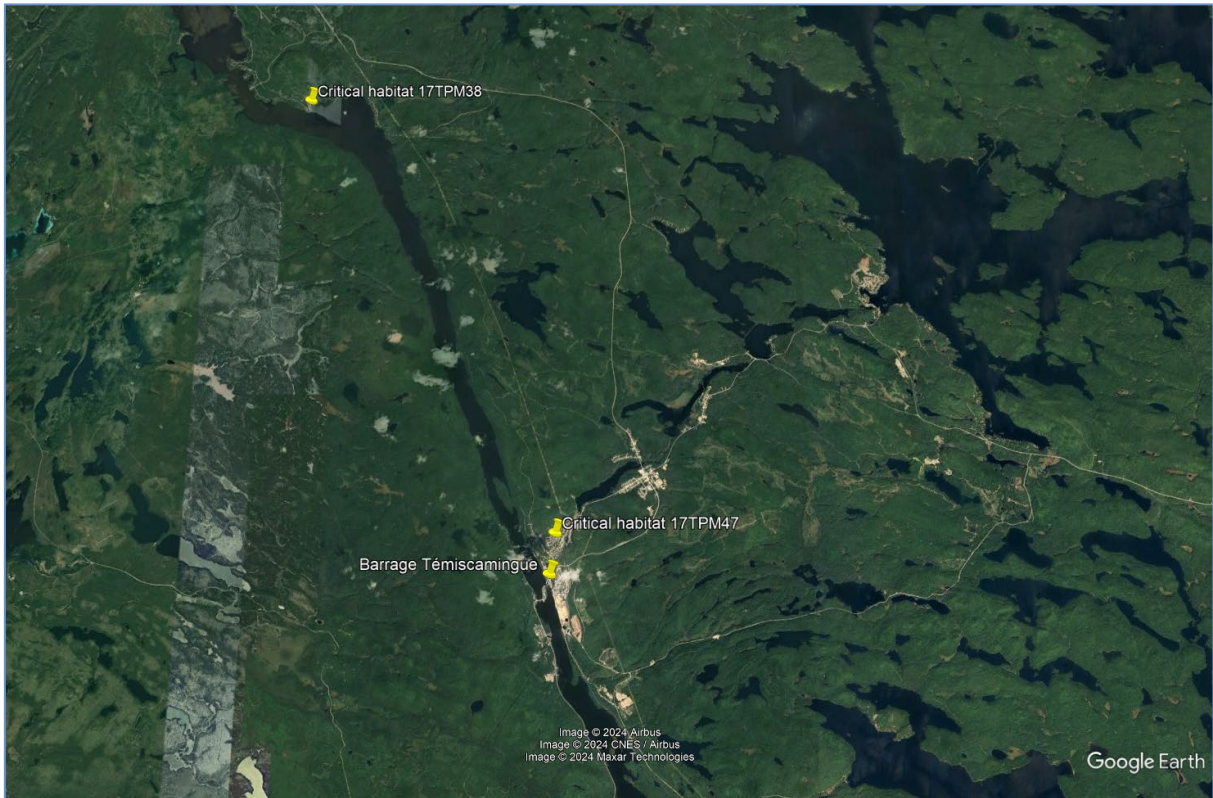
Common name used by COSEWIC	Presence potential														Note(s) on potential presence and critical habitat	References
	Restricted study area					Extended study area								Aquatic Study Area		
	Grassy Area	Early Succession at Herbaceous Habitat	Shrubby/forested Banks	Industrial Area	Commercial, Institutional and residential Areas	Meadow	Shrubs	Coniferous forest	Mixt Forest	Deciduous Forest	Wetland and Gordon Creek	Residential area	Industrial Area			
Bank Swallow	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	Low (banks)	No recovery strategy, so no critical habitat described. No map because potential for presence is low to NIL.	<a href="#">Hirondelle de rivage (Riparia riparia) : programme de rétablissement 2022 - Canada.ca</a>
Yellow Rail	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	Low	NIL	NIL	NIL	No recovery strategy, so no critical habitat described. No map because potential for presence is low to NIL.	<a href="#">Râle jaune (Coturnicops noveboracensis) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a> <a href="#">Râle jaune (Coturnicops noveboracensis): plan de gestion 2013 - Canada.ca</a>
Yellow-banded Bumble Bee	Low	Low	NIL	NIL	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NIL	No recovery strategy, so no critical habitat described. No map because potential for presence is low to NIL.	<a href="#">Bourdon terricole (Bombus terricola) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a> <a href="#">Bourdon terricole (Bombus terricola) : plan de gestion [proposition] 2022 - Canada.ca</a>
Monarch	Low	Low	Low	NIL	Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NIL	No recovery strategy, so no critical habitat described. No map as potential for presence is low to NIL. Species not noted during surveys. No milkweed plants noted during vegetation surveys.	<a href="#">Monarque (Danaus plexippus) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a> <a href="#">Monarque (Danaus plexippus) : plan de gestion 2016 - Canada.ca</a>
Hickory nut	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL to low	No recovery strategy, so no critical habitat described. No map because potential for presence is low to NIL. No sand substrate areas present in the study area.	<a href="#">Obovarie olivâtre (Obovaria olivaria) - Recherche d'espèces - Registre public des espèces en péril (canada.ca)</a>



B) add the two critical habitat units to map A12.5-6 in Appendix 12.5; and

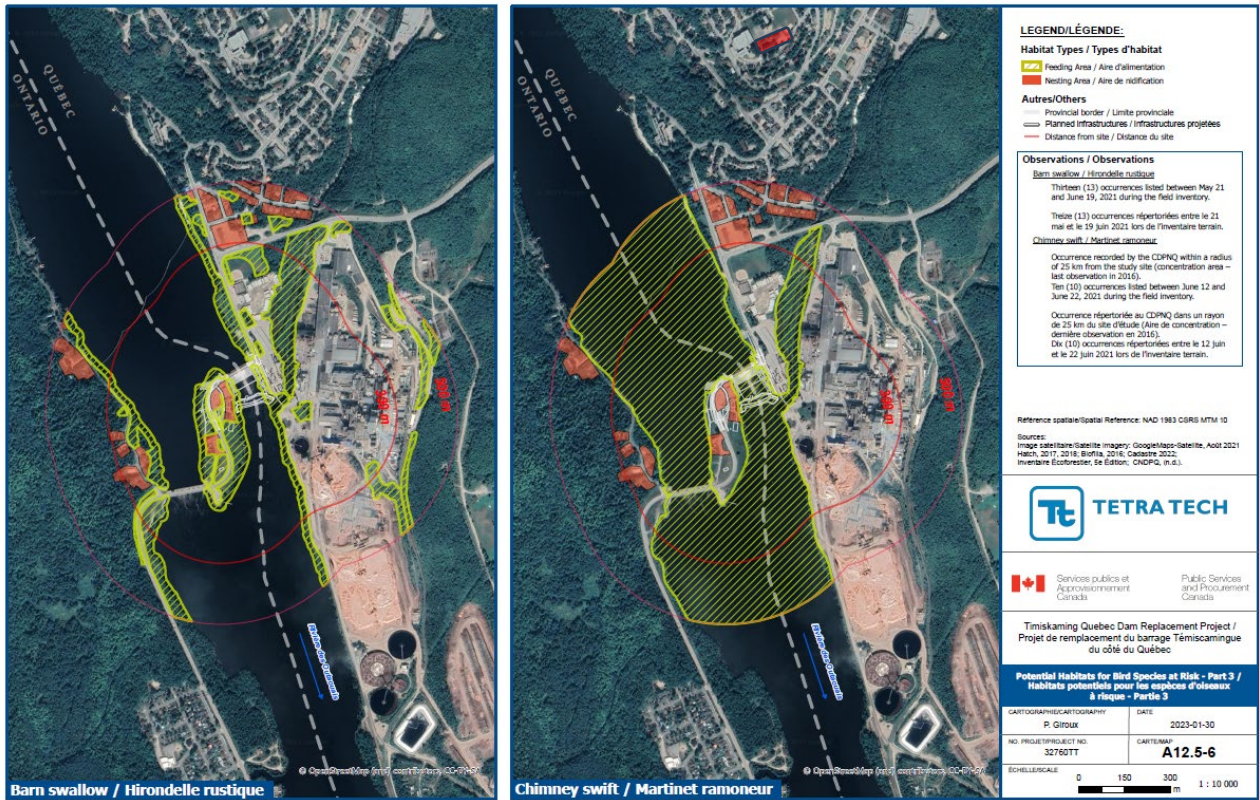
PSPC Response:

Critical habitat 17TPM38, corresponding to a chimney of public office building, is located outside of the area shown in Map A12.5-6 of Appendix 12.5 of the EIS. Location is shown in the map below:



The second critical habitat, coded 17TPM47, is now added to Map A12.5-6 of Appendix 12.5 of the EIS (see rectangular red area at the top the Chimney swift map):





C) specify the distance of these critical habitat units from the project and indicate it on map A12.5-6.

**PSPC Response:**

Critical habitat 17TPM38 is located 15 km North-West of the work site.

Critical habitat 17TPM47 is located 1,1 km North of the work site.

**IAAC-1-49 Chimney Swift nesting**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.7 (Birds and bird habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.1.9.6.3*

**Context**

The Government of Quebec’s Wildlife and Parks sector would like to clarify that the chimney of Ste-Thérèse Church is known as a Chimney Swift concentration area (roost) and not a nesting site. Although it is very possible that the chimney is also used for nesting, the species is not known to nest in colonies, and there is rarely more than one nest per chimney. Roosts are used mainly by migrating swifts and by non-breeding



individuals during the breeding season. To this end, the presence of other nesting structures (e.g. masonry chimneys, hollow trees) is necessary to ensure the species' reproduction.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) note the above clarification from the Government of Quebec's Wildlife and Parks sector and explain whether any special effort has been made to identify the presence of hollow trees, masonry chimneys or other man-made structures suitable for Chimney Swift nesting in the study area to ensure that they remain available for the species.

PSPC Response:

Specific effort was given to locate anthropic structures suitable for chimney swift nesting such as chimneys and other elevated buildings. This is shown in Map A12.5-6 of Appendix 12.5 of the EIS (see PSPC answer to AEIC-1-48 C) above). It should be noted that the study zone is almost free of mature trees and little nesting potential is available in trees.

#### IAAC-1-50 Pileated Woodpecker nesting

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.7 (Birds and bird habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, table 12.30*

### Context

ECCC notes that Pileated Woodpecker, a species whose nests are protected year-round under the *Migratory Birds Regulations (2022)*, was observed in the study area in 2021. Table 12.30 of the EIS indicates that nesting is possible due to the fact that the species has been observed in suitable nesting habitat during the breeding seasons.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) indicate what measures will put in place to avoid destroying nests for Pileated Woodpecker specifically, a species whose nests are protected year-round under the *Migratory Birds Regulations (2022)*.

PSPC Response:

As stated in PSPC response to AEIC-1-49 above, the study zone is almost free of mature trees and no woodpecker nesting activity was noted during the 2017 and 2021 surveys.

#### IAAC-1-51 Migratory birds – incidental take

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.2 (Birds and bird habitat)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.2.7.5*

## Context

When more than five incidental takes of migratory birds (except for Species at Risk, for which the threshold is one) are observed during construction, the proponent proposes to consult a biologist in order to determine, in collaboration with Indigenous communities, whether additional mitigation measures are necessary. The Government of Quebec's Wildlife and Parks sector is of the opinion that a threshold of two incidental takes for taking action to establish the need for additional mitigation measures seems more appropriate to minimize the project's impacts on wildlife.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) reassess and justify the incidental take threshold above which additional mitigation measures would be considered for non-endangered migratory birds.

### PSPC Response:

The 5 incidental captures threshold was taken from specifications of similar projects recently completed. PSPC can adapt the specifications for this project to a threshold of 2 incidental captures.

## IAAC-1-52 Migratory birds – waterfowl

## References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.2 (Birds and bird habitat)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.2.3.5*

## Context

Data from *eBird* show that the rapids at the dam are used by waterfowl (e.g. Goldeneye and Merganser) in winter to take advantage of the ice-free white-water for feeding.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) assess the effects on waterfowl of changes in winter ice dynamics that may be caused by the project (construction and operation phases). Identify and describe the mitigation measures required to eliminate or reduce these effects, if any.

### PSPC Response:

During the presence of the cofferdam in Phase 1 of construction period, water flow will be limited, and ice is expected to form downstream of the cofferdam in the Ottawa river. Waterfowl will find open water downstream of the Timiskaming Ontario Dam during this phase. For the rest of the construction (Phases 2, 3, 4), flow through the Quebec Dam will be partially or completely returned to its usual operation mode, providing open water to waterfowl.

Once the new Québec Dam-Bridge is completed, its operation will be identical to the present-day operation, recreating the same open water conditions for waterfowl during wintertime.

#### IAAC-1-53 Birds other than migratory birds and not of precarious status

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.2 (Birds and bird habitat)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.2.7*

### Context

The EIS deals with migratory birds within the meaning of the *Migratory Birds Convention Act 1994* (MBCA), as well as certain other bird species at risk. Other bird species (e.g. birds of prey and blackbirds) are present in the construction area and may nest there. Under section 26 of the *Quebec Act respecting the conservation and development of wildlife*, it is prohibited to disturb, destroy or damage their eggs or nests.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) assess the effects of the project, for each phase, on birds not covered by the MBCA or of precarious status. Identify and describe the mitigation or offsetting measures required to eliminate or reduce these effects.

#### PSPC Response:

It should be reminded that the Timiskaming Québec Dam-Bridge is owned and operated by the federal government. The dam-bridge itself is located on federal land. Hence, provincial regulations have no effect on the project. This being said, bird surveys conducted in 2017 and 2021 did collect data on species other than the ones protected by the Species at Risk Act and the Migratory Bird Convention Act. As most of the PSPC property is covered by maintained grass area, no significant bird nesting activity was observed. Impact of the project on nesting birds is deemed minimal.

During all construction phases, the contractor will be required to conduct a bird nesting survey before undertaking work each spring to avoid damage or disturbance to nesting species regardless of their protection status. The contractor will also be required to ensure bird nesting is discouraged using avoidance methods such as covering equipment and material to prevent nesting activity.

#### IAAC-1-54 Assessment of effects on avian fauna

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.3.2 (Birds and bird habitat), 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 7.1.2.3, 12.2.5.2.1 and 12.2.7*

## Context

ECCC notes that the description of residual effects on avian fauna provided in section 12.2.7.5 (first paragraph and table) would entail mortality and disturbance during the nesting period.

According to section 12.2.5.2.1 of the EIS, construction in Phase 3 would take place between mid-July and December, however according to section 7.1.2.3, the start of this phase would be early August. Phase 4 involves the demolition of the existing structures and would take place between July and October (section 12.2.7.2.2). Contrary to what is mentioned on page 12-153, the nesting period for migratory birds in the region extends from mid-April to late August. Several listed species, including Barn Swallow, will not have finished nesting while construction that generates significant sensory disturbance is taking place.

The last paragraph of section 12.2.7 provides simulation results of current noise levels and levels that could occur without mitigation during the construction phases at different locations. It is explained that birds usually adapt to noise from construction areas, that mitigation measures would be put in place to reduce the effects and that the additional noise level would not exceed 10 decibels (dB).

However, the information in the [Guidelines to avoid harming migratory birds](#) should be taken into account. Examples of higher levels of disturbance risk for nests and birds includes the generation of loud noises, especially those:

- higher than 10 dB above the ambient level in natural environments; and
- those above about 50 dB.

ECCC mentions that construction generating loud noise are planned from July onwards, when the nesting season would not be over for many species.

ECCC also notes that, when possible, clearing and grading activities would take place outside of the nesting season of migratory birds. If this is not possible, a scarecrow would be installed before the start of the breeding season to prevent birds from nesting in the planned construction areas. It is explained that if nests are present, access to the nests and disturbance would be minimized. Also, tree cutting or infilling of the area would be postponed until the chicks leave the nest. If this is not possible due to construction timing, construction would be carried out and incidental takes would be recorded, unless it is a provincially or federally endangered species.

ECCC wishes to inform the proponent that if there are occupied migratory bird nests where construction is planned, activities that could disturb or destroy the nests must be avoided, adapted, delayed, or relocated, regardless of whether the species is an endangered or a non-endangered avian species, so as not to contravene the MBCA and its regulations.

ECCC questions the potential use of scarecrows to prevent nesting in the construction area. More information is needed to understand how this measure can be implemented in a manner that is truly effective, and also how it would not contravene with section 5(1)a of the *Migratory Birds Regulations 2022*, which prohibits the capture, killing, taking, injuring or harassing of a migratory bird, or attempting to do so. Section 63(1) of the *Migratory Birds Regulations 2022* only permits the use of measures to scare away migratory birds that are



or are likely to be a danger to human health or public safety, or that are causing or are likely to cause damage to agriculture, the environment, or other interests.

Although the EIS identifies the terrestrial study area as having limited potential for avian fauna, nesting of migratory birds is confirmed or probable for several species, despite the limitations outlined above (see question IAAC-44 and 45) in describing the baseline condition.

ECCC is concerned about the risk of mortality of avian fauna and disturbance of nesting that is described in the description of residual effects, particularly in relation to the lack of a firm commitment not to carry out clearing outside the nesting period, as well as in relation to the loud construction works planned when nesting for many species would not be finished. Considering the high ambient noise levels described, ECCC is concerned about the cumulative effects, among other things.

Based on the information presented, ECCC considers that the proposed mitigation measures may be insufficient or ineffective to reduce the risk of violating the MBCA and its regulations to an acceptable level. ECCC believes that conducting activities considered to be of high risk of disturbing nests and birds outside of the nesting season of migratory birds would be a key measure to reduce the risk of injuring, killing or disturbing migratory birds or inadvertently destroying or disturbing their nests or eggs.

The proponent must demonstrate that it understands the risk of potential effects of the project on migratory birds and their nests and eggs, and that it would take reasonable precautions and appropriate avoidance measures to comply with the MBCA and its regulations. As outlined in section 7.4. of the Guidelines for the Preparation of an Environmental Impact Statement (2018), mitigation measures must be specific, achievable, measurable, verifiable, and described in a manner that avoids ambiguity in intent, interpretation, and implementation. The proponent is also strongly encouraged to use an avoidance and minimization approach. This approach may require changes to the project design or relocation of project components.

**Important note:** In answering the following questions, the proponent should take into account the information provided in questions IAAC-1-44 and 45.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) explain how the scaring measures would be implemented in such a way as to be truly effective in preventing nesting in the construction area, and how this would not contravene paragraph 5(1)a of the *Migratory Birds Regulations 2022*;

#### PSPC Response:

PSPC intends to adapt its project schedule to avoid clearing and grading during nesting period, eliminating need of scaring device or techniques.

- B) review specific mitigation, monitoring, and follow-up measures to reduce the risk of violating the MBCA and its regulations to an acceptable level and:
- i. explain how the approach would focus on avoidance and reduction of effects at the source;

#### PSPC Response:

PSPC intends to adapt its project schedule to avoid clearing and grading during nesting period. Noise monitoring will also be required by the contractor in sensitive areas for bird nesting, with threshold alert

of 10 dB above the reference level. Should the threshold be exceeded, work would be stopped until further mitigation measure are implemented.

- ii. specify whether planned activities considered to have high risk of disturbing nests and clearing birds will be carried out outside the nesting period of migratory birds;

PSPC Response:

See PSPC response A) above.

- iii. ensure that measures are specific, achievable, measurable, verifiable, and described in a way that avoids ambiguity of intent, interpretation and implementation; and

PSPC Response:

PSPC commits to being clear and explicit in its requirements in the project specifications provided to the contractor.

- iv. ensure that measures take into account the information contained in the [Guidelines to avoid harm to migratory birds](#); and

PSPC Response:

PSPC commits to taking in consideration information found in the Guidelines to avoid harm to migratory birds.

- C) review the description of residual effects on avian fauna based on the responses (provided in B).

PSPC Response:

As PSPC commits to avoiding clearing and grading during nesting period and noise nuisance in sensitive bird nesting areas, residual effects is negligible.

- D) Assess the cumulative effects on avian fauna, particularly during the nesting period and in relation to existing and reasonably foreseeable noise disturbance.

PSPC Response:

Cumulative effect should be lower after completion of the new dam-bridge. Capacity of the bridge itself will not increase, maintaining vehicular noise at its present level. Operational noise levels from the dam will be lower as water will flow through sluice-gates avoiding noise of falling water over stoplogs. Nesting opportunities will be increased as PSPC commits to integrating nesting structures to the new dam-bridge (see AEIC-1-47) and will work in close collaboration with Indigenous groups to revegetate PSPC land on Long Sault Island.



## Species at Risk

### Information requests directed to the proponent

#### IAAC-1-55 Review of the status of Species at Risk (SARA)

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.8 (Species at Risk)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Table 12.27*

#### Context

As the status of a species may change over time, such as that of the Peregrine Falcon, it would be appropriate for the proponent to check the status of each species on the [Species at Risk Public Registry](#) following this information request and to update the information.

#### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) check the status of each species at risk under SARA as a result of this information request and update the information as appropriate (e.g. a table of species whose status has changed).

#### PSPC Response:

Verification of species status under SARA was done in February 2024. Species with new status are listed below.

Common Name	Scientific Name	EIS Feb 2023 status	Feb 2024 update
Lake sturgeon	<i>Acipenser fulvescens</i>	Not listed	↑ Not listed (under consideration)
Common nighthawk	<i>Chordeiles minor</i>	Threatened	↓ Special concern
Peregrine falcon	<i>Falco peregrinus anatum</i>	Special concern	↓ Not listed
Olive-sided flycatcher	<i>Contopus cooperi</i>	Threatened	↓ Special concern
Monarch butterfly	<i>Danaus plexippus</i>	Special concern	↑ Endangered

Status of two species have degraded (higher status ↑), and status of three species have improved (lower status ↓).



**IAAC-1-56 Provincial status – mammals**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.8 (Species at Risk)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Table 12.27*

## Context

Table 12.27 of the EIS presents special status mammal species that are potentially present in the project study areas.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) specify under which provincial legislation and under which jurisdiction (Quebec or Ontario) the status indicated in the sixth column of the table is attached.

PSPC Response:

Species listed in Table 12.27 are protected under Québec Act Respecting Threatened or Vulnerable Species.

**IAAC-1-57 Assessment of the potential presence of Species at Risk**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.8 (Species at Risk)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.1.8 and 12.1.9*

## Context

In Table 12.27 of the EIS, the potential for four bat species to be found is rated as low, including Little Brown Myotis and Northern Myotis, which are threatened under SARA. This assessment is surprising since bat maternity roosts have been recorded within one kilometre of the dam, and bats have also been heard in the crevices of the dam. The same situation can be observed with Common Nighthawk and Barn Swallow, two species listed on Schedule 1 of SARA that were observed during the surveys (Table 12-29). There also appears to be inconsistencies between Tables 12.27 and 12.29 and the information presented in Table 2 of Appendix 12-5.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) review the assessment of the potential for the presence of the following species: Little Brown Myotis, Northern Myotis, Common Nighthawk and Barn Swallow.

### PSPC Response:

PSPC acknowledges that large colonies of various bat species have been documented in an abandoned building 1 km North of the project site (see Appendix F), and that common nighthawk and barn swallow were observed during 2017 and 2021 field surveys. But our assessment concludes that these species are present in the study zone and the planned work site most exclusively for feeding. It can be expected that the study zone and the planned work site will be flown over by these species as they feed above the Lake Temiskaming and the Ottawa River. But impact on this behavior will be negligible, especially for bats as no work is planned during nighttime.

The SART report (Appendix F) stated that “Under the Timiskaming bridge pups could be heard chirping”. PSPC also conducted surveys and no observation of any hibernacles or presence within the dam-bridge structure was heard or seen. PSPC agrees that both northern myotis and little brown myotis are likely feeding over the Lake Temiskaming near the project site, and construction activities should have negligible effects on this behaviour. As mentioned in PSPC Response to AEIC-1-60 below, further studies are required to rule out nesting in the dam structure.

As stated in PSPC Responses to AEIC-1-44 to AEIC-1-54, efforts were given to assess bird nesting and activity on the Québec dam-bridge and in the study zone around it. Although barn swallow and common nighthawk were sighted during survey activity, they were seen flying by with no indication of other use of the habitat. Their presence is likely for feeding purpose over the Lake Temiskaming. The project should have negligible effect on this behaviour.

## IAAC-1-58 Assessment of effects on Species at Risk

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.3 (Species at Risk)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.2.6. and 12.2.8*

### Context

Potential and residual effects were not assessed for each of the species at risk likely to be present in the study area. ECCC is of the opinion that each of these species should be subject to a separate effects analysis since each one faces its own reality, threats or issues.

According to the proponent, for fish species, only Lake Sturgeon and American Eel have federal status. The information is included in section 12.1.6.7.1 for sturgeon. Although American Eel is absent from the study area, information on this species is included in section 12.1.6.7.2.



## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) assess, for each phase of the project, the potential effects on each of the terrestrial and avian species at risk listed on Schedule 1 of SARA and those species recommended for listing on Schedule 1 of SARA by COSEWIC.

### PSPC Response:

PSPC completed an exercise of identifying species at risk that could potentially be present in the study zone, based on species range and study zone characteristics. This is shown in Table 1 of Appendix 12.5 of the EIS. For the purpose of AEIC-1-58, this table was adapted to show potential effect and mitigation measures for terrestrial and avifauna species (see Appendix G).

- i. quantify temporary and permanent losses of potential habitat

### PSPC Response:

Please see Appendix G.

- ii. for avian species at risk, provide an estimate of the number of breeding pairs that could be affected by habitat losses

### PSPC Response:

Please see Appendix G.

- B) demonstrate that lost or degraded habitats can be replaced by other similar and available habitats near the project area for the various species at risk that will be affected by the project;

### PSPC Response:

Please see Appendix G.

- C) identify and describe the applicable mitigation, monitoring and follow-up measures for each of the avian and terrestrial species at risk and their potential habitat to avoid or lessen the effects of the project on that component. Describe and assess the residual effects of the project on each of these species and their habitat.

### PSPC Response:

Please see Appendix G.

## IAAC-1-59 Bats – maternity roosts and roosts

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.8 (Species at Risk), 7.3.3 (Species at Risk) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.1.8.4, 12.1.8.5, 12.2.5 and 12.2.6 and Appendix 12.5*

### Context

According to section 12.1.8.4 of the EIS, a bat survey was conducted in 2021 in an abandoned building on the left bank nearly one kilometre upstream from the dam, near the Timiskaming marina. This building was



used as a maternity roosting habitat by several bat species. In section 12.2.5, it is stated that bats were heard in the cracks on the upstream side of the dam and that more detailed data will be included in the EIS when the survey report is available.

It is not clear whether the survey (current dam-bridge site) was part of the same bat survey carried out at the maternity site one kilometre upstream. From maps A12.5-2 and A12.5-3 in Appendix 12.5, it is unclear whether any surveys have taken place within the 500-metre radius illustrating potential bat habitats. It would be important to understand the survey methods to have a better understanding of the likelihood of other existing maternity roost sites in the area.

Given the current situation of bats in Quebec and Canada and the importance of maternity roosts and roosts for them, the destruction of a structure used by bats (the dam) could have an effect. The installation of structures in the vicinity in order to provide them with alternative sites is an option to consider (<https://batwatch.ca/setting-bat-house>).

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) provide a detailed report on the methodology for the maternity surveys around the project, including:
- i. the survey method used in the 2021 study for maternity findings;

PSPC Response:

Please see Appendix F.

- ii. all species observed (specify what is meant by “a number of species”);

PSPC Response:

Please see Appendix F.

- iii. the identification method;

PSPC Response:

Please see Appendix F.

- iv. the precise study area as well as the locations where the surveys were carried out and the maternities observed;

PSPC Response:

Please see Appendix F.

- B) identify and describe the mitigation or offsetting measures that will be put in place to minimize the effects of the loss of a structure used by bats as a result of construction.

PSPC Response:

Bat species has not been observed within the project site and in the dam itself except for feeding, flying over the Lake Temiskaming. Also, the report presented by SART does not bring sustained evidence of bat activity in the existing Québec dam-bridge (see Appendix F). Given this, PSPC believes that mitigation and compensation measures presented in the EIS and in the revised Table 1 (see Appendix G) are sufficient. Nevertheless, PSPC will explore the opportunity to integrate a structure to the project to provide resting and maternity opportunities for bats.

**IAAC-1-60    Bats – roost sites in the cracks of the dam-bridge**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.8 (Species at Risk), 7.3.3 (Species at Risk) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.1.8.4, 12.2.5 and 12.2.6 and Chapter 19*

\*Studies referenced by ECCC:

- [Bats in Bridges – Bat Conservation International](#)
- [Hanging Out With Bats Under Bridges | Blog | Nature | PBS](#)

## Context

The EIS mentions in several places that bats have been heard in the cracks on the upstream side of the dam-bridge. Studies show that the use of bridges by bats is more extensive than one might expect. However, the use of these structures by bats seems to be poorly documented in Quebec.

The fact that bats have been heard in the dam-bridge raises several questions. As there is no further information on this subject in the documents provided, additional information is needed on the context in which these bats were heard.

These surveys would determine the type of use (day/night roost site, maternity roost, hibernacula) and help determine the relevant mitigation measures according to the species type present and the use.

Note that a permit under SARA may be required if the removal of the dam would result in the destruction of a maternity colony (considered a residence under SARA) used by the Little Brown Myotis, Northern Myotis or Tri-colored Bat, three threatened species listed on Schedule 1 of SARA. This is the case even if the individuals are absent during construction (e.g. due to the prior installation of a net to prevent access).

## Comment by ECCC:

If there have been no specific surveys of dam cracks, it would be important to carry out such surveys prior to the start of construction, in order to determine, among other things:

- which species use the cracks of the dam;
- at what time of year is it used; and
- at what time of day is it used.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) provide additional information on the context of the discovery of these bat individuals in the cracks of the dam-bridge;

**PSPC Response:**

The statement that “pups could be heard chirping under the bridge” comes from the SART report which is appended to this document (see Appendix F). Please refer to the SART report for methodology and results. This should be considered in conjunction with PSPC Responses to AEIC-1-57 and AEIC-1-59.

- B) if observations have been made opportunistically, conduct a survey to:
- i. characterize the cracks in the dam-bridge; and
  - ii. determine the potential of this structure to be used as a day/night roost site, maternity roost or hibernacula by bats. This study should be carried out by biologists with expertise in bats;

**PSPC Response:**

As results were opportunistic (see Appendix F), PSPC agrees to undertake further surveys at least 2 years before undertaking the demolition of the existing dam.

- C) identify and describe relevant mitigation measures, depending on the use of the dam-bridge by bats, where applicable.

**PSPC Response:**

Should bats use the existing structure for resting, maternity or hibernation, nets or similar blocking devices will be installed in appropriate locations to prevent use of the structure at least 1 full year before undertaking the demolition work to prevent bat presence and impact.

To give sufficient resting/maternity/hibernation opportunity during demolition and onwards, PSPC will explore the integration of bat specific structures to the new dam design as stated in PSPC Response to AEIC-1-59 B).

## IAAC-1-61 Methodology for bat surveys

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.8 (Species at Risk)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.1.8.5 and 12.2 and Appendix 12.3*

### Context

In section 12.1.8.5 of the EIS, it is stated that in a survey conducted by the Kitchi Sibi Technical Team (2022, Appendix 12.3), eight species of bats were identified in the project area, including several threatened species. Their presence and habitats are confirmed in Table 12.32. It is not indicated how these surveys were carried out (e.g. if they were acoustic surveys, in which areas and at what time they were carried out).

Section 12.2.5 indicates that more detailed data will be included in the EIS when the survey report is available. This report will be important to better understand the potential effects of the project on bats.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) provide a detailed report on the methodology of the bat survey, including among others:

- i. the survey method used in the 2021-2022 study for the detection of bats;
- ii. the listing of all species observed (eight species are mentioned, but only six are mentioned in the different documents);
- iii. the identification method; and
- iv. the precise study area as well as the locations of the surveys carried out and the individuals observed.

PSPC Response:

See Appendix F.

## IAAC-1-62 Bats – installation of nets

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.3.3 (Species at Risk) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.2.6*

### Context

As a mitigation measure, it is proposed to cover the existing dam with a curtain to prevent bats from using its cracks before it is demolished. The curtain would be in place before the bats emerge from hibernation in the spring. The bat species observed in the study area are not only resident (hibernating) species; some are also migratory.

No information is provided about this net. It will be important to better understand the type of net used and the use of the dam-bridge by bats prior to the installation of this net.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) provide a detailed description of the nets that would be used, including:
  - i. mesh size; and
  - ii. its ability to prevent the entry of bats that can squeeze through very small holes;

PSPC Response:

As stated in PSPC Response to AEIC-1-60 B), PSPC agrees to undertake further surveys at least 2 years before undertaking the demolition work on the existing dam. Depending on species found on the existing dam, netting or other device can vary. Bat netting is a black poly netting with mesh size ranging from 4 mm to 6 mm. This bat netting is available from many wildlife control suppliers and have been widely used and proven efficient when properly installed.

- B) describe how these nets are attached to the wall;

**PSPC Response:**

If hibernating bats are present, the netting will be installed with a valve allowing bats to exit the dam but not to return. Bat Conservation International gives detailed methodology on how to install such valve device ([Bats in Homes & Buildings - Bat Conservation International](#)). The same netting/valve device will also work for resident and migrating bats, preventing them from entering the existing structure. The specific anchoring technique will depend on location and material of openings. To be efficient, netting anchors will need to prevent any opening larger than 4 mm.

- C) propose mitigation measures to prevent the use of the dam by migratory bats during the return migration period; and

**PSPC Response:**

See PSPC Response B) above.

- D) specify the periods (dates) when mitigation measures will be implemented to prevent the use of the dam cracks by resident and migratory bats.

**PSPC Response:**

Bat netting should start at least 1 year before the demolition work to allow displacement of hibernating bats. Ontario Ministry of Natural Resources recommends installation in the April to early-May period (see Appendix H). Later installation may affect survival of immobile pups found in maternities from mid-May to mid-August. Netting would remain until the demolition work is completed to avoid the use by resident and migrating bat species.

<b>IAAC-1-63</b>	<b>Bats – effects monitoring</b>
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## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.3.3 (Species at Risk) and 9 (Follow-up and monitoring programs)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.2.5.2.2, 12.2.5.5 and 12.2.6.1, Chapter 19 and section 23.5*

## Context

The effects of the dam-bridge demolition (noise generated) on bats are discussed in section 12.2.5.2.2, and daytime monitoring is proposed to measure the effects. Monitoring and follow-up (noise effects on bats) is also proposed in sections 12.2.5.5 and 12.2.6.1.

In section 23.5, it is mentioned that a follow-up is required to ensure that the noise and lighting from the construction site do not harm the bat species present at the maternity site located approximately one kilometre upstream of the dam. Chapter 19 notes that additional studies will be conducted prior to and during construction activities to ensure the effectiveness of mitigation measures.

It is not clear what monitoring would be carried out to verify the effects of construction (including noise and light) on bats in the vicinity of the project. As it is not clear which areas were surveyed and how, it is difficult to assess what monitoring would be required. However, it is clear that bats use the dam-bridge at certain





times (bats heard in the cracks of the dam), that a maternity site exists in the vicinity, and therefore that the construction could cause some disturbance.

The Agency instructs the proponent (Public Services and Procurement Canada) to:

A) provide a monitoring plan for the effects of construction on bats, including the effects of noise and light;

PSPC Response:

As stated in PSPC Response to AEIC-1-59 B), it is unclear if bats are using the existing dam and PSPC agrees to further investigate this 2 years prior to the demolition work. For the moment, the only confirmed habitat where bats are resting and reproducing is the abandoned building 1 km North of the project site. This site is well known to local Indigenous groups and PSPC intends to monitor this site with their support, using the same methodology as described in Appendix F of this document, with additional efforts during periods when high-noise levels are expected. It should be noted that PSPC does not intend to allow night work, reducing impact on bat behavior over the work site.

B) provide a contingency plan in case bats are found during the different phases of the project (e.g. stop construction work, create exclusion zone, build bat shelters to offset the dam repair, etc.); and

PSPC Response:

As stated in PSPC Response to AEIC-1-60 C) and AEIC-1-62, PSPC intends to be proactive and avoid presence of bats on the existing dam before undertaking the demolition work. At this time, bat structures would be available on the new dam allowing displacement with limited impact.

C) provide details of additional studies that would be implemented prior to and during construction activities to ensure that mitigation measures are effective.

PSPC Response:

As stated in PSPC Response to AEIC-1-60 B), PSPC agrees to undertake further surveys at least 2 years before undertaking the demolition work on the existing dam. This survey would allow to clarify the use of the existing dam for hibernation, resting and maternity. Methodology would be similar to the SART methodology found in Appendix F, with three distinct survey periods: Spring for hibernation; Early Summer for maternity/resting; Fall for migration. As noise levels are high in the vicinity of the dam, echolocation and visual inspection would be preferred techniques.

## IAAC-1-64 Potential turtle habitat

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.1.8 (Species at Risk)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.1.6.5.2.2.2, 12.1.7.1.1, 12.1.7.2.1.3, 12.2.6.1 and 12.6.6, Appendix 12.1 and Appendix 12.5*

### Context

In sections 12.1.7.1.1, 12.6.6 and 12.1.7.2.1.3 of the EIS, it is explained that, along the portion of the study area on the Ottawa River east of Long Sault Island, there is no favourable habitat for Snapping Turtle.

According to ECCC, the conclusion that the habitat would be unsuitable for turtles is not supported by a detailed description of the habitat. Furthermore, the statements in the above sections are partly inconsistent with Map A-12.5-1 in Appendix 12.5, which maps some turtle habitats that are at potential risk (movement and thermoregulation) throughout the periphery of the island.

Maps 12.2 to 12.6 and following also suggest that there may be shallow, lentic environments in the study area near the existing dam. If so, this environment could be used by turtles, among others, to lay their eggs on Long Sault Island. At first glance, there also appears to be suitable habitat for turtles (including shorelines suitable for nesting), based on the photos in Appendix A of Appendix 12.1.

In fact, the [Management Plan for the Snapping Turtle \(\*Chelydra serpentina\*\) in Canada 2020](#) (ECCC, 2020) states that Snapping Turtle use a wider variety of habitats than suggested in the proponent's documents. For example, Snapping Turtle individuals can swim in deep water (although generally within five metres of shore lines and at a depth of less than two metres), they can use land routes for several hundred metres as travel corridors, and females not only use sand or gravel banks for nesting, but also a wide variety of other sites (e.g. road shoulders, embankments, cracks in rocky banks, disturbed soils, lawns, cleared land) (ECCC, 2020).

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) review the description for the potential of presence of different types of turtle habitats (including movement, thermoregulation, feeding, nesting and hibernation habitat) in the study area.

#### PSPC Response:

Work to be undertaken for this project is in a section of the Ottawa River where high-water velocity is recorded. Furthermore, the riverbanks within the work site is composed of concrete retaining walls and rip-rap. This makes the work site an unlikely habitat for the snapping turtle (*Chelydra serpentina*) and other turtle species. However, PSPC agrees that the Western and Northern parts of the Long Sault Island upstream of the Ontario and Québec Timiskaming Dams have lower water velocity and more natural features making it more suitable for turtles to come to shore and thermoregulate. Absence of wetland, aquatic vegetation and organic substrate makes it unlikely for feeding and reproduction, except for snapping turtle that may roam the Long Sault Island for proper nesting site.

## IAAC-1-65 Turtle barriers and timing of construction

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.3 (Species at Risk) and 7.4 (Mitigation measures)*

Environment and Climate Change Canada. 2020. *Management Plan for the Snapping Turtle (*Chelydra serpentina*) in Canada. Species at Risk Act Management Plan Series. Environment and Climate Change Canada, Ottawa, iv + 41 p.*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 7.1.1, 12.2.6 and 12.2.6.1*

## Context

In section 7.1.1 of the EIS, it is explained that the facilities will be fenced for public safety and that geotextile barriers will be installed along the fences to prevent turtles and other small mammals from accessing the construction areas.

As a mitigation measure for Snapping Turtle, it is proposed in section 12.2.6 that sediment barriers be used along the shoreline of Long Sault Island and along the western shoreline to prevent Snapping Turtle from entering the construction site. In general, this is an appropriate mitigation measure. However, there is a lack of information on the characteristics of the fence to judge its suitability and actual effects on turtles (e.g. height, continuity, timing of installation and removal, exact location).

It is also proposed in section 12.2.6.1, for Snapping Turtle, to clear and level the site between early September and early March, outside of the species' breeding season. However, the species management plan (ECCC, 2020) states that "Eggs generally hatch 65 to 95 days after they are laid, that is, between late August and late October; eggs laid at more northerly latitudes take longer to hatch." Thus, this mitigation measure is only adequate if it has not been possible for Snapping Turtle individuals to access the site to lay eggs.

Please note that Painted Turtle and Snapping Turtle hatchlings can spend their first winter in the nest.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) describe in detail how the exclusion fence would be installed to prevent the presence of turtles in the construction area and assess the likelihood of turtle nests being present in the construction area. Fence installation parameters (e.g. height, no gap or bottom space, continuity, timing of installation and removal, exact location) should consider turtle biology (e.g. timing of egg-laying or hibernation, ability to bypass or climb over the fence), as well as the area's potential use as habitat (e.g. not allowing free access to bare soil or granular material during the egg-laying season). The proponent may refer to the following document [Reptile and amphibian exclusion fencing](#); and

#### PSPC Response:

PSPC intends to require from the contractor to install silt fence around the entirety of the work site. Such a fence should also be efficient to prevent turtle (and other reptiles and amphibians) from entering the work site, ensuring the bottom of the fence is buried at a depth of 10-20 cm and has a minimum height of 60 cm. Posts supporting the fence should not be placed more than 2 m apart to ensure rigidity and longevity of the installation. Daily rounds will be required to ensure silt fence remains intact and that no gaps appear. Fencing should be finished in early spring before turtle nesting. Exact location will be determined with the contractor's laydown plan, but will need at least 10 m from the shoreline to maintain thermoregulation opportunity for turtle.

- B) specify the areas that would be fenced on a map. If the entire island would be fenced, specify how the potential for turtle access would be managed by way of access routes to the island or encroachment areas (e.g. through roads and boat launch).

#### PSPC Response:

As stated in A) above, definitive layout will be set by the contractor. However, approximate fencing location is given in green in Appendix I.

**IAAC-1-66 Mitigation measure for turtle road mortality**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.3 (Species at Risk) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.2.6.1*

## Context

In the table in section 12.2.6.1 of the EIS, one of the proposed mitigation measures is to enforce the speed limit on the construction site to minimize the risk of wildlife mortality. However, the speed limit is not specified.

Since turtles do not necessarily flee from vehicles, ECCC is of the opinion that speed reduction alone (without turtle avoidance) is not sufficient to reduce the risk of mortality.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) clarify whether the mitigation measure regarding speed on the construction site is mitigating the effects on turtles or whether it is addressing other animals; and

### PSPC Response:

The speed limitation presented in the table of Section 12.2.6.1 of the EIS is not specific for turtle protection. However, considering the exiguity of the project site, vehicle speed will be limited to 10 km/h as seen in many similar work sites. This limit should provide time to detect and avoid collision with turtle and other wildlife. As the work site is close to active roads and access to an industrial facility, flagmen will be present providing capacity to detect turtle presence on and around the work site. Impact on turtle on the work site should be negligible.

- B) specify how the risk of road mortality of turtles will be mitigated.

### PSPC Response:

Speed on and around Long Sault Island is already limited with stop signs at both entry points. In addition, the sharp curves of the road on Long Sault Island imposes a speed limit of 40 km/h (see picture bellow). Use of fencing on the perimeter of the work site will also reduce risk of turtle crossing the road on the work site (see Appendix I). Finally, a Wildlife Management Plan will be required from the contractor to implement active monitoring of turtle activity on and around the work site, allowing protection of turtle found on road structures.



## IAAC-1-67 Turtle recovery

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.3 (Species at Risk) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 7.1.2, 7.1.3, 12.2.6.1, 19 and 22.4*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Summary Environmental Impact Statement, section 6.2*

### Context

In several sections of the EIS and its Summary, it is explained that fish recovery activities will be carried out in the area between the old dam and the turbidity curtain prior to the installation of the cofferdam, during the dewatering phase (Phase 1) and in the area between the upstream turbidity curtain and the new dam prior to the removal of the existing dam (Phase 4). Turtles may also become confined to the construction areas.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

A) specify whether turtles are also part of the recovery activities. Where applicable, please:

#### PSPC Response:

Yes monitoring and relocation during dewatering will include turtle.

- i. specify how the turtles will be managed (e.g. capture and handling process, release site); and

#### PSPC Response:

The contractor will be required to retain the services of an experienced biologist to develop and implement the Wildlife Management Plan, and to secure provincial permits to handle wildlife. Turtle would be handled according to species and size respecting governmental publications such as the

[Ontario Species at Risk Handling Manual: For Endangered Species Act Authorization Holders](#) (see Appendix J). As the dewatering area is downstream of the existing dam-bridge, any turtle captured during the dewatering activity would be relocated downstream of the Long Sault Island. The most convenient release point would be near the boat ramp at the Southern end of the island.

- ii. specify whether monitoring will be carried out.

**PSPC Response:**

As stated in PSPC Response AEIC-1-66 B), the contractor will be required to submit to PSPC a Wildlife Management Plan including wildlife monitoring covering turtle activity amongst others.

**IAAC-1-68 Effects on turtles in the operational phase**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.3 (Species at Risk)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 12.2.5 and 12.2.6*

## Context

There is very little information on the risks to turtles associated with the operation of the dam. For example, there is no mention of whether the vertical gates are designed in such a way that might lead to turtles becoming stuck in them.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) describe the risks (or lack thereof) to turtles associated with the operation of the dam.

**PSPC Response:**

There are two risks associated with operation of the new dam-bridge for turtle: opening and closure of sluice-gates.

Opening of a sluice-gate can create a localised strong current forcing downstream passage of turtle through the sluice-gate. Turtle would be maintained in strong current for approximately 100 m where downstream current slows again. Turtle may risk injury and drowning in this strong current. However, as water depth upstream of the dam-bridge is between 5 to 15 m and given that most turtle species prefer shallow water, presence of turtle at time of sluice-gate opening is considered unlikely and risk is negligible.

Closure of a sluice-gate may trap a turtle, inducing injury or death. But as stated above, presence of turtle during sluice-gate closure is considered unlikely and risk is negligible.

This being said, PSPC operates the existing dam-bridge under a protocol developed with the support of DFO to ensure limited risk to fish. This protocol will be updated for the operation of the new Québec dam-bridge and measures for mitigating the risk for turtle will be explored.

**IAAC-1-69 Turtles – fence monitoring**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.3.3 (Species at Risk), 7.4 (Mitigation measures) and 9.2 (Monitoring program)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 19*

## Context

Fence monitoring (mitigation measure) is not included in the monitoring program, unless it is covered in the measure listed in Table 19.1, which is to conduct a daily visual inspection of the construction site and equipment to confirm the absence of animal species prior to commencing work.

At a minimum, ECCC believes that the integrity of the fence (to avoid animal caused breaches, wear, or tear from construction) or the presence of captive animals should be checked.

It is also not explained what actions would be taken with animals (including turtles) that might end up in the construction area (e.g. stopping the construction, relocation, etc.).

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) describe how monitoring will be carried out in relation to the fence and how any turtles found in the construction area will be handled.

### PSPC Response:

See PSPC Responses to AEIC-1-65 and AEIC-1-66 above.

## Comments and advice for the proponent

**Comment 1-23 Collision with wildlife**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.3 (Species at Risk)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 12.2.5.1*

## Comments and advice

The EIC states that if animal collisions cause more than five mortalities during the construction preparation phase, a consultation with a biologist will be carried out to determine whether additional mitigation measures are required. Considering that in the past 50 years, no wildlife mortality caused by traffic has been observed



by the operator of the dam who lives on the island, and considering the figures presented in the *Société de l'assurance automobile du Québec* (SAAQ; section 12.2.5.2.1) table, the Government of Quebec's Wildlife and Parks sector considers that a target of two mortalities to establish the need for additional measures seems more appropriate to minimize the project's effects on wildlife.

PSPC Response:

As stated in PSPC Response to AEIC-1-51, the 5 incidental captures threshold was taken from specifications of similar projects recently completed. PSPC can adapt the specifications for this project to a threshold of 2 incidental captures.

### Comment 1-24 White-tailed Deer

#### References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 2 (Content of the Environmental Impact Statement)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 4.4*

#### Comments and advice

Section 4.4 of the EIS mentions that the Mattawa White-tailed Deer yard is located on the Ontario side. According to the Government of Quebec's Wildlife and Parks sector, this yard is located on the Quebec side.

PSPC Response:

The Aire de confinement du cerf de Virginie associated with Mattawa on the Québec territory is located about 50 km South-East of the project site, near Otto Holden dam. It is distinct from the one considered here located on the Ontario territory.



# Indigenous Peoples

## Information requests directed to the proponent

### IAAC-1-70 Effects on potential or established Aboriginal and treaty rights

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 6 (Impacts to potential or established Aboriginal or treaty rights)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.1*

#### Context

Section 13.1.3 (Rights Impact Assessment Survey Results) includes excerpts from the Rights Impact Assessment Survey conducted by the communities of Kebaowek, Wolf Lake and Timiskaming as part of the Timiskaming Dam-Bridge of Quebec Replacement Project (TDQRP) 2023 program for the preferred dam location. These excerpts do not provide an understanding of the potential adverse effects of the project components and activities on the rights of these three communities. The Agency also notes the absence of measures to mitigate the potential adverse effects on these rights and the lack of an assessment of the potential residual adverse effects on these rights.

#### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) identify and describe the potential adverse effects of each of the project components and activities for all phases of the project (construction and operation) on the potential or established Aboriginal and treaty rights (including asserted rights) of the Kebaowek First Nation, Wolf Lake First Nation, and Timiskaming First Nation;

#### PSPC Response:

In February 2024, SART submitted to PSPC three separate reports that provide an assessment of the impacts of the Project (including the options for the location of the dam-bridge) on the potential or established Aboriginal or treaty rights of the Kebaowek, Wolf Lake and Timiskaming First Nations.

The studies and dates they were received are:

- *Bio-Cultural Impact Pathways Study for the Timiskaming Dam-Bridge Quebec Replacement Project (TDQRP)* – received February 16, 2024
- *Algonquin Canoe Company: Business Impact Analysis Report* (prepared by Wolf Lake First Nation) – received February 9, 2024; and
- *Neme Biocultural Study Report: Species at Risk Neme and Biocultural Impact Study* (prepared by the Kichi-Sibi Technical Team) – received February 7, 2024

These reports are appended in their entirety to this response (Appendix K).

In the Bio-Cultural Impact Pathways Study for the Timiskaming Dam-Bridge Quebec Replacement Project, the response to this question is outlined in detail on pages 12 – 15. Effects of Option 1 (downstream replacement option) in the planning and preconstruction phase were identified as severe or high but reversible on rights to protect Territory, to consultation, to harvest, and to a healthy environment due to:

- AOO and Antoine Nation being given recognition,
- Dismissive and time-wasting approach by PSPC – frustration for FNs,
- Continued preference by PSPC for Option 1, despite effect on spawning beds, and
- Incomplete fishery, contaminant studies.

PSPC provided the SART communities the opportunity to review the draft responses to the information requests related to the SART studies. Upon review, SART also noted the need to include cumulative effects to the list above.

In the construction phase, mainly severe/high magnitude effects on rights to harvest, to a healthy environment, to diversity (traditional foods), to occupy territory, to a safe environment, to dignity of culture and enterprise were identified due to:

- Destruction of spawning bed,
- Damage to fishery and interrelated ecosystem,
- Disrupted travel/daily life over bridge to school, shopping, appointments leading to increased frustration at home,
- Noise,
- Algonquin Canoe Company losses,
- Disturbance of sediments (contaminant release), and
- Air quality (dust from blasting).

As part of the SART review of the information request responses, it was noted that the first bullet above, “destruction of spawning bed” should also be an effects pathway. SART notes that, the associated fisheries population decline leads to increased country food scarcity and grocery store reliance for SART community members. There is a “pathway” from spawning bed destruction to food scarcity to increased food costs to member anxiety and more lateral violence.

In the operations phase, high magnitude, permanent, and irreversible effects at varying geographic extents were identified on rights to govern and protect territory, to harvest, to biodiversity, to occupy and use territory, and to access territory from:

- Diminished fishery due to spawning bed destruction, contaminant release, water flows,
- Increased industrial uses of road,
- Increased non-native/AOO use of territory; hunting; inability to protect culturally important areas, and
- Less possibility to reclaim original flows of Ottawa River.

- B) identify and describe any measures that the proponent intends to implement to mitigate the potential adverse effects of the project on the potential or established Aboriginal and treaty rights of the Kebaowek First Nation, Wolf Lake First Nation, and Timiskaming First Nation. The proponent must clearly describe how it intends to implement these measures, including the perspectives and suggestions expressed by these three First Nations and their views on the effectiveness of the mitigation measures, if any; and

PSPC Response:

SART suggested some mitigations to address impacts on their rights. These were excerpted from all three of the SART-generated reports noted in part (A). In addition to the mitigation measures outlined in the EIS to address these concerns, the table below outlines additional mitigations suggested by the SART Nations to mitigate impacts on their rights. SART’s opinion on the effectiveness of their proposed



measures was not provided, but it is assumed, that they believe they will enhance the mitigation measures proposed in the EIS. PSPC intends to apply these mitigations as noted in the second column.

<b>Additional SART-suggested mitigation measures</b>	<b>PSPC application of these measures and FN perspectives</b>	<b>Asserted or established Aboriginal rights impact(s) that is/are mitigated (see legend below table)</b>
Construct Option 3, bridge-dam in current location	<p>Despite the fact that this option has the longest construction phase which could be 'catastrophic' to the Algonquin Canoe Company (ACC), this is the preferred option of the SART communities because it has the least impact on fish habitat. SART prioritizes custodial land and waterway responsibilities above profit.</p> <p>Cumulative effects and disturbance for threatened species like lake sturgeon support SART's preference for Option 3.</p> <p>PSPC has always been and continues to be open to hearing Indigenous perspectives about other options for the dam-bridge location. Option 3 has the longest construction period, and will have therefore significant impacts on PSPC capability to manage the water flow including extreme events. This is also the riskiest option in terms of constructability as for some portions of the dam, the concrete conditions are unknown and may require strengthening the structure or even stop the traffic during construction to ensure stability of the dam. It might also require the installation of a second cofferdam, upstream of the existing dam. This is also an expensive option resulting in the extended construction period, and if needed, in the installation of the second cofferdam. It will also limit traffic flow in this location for several years. These are why this option is the least preferred by PSPC and will not be implemented.</p>	H, SHE, C



<b>Additional SART-suggested mitigation measures</b>	<b>PSPC application of these measures and FN perspectives</b>	<b>Asserted or established Aboriginal rights impact(s) that is/are mitigated (see legend below table)</b>
	<p>SART has identified Option 2 as the second most preferable alternative. SART is aware that the acceptance of Option 2 for Dam construction (upstream of the existing dam/bridge) would affect Rayonier Advanced Materials (RYAM) requiring them to move their power plant, and likely adding this expense to the project. SART submits that a spawning bed that nurtures sturgeon and other fish important to their diet and culture is more than worth the cost.</p> <p>SART asserts that mitigating the destruction of the spawning bed is only possible through Option 2 and Option 3.</p> <p>As Option 1 (Downstream) being the preferred option, PSPC believes that the impacts on fish and fish habitat can be fully mitigated through off-setting measures including construction of fish spawning beds, turbidity curtains to contain any contaminated sediments, constructing a fish passage that facilitates recovery of Lake Sturgeon and other fish species, and ongoing partnership with SART for monitoring for developing the offsetting program.</p>	
Implement a Co-management agreement with DFO and PSPC	The ability of a co-management agreement to address impacts on rights depends on what is included in this agreement. The SART documents note that the agreement should include a Neme Conservation Plan – including long-term monitoring of sturgeon populations to determine the effectiveness of recovery efforts. To date, PSPC has not been presented with a draft agreement and is unaware if one is being negotiated	H, SHE, G&P, A&O, C, DC&E



Additional SART-suggested mitigation measures	PSPC application of these measures and FN perspectives	Asserted or established Aboriginal rights impact(s) that is/are mitigated (see legend below table)
	<p>directly with the Agency, DFO or other government departments.</p> <p>PSPC is open to receiving and discussing a co-management agreement with SART.</p>	
<p>Improve baseline studies on Hickorynut Mussels, Lake Sturgeon and benthic communities. SART proposes to work with DFO and Canadian Museum of Nature Researcher Andre Martel to complete this study work.</p>	<p><i>“There is strong evidence that the Hickorynut Mussel relies on Lake Sturgeon for an important part of its life cycle. There appears to be suitable habitat for this SAR mussel (soft substrate, appropriate water flow and depth) in the vicinity of the Temiskaming dam, as well as near the mouth of the Beauchene river.”</i> (SART Species at Risk Neme and Biocultural Impact Study, p. 37)</p> <p>PSPC agrees to consider additional studies in the vicinity of the Timiskaming Dams. Should additional studies be undertaken, PSPC agrees to discuss opportunities for these to be led by the SART communities. This will be added to the discussion for fish which is already included in the consultation workplan.</p>	<p>H, SHE, G&amp;P, C, DC&amp;E</p>
<p>Study the level of and effects of pulp mill contaminants in sediments and how they can bioaccumulate and impact benthic and other aquatic life.</p>	<p>SART communities are concerned that dam construction activities could re-suspend contaminated sediments causing impacts on aquatic, terrestrial and human environments and associated rights.</p> <p>PSPC proposes mitigation measures and a sediment and soil management plan in the EIS to address potential and/or contaminated sediments.</p>	<p>H, SHE, C</p>
<p>Regular testing of the environment (soil, sediment and water) surrounding the TDC by the SART team.</p>	<p>PSPC continues to support SART's interest in environmental monitoring.</p> <p>Details of SART monitoring will be discussed in the IPP.</p>	<p>H, SHE, G&amp;P, C, DC&amp;E</p>



<b>Additional SART-suggested mitigation measures</b>	<b>PSPC application of these measures and FN perspectives</b>	<b>Asserted or established Aboriginal rights impact(s) that is/are mitigated (see legend below table)</b>
Investigate remediation measures to address existing environmental contamination in the area surrounding the TDC.	<p>SART conducted vegetation and soil surveys and found areas of contamination in the area surrounding the TDC. They remain concerned about its impact on vegetation, animals and the potential for health impacts on humans and associated impacts on Aboriginal rights.</p> <p>PSPC proposes mitigation measures and a sediment and soil management plan in the EIS to address potential and/or unexpected contaminated sediments.</p> <p>PSPC commits to developing a revegetation plan in collaboration with Indigenous groups and remediation measures can be explored in this plan.</p>	H, SHE, C
Construct full fish passage that can support Lake Sturgeon	<p>Reviving the Lake Sturgeon population is of interest to SART communities as will help to return the ecology of the Ottawa River watershed to pre-disturbed conditions.</p> <p>PSPC intends to construct a fish passage based on direction from DFO which will consider the option of a full fish passage to support Lake Sturgeon.</p>	H, SHE, DC&E
Avoid clearing of rocks and vegetation along the shoreline.	<p>SART are concerned with unnecessary disturbance of shoreline areas as it may disrupt fish, fish habitat and shoreline dependent mammals.</p> <p>The temporary disturbance of shoreline will be mitigated by PSPC with shore stabilisation and revegetation.</p>	H, SHE
Design turbidity curtains such that it effectively seals to the river bottom along its entire length and is anchored with enough weight to	SART communities are very concerned with the potential for contaminated sediments to be disturbed by construction activities.	H, SHE, G&P



Additional SART-suggested mitigation measures	PSPC application of these measures and FN perspectives	Asserted or established Aboriginal rights impact(s) that is/are mitigated (see legend below table)
prevent movement. Curtain to be monitored regularly to ensure no tears or openings; maintenance of it as required.	<p>If contaminated sediments are released, they may degrade water quality and have harmful effects on aquatic species including on Lake Sturgeon.</p> <p>PSPC will ensure that the contractor installs the turbidity curtain as requested by SART and will work with SART on a monitoring plan for it.</p>	
Provide appropriate gear and staff on-site to allow for the capture and salvage of fish that come to the surface of the water during attempts to escape exposure to highly alkaline water	PSPC will require the contractor to implement a wildlife management plan including capture and salvage of fish.	H, SHE, G&P
Construction to avoid savannah sparrows breeding period (March 31 to July 31)	PSPC commits to following specific restrictions from Environment and Climate Change Canada for birds. Nesting season for this species in Temiscaming Region is mid-April to late August. No suitable nesting habitat is found on or around the study zone.	SHE
Conduct a study to monitor vegetation prior to construction to optimally protect early spring pollinators and birds.	PSPC agrees to discuss this as part of the revegetation plan. If this proceeds, PSPC commits to discussing opportunities for SART-led monitoring.	H, SHE, G&P
Coordinated government species, harvest and habitat regulations; and interjurisdictional management of the Ottawa River	<p><i>“The intended outcome is a collaborative management approach that is standardized, inclusive . . . informed . . . and is proactive yet responsive . . . and that which also includes regulations that are adopted by all regulatory / enforcement agencies involved . . .”</i> (SART Species at Risk Neme and Biocultural Impact Study p. 38)</p> <p>As noted in the EIS, PSPC is unable to change the management structure of the Ottawa River Regulation Planning Board.</p>	G&P



Additional SART-suggested mitigation measures	PSPC application of these measures and FN perspectives	Asserted or established Aboriginal rights impact(s) that is/are mitigated (see legend below table)
	However, this request will be shared with the Minister for further action.	

Legend:

- H = right to harvest
- SHE = right safe and healthy environment
- G&P = right to govern and protect territory
- A&O = right to access and occupy territory
- C = right to maintain a cultural and spiritual relationship with territory
- DC&E = right to dignity of culture and enterprise

C) identify and describe any potential adverse effects on potential or established Aboriginal and treaty rights that have not been fully mitigated and addressed through the environmental assessment and engagement activities with Kebaowek First Nation, Wolf Lake First Nation, and Timiskaming First Nation.

PSPC Response:

The following table summarizes the rights that SART has indicated could be impacted by the Project if Option 1 (Downstream) is constructed, by project phase. Those rights that cannot be fully mitigated and addressed through the EA or further engagement activities are identified.

Project Phase	Potential adverse effects on established or potential Aboriginal and treaty rights identified by KFN, WLFN and TFN	Can this impact be fully mitigated in the EA or in engagement activities with the FNs?
Planning / Preconstruction	AOO and Antoine Nation given recognition	<p>PSPC has engaged these communities at the direction of the Agency. Only the Agency can determine if the AOO or Antoine Nation should continue to receive recognition and to be involved in the impact assessment.</p> <p>SART reviewed these responses and noted that this is a rights impact that will be discussed with IAAC and must be addressed.</p>
Planning / Preconstruction	Dismissive and time-wasting approach by PSPC – frustration for FNs	It is unclear what PSPC can do to resolve this impact. PSPC suggests that this is not a rights impact and should be re-framed. PSPC is open to suggestions for improving





Project Phase	Potential adverse effects on established or potential Aboriginal and treaty rights identified by KFN, WLFN and TFN	Can this impact be fully mitigated in the EA or in engagement activities with the FNs?
		consultation with SART and has supported all the SART studies conducted to date.  SART reviewed these responses and noted that this is a rights impact that affects their ability to govern and protect their territory.
Planning / Preconstruction	Continued preference by PSPC for Option 1, despite effect on spawning beds	PSPC believes that the effect of constructing Option 1 on spawning beds can be fully mitigated.
Planning / Preconstruction	Incomplete fishery, contaminant studies.	Mitigatable with PSPC agreeing to do more studies.
Construction	Destruction of spawning bed and cumulative effects on spawning.	PSPC believes that the effect of constructing Option 1 on spawning beds can be fully mitigated.
Construction	Damage to fishery and interrelated ecosystem	PSPC believes that the effect of constructing Option 1 on spawning beds and the ecosystem can be fully mitigated.
Construction	Disrupted travel/daily life over bridge to school, shopping, appointments leading to increased frustration at home	Not completely mitigatable with any dam-bridge option. Option 3 (SART preferred) is the most disruptive to travel and daily life due to the length of the construction period of all dam-bridge options.
Construction	Noise	Not entirely mitigatable, construction of any dam-bridge option will generate some noise.
Construction	Algonquin Canoe Company losses	Mitigatable with ongoing engagement to address business losses and application of measures suggested by SART.
Construction	Disturbance of sediments (contaminant release)	Mitigatable with installation of turbidity curtains and SART monitoring.



<b>Project Phase</b>	<b>Potential adverse effects on established or potential Aboriginal and treaty rights identified by KFN, WLFN and TFN</b>	<b>Can this impact be fully mitigated in the EA or in engagement activities with the FNs?</b>
Construction	Air quality (dust from blasting)	Mitigatable with measures suggested in the EIS.
Operations	Diminished fishery due to spawning bed destruction, contaminant release, water flows, and cumulative effects.	Spawning bed destruction mitigable with compensation plan. Contaminant releases are mitigatable. Water flows not completely mitigable with any dam-bridge option.
Operations	Increased industrial uses of road	The project will not cause an increase in the industrial use of the road. The operation of the dam-bridge does not increase industrial use of the road as the bridge deck will continue to be 2-lanes as it is now. Increased industrial use would be as a result of industry decisions and activities in the region that PSPC does not control. The dam-bridge allows for the safe crossing of the Ottawa River, and does not change the volume of traffic over it.
Operations	Increased non-native/AOO use of territory; hunting; inability to protect culturally important areas	PSPC cannot control non-native or AOO use of the territory. Non-native hunting, fishing, and trapping are regulated by the provincial governments. PSPC assessed the potential effect of construction workers hunting or fishing during their off-shift hours (see for example section 13.2.4.1.5) as non-significant. PSPC will mitigate this by giving preference to local and indigenous workers to minimize changes to local harvesting, providing cultural awareness and sensitivity training and by ensuring all workers are aware of and follow



Project Phase	Potential adverse effects on established or potential Aboriginal and treaty rights identified by KFN, WLFN and TFN	Can this impact be fully mitigated in the EA or in engagement activities with the FNs?
		provincial rules and regulations regarding hunting and fishing. During operations, the project will not increase non-native use of the territory over current baseline conditions.
Operations	Hunting	See response to above.
Operations	Inability to protect culturally important areas	SART noted in their report that part of Long Sault Island is used for cultural ceremonies and events. The Ottawa River is also culturally important. SART suggested additional mitigations to be taken to lessen the effect of the project on the island, which PSPC will implement. PSPC believes this effect is mitigatable and has outlined measures to lessen potential impacts on the Ottawa River and with fish habitat off-setting measures, and island revegetation plans, which will improve the immediate environment over current conditions.
Operations	Less possibility to reclaim original flows of Ottawa River	Unmitigable. Removal of the dam-bridge to facilitate original flow of the Ottawa River at this location is not a viable option due to its importance for cross-border travel and for water retention needed for downstream flood control and power generation.

**IAAC-1-71 Effects on the health of Indigenous peoples**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples –health and socio-economic conditions)*



*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.1 and Appendix 13.1*

## Context

Section 13.1.2.2 (The SART 2022 Socio-Cultural-Economic Impact Assessment (SCEIA)) and Appendix 13.1 (Socio-Cultural-Economic Impact Assessment (SCEIA)) provide the overall baseline picture of socio-economic and cultural components for the communities of Kebaowek, Wolf Lake and Timiskaming. The interaction of environmental changes caused by project components or activities in all phases (construction and operation) and the health of these three communities is not demonstrated in this appendix or in section 13.1.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) assess the effects of changes to the environment caused by the project on the health of Kebaowek First Nation, Wolf Lake First Nation and Timiskaming First Nation, particularly with respect to health effects or risks related to, but not limited to, potential changes to air quality, exposure to noise and the effects of vibration from blasting, current and future availability of traditional foods, and water quality (drinking water or water used for recreational or cultural purposes);

### PSPC Response:

The effects of environmental changes caused by the project on the health of the three First Nations are outlined in:

- *Pages 15 – 16 of the Bio-Cultural Impact Pathways Study for the Timiskaming Dam-Bridge Quebec Replacement Project (TDQRP), and*
- *Neme Biocultural Study Report: Species at Risk Neme and Biocultural Impact Study* (prepared by the Kichi-Sibi Technical Team).

### CONSTRUCTION:

The *Bio-Cultural Impact Pathways Study* evaluates the effects in the construction phase, on the health of SART communities caused by environmental changes as:

- Disruption of the fishery, spawning beds and mussel propagation leads to loss of important food sources, malnutrition, and impoverishment. This effect is considered by SART to be severe, permanent, and irreversible.
- Increased noise levels and degraded air quality lead to contamination, frightened wildlife, fish and medicines which leads to loss of country foods. This effect is considered by SART to be severe, and mitigatable.
- Disturbance of contaminated sediments lead to contaminated food sources, loss of country foods and malnutrition. This effect is considered by SART to be severe, permanent, and irreversible.

In addition, SART also noted that in relation to the first bullet above, disruption of the fishery, spawning beds, and mussel propagation impacts cultural teaching and laws. In relation to the second bullet above, contamination also has impacts on the ACC.

In the *Bio-Cultural Impact Pathways Study* SART also outlines effects on the health of SART communities during construction that are not caused by environmental changes as:

- Disruption of traffic on the bridge



- Increased pressure on FN governance
- Loss of income to the ACC

**OPERATION:**

The *Bio-Cultural Impact Pathways Study* evaluates the effects in the operations phase, on the health of SART communities caused by environmental changes as:

- Depletion of healthy fish stocks causing loss of culturally important food sources, malnutrition, impoverishment, and further loss of culture. This effect is considered by SART to be severe, last for years and can be mitigated by a co-management agreement.
- Changes in water flows disrupting fish, benthic invertebrates, turtles and their predators causing a loss of culturally important food sources and safety of fishers, malnutrition, impoverishment and further loss of culture. This effect is considered by SART to be severe, last for years and can be mitigated by a co-management agreement.
- Resuspension of contaminants in the river causing loss of culturally important food sources, malnutrition, impoverishment and further loss of culture. This effect is considered by SART to be severe, last for years and irreversible.
- Destruction of fisheries spawning areas causing loss of culturally important food sources and socially important areas of traditional territory, loss of country foods, sacred spaces, culture and identity. This effect is considered by SART to be severe, last for years and mitigated if Option 2 or 3 are selected.

In the *Bio-Cultural Impact Pathways Study* SART also outlines effects on the health of SART communities during operations that are not caused by environmental changes as:

- Increased non-native and industrial traffic
- Opportunities for guardianship and monitoring

- B) provide a justification if it determines that a risk assessment of contamination of food from nature (or other routes of exposure, such as inhalation) is not necessary or if certain contaminants are excluded from the assessment;

**PSPC Response:**

Chapter 13.6 of the EIS states that the Project presents a very low risk of contamination of wild-collected foods or from other routes of exposure for human health and therefore it was unnecessary to conduct a human health risk assessment.

- C) consider the effects on the mental and social well-being of Indigenous peoples. Where adverse health effects are anticipated, including any associated effects, such as effects on the current use of lands and resources for traditional purposes, should be assessed;

**PSPC Response:**

See response to Part (A).

- D) examine and indicate how the effects of environmental changes might be different for a particular Indigenous sub-population (e.g. women, youth, elders, and particular families); and

**PSPC Response:**

The SART reports note that there could be effects on women, families that used the Gordon River Area, and low-income families:

“ . . . water is extremely important and women have a special role as protectors of the Kichi Sibi watershed.” (p. 11 of *Bio-Cultural Impact Pathways Study*).

“SART families residing in (and practicing rights in) the Timiskaming Dam Gordon River Area were displaced from the larger pulp and paper industry site beginning in the 1920s, and SART members have since had essentially no access around the industrial site going forward, and thus limited ability to practice their rights on the Quebec shoreline for over 100 years.” (p. 18 of *Bio-Cultural Impact Pathways Study*). Note that this relates to the Rayonier facility and not the dam-bridge, but does identify cumulative historic effects of industrialization on Indigenous peoples sustained over time in this region.

“Many SART members are currently unable to afford nutritious equivalents at the store as evidenced by increasing food insecurity and relatively low levels of household income. These barriers to reliance on the traditional food system and/or affordability of acceptable quality food make it impossible for many families to have a basic foundation of healthy eating, making members highly vulnerable to immediate and chronic nutrition inadequacies, which can have serious long-term impacts on mental and physical health.” (p. 8 of *Bio-Cultural Impact Pathways Study*).

- E) identify and describe the measures it plans to put in place to mitigate these effects and assess the residual effects.

PSPC Response:

PSPC will discuss with SART the role that women should have in the overall management and monitoring of the effects on the Ottawa River.

PSPC cannot mitigate the effects of displacement of certain families that historically used the Timiskaming Dam and Gordon River area due to the current municipal, industrial uses there.

SART has noted that food insecurity is caused by historic and ongoing limits to access and to availability of healthy country foods – especially fish. PSPC believes that the impacts on fish and fish habitat can be fully mitigated through off-setting measures including construction of fish spawning beds, turbidity curtains to contain any contaminated sediments, constructing a fish passage that facilitates recovery of Lake Sturgeon and other fish species, and ongoing partnership with SART for monitoring. PSPC will work with SART, and other local organizations to help address food insecurity experienced by the First Nations impacted by the Project. This will be included as part of the Socio-economic Management Plan (SEMP).

**IAAC-1-72 Concerns about traditional food**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2*, sections 7.3.4 (Indigenous peoples) and 7.4 (Mitigation measures)

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement*, sections: 11.2.2.1, 13.2.4.3.1.2, 13.2.4.3.5.1, 13.3.4.3.1, 13.5.4.3.2, 13.4.4.7.1 and 22.5



## Context

According to Chapter 13 of the EIS, a significant concern for many communities is the potential contamination of traditional food by the recirculation of contaminants in the environment caused by the project. To mitigate these concerns, various mitigation measures are proposed, including the installation of a turbidity curtain and the communication of water quality and fish monitoring results.

There are also plans to sample sediments and manage them for levels of contamination. However, measures on how information related to water quality, fish, sediment and vegetation monitoring will be shared with the communities to address their concerns regarding access to resources and/or potential contamination. In particular, the AOPFN indicated that they have concerns regarding methylmercury in the Timiskaming Reservoir and potential effects on the aquatic ecosystem, fish and communities that consume fish from the area.

Health Canada believes that communication plans jointly developed with interested communities would detail the mechanisms and frequency of communication, information shared, data formats, interpretation, etc. These plans should adequately address community concerns, be developed prior to the commencement of construction, and be culturally appropriate.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) specify how it would involve interested communities in monitoring activities (e.g. water quality, fish, sediment, vegetation) and in communicating the results of such monitoring;

#### PSPC Response:

PSPC has developed consultation and communications plans in collaboration with each Indigenous group to ensure monitoring results are communicated. PSPC further commits to developing Indigenous Participation Plans with each Indigenous group to outline opportunities for interested communities to participate in monitoring activities.

- B) if the project would not result in any significant effects on water/sediment quality that could affect traditional food quality, including methylmercury: detail the mitigation measures (including a communication plan) that would be put in place to ensure that communities do not unnecessarily avoid consuming resources from the land on the basis that the project could affect traditional food quality (e.g. fisheries products, vegetation); and

#### PSPC Response:

PSPC commits to developing consultation and communications plans with each Indigenous community and to communicating regularly the results of monitoring including the results of monitoring of methylmercury. The Government of Ontario is responsible for communicating safe consumption limits for fish. PSPC commits to directing communities to the Government of Ontario information sources so that they may make an informed decision about fish consumption.

- C) if the project is likely to result in the resuspension of sediments that could contaminate water and traditional food: detail the mitigation measures (including a communication plan) that would be

implemented to minimize environmental contamination.

PSPC Response:

The project is unlikely to result in the resuspension of sediments that could contaminate water due to limited presence of sediments and the mitigation measures outlined in the EIS. Regardless of this limited risk, the surface water monitoring program to be implemented with the participation of Indigenous groups, during the project and will include measuring parameters such as suspended solids and turbidity. Monitoring will allow rapid detection of resuspension of sediments downstream of the work site. In the unlikely event that sediments enter the Ottawa River, activities causing this resuspension will be stopped until additional mitigation measures are implemented (adaptive mitigation strategy). Adaptive mitigation strategy may call for supplemental mitigation measures already identified in the EIS, but may also include change in work methods, work intensity, and project schedule.

PSPC commits to developing consultation and communications plans with each Indigenous community and to communicating regularly the results of monitoring. If there is a risk to health due to resuspension of sediments in country food, then this will be communicated to Indigenous groups along with the steps taken to mitigate the impact. Indigenous groups will be asked for input on any additional mitigations needed to minimize impacts.

#### IAAC-1-73 Effects on the socio-economic conditions of Indigenous peoples

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – Health and socio-economic conditions)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.1 and Appendix 13.1*

### Context

Section 13.1.2.2 (The SART 2022 Socio-Cultural-Economic Impact Assessment (SCEIA)) and Appendix 13.1 (Socio-Cultural-Economic Impact Assessment (SCEIA)) provide the overall baseline picture of socio-economic and cultural components for the communities of Kebaowek, Wolf Lake and Timiskaming. However, the interactions between environmental changes caused by the project components, including activities for all phases (construction and operation) and the socio-economic components of these three communities, are not demonstrated in this appendix or in section 13.1.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) assess the effects of environmental changes on the socio-economic conditions of Kebaowek First Nation, Wolf Lake First Nation, and Timiskaming First Nation, on elements including, but not limited to, the following:
- the use of navigable waters (including any watercourse used for Indigenous transport);
  - forestry operations;
  - commercial fishing, hunting, trapping and gathering activities;



- commercial outfitters;
- recreational uses;
- food security;
- income inequality;
- community-level changes that affect the socio-economic conditions of Indigenous peoples due to population growth, economic activity and cost of living, among other factors; and
- the non-trade/commercial economy;

PSPC Response:

The SART *Bio-Cultural Impact Pathways Study identifies the effects of environmental changes on socio-economic conditions (see pg. 17). There they note the impacts as:*

Facilitating cross-river access to urban centres in the region for shopping and medical appointments and other services, which is considered a positive impact of the dam-bridge. Conversely, SART notes that disruption from construction to access shopping and medical services is a negative impact of the project.

Opportunities for business and employment contracts (including for guardians and monitors) during the construction phase 'might briefly enhance' the local economy. However business and employment opportunities may also have negative impacts on the local economy by skimming workers from other businesses which is considered likely due to a shortage of skilled workers.

Negative socio-economic effects that SART evaluates as serious and unlikely to be improved by the Project include:

- the obstruction of boat traffic on the Ottawa River,
- the creation of the current configuration of Lake Timiskaming, which destroyed wild ricebeds, dramatically ended the commercial fishery and caused the release of methylmercury into the environment,
- enabled the settlement by colonial and industrial interests on their territory,
- entrapped pollutants from agricultural run-off, forestry operations and mines which have settled into the sediments<sup>2</sup>, and
- entrapped pollutants from the Tembec/Rayonnier facility in the sediments upstream of the dam.

The SART Bio-Cultural Impact Pathways Study and the Algonquin Canoe Company: Business Impact Analysis report evaluates the loss of business revenue, employment and cultural identity of Wolf Lake First Nation as high due to disruption from traffic delays, construction staging areas and construction staff on tourist access from the highway, and access to parking, during the construction. SART notes that it is difficult to see how these potential effects could be mitigated and that they are probably irreversible.

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<sup>2</sup> PSPC has retained the list as it was presented in the SART report and notes that the last two bullet points as stated are not socio-economic effects, but could cause socio-economic effects on quality and quantity of country foods affecting physical and mental health and wellbeing as is noted in other areas of the SART reports.



- B) identify and describe the measures it plans to put in place to mitigate these effects and assess the residual effects.

PSPC Response:

**Mitigations for Cross River Access to Services**

- Regardless of which option of the dam-bridge is built there will be some traffic delays that could cause temporary and short disruptions to cross river access to services. During construction cross river access will be facilitated through construction phasing and design. As noted in the EIS, during construction of the preferred option (Option 1), the road on the old dam will remain open, thereby allowing traffic to pass normally and without any hinderance. Once the dam replacement is completed, the old dam will be demolished, and the new dam, located 25 m downstream of the original dam, will be opened to circulation.
- Option 3, which is most preferred by SART is the **most disruptive to cross river access** due to the length of construction period compared with the other 2 options. Option 1 and Option 2 both offer lower traffic flow disruptions as vehicles and pedestrians can continue to use the existing roadway throughout construction of the new dam. Based on the lower traffic flow disruption and overall effects, PSPC has selected Option 1 as the most viable option.

**Mitigations for worker skimming from local business:**

- PSPC recognizes that the region is experiencing a shortage of skilled labour, however PSPC cannot mitigate for personal choices related to employment. Overall, the Project is expected to create positive impacts on the local economy through prioritizing use of local businesses. Creating these positive local effects will be addressed through the Indigenous Participation Plan.
- PSPC will work with SART to monitor through provisions determined with SART in the IPP. If 'skimming' from the project is impacting the region negatively PSPC will work with local government, industry and business organizations to address the issue which may include support for recruitment programs, and workplace incentives.

**Mitigations for obstruction of boat traffic on the Ottawa River:**

- The EIS notes that no change is expected to navigation on the Ottawa River. Portage routes and boat launches will remain unchanged, as they are on the Ontario side of the dam and will not be affected by construction. Thus, there is no expected adverse effects to boat access and travel in the region and no mitigations were recommended.

**Mitigations for creation of Lake Timiskaming and regional settlement:**

- PSPC cannot mitigate the results of past actions undertaken by public and private sector groups. It is recognized that these actions have cumulatively impacted the rights and interests of the SART communities. PSPC is committed to mitigations that lessen or reverse these and the Project impacts, such as through fish habitat off setting.

**Mitigations for health and wellbeing impacts associated with release of contaminated sediments:**

- PSPC has committed to working with SART to ensure the effectiveness of the turbidity curtain and to regular monitoring of it as was suggested in their *Neme Biocultural Study Report: Species at Risk Neme and Biocultural Impact Study* (p. 36)

**Mitigations for ACC Impacts:**

Mitigations suggested by SART in the *Algonquin Canoe Company: Business Impact Analysis* report and that will be discussed between WLFN and PSPC for implementation if possible, include:

- “To maintain customer volume and [reduce] impact on store accessibility, the heavy machinery and construction staging equipment shall:
  - Be located 5 m away from the Algonquin Canoe Company establishment and parking
  - Be located on the opposite side of highway 63
  - Be located safely within the working location while maintaining its distance from customer parking.” (p.11)
- Compensation for business loss sustained from traffic control measures
- Measure local sales data from ACC and surrounding businesses to accurately depict the economic impacts on revenue throughout the duration of the bridge replacement project.

In addition to the mitigations noted in the EIS, other mitigations suggested by PSPC to mitigate impacts on the ACC include:

- Construct Option 1, which has the shortest construction period and reduces the amount of disruption to the ACC and cultural uses of Long Sault Island
- Review proposed locations for construction laydown yards, and the like to reduce impacts on highway access and parking necessary for accessibility to the ACC and its viability during the construction phase.

**IAAC-1-74 Assessment of the effects on the physical and cultural heritage of Indigenous peoples**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – physical and cultural heritage)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.1 and Appendix 13.1*

## Context

Section 13.1.2.2 (The SART 2022 Socio-Cultural-Economic Impact Assessment (SCEIA) and Appendix 13.1 (Socio-Cultural-Economic Impact Assessment (SCEIA)) provide the overall baseline picture of socio-economic and cultural components for the communities of Kebaowek, Wolf Lake and Timiskaming. However, the interactions between environmental changes caused by the project components, including activities for all phases (construction and operation) and the physical and cultural heritage of these three communities, are not demonstrated in this appendix or in section 13.1.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) assess the effects of environmental changes on the physical and cultural heritage, structures, sites, or things of historical, archaeological, paleontological, or architectural significance to Kebaowek First Nation, Wolf Lake First Nation and Timiskaming First Nation, including but not limited to:

- loss or destruction of physical and cultural heritage;
- changes in access to physical and cultural heritage;
- changes to sacred, ceremonial or culturally important places, objects or things; and
- changes to visual aesthetics, including cultural heritage landscapes, during the life of the project; and

PSPC Response:

In the Bio-Cultural Impact Pathways Study, SART states that the construction of the bridge in 1909 altered the Ottawa River, creating Lake Timiskaming and the changes described in the baseline (EIS Chapter 13.1). Constructing Option 1, they note, will destroy a spawning bed for sturgeon and other fish that are important to Algonquins and cause a ‘huge, cumulative, irreversible loss to our physical and cultural heritage.’ (p. 17 – 18)

SART also noted that the effects of the Project on their cultural heritage would be from the disruption of the land surrounding the Algonquin Canoe Company on Long Sault Island used to ‘host community cultural events, including community feasts, family activities, youth events, Indigenous Peoples Day. Tribal Council Annual Assembly, Truth & Reconciliation Day. These events are important and help bring the community together” (Algonquin Canoe Company: Business Impact Analysis report p. 3).

In their Algonquin Canoe Company: Business Impact Analysis report, they note that operating the ACC is an important way to sustain their culture through eco-tourism / outfitting activities and supporting local arts and crafts. They anticipate a loss of business revenue, and therefore the reduced ability to conduct ecotourism and arts and crafts expression of the cultural heritage during construction is expected, by Wolf Lake First Nation based on their experience of this from the Ontario dam replacement in 2014 – 2017 and the Quebec dam traffic deck replacement in 2021.

- B) identify and describe the measures it plans to put in place to mitigate these effects and assess the residual effects.

PSPC Response:

As noted earlier, PSPC believes that the impacts on fish and fish habitat from constructing Option 1 can be fully mitigated through off-setting measures including construction of fish spawning beds, turbidity curtains to contain any contaminated sediments, constructing a fish passage that facilitates recovery of Lake Sturgeon and other fish species, and ongoing partnership with SART for monitoring.

As noted earlier, mitigations suggested by SART in the Algonquin Canoe Company: Business Impact Analysis report and that will be discussed between WLFN and PSPC for implementation if possible and that will help mitigate impacts on cultural heritage sustained by operating the ACC include:

- *“To maintain customer volume and [reduce] impact on store accessibility, the heavy machinery and construction staging equipment shall:*
  - *Be located 5 m away from the Algonquin Canoe Company establishment and parking*
  - *Be located on the opposite side of highway 63*
  - *Be located safely within the working location while maintaining its distance from customer parking.”* (p.11)
- Compensation for business loss sustained from traffic control measures
- Measure local sales data from ACC and surrounding businesses to accurately depict the economic impacts on revenue throughout the duration of the bridge replacement project.

In addition to the mitigations noted in the EIS, other mitigations suggested by PSPC to mitigate impacts on the ACC include:

- Construct Option 1, which has the shortest construction period and reduces the amount of disruption to the ACC and cultural uses of Long Sault Island
- Review proposed locations for construction laydown yards, and the like to reduce impacts on highway access and parking necessary for accessibility to the ACC and its viability during the construction phase.

#### IAAC-1-75 Changes in the quantity, quality and availability of resources

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.1*

### Context

The assessment should characterize the effects of changes to the environment caused by the project, including cumulative effects, on the use or activity. The assessment is missing the overall picture of current use of lands and resources for traditional purposes, along with the interactions between environmental changes caused by the project's components, including activities from all phases (construction and operation), on the current use of Kebaowek First Nation, Wolf Lake First Nation and Timiskaming First Nation.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) assess the effects, including cumulative effects, of changes to the environment caused by the project on a current use or activity of Kebaowek First Nation, Wolf Lake First Nation, and Timiskaming First Nation, considering interactions with:
- resource use, such as changes in the quantity, quality and availability of resources and habitat, as well as to the sufficiency of resources required to conduct an activity or practice, including perception of effects, avoidance and consideration of the seasonal round;
  - access to areas and resources without difficulty or additional cost used to conduct an activity or practice, as well as the opening up of areas to non-Indigenous populations for access and use, and consideration of preferred areas, timing of harvest, and options of traveling there in preferred manner;
  - the experiences of these three communities, including changes that affect the spiritual and cultural experiences associated with the activity and practice, as well as the sense of place and well-being, and the applicability and transmission of Indigenous knowledge, laws, customs and traditions;
- B) based on the interactions listed in the previous question, the proponent should also consider the following in its assessment:
- the cultural value or importance associated with traditional uses or areas affected by the project

- how timing of project activities has the potential to interact with the timing of traditional practices, and any potential effects resulting from overlapping periods
  - how environmental effects to land and resources could affect the use and associated activities
  - consideration of the regional context for traditional use, and the value of the project area in that regional context, including the alienation of lands from traditional use
  - an assessment of the potential to return affected areas to pre-project conditions to support traditional practices (including the identification of end land use goals)
  - other effects of changes to the environment on Indigenous peoples should be reflected as necessary
- C) identify and describe the measures it plans to put in place to mitigate these effects and assess the residual effects.

PSPC Response:

SART responds to this information request on pages 18 – 19 of their Bio-Cultural Impact Pathways Study. They note that the effects (including cumulative effects) of the changes to the environment on a current use or activity are reflected in the responses to earlier information requests and include impacts on: rights, habitat, health, traditional food, socio-economic conditions, and physical and cultural heritage. They have detailed in their reports and in the baseline (EIS Chapter 13.1) that “. . . colonialism, land dispossession, legal oppression, industrial encroachment and contamination (among other things) have severely curtailed our ability to exercise our rights in and around the TDQRP site.” (p. 18). They note that these effects have been sustained for more than 100 years and have been felt especially by families who used this area historically.

PSPC recognizes that the dam-bridge and the industrial/municipal landscape present in Témiscamingue has impacted the use of this culturally important region for Algonquin people for over 100 years. Construction is expected to occur at times when the island is used for cultural events, and in fishing seasons. This will further limit the ability of Algonquin people to practise fishing rights in the area immediately adjacent to the dam-bridge. Given the concerns of contamination the La Cave reach of the river may continue to be avoided for fishing.

PSPC is committed to working with impacted Indigenous groups to restore the soils and vegetation in the terrestrial areas immediately adjacent to the dam-bridge and on Long Sault Island. In the Ottawa River riverbed, PSPC will improve fish habitat with additional spawning areas and by installing a fish passage if deemed positive to re-instate migration for Lake Sturgeon, American eel and other fish species as directed by DFO and with full consideration for any shared Algonquin knowledge. By constructing Option 1, PSPC is implementing the safest, most technically feasible, least risky and least disruptive (in terms of construction time) of the three options. This will have the least impact on the ACC, and to those people who use the bridge to access goods and services in North Bay. While there could be short- to medium-term impacts on fish and fish habitat, monitoring on the Ontario side of the river has shown that fish have been responding well to the new habitat. PSPC believes that similar mitigations will also be effective on the Quebec side and will improve the current Riverine landscape for fish. Involvement of the Kitchi-Sibi Technical Team in monitoring and follow up and in decision-making will help communicate results to the broader community and strengthen the management of the Ottawa River through application on Algonquin knowledge.

Taking into account the SART assessment and the application of the mitigation measures above, PSPC considers that the cumulative impact on Algonquin communities on their rights to fish and to access this region for exercising their rights will be significant over pre-disturbance levels since the regional context of a municipal/industrial landscape will remain essentially the same. With mitigation, the residual effect on Algonquin use of the area is considered non-significant over current conditions.

**IAAC-1-76 Effects on potential or established Aboriginal and treaty rights**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 6 (Impacts to potential or established Aboriginal or treaty rights)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.4*

## Context

Section 13.4.4.8 (AOPFN Rights Assessment) provides contextual information on the rights of members of the AOPFN. This contextual information does not provide an understanding of the potential negative effects of project components and activities on the rights of the community. The Agency also notes the absence of measures to mitigate the potential adverse effects on these rights and the absence of an assessment of the potential residual adverse effects on these rights.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) identify and describe the potential adverse effects of each of the project components and activities for all phases of the project (construction and operation) on the potential or established Aboriginal or treaty rights (including asserted rights) of the AOPFN;
- B) identify and describe any measures that the proponent plans to implement to mitigate the potential adverse effects of the project on the potential or established Aboriginal and treaty rights of the AOPFN. The proponent must clearly describe how it intends to implement these measures, including the perspectives and suggestions expressed by the AOPFN and its opinion on the effectiveness of the mitigation measures, where applicable; and
- C) identify and describe any potential adverse effects on potential or established Aboriginal and treaty rights that have not been fully mitigated and addressed through the environmental assessment and engagement activities with the AOPFN.

### PSPC Response:

As discussed with the Agency on June 22, 2023, below are the details of the discussions with AOPFN that led to the AOPFN's decision regarding their approach to the rights assessment.

Meetings in April and June 2022 included review of the proposed rights assessment approach. As a result of discussions, the rights assessment context and related UNDRIP articles were included in a separate section of the EIS and the indicators were removed as it was noted that AOPFN intended to conduct the rights assessment directly with the Agency (Section 8.1.5.5).

AOPFN noted that, while it was reasonable for PSPC to provide baseline data to inform the context of the rights assessment, it is not the role of the proponent to complete this work and requested these sections be removed in future versions of the EIS as a fulsome rights impact assessment would be completed in collaboration with the Agency. PSPC removed the related sections from the Final Draft EIS (Section 8.1.5.5.1.2).

AOPFN has indicated that they prefer to conduct an assessment of the Project effects on their rights with the Agency. This section provides the rights that are held in relation to AOPFN's VCs relevant for

the Project and the context within which AOPFN's rights are exercised to support this future assessment. AOPFN has indicated that they intend to revise the rights context information based on forthcoming input from their ongoing internal verification process. As such the rights context information provided in this section should be considered preliminary (Section 13.4.4.8).

In correspondence on January 25, 2022, AOPFN requested a meeting to discuss the AOPFN rights assessment. On January 28, 2022, it was noted that AOPFN understood that the rights assessment would occur directly between AOPFN and the Agency. In correspondence received February 23, 2022, it was likewise noted that AOPFN intended to undertake the rights assessment, including establishing terms of reference, directly with the Agency. (See: Appendix 8.1 – Table 4 – AOPFN Consultation Records).

## IAAC-1-77 Description of the AOPFN

### References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 5 (Engagement with Indigenous peoples and concerns raised)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Summary, section 4.4*

### Context

Section 4 indicates that the Algonquins of Ontario (AOO) represent the AOPFN in the consultation. The AOPFN does not agree with being considered an AOO community. The AOPFN should be recognised as a separate community, since the existence of the AOPFN pre-dates that of AOO. It is only since 1992, with the opening of treaty negotiations between AOO, the Government of Canada and the Province of Ontario, that the AOPFN has been associated with the latter. The relationship between the AOPFN and the AOO should be mentioned only in relation to the negotiation of this treaty. The AOPFN is representing itself in this environmental assessment and does not wish to have any misinformation appear in the public record.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) adequately describe the relationship between AOO and the AOPFN.

#### PSPC Response:

AOPFN is one of 10 communities represented by the AOO in the Algonquin land claim in Ontario.

## IAAC-1-78 Land use plans for Indigenous communities

### References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 1.4 (Regulatory framework and the role of government)*





*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 5.4*

## Context

In section 5.4, the proponent lists the land use and development plans of communities adjacent to the project. The AOPFN states that First Nations land use plans are of equal importance to municipal land use plans. The AOPFN recommends that Indigenous community land use plans, including reference to the AOPFN's comprehensive community plan, also be listed in this section, as they are relevant to the general and geographical context.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) provide a description of the Indigenous land use plans that cover the area described in section 5.4 and explain how they fit into the regional geographical context.

### PSPC Response:

AOPFN completed their Land Use Plan (LUP) in May of 2022. The LUP is a planning document that guides the community on the development of their reserve lands according to the community's land-based vision and goals. The LUP covers the entire Golden Lake Reserve, which is approximately 1,700 hectares and is located within the regional study area boundaries of the Project (AOPFN, LUP, 2022). No other Land Use Plans have been identified for other First Nations within the Regional Project boundaries.

Reference: <https://www.algonquinsopikwakanagan.com/wp-content/uploads/2022/06/2022-06-01-AOPFN-Land-Use-Plan-compressed.pdf>

## IAAC-1-79 Additional Information from the AOPFN

### References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 2.2 (Alternative means of carrying out the project), 7.1.9 (Indigenous peoples) and 7.3.4 (Indigenous peoples)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.4.4*

## Context

At the time of submission of the EIS, the AOPFN was not able to complete, propose revisions or add comparative analysis tables for the alternative means assessment, since this required further community engagement to explore this issue.



The AOPFN is undertaking an alternative means assessment and a socio-economic and well-being study. The AOPFN has held a community meeting and meetings with leaders, which have not been considered in the EIS. The AOPFN's factors for determining the significance, need or acceptability of impacts should be considered as part of the impact assessment once the AOPFN studies are completed.

The proponent must support the AOPFN in undertaking an alternative means assessment, which shall be transparent and based on the knowledge of the Algonquins of the AOPFN, and the results of which shall be communicated to the Agency prior to the preparation of the draft Environmental Assessment Report.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) describe how the alternatives proposed by the AOPFN have resulted in changes to the proponent's assessment of the alternatives, including mitigation measures or proposed measures for the preferred alternative, if applicable; and

#### PSPC Response:

AOPFN submitted its Alternative Means Analysis (AMA) to PSPC in November 2023 (see Appendix L). AOPFN's AMA indicated that Option 3 (building the dam-bridge in its current location) was preferred as it most closely aligned with their values. AOPFN provided additional mitigation measures in the event that PSPC does not construct their preferred option.

PSPC maintains that Option 1, construction of a new dam downstream of the current location, is preferred as it presents the fewest risks all of which can be mitigated by the surveys and studies to be completed during the design phase.

PSPC respects the values and interests of the AOPFN and notes that the Project mitigations must be proportionate to the Project impact on AOPFN. PSPC provided a response to AOPFN about their suggested mitigations based on whether PSPC believes the mitigations recommended in the AMA are proportionate to the impacts of the Project on the AOPFN and therefore will be implemented by PSPC. It also identifies those mitigations or enhancement measures, that, in the opinion of PSPC, are not proportionate to Project effects on the AOPFN and therefore are more appropriate to address at a regional scale with other proponents and government bodies. PSPC and the AOPFN met in January and February 2024 to discuss these responses. The AOPFN provided a revised version on March 15, 2024. PSPC has agreed to implement some of the following mitigations in addition to those that were identified in the EIS:



**AOPFN Valued Component: Protection and Stewardship of Culturally Important Plant Species**

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
<b>3.1.3</b>			
Offsetting for Vegetation Loss: Planning and implementation of offsetting must be done in collaboration with AOPFN. The AAC noted that, at minimum, offsetting should be done at a minimum of a 3:1 ratio, though preferably higher. The AAC also noted that the scope of area currently proposed for offsetting is inadequate to support plant species to thrive and is looking forward to engaging in offset planning with PSPC.	X		PSPC has committed to involving Indigenous groups in revegetating Long Sault Island.
Pre-construction surveys: Support should be provided by the Proponent for AOPFN Guardians to conduct pre-construction surveys.	X		Bats, birds, and Species at Risk surveys will need to be conducted prior to construction.  AOPFN will be consulted and if appropriate, involve the AOPFN Guardians.
Use of Native Plants: AOPFN is requesting a commitment from the Proponent to creating a wider “natural” riparian zone (as opposed to manicured lawn), by utilizing native plants. A “greener” shoreline should also be utilized (e.g., gentler slope, as opposed to shoreline hardening with riprap).	X		PSPC has committed to involving First Nations in revegetating Long Sault Island including using native plants.  Riprap material was used for erosion control as the current is very strong. However, design of riprap can be adapted to allow partial revegetation with native plants to create a more natural environment. This will be part of the discussion for revegetating the island.



**AOPFN Valued Component: Protection and Stewardship of Wildlife Habitat and Species**

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
<b>3.2.3</b>			
Commitment to involve and support AOPFN in co-developing wildlife management plans – including determining the location of protective fencing (e.g. for turtles)	X		PSPC has committed to involving AOPFN in the preparation of the EMP.
Commitment to offset and Include AOPFN in planning and implementation of offsetting for wildlife habitats including bat and swallow habitat	X		PSPC has committed to involving AOPFN in the preparation of the EMP.
Commitment to support AOPFN Guardians in Wildlife monitoring and adaptive management	X		PSPC has committed to involving AOPFN in the preparation of the EMP. Project specific work for Guardians, if applicable, will be discussed as part of the EMP and the IPP.



**AOPFN Valued Component: Protection and Stewardship of Spiritual, Cultural, Historic, Archaeological Relationships and Sacred Spaces**

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
<b>3.3.3</b>			
AOPFN Involvement in Culture and Heritage Studies: To support AOPFN's right to self-determination, PSPC needs to provide opportunities and funding for the AOPFN archaeological team to conduct surveys, in addition to involvement in all PSPC-led studies.	X		No additional archaeological studies are planned prior to construction. If this changes, PSPC will contact AOPFN. Also, an archaeological survey might be conducted when the cofferdam is installed. If so, PSPC will contact AOPFN.  AOPFN's chance find protocol is being considered in the preparation of the chance find protocol for project construction which includes notification and involvement of AOPFN.
AOPFN Chance-Find Procedure: The Proponent (and contractors) must respect and adhere to AOPFN's chance-find procedure.	X		The AOPFN procedure has been shared with ARA who will consider it in the Chance Find Protocol for the project. This will be shared with AOPFN and other Indigenous groups for review and comment.
Funding for AOPFN Cultural Programming: PSPC should make a financial contribution to AOPFN cultural programming that has been established to mitigate the loss of Algonquin culture and heritage. This contribution should be through untied funds.	X	X	Request is not proportional to the understood project impacts on the AOPFN. This kind of initiatives will have to be discussed with PSPC on a broader level. Funding needs to be tied to project-specific objectives.



**AOPFN Valued Component: Protection and Stewardship of Fish Habitat and Fish Species**

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
<b>3.4.3</b>			
Appropriate Habitat Offsetting: Considering the amount of fish spawning habitat (and consequently fish populations) that would be destroyed, the AAC asserted that the minimum replacement ratio needs to be 3:1. A minimum of 3:1 ratio would provide a greater probability of the habitat being established and able to support thriving fish spawn. The AAC also noted that this offsetting needs to occur on the Ontario side of the dam-bridge, prior to the start of construction, for a greater chance of shortening the recovery time for fish species to be lost.	X		To discuss as part of fish offsetting plan and DFO authorization.  Description of the effects on fish from project-specific effects are included in the EIS.
AOPFN Engagement on Cofferdam Design: The AAC identified the cofferdam (construction, dismantling and material(s) used) as having a huge detrimental effect on fish habitat and fish species. Since the cofferdam design is pending the selection of a contractor, the AAC is seeking a commitment from PSPC that AOPFN will be engaged by the contractor on the specific design of the cofferdam, as well as on alternatives to the use of a cofferdam. For instance, members discussed the need to explore using a Bailey bridge or steel-plated cofferdam as an alternative.	X		Tetra Tech has completed the design of the cofferdam which is in the EIS. The design will be discussed with AOPFN at future meetings to review options.
Support for AOPFN Guardian Program: The AAC emphasized the need for AOPFN Guardians to be involved in all stages of the Project, in order to support AOPFN's stewardship roles towards fish and fish habitat.	X		Project specific work for Guardians, if applicable, will be discussed as part of the EMP and the IPP.



**AOPFN Valued Component: Member Fishing**

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
<b>3.5.3</b>			
<p>Monitoring and Enforcement: AAC members expressed concerns over threats to endangered or threatened fish species, and to AOPFN member harvesting from illegal fishing on the river. The committee spoke to the need for monitoring to ensure compliance with conservation regulations. This monitoring could involve responsible government authorities stationing a game warden or conducting digital surveillance of such areas to enforce current regulations.</p> <p>The AOPFN's role would involve the participation of Guardian monitors in compliance monitoring and reporting.</p>		X	<p>Fishing is already prohibited from Long Sault Island and PSPC has already committed to policies for limiting hunting and fishing of contracted construction workers.</p> <p>PSPC has no jurisdiction to implement the requested mitigations related to game wardens, and digital surveillance. PSPC will continue to support signage on the Island to inform anglers about fishing restrictions.</p> <p>PSPC, DFO, nor the provincial government can prohibit fishing by rights holders.</p>
<p>Improving Awareness: On curbing illegal fishing, members noted that current signage in the conservation areas is not sufficient and does not contain sufficient information, as well, what signage exists is currently not in good repair. Signage on restrictions to fishing need to be updated with AOPFN input. For instance, signage should contain supporting information, such as penalties for non-compliance, objectives, and scope of restrictions, etc.</p>	NA	NA	<p>This mitigation needs to be deferred to the Ontario Ministry of Natural Resources and Forestry.</p>



**AOPFN Valued Component: Protection and Stewardship of Water**

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
<b>3.6.3</b>			
Cofferdam Material: As previously mentioned, AOPFN has serious concerns about the impacts of the proposed cofferdam, including the potential degradation of the material utilized. If a cofferdam is to be used, the material should be selected (with AOPFN involvement) to avoid or minimize pollution and/or sedimentation.	X		Specifications for the cofferdam material is in Section 7.4 of the EIS. As indicated in the EIS: "The contractor must select quarries and sand pits that have all of the required environmental authorizations. The material from these quarries and sand pits must be clean and uncontaminated."
Water Quality and Quantity Monitoring: To support water quality and quantity monitoring following construction, sampling must be done before, during and after construction, as well as upstream and downstream of the Project site. This data is key to creating a robust and useful dataset on water quality that would, in turn, inform appropriate mitigations and water management planning.	X		The water quality monitoring plan is presented in Section 22.4 of the EIS.
Water Flow Management: AOPFN understands that water flow planning is managed by PSPC and permitting authorities (e.g., DFO), and would like to emphasize that water flow must be protective of aquatic life and habitat. Further, AOPFN must be involved in the planning and discussions on flow rate and flow management, as well as in monitoring and follow up.	X		This will be discussed with DFO and PSPC as this is related to the DFO authorization.  A draft protocol for operating the Timiskaming Dam Complex that is protective of aquatic life and habitat is currently under review by DFO. When available, it will be shared with AOPFN and other Indigenous groups.
Climate Change Forecasting: During the detailed design for the Project, PSPC should ensure and clearly demonstrate that the durability and life expectancy of the dam-bridge are adaptive to climate change. AOPFN notes that it is important to build a structure that is secure from increasingly frequent extreme weather	X		PSPC has already committed to this in the EIS.



AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
events. This approach would prevent avoidable impacts on the environment and on AOPFN members, from having to rebuild due to the collapse of the structure.			The dam will comply with the Dam Safety Guidelines of the Canadian Dam Association and the Quebec and Ontario requirements for standards and best practices that include risks related to extreme weather events.
AOPFN Water Ceremonies: In order to respect AOPFN's stewardship role, PSPC should support AOPFN to conduct water ceremonies, as required by Algonquin traditions.	X		PSPC has already committed to this in the EIS.

**AOPFN Valued Component: Access and Navigation on Ottawa River**

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
<b>3.7.3</b>			
Support for AOPFN Navigation and River Access: To mitigate ongoing impacts to AOPFN access, PSPC should make a financial contribution (through untied funds) that would support the acquisition of community boats, and programs targeted at improving members' access and use of the river.		X	This request is not proportional to the understood project impacts on the AOPFN as the Project does not impede access to the Ottawa River and in fact facilitates access to inland water bodies on both sides of the border (by the bridge).



**AOPFN Valued Component: AOPFN Governance and Autonomy**

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
<b>3.8.3</b>			
AOPFN Involvement in Management and Monitoring Planning: In addition to the monitoring committee, AOPFN must be involved in all planning for management and monitoring done outside of the committee. To support AOPFN's role, PSPC should ensure that adequate capacity support is negotiated with and provided to AOPFN.			More clarification is needed about this request.
AOPFN Involvement in Contractor Selection: The AAC also emphasized the need for AOPFN to be part of the process for selecting contractors for the project, including but not limited to input in the Requests for Proposal to be done, ie., a statement outlining the need for the contractor to work with AOPFN to determine the most suitable material to be used to build the cofferdam.	X		<p>Being part of the process for selecting contractors will exclude AOPFN from any subcontracts or joint ventures or IPP opportunities with the selected contractor due to conflicts of interest.</p> <p>PSPC is committed to optimizing opportunities for local and Indigenous service providers for direct and indirect employment related to the project.</p> <p>Specifications for the cofferdam material is in Section 7.4 of the EIS.</p>



- B) describe how the results of the AOPFN studies, including statements of impact significance and acceptability, modifications, or additions to the proposed measures, have led to changes in the EIS.

PSPC Response:

These additional mitigation measures to address impacts of Option 1 on the AOPFN's values as noted in part A are added to those in the EIS.

The results of the AOPFN Cumulative Effects Assessment were previously considered in the EIS and will not be re-stated here.

In November 2023, the AOPFN sent PSPC their independent Socio-Economic Impact Assessment (SEIA) (see Appendix L) which identified potential impact pathways and implications, measures to manage adverse socio-economic impacts of the Project, and measures for maximizing socio-economic benefits of the Project. The AOPFN provided a revised version on March 18, 2024. Project implications and recommended mitigation and enhancement measures were specifically provided for impacts related to employment, training, and procurement, housing, culture, health and wellness. AOPFN did not evaluate the significance of the effects on their values, however, it is assumed that by implementing enhancement measures that positive effects are increased, which may be significant for certain families or for AOPFN as a community.

PSPC respects the values and interests of the AOPFN and notes that the Project mitigations must be proportionate to the Project impact on the AOPFN. The following tables outline whether PSPC believes the mitigations recommended in the SEIA are proportionate to the impacts of the Project on the AOPFN and therefore will be implemented by PSPC. It also identifies those mitigations or enhancement measures, that, in the opinion of PSPC, are not proportionate to Project effects on the AOPFN and therefore are more appropriate to address at a regional scale with other proponents and government bodies. PSPC provided these tables as a response to the proposed new mitigation and enhancement measures in December 2023 and met with the AOPFN in January 2024 to discuss them.



**AOPFN Valued Component: Employment, Training, and Procurement**

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
<b>Employment and training</b>			
1. Commit to incorporating the AOPFN and PSPC Indigenous Benefits Plan (IBP) into all aspects of employment, contracting, and procurement, following the AOPFN guidelines for IBPs with PSPC. This will include capacity building for departmental staff; employees/ contractors/ businesses; and funding to departments for staff time and efforts spent, to ensure long-term benefits.	X		This will be discussed as part of the IPP.
2. Develop a strategy and employment committee or similar working group with the AOPFN, to set targets for recruitment, retention, and advancement of First Nations workers, for unskilled and skilled positions. This would include training and fast-tracking for those positions for First Nations hires.	X		Setting expectations for recruitment, retention and advancement of Indigenous workers will be discussed as part of the Indigenous Participation Plan (IPP). If the Nations wish to do so through a joint committee, this must be discussed and agreed to amongst the Nations. PSPC cannot be involved in these discussions.
3. Adjust employment and contracting/procurement requirements and review them first with The AOPFN Economic Development department so they are favourable to First Nations member procurement and employment (e.g., lack of high school education vs. long experience, or lack of certification).	X		This will be discussed as part of the IPP.
4. Commit to supporting the AOPFN Economic Development Department with capacity building and career development initiatives including for higher-level training, both related to and separate from project-related jobs in areas in line with the broader sustainable First Nations community development strategies, plans, and goals, as defined by the AOPFN, through a Skills Development Plan. This could include apprenticeship programs and education programs;	X	X	Capacity building directly related to project construction included in the IPP, broader initiatives to be discussed with PSPC related to regional infrastructure projects.

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
pre-professional programs; college programs; on the job training, shadowing, and mentoring; and in-house training programs.			
5. Commit to actively recruiting and reaching out early in each new year for First Nations summer student employment and co-op opportunities for First Nations graduates needing work experience. This includes commitments to support the unionization to enhance job security. Set targets annually for this and celebrate them when achieved.	X		Discussed as part of the IPP.
6. Commit to developing culturally appropriate policies for employment, including anti-racism and harassment policies, GBA+ analysis, and flex scheduling with First Nations employees to accommodate community and cultural activities, as well as grievance mechanisms for managing concerns in the workforce, and commit to reviewing and verifying these policies with the AOPFN.	X		PSPC committed to discuss barriers to employment during the development of the SEMP or IPP.
7. Ensure all PSPC staff and contractors have been certified in the AOPFN cultural awareness workshops.	X		Needs to be discussed in context of SART First Nations cultural awareness training. Confirm 'certification' requirements.
8. Commit to supporting AOPFN in the identification and implementation of a suitable transport system for workers, which will facilitate removing transportation barriers to employment for this Project, other PSPC projects on unceded Algonquin territory, and in general.	X	X	Discussed as part of the IPP for the TQDR project and other project IPPs; transportation for project construction purposes only, not "in general."  Reasonable travel allowance or accommodation may be covered by the contractor.
9. Commit to supporting the AOPFN in developing and implementing an accommodation strategy for employees working away from home, which will	X	X	Discussed as part of the IPP for the TQDR project and other project IPPs;

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
facilitate removing accommodation barriers to employment for this Project, other PSPC projects on unceded Algonquin territory, and in general.			accommodation for project construction purposes only, not "in general."  Reasonable travel allowance or accommodation may be covered by the contractor.
10. Commit to providing safety equipment for direct and indirect employees as well as a safety equipment allowance for those materials not provided.	X		The contractor will provide necessary safety equipment for direct employees only. Third-party contractors will be responsible for their own employees' safety equipment as per their occupational safety and health policies.
11. Commit to working with the AOPFN to ensure affordable daycare is available and accessible around the shiftwork that is being considered. This could include commitments to provide financial and capacity building support to the AOPFN's childcare services (Mindiwini Manido) to increase staff and operating hours. Include a daycare stipend for employee families. Funding is not to be tied to stipulations or require reporting, as the use of informal childcare services will likely be necessary.	X		Childcare is recognized as a potential barrier for single parents and women's participation in construction activities. PSPC committed to discuss ways to remove barriers to employment during the development of the IPP or SEMP.  Implementation of innovative measures to remove employment barriers is a shared responsibility with AOPFN's service providers. As PSPC cannot control how and when childcare services are provided, PSPC cannot ensure affordable daycare will be available and accessible around shiftwork.
12. Ensure employers and contractors are flexible in scheduling shiftwork in consideration of shift work impacts on families and realities of travel. Include monitoring of retention and success of flexible policies.	X		Scheduling is the responsibility of the contractor and can be discussed with the contractor as part of the employee's work conditions.

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
13. Provide capacity building for the AOPFN Economic Development Department to hold workshops and/or career events to ensure members are aware of employment, contracting, and training opportunities, and participate in these events.	X		PSPC hosts Community and Industry Engagement days to discuss opportunities and requirements.
14. Commit to developing an environmental monitoring training and funding strategy with the AOPFN which supports long-term development and sustained use of Guardians programs and on the land monitoring by guardians. Funding needs to be flexible to support long-term development and sustainability of the Guardians Program (i.e., not to be tied to Project-specific goals and activities).	X	X	Discussed as part of the IPP. However, the use of Guardians program and funding need to be project specific and cannot be untied.
<b>Procurement</b>			
15. Ensure procurement preference for the AOPFN's joint venture, Pikwàkanagàn-Sullivan Construction, in lieu of AOPFN businesses.	X		Discussed as part of the IPP. PSPC is committed to optimizing opportunities for local and Indigenous service providers for direct and indirect employment related to the project.
16. Commit to and provide capacity building for AOPFN businesses to ensure they have space to operate and meet requirements for contracting and procurement opportunities for this project and in the long-term, including additional certifications to meet industry standards. Capacity building includes funding for start-up, support for office spaces and land acquisition (rental, lease, or purchase), and other needs as identified by the AOPFN.		X	Request is not proportional to the understood project impacts on the AOPFN. This kind of initiative will have to be discussed with PSPC on a broader level. This project cannot support funding for this initiative.
17. Support the AOPFN in interdepartmental capacity building through committing funding towards infrastructure for an AOPFN departmental building which would allow for additional space for hiring and training staff.		X	Request is not proportional to the understood project impacts on the AOPFN. This kind of initiative will have to be discussed with PSPC on a broader level. This project cannot support funding for this initiative.

AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
18. Provide contracts at an appropriate scale by the unbundling of procurement contracts so that they are smaller and more manageable for First Nations owned businesses to bid on.	X		Discussed as part of the IPP. However, a contract with a General Contractor will be awarded to manage the construction phase. Subcontracts or joint venture will be possible with the General Contractor for businesses.
19. Commit to capacity building of the AOPFN Natural Resources Department to develop and implement reclamation and other non-destructive activities on the land. Funding is not only to be tied to Project-specific goals and activities, but flexible to support long-term development and sustainability of the department and its activities.		X	PSPC will involve the AOPFN in reclamation activities related to project specific impacts as specified in the EIS. This kind of initiative will have to be discussed with PSPC on a broader level. Funding has to be tied to project-specific goals.
20. Commit to developing a resource revenue sharing agreement with the AOPFN to ensure that a percent of any profits made by non-local Indigenous contractors and other businesses operating on unceded Algonquin territory are shared.	NA	NA	PSPC does not have the responsibility to negotiate revenue sharing between the First Nation and third-party businesses operating in the unceded Algonquin territory.
<b>Community-based programs</b>			
21. Commit to providing financial literacy and management courses for employees and other groups coming into newfound wealth.	X		Provisions for life skills and financial literacy courses can be included in the SEMP.
<b>Monitoring and reporting</b>			
22. Develop a monitoring and reporting system with the AOPFN which is transparent and publicly available to the AOPFN, and commit to benchmarking, monitoring, and reporting of:  • First Nations hires employment, retention, and job satisfaction, as well as success of employee recruitment / retention programs, and implementation and reporting of employee/contractor grievances and exit reviews.	X		Discussed as part of the IPP.



AOPFN recommendation for mitigation and enhancement measures and strategies	Supported by PSPC to off-set potential project impacts	To discuss to off-set regional and cumulative impacts on the AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / comments
<ul style="list-style-type: none"> <li>• First Nations skill and career development initiatives, successes rates, and outcomes.</li> <li>• First Nations participation in the: contract bid process, contracts awarded, subcontracts work.</li> <li>• Environmental monitoring results and success of the Guardians Program, including tracking funding and capacity building initiatives.</li> <li>• Capacity building and other support to the AOPFN various departments and programs.</li> </ul>			
23. Include monitoring of employment and business commitments and outcomes and training commitments and outcomes as a condition of the IBP and / or Socio-economic Management Plan (SEMP) and commit to reporting results and tangible benefits to the AOPFN on a regular basis as agreed between PSPC and the AOPFN. Reporting methods and platforms must also be agreed between PSPC and the AOPFN to facilitate transparency, accessibility, and public availability for AOPFN members.	X		Discussed as part of the IPP.
24. Include mitigation and enhancement measures listed above in the IBP.	X		Discussed as part of the IPP.



**AOPFN Valued Component: Housing**

AOPFN Recommendation for Mitigation and Enhancement Measures and Strategies	Supported by PSPC to off-set potential Project impacts	To discuss to off-set regional and cumulative impacts on AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / Comments
<b>Training and capacity development</b>			
25. Commit to developing a training strategy with the AOPFN which not only supports Project employment but focuses on long-term benefits to the AOPFN through skill building in construction and trades.	X		Discussed as part of the IPP.
26. Commit to funding and developing capacity development within the AOPFN Housing Department		X	Request is not proportional to the understood project impacts on the AOPFN. This kind of initiative will have to be discussed with PSPC on a broader level. This project cannot support funding for this initiative.
<b>Monitoring and reporting</b>			
27. Include monitoring of training commitments and outcomes and employment trends, including tracking of the relevant skilled labour force as a condition of the IBP and/or Socio-economic Management Plan (SEMP).	X		Discussed as part of the IPP. Same response as in 22.
28. Commit to reporting results and tangible benefits to the AOPFN on a regular basis as agreed between PSPC and the AOPFN. Reporting methods and platforms must also be agreed between PSPC and the AOPFN to facilitate transparency, accessibility, and public availability for AOPFN members.	X		Discussed as part of the IPP. Same response as in 23.



**AOPFN Valued Component: Culture**

AOPFN Recommendation for Mitigation and Enhancement Measures and Strategies	Supported by PSPC to off-set potential Project impacts	To discuss to off-set regional and cumulative impacts on AOPFN with PSPC and other regional proponents and jurisdictional authorities	Rationale / Comments
<b>Fish and aquatic life</b>			
<p>29. Commit to working with DFO to adjust fishing regulations to prohibit or limit fishing during Project pre-construction (1-2 years prior), construction, and post-construction (1 -2 years post) phases, in consultation with the AOPFN. Ensure information about rules and regulations is disseminated to all workers and permanent signage on and around the bridge is in place. Include a monitoring program to monitor and enforce agreed upon rules and regulations. This could potentially include cameras and/or in-person monitoring by law-enforcement.</p>		X	<p>DFO does not hold the responsibility for setting fishing regulations, this is the responsibility of the province.</p> <p>Fishing is already prohibited from Long Sault Island and PSPC has already committed to policies for limiting hunting and fishing of contracted construction workers. PSPC will continue to support signage on the Island to inform anglers about fishing restrictions.</p> <p>PSPC, DFO, nor the provincial government can prohibit fishing by rights holders.</p>
<p>30. Commit to a co-management approach between PSPC, DFO, and the AOPFN to protecting aquatic species (including fish, reptiles, amphibians, mollusks, etc.). This includes co-development and implementation of a strategy which includes filling knowledge gaps in fish habitats, including spawning grounds, to further understand the potential for loss of habitats and how losses should be mitigated; protection measures and habitat creation for spawning grounds; protection, relocation and re-stocking of aquatic species (3:1 ratio minimum) (including fish, reptiles, amphibians, and mollusks), and funding a hatchery system); water-craft inspection and cleaning to ensure protection from invasive species (e.g. zebra mussels); as well as regular monitoring, compensation measures for losses incurred as determined by the AOPFN, and funding obligations.</p>	X	X	<p>To discuss as part of fish offsetting plan and DFO authorization.</p> <p>Monitoring to be discussed as part of the IPP.</p> <p>Description of the effects on fish from project-specific effects are included in the EIS.</p> <p>Any further delineation of effects on fish needs to be discussed in a regional forum.</p>

<b>Plants and plant medicines</b>			
31. Commit to assessing and protecting wild rice planting grounds and plant medicine harvesting grounds from changes in water levels in consultation with the AOPFN.	X		There are no identified wild rice planting or harvesting grounds that will be affected by the project.  PSPC has committed to involving Indigenous groups in revegetating Long Sault Island including using native and medicinal plants.  There will be no changes in water levels during construction or operation periods beyond normal operating water levels.
32. In areas which will be disturbed and/or flooded, commit to funding and working with the AOPFN to transplant plants and plant medicines (3:1 minimum offset ratio) in appropriate areas, and developing appropriate ecological areas for transplanting, as identified by the AOPFN using Traditional Ecological Knowledge (TEK).	X		PSPC has committed to involving Indigenous groups in revegetating Long Sault Island including using native and medicinal plants.  There will be no changes in water levels during construction or operation periods beyond normal operating water levels.
33. Commit to re-establishing natural vegetation and any plants deemed as important in the project area (offset ratio 3:1 minimum) as identified by the AOPFN.	X		PSPC has committed to involving Indigenous groups in revegetating Long Sault Island including using native and medicinal plants.
34. Allow for and invite affected AOPFN members to harvest potentially affected trees and plants with cultural and/or economic value prior to Project-start.	X		PSPC has committed to this in the EIS.
35. Develop a timber salvage plan with the AOPFN for any areas needing timber clearing for Project construction, including those utilized for equipment, storage, turn-arounds, etc. if any.	X		There are very few trees that will be removed as part of the project construction.  PSPC will consider any Indigenous plans for harvesting trees prior to construction.
<b>Cultural heritage and ceremony</b>			
36. Commit to involving the AOPFN in “the planning, design, siting, installation and maintenance of a plaque or other permanent structure that provides the history of the Kichi-Sibi and Long Sault Island and their importance to	X		PSPC has already committed to this in the EIS.

Algonquin cultural and physical heritage, recognition of the Project on unceded Algonquin territory” (EIS, 2023, p. 13-139), and protocols for accessing and respecting ceremonial space with contact information for related questions. Ensure that Anishinaabemowin language is included in any wording used in signage or other text.			
37. Commit to funding, respecting, and allowing space for AOPFN members to conduct cultural ceremonies prior to and post Project construction, following the AOPFN protocols.	X		PSPC has already committed to this in the EIS.
38. Commit to funding, securing, and developing a cultural space on Long Sault Island for AOPFN members to practice their culture, in consultation with the AOPFN.	X		PSPC will review the proposal and explore the available options.
<b>Cultural and spiritual connections and protocols</b>			
39. Commit to financially contributing to the AOPFN cultural activities and revitalization programming, through developing a strategic plan with the AOPFN aimed at making meaningful strides to compensate for cumulative cultural losses incurred, and to ensure cultural continuity for future generations.		X	Request is not proportional to the understood project impacts on the AOPFN. This kind of initiative will have to be discussed with PSPC on a broader level. Funding needs to be tied to project-specific objectives.
40. Commit to ensuring all PSPC staff and contractors participate in cultural awareness training workshops through the AOPFN in order to enhance understanding of the AOPFN values and worldviews, especially in regard to First Nations relationships to the land and natural resources.	X		Discussed as part of the IPP. Same response as in 7.
<b>Archaeological resources</b>			
41. Commit to following the AOPFN Chance Find Procedures for archaeological finds.	X		The AOPFN procedure has been shared with ARA who will consider it in the Chance Find Protocol for the project.  AOPFN’s chance find protocol is being considered in the preparation of the chance find protocol for project construction which includes notification and involvement of AOPFN.

42. Commit to involving the AOPFN in archaeological studies.	X		<p>No additional archaeological studies are planned prior to construction. If this changes, PSPC will contact AOPFN.</p> <p>Also, an archaeological survey might be conducted when the cofferdam is installed. If so, PSPC will contact AOPFN.</p>
43. Protect Project area from disturbance and flooding until all archeological studies have been completed and verification has taken place with the AOPFN.	X		<p>No additional archaeological studies are planned prior to construction. If this changes, PSPC will contact AOPFN.</p> <p>Also, an archaeological survey might be conducted when the cofferdam is installed. If so, PSPC will contact AOPFN.</p> <p>PSPC is waiting for the Chance Find Protocol from ARA and will discuss and share with the AOPFN.</p>
44. Provide funding for the Manidò Chimàn Museum as the AOPFN sees fit. The museum is crucial to the community in maintaining and preserving AOPFN culture and traditions and does not yet have a cultural building available to manage and share collections and support cultural teachings and events.		X	Request is not proportional to the understood project impacts on the AOPFN. This kind of initiative will have to be discussed with PSPC on a broader level. Funding needs to be tied to project-specific objectives.
<b>Water quantity and quality of the Kichi-Sibi</b>			
45. Commit to monitoring and reporting water quality and quantity data including any changes, before, during, and postconstruction and operation activities. Providing this data to the AOPFN on a quarterly basis and ensuring all information regarding material safety of dam components (regarding water quality), is disseminated, and understood by these communities, to ensure members are able to confidently access the Kichi-Sibi for cultural and other practices based on data. Any abnormalities in water quality or quantity that indicate potential environmental and/or health risks must be reported urgently to and in consultation with the AOPFN.			The water quality monitoring plan is presented in Section 22.4 of the EIS.
46. Commit to funding either 1 full-time or 2 part-time Guardian Monitors to monitor the quality and quantity of the water and land along the Kichi-Sibi in proximity to the project area as well as funding for any samples, travel, lodging,	X		Discussed as part of the IPP.

and any other expenses as deemed necessary by the AOPFN's Guardian Coordinator to ensure the health of the Kichi-Sibi and its tributaries.			
<b>Compensation</b>			
47. Commit to developing a habitat offsetting/ compensation plan with the AOPFN that considers cumulative effects as well as the additional impacts of proposed works, in order to address the heavily impacted baseline conditions in the proposed Project area. Cultural values are to be considered as part of this plan (i.e., the value of the area from a cultural perspective, and the accumulated loss of those values in the aquatic study area). The AOPFN understands that this work is necessary to replace the bridge and dam at this time but emphasizes that the original dam/bridge construction contributed to loss of fish habitat and cultural values that have not been adequately considered or compensated. While the AOPFN does not expect that these losses will be fully mitigated or compensated through the currently proposed construction, this context must be appropriately considered by the Proponent.	X		<p>The AOPFN will be consulted by PSPC and DFO on the fish and fish habitat offsetting plan.</p> <p>Continued discussion with DFO and Indigenous groups on fish passage and fish habitat compensation is contributive to offsetting past effects of the original dam/bridge construction.</p> <p>Work site rehabilitation after completion of construction activities with culturally valued vegetation is also contributive to offsetting past effects.</p>
<b>Monitoring and reporting</b>			
48. Commit to developing a joint monitoring committee with the AOPFN, which includes TEK, funding and capacity building for environmental monitoring by Indigenous guardians; and down-stream monitoring of water, water quality, and aquatic and non-aquatic wildlife during and post-construction.	X		<p>Discussed as part of the IPP.</p> <p>Same response as in 14.</p>
49. Commit to building trust with the AOPFN regarding the protection of land and water, through building a communications strategy with the AOPFN that sufficiently addresses gaps in knowledge, consultation, and understanding, to ensure community members are well-informed about the Project on a regular basis. This includes funding for community meetings and participation of contractors in community meetings in Pikwàkanagàn.	X		<p>This will be included in the SEMP.</p>
50. Commit to identifying the use of TEK in reports and acknowledging the importance of TEK to protecting culture.	X		<p>TEK shared by AOPFN in their TKLUS was included in the EIS. PSPC acknowledges the importance of TEK and its importance in project planning and in protecting culture.</p>
51. Include monitoring of mitigation and enhancement measures as a condition of the IBP and / or Socio-economic Management Plan (SEMP) and commit to	X		<p>Discussed as part of the IPP.</p>

reporting results and tangible benefits to the AOPFN on a regular basis as agreed between PSPC and the AOPFN. Reporting methods and platforms must also be agreed on between PSPC and the AOPFN to facilitate transparency, accessibility, and public availability for AOPFN members.			Same response as in 23.
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**AOPFN Valued Component: Health and wellness**

<b>AOPFN Recommendation for Mitigation and Enhancement Measures and Strategies</b>	<b>Supported by PSPC to off-set potential Project impacts</b>	<b>To discuss to off-set regional and cumulative impacts on AOPFN with PSPC and other regional proponents and jurisdictional authorities</b>	<b>Rationale / Comments</b>
<b>Community programs</b>			
52. Commit to financially contributing to AOPFN health services and programs.		X	Request is not proportional to the understood project impacts on the AOPFN. This kind of initiative will have to be discussed with PSPC on a broader level. Funding needs to be tied to project-specific objectives.
53. Commit to contributing to travel assistance for members living outside of Pikwàkanagàn to travel to their community to access health and cultural services, programs, and activities.		X	Request is not proportional to the understood project impacts on the AOPFN. This kind of initiative will have to be discussed with PSPC on a broader level. Funding needs to be tied to project-specific objectives.
<b>Water</b>			
54. Commit to monitoring and reporting water quality data and changes, before, during, and post-construction and operation activities, and providing this data to the AOPFN on a quarterly basis, and to ensuring information about material safety of dam components (regarding water quality), is disseminated and understood by these communities, so to mitigate potential physical and mental wellness impacts. Any abnormalities in water quality or quantity that	X		Same response as in 45.



indicate potential environmental and/or health risks must be reported urgently to and in consultation with the AOPFN.			
55. Support AOPFN's goals towards providing safe drinking water in Pikwàkanagàn, in consideration of cumulative and project-related losses.		X	Request is not proportional to the understood project impacts on the AOPFN. There are no project impacts on Pikwàkanagàn reserve community's drinking water. This kind of initiative will have to be discussed with PSPC on a broader level.
<b>Employment</b>			
56. Commit to providing employment opportunities for members of the AOPFN experiencing mental health issues, addictions, or trauma, to support healing by providing hope, meaning, belonging, and purpose through employment.	X		Employment is discussed as part of the IPP.
<b>Plant medicines</b>			
57. Commit to assessing and protecting plant medicine harvesting grounds from changes in water levels in consultation with the AOPFN. In areas which will be disturbed and/or flooded, commit to funding and working with the AOPFN to transplant medicinal plants (ratio of 3:1 minimum) in appropriate areas as identified by the AOPFN using TEK.			Same response as in 31.
58. Allow for and invite affected AOPFN members to harvest potentially affected trees and plants with medicinal value prior to Project-start.	X		Same response as in 32.
<b>Monitoring and reporting</b>			
59. Include monitoring of mitigation and enhancement measures as a condition of the IBP and / or Socio-economic Management Plan (SEMP) and commit to reporting results and tangible benefits to the AOPFN on a quarterly basis as agreed between PSPC and the AOPFN. Reporting methods and platforms must also be agreed between PSPC and the AOPFN to facilitate transparency, accessibility, and public availability for AOPFN members.	X		Discussed as part of the IPP. Same response as in 23.

**IAAC-1-80 Baseline information on the health and socio-economic well-being of members the AOPFN**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – health and socio-economic conditions)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.4*

## Context

The description of baseline data on the AOPFN in section 13.4 of the EIS, particularly with respect to health, well-being and socio-economic conditions, does not use primary data from the AOPFN. There are significant gaps in the assessment of language, employment, education, governance and other conditions. The AOPFN is undertaking an AOPFN-led socio-economic and well-being study to fill these gaps. The results of this work should be part of the assessment process.

Public Services and Procurement Canada should engage with the AOPFN and continue to support, particularly in terms of capacity, the collection and integration of direct primary data on baseline health and socio-economic conditions, including AOPFN definitions, perspectives and criteria for health and well-being, prior to the development of the draft Environmental Assessment Report.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) consider the data from the AOPFN socio-economic and well-being study and make the necessary changes to section 13.4 as appropriate.

### PSPC Response:

AOPFN's Socio-economic Impact Assessment (November 2023, see Appendix L) should be referenced by the Agency in addition to the response below. The following are the amendments to Section 13.4:

### **Section 13.4.2 Summary of AOPFN Valued Components**

Valued components were extracted from the Comprehensive Community Plan and augment the VCs listed in this section to also include: education and training, economic prosperity and employment, housing and infrastructure, culture (listed in the original VC list), and language, social-wellbeing (listed in the original VC list), health (listed in the original VC list), community safety, unity and communication (See Section 5 of AOPFNs SEIA).

### **Section 13.4.3 Baseline Conditions for AOPFN**

The methods used to gather additional baseline information, included meetings with the AOPFN Project Oversight Committee, AOPFN staff and service providers. In addition, other confidential and AOPFN study documents and resources that were unavailable to PSPC previously were reviewed and used to strengthen



the baseline.

Additional details about the history (Section 4.1), geography (Section 4.2) and the effects of Indian day-school and residential schools on the health and socio-economic conditions (Section 4.3), governance (Section 4.4), culture (Section 4.5) are provided in AOPFN's SEIA.

Additional details about baseline employment, training and procurement are provided in Section 6.1 and included barriers to employment, AOPFN businesses and challenges for businesses to obtain contracts.

Section 6.2 provides updated information about housing including that housing limits the ability for off-reserve members to move onto reserve, number and types of housing, issues with housing affordability and the interest in building skills for basic home repairs.

Section 6.3 provides cultural information including the seven grandfather teachings, description of the cultural losses due to colonialism, interest in re-connecting with culture, percentages of AOPFN members practicing traditional activities, and barriers to connecting with culture including lack of programming, contact with knowledge keepers and Elders, funding, and community events. The baseline notes that importance of connection / access to lands as essential for culture as well loss of language as a major barrier to re-connecting with culture.

Section 6.4 augments information on health and wellbeing and includes the services available, and access to culturally safe services as a concern. Like culture, wellness is tied to the ability to connect with the natural environment and notes that any changes to it will impact wellbeing. It documents that the disconnection from the natural environment is as a result of colonialism. Cultural programming is noted as a way to improve health and wellness. It notes issues of food insecurity for all members noting that it is a result of disconnection from harvesting activities as a result of colonialism, and privatization of lands. Drinking water is also noted as an issue that is being resolved with a planned new water treatment plant.

**Section 13.4.4 Impact Assessment**

AOPFNs SEIA identifies the following potential project interactions – some of which were assessed in Chapter 13.4 of the EIS (and are denoted with an “\*”). Several mitigations and enhancement measures have been identified to optimize the project effects on AOPFNs valued components. PSPC and AOPFN are working together to determine how these will be implemented. See response to RFI 1- 78 and 1-79 for details. In their SEIA report, AOPFN did not provide an assessment of the significance of the residual effects on these valued components after the mitigation and enhancement measures are applied. It is assumed that with the mitigations or enhancements suggested, that any residual effects will be not significant.

Valued component	Potential project interactions
Employment, training and procurement	<ul style="list-style-type: none"> <li>○ Benefits from education and training opportunities that should be sustainable and meaningful for the long-term*.</li> <li>○ Due to distance from Pikwàkanagàn and limited employment opportunities, attention to enhancing these positive effects is needed.</li> <li>○ Positive employment and business opportunities if barriers can be addressed*.</li> <li>○ Positive effects at the family level from skill building*.</li> </ul>
Housing	<ul style="list-style-type: none"> <li>○ Lack of worker accommodation as a barrier for employment.</li> <li>○ Indirect positive effects from skill building in construction from training and employment.</li> <li>○ Positive effects from increased employment income*</li> </ul>



	<ul style="list-style-type: none"> <li>○ Negative effects from 'brain drain' if members with construction skills are employed by the project and not available for community housing construction or repairs.</li> </ul>
Culture	<ul style="list-style-type: none"> <li>○ Further negative effects from land damage, reduced land access, reduced abundance and diversity of culturally important species</li> <li>○ Negative impacts on harvesting and knowledge transfer</li> <li>○ Negative impacts of fish abundance and availability for AOPFN from construction worker fishing*</li> <li>○ Destruction of archaeological resources*</li> <li>○ Changes to Long Sault Island aesthetics and cultural value and use*</li> <li>○ Perceived or real contamination of the Ottawa River resulting in avoidance for cultural practices.*</li> </ul>
Health	<ul style="list-style-type: none"> <li>○ Negative effects on culture, impact wellness</li> <li>○ Negative effects from damages to land impact community health and wellbeing</li> <li>○ Negative effects on species abundance and diversity negatively impacts diet</li> <li>○ Negative effects on physical and mental health from real or perceived water contamination</li> <li>○ Potential positive effects through employment, support for health services and programs.</li> </ul>

\*denotes that this interaction was assessed in the EIS in Section 13.4.

**IAAC-1-81 Valued components of AOPFN – habitats and habitat abundance**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.4.2*

**Context**

The factors to be considered should extend to wildlife, fish and plant habitats. The AOPFN has already indicated to the proponent that it would prefer that the objective be expanded to include habitats and not be replaced by a habitat abundance objective. Note that the objective of the AOPFN is to include the habitats of affected species in the consideration of factors, and not to move from factors related to affected species to habitat abundance.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

A) extend the consideration of fauna, flora and fish factors to the habitats of affected species.

**PSPC Response:**

Section 12.2.2 of the EIS covers vegetation, including wetlands, which are key habitat components of many terrestrial species. The study zone has no wetland and only little vegetation (mainly composed of

grassland), providing limited habitat for terrestrial species and making assessment of impact on such vegetation habitat impossible.

However, where suitable habitat was present for some wildlife groups, the EIS considered it. Section 12.2.3 of the EIS considers at length impact on fish habitat, and Section 12.2.5 of the EIS considers impact on habitat of reptiles, amphibians, bats and mammals.

## IAAC-1-82 Mitigation measures for physical and cultural heritage

### References

CEAA, August 2018. *Guidelines for the Preparation of and Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – physical and cultural heritage)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Summary section 6.15*

### Context

Section 6.15 states that the proponent wishes to provide opportunities for Indigenous groups to conduct cultural ceremonies prior to the construction of the new dam to recognize and highlight the importance of Long Sault Island and the Ottawa River.

In this regard, it would be important for the proponent to clarify the considerations that will be considered with respect to Algonquin ceremonial skills and protocols when assigning cultural activities on the project site to different Indigenous groups (e.g. ceremonies, harvesting, plaque placement).

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) describe the considerations leading to the allocation of opportunities for cultural activities on the project site to an Indigenous group.

#### PSPC Response:

All Indigenous groups that have cultural ties to the project area will have an opportunity to conduct their own ceremonies at the site prior to construction or at other times as discussed with PSPC. If cultural protocols are agreed to between Indigenous groups, these will be reviewed and honoured by PSPC as long as they do not pose any health or safety risks to others, and do not unnecessarily interfere with the ability of other Indigenous groups not party to those agreements to conduct their own ceremonies or cultural protocols.



## Comments and advice for the proponent

### Comment 1-25 Sediment and risks to human health

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.3.4 (Indigenous peoples), 7.4. (Mitigation measures) and 9.1 (Follow-up program)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.2.2.1*

#### Comments and advice

If the project is likely to result in the resuspension of sediments that could contaminate water and traditional food, Health Canada recommends that the mitigation measures that would be implemented to limit environmental contamination as much as possible be rigorously applied and that environmental monitoring be adapted according to the concentrations of contaminants measured.

Where appropriate, a human health risk assessment, carried out according to a rigorous scientific methodology, could facilitate the management and communication of risks to communities. Health Canada recommends the following reference:

[HEALTH CANADA, 2019. Guidance for Human Health Impact Assessment in Environmental Assessments: Human Health Risk Assessment.](#)

### Comment 1-26 Participation of AOPFN in mortality monitoring activities

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.4*

#### Comments and advice

The AOPFN is interested in participating in mortality monitoring (through the Guardian program) and being consulted on the determination of thresholds for mortality rates and triggers for action.

#### PSPC Response:

PSPC is committed to involving the AOPFN in mortality monitoring through the Guardian Program. This is reflected in the PSPC Consultation and Communications Plan developed in collaboration with the AOPFN, and includes discussions on thresholds for mortality rates and action triggers.

**Comment 1-27 Participation of SART communities in soil management and monitoring****References**

CEAA, August 2018. *Guidelines for the preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.1*

**Comments and advice**

The Kebaowek, Wolf Lake and Timiskaming First Nations wish to be engaged in the soil management plan and monitoring activities.

**PSPC Response:**

PSPC is committed to involving the SART communities of Kebaowek, Wolf Lake, and Timiskaming First Nations in the soil management plan and monitoring activities. This is reflected in the PSPC Consultation and Communications Plan developed in collaboration with SART and PSPC's internal commitments tracking table.

**Comment 1-28 Participation of SART communities in discussions on fishway options****References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.1*

**Comments and advice**

The Kebaowek, Wolf Lake and Timiskaming First Nations wish to be involved in discussions on fishway options.

**PSPC Response:**

PSPC is committed to involving the SART communities of Kebaowek, Wolf Lake, and Timiskaming First Nations in discussions on fish passage options. This is reflected in the PSPC Consultation and Communications Plan developed in collaboration with SART. PSPC has also advised SART that discussions on the fish passage will also occur directly between the SART communities and DFO.

**Comment 1-29 Participation of SART communities in discussions on the revegetation plan**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.1*

## Comments and advice

The Kebaowek, Wolf Lake and Timiskaming First Nations are interested in participating in discussions about the revegetation plan.

### PSPC Response:

PSPC is committed to involving the SART communities of Kebaowek, Wolf Lake, and Timiskaming First Nations in discussions on the revegetation plan. This is reflected in the PSPC Consultation and Communications Plan developed in collaboration with SART.

**Comment 1-30 Interest of SART communities in further bat studies**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.1*

## Comments and advice

The Kebaowek, Wolf Lake and Timiskaming First Nations have expressed interest in additional studies of bats and bat habitat.

### PSPC Response:

PSPC is committed to involving the SART communities of Kebaowek, Wolf Lake, and Timiskaming First Nations in additional bat studies and their habitats, if they occur. This is reflected in PSPC's internal commitments tracking table.



**Comment 1-31 Interest of SART communities in a wildlife management protocol**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 13.1*

## Comments and advice

The Kebaowek, Wolf Lake and Timiskaming First Nations have expressed interest in creating a wildlife management protocol.

### PSPC Response:

PSPC is committed to working with the SART communities of Kebaowek, Wolf Lake, and Timiskaming First Nations to develop a wildlife management protocol. Discussions supporting the proposed protocol are reflected in the PSPC Consultation and Communications Plan developed in collaboration with SART.

**Comment 1-32 Interest of SART communities in a migratory bird inventory**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 13.1. and 19*

## Comments and advice

The Kebaowek, Wolf Lake and Timiskaming First Nations are interested in creating a migratory bird inventory.

### PSPC Response:

PSPC is committed to discussing with the SART communities of Kebaowek, Wolf Lake, and Timiskaming First Nations the creation of a migratory bird inventory. Discussions supporting the inventory are reflected in the PSPC Consultation and Communications Plan developed in collaboration with SART.

**Comment 1-33 Consideration of various subgroups that may be affected by the project**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes) and 7.3.5 (Other valued components that may be affected by the project)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 23.7.1 (Socio-Economic Management Plan – Introduction)*

## Comments and advice

Keepers of the Circle explicitly instructs measures be taken to ensure that Indigenous women, girls and gender-diverse people are involved in the decision-making and implementation of the project and that their views are thoroughly considered, with tangible and measured mitigation of impacts. This is because Indigenous women are the water keepers and bear sacred knowledge and responsibilities for the waterways.

Specifically, the voices of Indigenous women, girls and gender-diverse peoples must be intentionally considered when assessing the potential impacts of project development and prioritised during project implementation by providing equal access to employment for Indigenous women and ensuring safe and secure employment throughout the project development.

### PSPC Response:

PSPC is committed to working with Indigenous women, girls, and gender diverse people in decision-making and implementation of the project and has reflected this in the PSPC Consultation and Communications Plan for engaging members of the public.

A number of Indigenous groups commented in earlier drafts of the EIS that the assessment should look at how the Project may affect vulnerable or sub-populations using the Gender Based Analysis Plus (GBA+) lens. Project assessments conducted under the Impact Assessment Act (2019) that replaced CEAA 2012, now require GBA+. The effects assessment has considered differences in potential effects that could be experienced by sub-populations including vulnerable groups as is required by the EIS Guidelines (Section 7.1.11) that state that the assessment consider: "health and socio-economic conditions including the . . . functions of vulnerable systems and groups . . ." (Section 13.0.2.2)

For each community for which impact assessments were completed barriers to employment were considered, including challenges to accessing employment by women. Chapter 13 includes mitigation and/or enhancement measures to support inclusive Indigenous participation, including Indigenous women, in the Project construction and monitoring activities. These measures are also summarized in Chapter 20, were developed in consultation with Indigenous groups, and include the following which relate to equal, safe, and secure employment:

- Prioritizing local and Indigenous service providers
- Encouraging joint ventures when local capacity does not exist to create benefits for local and Indigenous communities
- Ensuring equal pay and employment opportunities
- Encouraging contractors to use local and Indigenous services

- Instituting zero-tolerance policies for racism and sexism
- Providing cultural awareness and sensitivity training
- Monitoring Indigenous and marginalized worker concerns and responding to issues as they arise
- Encouraging workplace diversity measures and incentives
- Instituting confidential whistle-blower/grievance system for the workplace
- Encouraging implementation of workplace diversity measures and incentives
- Developing an Indigenous Participation Plan to support economic benefits and to encourage contractors to provide training and apprenticeship opportunities to Indigenous people
- Discussing and addressing barriers to employment during development of the Indigenous Participation Plan
- Supporting environmental monitoring training for local, impacted Indigenous groups
- Supporting the creation and long-term sustained use of local Indigenous guardianship initiatives
- Discussing cultural leave and flexible scheduling with Indigenous employees
- Encouraging wellness and family leave policies
- Giving preference to local and Indigenous workers to minimize changes to harvesting (in response to increased land use)
- Ensuring all workers are aware of, and follow, provincial hunting and fishing rules and regulations; working with provincial conservation officers to monitor and enforce
- Including Indigenous groups in monitoring activities

#### Comment 1-34 Contribution of the project to sustainability – construction

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes) and 7.3.5 (Other valued components that may be affected by the project)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 23.7 (Socio-Economic Management Plan)*

### Comments and advice

Keepers of the Circle would like materials to be purchased locally and ethically where possible, and Indigenous workers and construction companies to be employed. Jobs should be given in priority to Indigenous people who live in the area and do not need to travel to work.

#### PSPC Response:

Please refer to PSPC Response to Comment 1-33.

**Comment 1-35 Interest of SART communities in the fisheries management plan****References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 20 (Effect on the human environment)*

**Comments and advice**

The Kebaowek, Wolf Lake and Timiskaming First Nations have expressed interest in participating in the fisheries management plan at the project site.

**PSPC Response:**

The SART communities will be engaged in the preparation of the Environmental Management Plan, which will include provisions for fish. PSPC has also committed to involving SART in fish and fish habitat monitoring.

**Comment 1-36 Compliance with internal Nation-to-Nation protocols****References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.3.4 (Indigenous peoples – current use of lands and resources for traditional purposes)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 20 (Effect on the human environment)*

**Comments and advice**

The proponent must ensure that it respects the protocols between different First Nations with respect to holding ceremonies and taking resources in traditional territory.

**PSPC Response:**

PSPC is committed to providing space for First Nations ceremonies and to the harvesting of any culturally important materials (such as trees, plants, and other materials) prior to construction as previously discussed with Indigenous groups and which is outlined in the EIS.

# Human Environment

## Information requests directed to the proponent

### IAAC-1-83 Noise Monitoring Plan

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.1 (Atmospheric, light and noise environment), 7.1.9 (Indigenous peoples), 7.2.1 (Changes to atmospheric, sound and light environments) and 7.3.4 (Indigenous peoples)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.2.1.3.3.2.1*

#### Context

Section 11.2.1.3.3.2.1 mentions a noise monitoring plan. If the noise level on the project site is found to be higher than expected, solutions would be put in place to achieve the objectives defined in the noise monitoring plan.

#### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) submit a noise management plan for the construction and operational phases or justify the lack of one. This plan should include, but not be limited to, key mitigation measures, details of monitoring and surveillance, the mechanism for handling and resolving complaints and how local communities would be considered and involved in the monitoring; and

#### PSPC Response:

PSPC will require the contractor to hire an acoustical expert to develop a Noise Management Plan. This plan will include modeling of expected noise generated by the contractor's construction methods and equipment which will update the noise level assessment of the EIS. Should this modeling identify noise exceedance to Health Canada guidance recommendations during construction, the contractor will need to identify and implement noise abatement measures. Key abatement measures are presented in Section 11.2.1.3.3.2.3 of the EIS and include day-time work, white-noise reversing alarm, low impact hammer-jack, and temporary noise barriers near sensitive buildings on Long Sault Island. PSPC will require a third-party-monitoring consultant to monitor noise level during construction phases most likely to generate high-noise level according to the contractor's noise modeling. All noise complaints will need to be communicated to the third-party-monitoring consultant to make additional noise measurements, if required. Class 1 portable noise meters will be used to assess 30 minutes LAeq levels and noise measurement will need to follow usual recommendations for noise monitoring such as :

- On-site calibration of noise meter before each measurement;
- Measurement to be taken 5 meters from the sensitive receptor;
- Avoid measurement during snow/rain event and with wet road conditions;
- Avoid periods of wind exceeding 20 km/h.

PSPC does not intend to implement a noise monitoring program for the operation of the new dam-bridge as the sluice-gate mechanism and associated accessories generate negligible noise.

- B) clarify whether the guidelines by the MELCC (MELCC 2020) will be used as targets in the noise monitoring plan.

PSPC Response:

PSPC intends to comply with objectives set in Health Canada noise guidance as stated in Section 11.1.6 of the EIS and summarized in Table 11.1 of this section as follow:

**Table 11.1 Summary of Health Canada Recommendations Applicable for Construction and Operation**

Metric	Ld(7:00-22:00) Speech Understanding (Day Noise Level Between 7:00 and 22:00)	LRdn (Normalized Noise Level over a Period of 24 hours)	Increase of the Percentage of People Highly Affected by the Noise Level %HA
Recommended Target	<60 dBA	<75 dBA	<6.5%

The Québec « Lignes directrices relativement aux niveaux sonores provenant d'un chantier de construction industriel » referred to above is an internal policy, as are the Health Canada noise guidance. These provincial guidelines set a day-time noise objective at sensitive receptors (house, hospital, school, institution) of <55 dBA or background noise level, and a night-time objective of <45 dBA or background noise level is above <45 dBA. As this is more stringent than Health Canada noise guidance, PSPC will commit to comply with these provincial objectives.

Province of Ontario and City of Temiscamingue have no regulation or by-law addressing construction site noise levels.

**IAAC-1-84 Measures to mitigate the effects on the sound environment**

**References**

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.2.1 (Changes to atmospheric, sound and light environments), 7.3.4 (Indigenous peoples), 7.3.5 (Other valued components that may be affected by the project) and 7.4 (Mitigation measures)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 8.1.4.6.3, 8.1.6.4.1.4, 11.2.1.1.2 and 11.2.1.3.3.2.4.6*

**Context**

According to Chapter 8 of the EIS, Indigenous communities are concerned with the potential effects of the project on the sound environment. In the tables in sections 11.2.1.1.2 and 11.2.1.3.3.2.4.6, two mitigation measures are proposed: to implement a system for receiving and managing complaints, and to adopt solutions quickly if the “targets” determined in the noise management plan are not met.

Health Canada stresses that the measures must protect the health of the population and address the noise concerns of Indigenous communities.



## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) specify whether it will keep noise levels as low as possible. If so, explain how; and

### PSPC Response:

See PSPC Response to AEIC-1-83.

- B) specify what additional mitigation measures it would implement if the population or land users react more strongly than expected to the change in the noise environment (e.g. if many complaints are received).

### PSPC Response:

We should first be cautious when addressing noise levels and complaints. Perception of noise is often subjective, and complaints are not always linked to exceedance of noise level limits.

Noise complaints should always be communicated immediately to PSPC third-party-monitoring consultant for him to assess the situation and take a noise level measurement, when possible. If set noise levels are exceeded, the source of noise should be stopped, and the contractor will be required to identify additional mitigation measures. These measures will vary depending on source of noise. The contractor may elect to modify a work method, adopt a different work schedule, or use a different equipment. However, this will need to be submitted to PSPC for approval before starting work again. If noise levels are within the set limits, no action is required. In both cases, a reply will need to be provided by PSPC to plaintiff.

## Comments and advice for the proponent

### Comment 1-37 Noise impact indicator

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.1 (Atmospheric, light and noise environment) and 7.2.1 (Changes to atmospheric, sound and light environments)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.2.1.3.2*

#### Comments and advice

Table 11.28 of the EIS refers to Health Canada's "recommended targets" for noise. Health Canada wishes to emphasize that an increase in the percentage of people who are highly annoyed (%HA) of less than 6.5% is not a "recommended target," nor is it a federal noise limit. It is an indicator for assessing the significance of noise effects. An increase of more than 6.5% of %HA generally corresponds to a significant noise impact.

### PSPC Response:

This will be taken into consideration for the Noise Management Plan.



## Comment 1-38 Noise target values

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, Sections 7.1.1 (Atmospheric, Light and Noise Environment) and 7.2.1 (Changes to atmospheric, sound and light environments)*.

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 11.2.1.3.2.1 and 11.2.1.3.2.*

### Comments and advice

In sections 11.2.1.3.2.1 and 11.2.1.3.2.2 of the EIS, in assessing noise impacts, the proponent considered municipal regulations as well as two indicators suggested by Health Canada: interference with understanding someone speaking and the calculation of the %HA. The assessment does not appear to have considered the [Lignes directrices relativement aux niveaux sonores provenant d'un chantier de construction industriel](#) (MELCC, 2020) during the construction phase. Health Canada recommends that the proponent consider the most recent version of these guidelines from the MELCC as part of the assessment of noise effects and as objectives in the noise monitoring plan during the construction phase.

#### PSPC Response:

This will be taken into consideration for the development of the Noise Management Plan and will be communicated to the PSPC third-party-monitoring consultant.





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# Archaeological Resources

## Information requests directed to the proponent

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### IAAC-1-85 Federal lands

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.10. (Other changes to the environment caused by the project) and 7.3.5. (Other valued components that may be affected by the project)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, chapter 4*

#### Context

There are multiple property titles (terrestrial and underwater) within the project footprint, and federal land is not clearly identified.

As the expert federal department on archaeology, Parks Canada advises other federal departments on archaeological matters. Parks Canada can only advise on federal land.

The regulatory practice of archaeology varies depending on whether it is carried out on federal or provincial land. If archaeological work takes place on provincial land, the provincial authorities must be consulted.

#### The Agency instructs the proponent (Public Services and Procurement Canada) to:

A) clearly identify the boundaries, both terrestrial and underwater, of federal land as defined in CEAA 2012.

#### PSPC Response:

Please refer to the EIS Chapters 3-7, Figure 7.1, also presented below. The federal lands have been delineated by red color. Annex 9.1 of the EIS Chapter 9 also shows the PSPC property limits, also presented below. Additional information can also be found on the Directory of Federal Real Property of the Treasury Board of Canada Secretariat: [GC Site - Témiscamingue Dam \(Québec side\) | Treasury Board of Canada Secretariat \(tbs-sct.gc.ca\)](#) & [GC Site - Timiskaming Dam \(Ontario side\) | Treasury Board of Canada Secretariat \(tbs-sct.gc.ca\)](#).

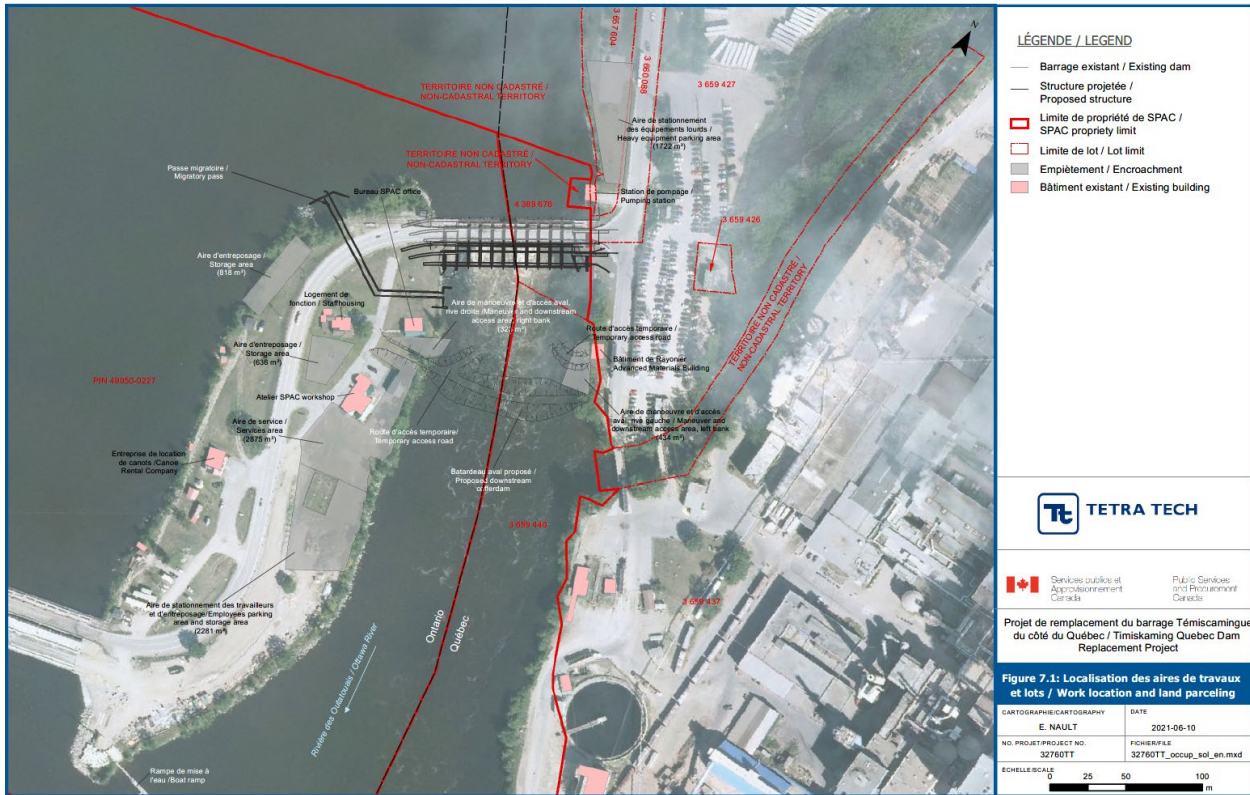
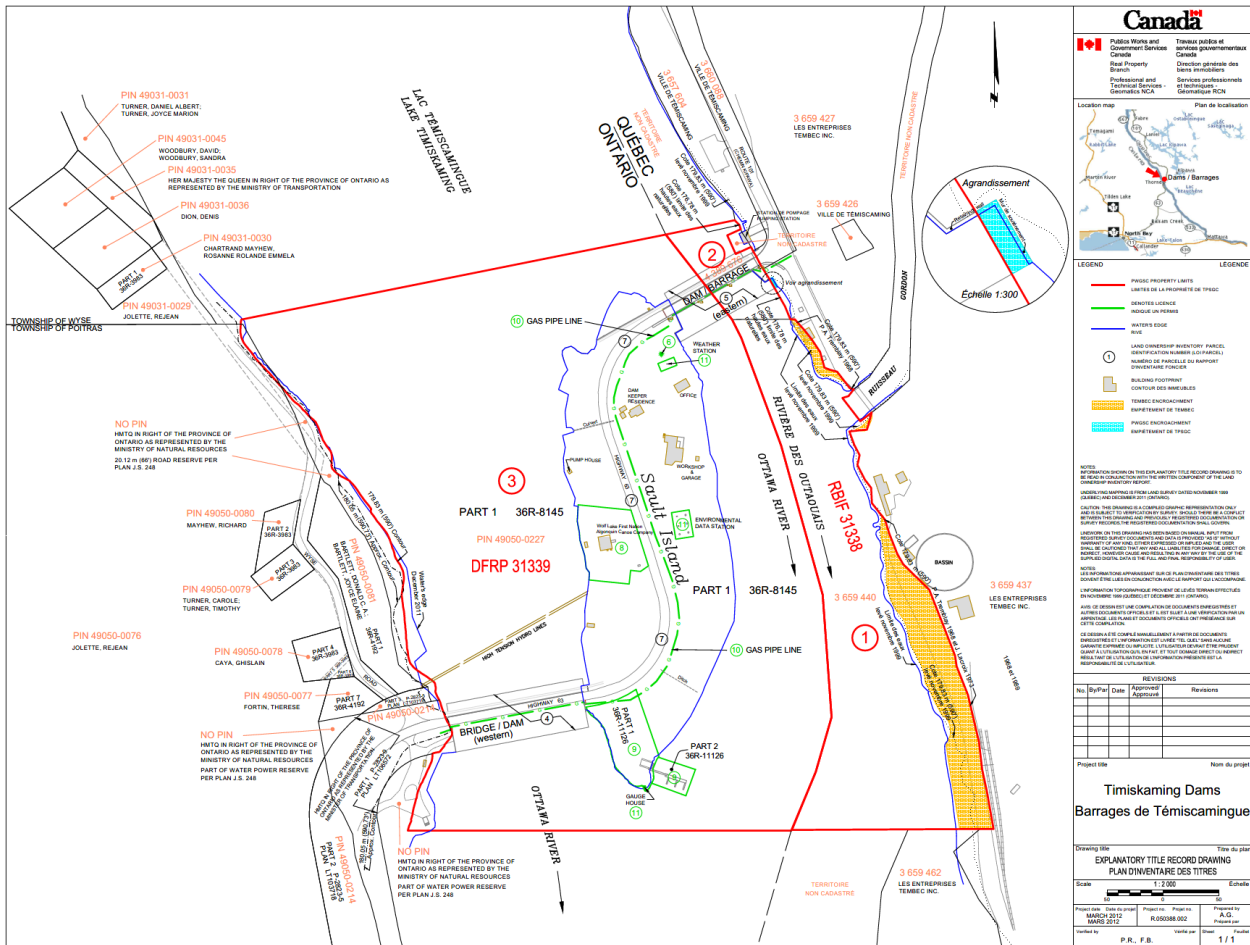


Figure 7.1 of the EIS Chapter 3-7



Annex 9.1 of the EIS Chapter 9

**IAAC-1-86 Archaeological collections management**

**References**

- CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.3.4 (Indigenous peoples) and 7.3.5 (Other valued components that may be affected by the project)*
- Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, different sections of chapter 13*

**Context**

There are multiple property titles (terrestrial and underwater) within the project footprint, and federal land is not clearly identified.

Federal departments are responsible for managing archaeological collections on their property in accordance with the provisions of the *Treasury Board Directive on Management of Materiel* and the *Guide to the*



*Management of Movable Heritage Assets.* If this responsibility is not part of a department's mandate, or if a department does not have the capacity to maintain an archaeological collection, Treasury Board requires that it find a way to fulfill this responsibility. The federal custodian, in consultation with a specialist, must find an appropriate repository for the collection arising from each project and negotiate an agreement for the care of that collection, preferably before the archaeological work begins.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) describe and demonstrate how the proponent will ensure archaeological documentation, the conservation of collections and their management, whether these resources emanate from provincial or federal land, terrestrial or underwater, considering that the terms and conditions differ.

#### PSPC Response:

As specified in the EIS Chapters 3-7, the entire project will be built on PSPC-owned land, except for some parcels on lot 3 659 427 which belongs to Rayonier (please refer to Figure 7.1 or Annex 9.1 above). The intent is to acquire these parcels which will be used to reroute the dam-bridge access road. No work will be done on provincial lands. If any archaeological resources are found either on land or in-water, the Ontario regulations will be followed. A chance-find protocol is being developed for the marine assessment and will be shared with Indigenous groups for review. A similar protocol will be also developed in collaboration with the Indigenous groups for terrestrial findings.

## IAAC-1-87 Underwater archaeological assessment

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.9. (Indigenous peoples) and 7.1.11. (Human environment)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, different sections of chapter 13*

### Context

The Archaeological Potential Assessment in Appendix 13.2 of the EIS superficially covers the underwater view of the area. There are several elements missing or in need of further investigation.

In its letter to the proponent dated November 3, 2022, the Agency requested that this deficiency be addressed. Chapter 13 of the revised EIS of February 2023 specifies that the proponent will carry out an underwater archaeological assessment in four phases (potential assessment, survey, archaeological impact study and intervention plan). It is indicated that this assessment will be submitted to the Agency when completed, i.e., around September 2023.

Since information on the nature of the archaeological resources and recommendations for mitigation, monitoring and follow-up are lacking at this stage, Parks Canada wishes to make it clear that it is not in a position to provide expert advice because of missing or incomplete data.



## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) provide the Agency with an underwater archaeological assessment as soon as it is available and attach it to the response document to this information request;

### PSPC Response:

- For the Background Research, please see Appendix M-1.
- For the Marine Archaeological Survey, please see Appendix M-2.
- For the Technical Note – Impact Assessment, please see Appendix M-3.
- For the Marine Archaeological Protocol, the report is currently being reviewed by the Indigenous groups and will be submitted to the Agency as soon as the review is completed.

- B) describe how it will ensure the quality of the underwater potential study to effectively assess that potential;

### PSPC Response:

The scope of work for the marine archaeological services was entirely based on the Parks Canada's requirements for the work. The marine archaeologist who carries the work holds a license issued by the Ontario Minister of Citizenship and Multiculturalism (MCM). The archaeological reports will be submitted to the Ontario Public Register of Archaeological Reports. The Ministry staff also reviews reports for compliance with terms and conditions of license and requirements for fieldwork and reporting. In addition, PSPC, the prime consultant Tetra Tech and the seven Indigenous groups reviewed and commented the reports. Once the MCM's review is completed, the reports will be also shared with Parks Canada for their review.

- C) identify and describe the nature of the underwater archaeological remains in the construction area; and

### PSPC Response:

Please refer to the Marine Archaeological Survey report (Appendix M-2), Section 3.0 – Results and Section 4.0 – Analysis and Conclusion. The only remain found is a crib close to the project site which was sent for registration as to the Ministry of Citizenship and Multiculturalism. A borden number was assigned to it.

- D) evaluate the predicted effects on underwater archaeological resources, identify and describe the mitigation measures the proponent would implement to minimize the predicted effects on these resources (including in situ documentation, excavation, and enhancement to offset potential destruction), and evaluate the residual effects.

### PSPC Response:

Please refer to the Technical Note – Impact Assessment (Appendix M-3). The only resource found, “the crib”, is located outside of the construction site, south of the proposed cofferdam, so there will be no direct impact to the crib. To ensure no indirect impacts occur, the following measures are proposed:

*“Avoidance can be achieved for the crib (CeGs-3) by ensuring that all construction plans include both a visual and georeferenced for the location of the crib; ensuring that the protection of the crib is relayed to all managers and their crew through initial briefs/meetings; and, place buoys at the location of the crib as a visual marker for avoidance. Avoidance should be a minimum of 10 meters distant from the crib.”*

**IAAC-1-88 Potential cultural value of the existing dam-bridge**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.9. (Indigenous peoples) and 7.1.11 (Human environment)*

## Context

In April 2023, the Agency held a public consultation session on the EIS where a representative of the Ontario provincial government explained that, during the environmental assessment of the Ontario Timiskaming Dam-Bridge Replacement Project, a heritage impact assessment was conducted. This 2014 study concluded that the Quebec side of the dam-bridge and the buildings associated with the dam had cultural heritage value or interest.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) specify whether a study to establish the cultural heritage value of the existing dam-bridge has been carried out and, if so, provide a summary of the findings of this study.

### PSPC Response:

Please find below the Heritage Impact Assessment of the Timiskaming Quebec Dam Replacement Project.

### **Heritage Impact Assessment**

#### **Project Context**

The entire island is federally owned land and is within the Province of Ontario. On the island, there are four structures associated with the operation and maintenance of the dams, as well as a newer building and a cairn.

This assessment was conducted for the purpose of identifying and evaluating the heritage resources within the study area that may be subject to Project impacts, by examining building, structures, and cultural heritage landscapes as cultural heritage resources considerations, and spiritual, ceremonial, and cultural sites as Indigenous community considerations.

The project was designed and completed in accordance with the provisions of Quebec's *Cultural Heritage Act*, P-9.002, the *Ontario Heritage Act*, R.S.O. 1990, c. O.18; the *Provincial Policy Statement*, 2005 issued under Section 3 of the *Planning Act*, R.S.O. 1990, c. P.13; the *Environmental Assessment Act*, R.S.O. 1990, c. E.18; and the *Canadian Environmental Assessment Act*, 2012, c. 19, s. 66.

#### **Guiding principles and legislation**

This study was designed to examine the heritage attributes of the lands within the study area for the proposed replacement of the Quebec Timiskaming Dam. This study draws heavily upon the *Heritage Impact Assessment; Timiskaming Dam (Ontario)* (Ontario HIA), that was completed by Archaeological Research Associated Ltd. in January of 2014, prior to the reconstruction of the Ontario Timiskaming Dam. Much of the information in this assessment was pulled from the Ontario HIA, as the cultural heritage resource considerations and Indigenous community considerations remain the same. The main differences

between the Ontario HIA and this assessment are the potential impacts to the Heritage properties, and the associated alternatives and mitigation measures.

Similarity to the Ontario HIA, the heritage attributes were assessed both individually and as a whole, along with their relationship to the surrounding landscape. The approach was conceived based on the principles and practices set out in *The Protection of Quebec's Heritage document*, and *Ontario Heritage Tool Kit* series, particularly the documents *Heritage Property Evaluation: A Guide to Listing, Researching and Evaluating Cultural Heritage Property in Ontario Communities* (MCL 2006a) and *Info Sheet #5: Heritage Impact Assessments and Conservation Plans* (MCL 2006b). These documents outline the appropriate methods and standards that must be observed when a project has the potential to impact local heritage resources. This assessment mainly uses the approaches set out in the documents and guidelines created by Ontario, as the majority of heritage resources are located on Long Sault Island, with the exception of the existing Quebec Timiskaming Dam and the remnants of the 1911 Quebec Timiskaming Dam.

The following concepts require clear definition in advance of this methodological overview, as they are fundamental for any discussion pertaining to cultural heritage resources:

- Cultural Heritage Value or Interest (CHVI): “the aesthetic, historic, scientific, cultural, social or spiritual importance or significance for past, present or future generations. The heritage value of a historic place is embodied in its character-defining materials, forms, location, spatial configurations, uses and cultural associations or meanings” (Parks Canada 2003:2).
- Built Heritage (BH) Resource: “one or more significant buildings, structures, monuments, installations or remains associated with architectural, cultural, social, political, economic or military history and identified as being important to a community. These resources may be identified through designation or heritage conservation easement under the *Ontario Heritage Act*, or listed by local, provincial or federal jurisdictions” (MMAH 2005:29).
- Heritage Cultural Landscape (HCL): “a land area recognized by a community for its remarkable landscape features, which are the result of the interaction of natural and human factors and are worth conserving and, if applicable, enhancing because of their historical or emblematic interest, or their value as a source of identity” (*Cultural Heritage Act*, 2021).

The heritage value of a HCL is often derived from its association with historical themes that characterize the development of human settlement in an area. However, the heritage value of a HCL can also originate from non-historical and non-associative values. Just like BH resources, HCLs can be defined by physical values, design values, and/or contextual values. Although significant measures of design or physical value are relatively rare in the case of HCLs (i.e. few have a high degree of craftsmanship, few display scientific merit, etc.), contextual value is quite common due to their frequent links to the surroundings and importance in defining the character of any given area. (More information on the origins of cultural landscapes can be found in the Ontario HIA.)

Determining a CHVI differs between Quebec’s *Cultural Heritage Act* and the *Ontario Heritage Act*. The *Ontario Heritage Act* sets out three principal criteria for determining a CHVI, whereas Quebec’s *Cultural Heritage Act* does not establish direct criteria. Therefore, to objectively identify heritage resources, the guidelines set under the determine the *Ontario Heritage Act* were used for the purposes of this assessment. These criteria include Design/Physical Value, Historical/Associative Value and Contextual Value:

Design or Physical Value manifests when a feature:

- is a rare, unique, representative or early example of a style, type, expression, material or construction method;
- when it displays a high degree of craftsmanship or artistic value; or

- when it displays a high degree of technical or scientific achievement.

Historical or Associative Value appears when a resource has:

- direct associations with a theme, event, belief, person, activity, organization or institution that is significant to the community;
- yields or has the potential to yield information that contributes to the understanding of a community or culture; or
- demonstrates or reflects work or ideas of an architect, builder, artist, designer or theorist who is significant to the community.

Contextual Value is implied when a feature:

- is important in defining, maintaining or supporting the character of an area;
- is physically, functionally, visually or historically linked to its surroundings; or
- is a landmark.

If a potential heritage resource is found to possess one or more heritage attributes that meet any of these criteria, it can then be considered an identified heritage resource. Any potential project impacts on identified heritage resources must then be evaluated, including direct and indirect impacts. *Info Sheet #5: Heritage Impact Assessments and Conservation Plans* (2006b:3) provides an overview of several major types of negative impacts, including but not limited to:

- Destruction of any, or part of any, significant heritage attributes;
- Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance;
- Shadows created that alter the appearance of a heritage attribute or change the viability of a natural feature or plantings, such as a garden;
- Isolation of a heritage attribute from its surrounding environment, context or significant relationship;
- Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features;
- A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces; and
- Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect an archaeological resource.

If potential impacts on identified heritage resources of CHVI are recognized, then proposed conservation or mitigative/avoidance measures must be evaluated. If the proposed measures are considered to be ineffective (or otherwise simply do not exist), other conservation or mitigative measures (i.e. alternative development or site alteration approaches) must be recommended (MCL 2006b:3).

*Info Sheet #5: Heritage Impact Assessments and Conservation Plans* (2006b:3) lists several methods of minimizing or avoiding a negative impact on a heritage resource (MCL 2006b:4), including but not limited to:

- Alternative development approaches;
- Isolating development and site alteration from significant built and natural features and vistas;
- Design guidelines that harmonize mass, setback, setting, and materials;
- Limiting height and density;
- Allowing only compatible infill and additions;
- Reversible alterations; and
- Buffer zones, site plan control, and other planning mechanisms.

### **Identified heritage resources**



To determine if any provincial or federal cultural heritage properties exist in the study area, the Répertoire du Patrimoine Culturel du Québec, the former Ontario Heritage Properties Database (MCL 2005), and the National Historic Sites archive were each examined. Each of these databases showed that there are no structures that are officially recognized. In addition, the Ontario Heritage Trust was also consulted regarding Provincial Heritage Easements; there are none on the subject properties. Furthermore, the Canadian Heritage River Designation for the Ottawa River does not list Long Sault Island or the dams as significant features related to any of the identified themes (OHRDC 2006).

While there are no heritage values in the study area that are officially recognized, studies completed by URS in 2010 and consultation with the Federal Heritage Buildings Review Office (FHBRO) showed that there still exist potential heritage sites of value at a local level, therefore they must still be considered.

These potential heritage sites of value at a local level include:

- The Quebec Timiskaming Dam
- The remanence of the previous Quebec Timiskaming Dam
- The highway cairn
- The Dam Superintendent's House
- The Dam Superintendent's Office
- The Dam Workshop and Garage
- Dam Building 142 Shed

### **Heritage assessment**

This section assesses and describes the CHVI of seven properties within the study area that were identified as having potential CHVI. These include the subject property, the Quebec Timiskaming Dam, the adjacent properties on Long Sault Island which include Superintendent's House, Dam Superintendent's Office, Dam Workshop and Garage, Dam Building 142, and the cairn, and the remnants of the former Quebec Timiskaming Dam.

Structures within the study area that were not considered in this assessment include the Algonquin Canoe Company, and the Ontario Timiskaming Dam. While these structures hold value and importance to the community, they do not meet the criteria of Design/Physical Value, Historical/Associative Value, or Contextual Value set out in the Ontario Heritage Act.

### **Subject Property: Timiskaming Quebec Dam**

In 2013, FHBRO was contacted to determine if the exiting Quebec Dam and Old Ontario Dam structures should be evaluated as a federal heritage resource. To be evaluated, the structure must fall under their definition of a "building," which is based on the following criteria:

- it is capable of containing or sheltering human activities;
- it has an interior space, an exterior shell and a roof; and
- it is fixed in a permanent, specific location (FHBRO2013).

According to FHBRO, "Structures such as bridges and piers usually don't get evaluated by FHBRO. As for dams, it depends if they can be defined as "buildings." When they do, the custodian (PSPC or the federal department who owns it) has the obligation to submit them to our office, according to the Treasury Board Policy on Management of Real Property. If it doesn't fall under the above criteria, it doesn't have to be submitted to us" (FHBRO 2013). Therefore, neither the Quebec nor the Ontario Timiskaming Dam were examined by FHBRO.

In 2010, the Timiskaming Dam (Quebec) was examined by URS for PSPC to look at historical associations, engineering significance and the environment. The report concluded that the dam was not of interest at the Federal level but had historical interest at a regional level.

### ***Design or Physical Value***

The current dam connecting Long Sault Island to the Québec side of the Ottawa River was constructed in 1932-1934. It is a ten-slucice, reinforced concrete dam with stoplog sluice grates. Each of the ten sluiceways measures 20ft (6.1m) and are separated by 5ft (1.5m) concrete piers. The third sluiceway (between the third and fourth piers from the east bank) contains a log chute. The dam holds an average of between 2.5 and 3.5 meter head of water to be released during dry periods if necessary (URS 2010: 5).

Although the dam is a stoplog dam, it shows some engineering improvements. These improvements were designed to minimize erosion and included using baffles or dentated sills along the edge of the apron. This design was patented in the 1920s by Theodor Rehbock, a professor of hydraulics at the University of Karlsruhe, in Germany. In Canada, the patent holder was the Power Corporation of Canada Ltd., who charged \$9,823 for use of their design. The use of this design in the Timiskaming Dam represents an early use of the technology. The sills, which employ denticulation or serration to break the force of the flowing water, are below the water and therefore, are not visible.

The dam was designed by the Chief Engineer of the Department of Public Works. The construction was carried out by T.C. Gorman Construction Co. Ltd. of Montréal under subcontract.

Currently, the dam's operations area is separated from the road by a steel and low wood barrier; the double-lane road also features a sidewalk on the downstream side.

### ***Historical or Associative Value***

The failing of the first Québec Dam had a serious impact on the economy of the area. Not only did the location of the dam support the nearby pulp and paper industry in Temiskaming, but it also regulated water flow on the Ottawa River for hydro-electric power. "The reconstruction of the dam was considered essential to the ongoing viability of the historic industrial base of the valley" (URS 2010:8). A memorandum from the Chief Engineer for the Deputy Minister dated October 13, 1933 urges reconstruction "on account of the adverse effect which the carrying away of this dam and the subsequent lack of storage water have on the industries both above and below" (Bennett Papers 1933-1934:357091). The document proceeds to list adjacent Timiskaming, the nearby municipalities of New Liskeard, Haileybury and Ville Marie, the Ontario Hydro-Electric Power, and Chats Falls Power Company, as well as logging companies, as just a few of the interests that were severely impacted by the lack of water regulation along the river when the dam collapsed (Bennett Papers 1933-1934:357092). A letter dated October 17, 1933 in response to this memorandum from the Deputy Minister, states that the effects of the low water levels were felt all the way along the river to Ottawa.

### ***Contextual Value***

The dam is located between the bank of the Ottawa River on the Québec side and Long Sault Island at the mouth of Lake Timiskaming. Due to its low profile, the dam is not visible from long distances away, thus does not detract from the natural beauty of the Ottawa River. However, on a micro-scale, the dam forms part of an industrial landscape.

When the dam was built, the area surrounding it was not populated. There was a small sawmill on the present site of Rayonier. Shortly after the dam's construction, the Town of Temiskaming became a single resource, planned town, linking the history of both the Ontario and Quebec dams with the town site. Today the dam and associated buildings, together with Rayonier pulp and paper mill, form part of an evolving industrial landscape along the Ottawa River.

### ***Value Summary***

The cultural heritage value of the Québec Timiskaming Dam is summarized in the following table:

Criteria	Evaluation
<b>The property has design value or physical value because it,</b>	
is a rare, unique, representative, or an early example of a style, type, expression, material, or construction method.	The property is a good example of a stoplog dam with engineering improvements to reduce erosion.
displays a high degree of craftsmanship or artistic merit.	The property does not display a high degree of craftsmanship.
demonstrates a high degree of technical or scientific achievement.	The property is an early example of the use of engineering advances to reduce erosion.
<b>The property has historical value or associative value because it,</b>	
has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community.	The subject property is associated with the development of water control on the Ottawa River and the founding of the Town of Temiscaming.
yields or has the potential to yield, information that contributes to an understanding of a community or culture.	The property does not have the potential to yield information about the community.
demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.	The property does not demonstrate or reflect the work or ideas of an architect, artist, builder, designer or theorist who is significant.
<b>The property has contextual value because it,</b>	
is important in defining, maintaining, or supporting the character of an area.	The property supports the industrial landscape.
is physically, functionally, visually, or historically linked to its surroundings.	The property is linked to the evolving industrial landscape.
is a landmark.	The dam is an important feature in the landscape and a local landmark.

**Remnants of the First Timiskaming Quebec Dam**

In 1911-1912 the first Timiskaming Quebec Dam was built following the construction of the Ontario Dam, but it failed in 1931. Evidence of the east abutment of the first dam is visible downstream from the current dam.

***Design or physical value***

The remnants of the first Timiskaming Quebec Dam do not hold much design or physical value as only an abutment of the initial structure remains.

***Historical or Associative Value***

“In 1859 and 1861, the valuable mill sites, or hydraulic lots, in the Chaudière District of Ottawa were put up for auction” (URS 2010:7). However, variability in the flow of the river led to disputes among owners. In 1907, the Canadian Government and Chaudière power users reached an agreement that would allow them to manage water levels in the river, thus providing a more predicable flow. The Timiskaming Dams are two of the dams that were constructed between 1908 and 1912 as part of this initiative.

After the construction of the dams, the Town of Temiscaming was established in 1913. It is immediately adjacent to Long Sault Island and the Timiskaming Dam (Québec) on the Québec side of the Ottawa River. Temiscaming is a planned town, which means that the company that set up there constructed the town for its workers. The town was laid out by Thomas Adams, a well-known urban planner who followed the City



Beautiful principles of designing beautiful and monumental cities. The location for the Town of Temiscaming was selected for the Ottawa River's consistent level of water which came from the Timiskaming Dams, a factor that was necessary for running its pulp and paper mill.

**Contextual Value**

The dam is located between the bank of the Ottawa River on the Ontario side and Long Sault Island at the mouth of Lake Temiskaming. Due to their low profile, the dam is not visible from long distances away, thus does not detract from the natural beauty of the Ottawa River. However, on a micro-scale, the dam forms part of an industrial landscape.

When the dam was built, the area surrounding it was not populated. There was a small sawmill on the present site of Rayonier. Shortly after the dam's construction, the Town of Temiscaming became a single resource, planned town, linking the history of both the Ontario and Quebec dams with the town site. The vital role the dam plays in the Town of Temiscaming was outlined in a memorandum from the Chief Engineer for the Deputy Minister dated October 13, 1933.

Since the dam was built, about 1913, the Town of Temiskaming, laying immediately at the dam, was built and is dependent on the continuity of the Canadian International Paper Company's bleached sulphite mill there. This mill gets its wood via the Ottawa River and Lake Temiskaming and their operation is based on the maintenance of the regulations of Lake Temiskaming (Bennett Papers 1933-1934: 357091). Today the dam, together with Rayonier, pulp and paper mill, form part of the industrial landscape along the Ottawa River.

**Value Summary**

The cultural heritage value of the Remnants of the First Timiskaming Quebec Dam summarized in the following table:

Criteria	Evaluation
<b>The property has design value or physical value because it,</b>	
is a rare, unique, representative, or an early example of a style, type, expression, material, or construction method.	The property is not rare, unique, representative or an early example of a style, type, expression, material or construction method.
displays a high degree of craftsmanship or artistic merit.	The property does not display a high degree of craftsmanship.
demonstrates a high degree of technical or scientific achievement.	The property does not demonstrate a high degree of technical scientific achievement
<b>The property has historical value or associative value because it,</b>	
has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community.	The subject property is associated with the development of water control on the Ottawa River and the founding of the Town of Temiscaming and is associated to the events of the failure of the dam.
yields or has the potential to yield, information that contributes to an understanding of a community or culture.	The property does not have the potential to yield information about the community.
demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.	The property does not demonstrate or reflect the work or ideas of an architect, artist, builder, designer or theorist who is significant.

The property has contextual value because it,	
is important in defining, maintaining, or supporting the character of an area.	The property supports the evolution of the industrial landscape.
is physically, functionally, visually, or historically linked to its surroundings.	The property is linked to the evolving industrial landscape.
is a landmark.	The lasting dam infrastructure is an important feature in the landscape and a local landmark.

**Cairn**

There is a stone cairn on Long Sault Island, between the Québec Dam and the cluster of dam properties (Superintendent’s House, Superintendent’s Office as well the Dam Workshop and Garage). The cairn commemorates the opening of the interprovincial highway (Highway 63).

**Design or Physical Value**

The highway cairn is of stone construction, which is consistent with the stone construction of the stairs and foundations of the nearby Dam Superintendent’s Office as well as the Dam Workshop and Garage.

**Historical or Associative Value**

The cairn commemorates the opening of the “North Bay Temiskaming Highway by Premier Mitchell F. Hepburn and Hon. Peter Heenan on September 6th, 1937.” The cairn was “erected as a token of good will between the City of North Bay and the Town of Temiskaming.”

**Contextual Value**

The property is associated with the surrounding industrial landscape as it commemorates an evolution in said landscape; specifically, the opening of the highway that crosses the island. In addition, the architecture complements the existing structures.

**Value Summary**

The cultural heritage value of the Cairn summarized in the following table:

Criteria	Evaluation
The property has design value or physical value because it,	
is a rare, unique, representative, or an early example of a style, type, expression, material, or construction method.	The property is not rare, unique, representative or an early example of a style, type, expression, material or construction method.
displays a high degree of craftsmanship or artistic merit.	The property does not display a high degree of craftsmanship.
demonstrates a high degree of technical or scientific achievement.	The property does not demonstrate a high degree of technical or scientific achievement.
The property has historical value or associative value because it,	
has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community.	The subject property has direct associations with the opening of Highway 63 which runs across Long Sault Island.
yields or has the potential to yield, information that contributes to an understanding of a community or culture.	The property does not have the potential to yield information about the community.

demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.	The property does not demonstrate or reflect the work or ideas of an architect, artist, builder, designer or theorist who is significant.
<b>The property has contextual value because it,</b>	
is important in defining, maintaining, or supporting the character of an area.	The property is not important in defining, maintaining or supporting the character of an area.
is physically, functionally, visually, or historically linked to its surroundings.	The property is linked to its surroundings as it commemorated the evolution of the industrial landscape through the opening of the highway.
is a landmark.	The property is not a landmark.

**Superintendent’s office**

The Dam Superintendent’s Office was built circa 1937. It was reviewed by a screening process, not a formal evaluation, by the FHBRO once it reached 40 years of age (FHBRO file 03-130). At the time of review, the Dam Superintendent’s Office was not designated.

**Design or Physical Value**

The Dam Superintendent’s Office was constructed circa 1937, after the reconstruction of the Timiskaming Quebec Dam. It is a vernacular style house building with a gable roof and central entrance. The entrance is flanked on either side by a window and is capped by a portico. The building has a rectangular floor plan. The steps and foundation are of stone construction.

**Historical or Associative Value**

The Dam Superintendent’s Office is associated with the management and running of both of the Timiskaming Dams. Within its walls, decisions were made regarding the operation of the dams, and this function has continued to the present. Currently, the Treasury Board of Canada lists the property as an office occupied by PWGSC

**Contextual Value**

The building is one of four buildings on Long Sault Island that is associated with the operation and maintenance of the Ontario and Québec Timiskaming Dams. It forms part of the evolving industrial landscape, which consists of the dams, the dam buildings, Rayonier and the Town of Temiskaming.

**Value Summary**

The cultural heritage value of the Dam Superintendent’s Office summarized in the following table:

Criteria	Evaluation
<b>The property has design value or physical value because it,</b>	
is a rare, unique, representative, or an early example of a style, type, expression, material, or construction method.	The property is not rare, unique, representative or an early example of a style, type, expression, material or construction method.
displays a high degree of craftsmanship or artistic merit.	The property does not display a high degree of craftsmanship.
demonstrates a high degree of technical or scientific achievement.	The property does not demonstrate a high degree of technical or scientific achievement.

The property has historical value or associative value because it,	
has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community.	The subject property has direct associations with the dams, and the industrial landscape.
yields or has the potential to yield, information that contributes to an understanding of a community or culture.	The property does not have the potential to yield information about the community.
demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.	The property does not demonstrate or reflect the work or ideas of an architect, artist, builder, designer or theorist who is significant.
The property has contextual value because it,	
is important in defining, maintaining, or supporting the character of an area.	The property supports the industrial landscape.
is physically, functionally, visually, or historically linked to its surroundings.	The property is linked to the evolving industrial landscape.
is a landmark.	The property is not a landmark.

**Superintendent’s house**

The Dam Superintendent’s House was built circa 1912. It was reviewed by a screening process, not a formal evaluation, by the FHBRO once it reached 40 years of age (FHBRO file 03-130). At the time of review, the Dam Superintendent’s House was not designated.

**Design or Physical Value**

The Dam Superintendent’s House was built at the time of the construction of the Timiskaming Ontario Dam (ca.1912). It is a vernacular style house with a gable dormer on the façade over a central front entrance. The door is flanked on either side by two windows. The house has an L-shaped floor plan. There is a small wooden clapboard shed located to the rear of the building similar to the one at the site of Dam Building 142.

**Historical or Associative Value**

The Dam Superintendent’s House is associated with the management and running of both of the Timiskaming Dams. It housed the superintendent who operated the dams. Currently, the Treasury Board of Canada lists the property as residential and vacant.

**Contextual Value**

The Dam Superintendent’s House is one of four buildings on Long Sault Island that is associated with the operation of the Ontario and Québec Timiskaming Dams. It forms part of the evolving industrial landscape which consists of the dams, the dam buildings, Rayonier ,and the Town of Temiscaming.

**Value Summary**

The cultural heritage value of the Dam Superintendent’s House summarized in the following table:

Criteria	Evaluation
The property has design value or physical value because it,	

is a rare, unique, representative, or an early example of a style, type, expression, material, or construction method.	The property is representative of vernacular Ontario architecture.
displays a high degree of craftsmanship or artistic merit.	The property does not display a high degree of craftsmanship.
demonstrates a high degree of technical or scientific achievement.	The property does not demonstrate a high degree of technical or scientific achievement.
<b>The property has historical value or associative value because it,</b>	
has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community.	The subject property has direct associations with the dams, and the industrial landscape.
yields or has the potential to yield, information that contributes to an understanding of a community or culture.	The property does not have the potential to yield information about the community.
demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.	The property does not demonstrate or reflect the work or ideas of an architect, artist, builder, designer or theorist who is significant.
<b>The property has contextual value because it,</b>	
is important in defining, maintaining, or supporting the character of an area.	The property supports the industrial landscape.
is physically, functionally, visually, or historically linked to its surroundings.	The property is linked to the evolving industrial landscape.
is a landmark.	The property is not a landmark.

### 142 Shed

The Dam Building 142 (housing) was built circa 1912. It was reviewed by a screening process, not a formal evaluation, by the FHBRO once it reached 40 years of age. At the time of review the Dam Building 142 (housing) was not designated. During the inspection of the heritage values conducted for the Ontario Dam, the building was found to be demolished. However, the associated shed is still standing.

#### **Historical or Associative Value**

The existing shed is associated with the workers' housing that was on Long Sault Island, and by extension, the management and operation of both of the Timiskaming Dams.

#### **Contextual Value**

The building is one of four buildings on Long Sault Island that is associated with the operation of the Ontario and Québec Timiskaming Dams. It forms part of the evolving industrial landscape which consists of the dams, the island buildings, Rayonier, and the Town of Temiskaming.

#### **Value Summary**

The cultural heritage value of the shed from Dam Building 142 is summarized in the following table:

Criteria	Evaluation
<b>The property has design value or physical value because it,</b>	
is a rare, unique, representative, or an early example of a style, type, expression, material, or construction method.	The property is representative of vernacular Ontario architecture.



displays a high degree of craftsmanship or artistic merit.	The property does not display a high degree of craftsmanship.
demonstrates a high degree of technical or scientific achievement.	The property does not demonstrate a high degree of technical or scientific achievement.
The property has historical value or associative value because it,	
has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community.	The subject property has direct associations with the dams, and the industrial landscape.
yields or has the potential to yield, information that contributes to an understanding of a community or culture.	The property does not have the potential to yield information about the community.
demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.	The property does not demonstrate or reflect the work or ideas of an architect, artist, builder, designer or theorist who is significant.
The property has contextual value because it,	
is important in defining, maintaining, or supporting the character of an area.	The property supports the industrial landscape.
is physically, functionally, visually, or historically linked to its surroundings.	The property is linked to the evolving industrial landscape.
is a landmark.	The property is not a landmark.

**Dam Workshop and Garage**

The Dam Workshop and Garage was built circa 1917. It was reviewed by a screening process, not a formal evaluation, by the FHBRO once it reached 40 years of age (FHBRO file 03-130). At the time of review the Dam Workshop and Garage was not designated.

**Design or Physical Value**

The Dam Workshop and Garage was constructed circa 1917, after the construction of the original Timiskaming Quebec Dam. It is a vernacular style building with a gable roof and off entrance. The steps and foundation are of stone construction.

**Historical or Associative Value**

The Dam Workshop and Garage is associated with the management and running of both of the Timiskaming Dams. Within its walls, components of the dams were maintained. Today it is still used for garage purposes. Currently, the Treasury Board of Canada lists the property as being used for a warehouse, storage and workshops.

**Contextual Value**

The building is one of four buildings on Long Sault Island that is associated with the operation and maintenance of the Ontario and Québec Timiskaming Dams. It forms part of the evolving industrial landscape which consists of the dams, the dam buildings, Rayonier, and the Town of Temiskaming.

**Value Summary**

The cultural heritage value of the Dam Workshop and Garage is summarized in the following table:

Criteria	Evaluation
<b>The property has design value or physical value because it,</b>	
is a rare, unique, representative, or an early example of a style, type, expression, material, or construction method.	The property is representative of vernacular Ontario architecture.
displays a high degree of craftsmanship or artistic merit.	The property does not display a high degree of craftsmanship.
demonstrates a high degree of technical or scientific achievement.	The property does not demonstrate a high degree of technical or scientific achievement.
<b>The property has historical value or associative value because it,</b>	
has direct associations with a theme, event, belief, person, activity, organization, or institution that is significant to a community.	The subject property has direct associations with the dams, and the industrial landscape.
yields or has the potential to yield, information that contributes to an understanding of a community or culture.	The property does not have the potential to yield information about the community.
demonstrates or reflects the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community.	The property does not demonstrate or reflect the work or ideas of an architect, artist, builder, designer or theorist who is significant.
<b>The property has contextual value because it,</b>	
is important in defining, maintaining, or supporting the character of an area.	The property supports the industrial landscape.
is physically, functionally, visually, or historically linked to its surroundings.	The property is linked to the evolving industrial landscape.
is a landmark.	The property is not a landmark.

**Analysis of potential impacts**

There are three potential locations for the placement of the new Timiskaming Quebec Dam. These options include:

1. Building the dam downstream of the current location.
2. Building the dam upstream of the current location.
3. Building the dam in the same location as the existing dam.

Depending on the location of the new dam, the impacts to the defined heritage resources could change. Therefore three tables were drafted below to outline the impacts to the heritage resources depending on which option is chosen.

The Ministry of Tourism, Culture and Sport, through their Check Sheet for Environmental Assessments: Screening for Impacts to Built Heritage and Cultural Heritage Landscapes, provide a list of potential impacts. The impacts are examined in the following tables to determine the following: will the proposed undertaking/project involve or result in any of the following potential impacts to the subject property or an adjacent property.

**Option 1: Dam Downstream of Current Location**

Potential Impact	Subject Property: Impact on Quebec Dam	Adjacent Property: Impact on Previous Dam Remnants	Adjacent Property: Impact on Highway Cairn	Adjacent Property: Impact on Superintendent's Office	Adjacent Property: Impact on Superintendent's House	Adjacent Property: Impact on Dam Building 124 Shed	Adjacent Property: Dam Workshop and Garage	Adjacent Property: Cultural Heritage Landscape
Destruction, removal or relocation of any, or part of any, heritage attribute or feature.	Yes	Yes	No	Yes	No	No	No	No
Alteration (which means a change in any manner and includes restoration, renovation, repair or disturbance).	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Shadows created that alter the appearance of a heritage attribute or change the exposure or visibility of a natural feature or plantings, such as a garden.	No	No	No	No	No	No	No	No
Isolation of a heritage attribute from its surrounding environment, context or a significant relationship.	No	No	No	No	No	No	No	No
Direct or indirect obstruction of significant views or vistas from, within, or to a built or natural heritage feature.	No	No	No	No	No	No	No	No

A change in land use (such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces).	No	No	No	No	No	No	No	No
Soil disturbance (such as a change in grade, or an alteration of the drainage pattern, or excavation, etc.).	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes

**Option 2: Dam Upstream of Current Location**

Potential Impact	Subject Property: Impact on Quebec Dam	Adjacent Property: Impact on Previous Dam Remnants	Adjacent Property: Impact on Highway Cairn	Adjacent Property: Impact on Superintendent's Office	Adjacent Property: Impact on Superintendent's House	Adjacent Property: Impact on Dam Building 124 Shed	Adjacent Property: Dam Workshop and Garage	Adjacent Property: Cultural Heritage Landscape
Destruction, removal or relocation of any, or part of any, heritage attribute or feature.	Yes	Yes	No	No	No	No	No	No
Alteration (which means a change in any manner and includes restoration, renovation, repair or disturbance).	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Shadows created that alter the appearance of a heritage attribute or change the exposure or visibility of a natural feature	No	No	No	No	No	No	No	No

or plantings, such as a garden.								
Isolation of a heritage attribute from its surrounding environment, context or a significant relationship.	No	No	No	No	No	No	No	No
Direct or indirect obstruction of significant views or vistas from, within, or to a built or natural heritage feature.	No	No	No	No	No	No	No	No
A change in land use (such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces).	No	No	No	No	No	No	No	No
Soil disturbance (such as a change in grade, or an alteration of the drainage pattern, or excavation, etc.).	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes



**Option 3: Dam in Same Location as Current Dam**

Potential Impact	Subject Property: Impact on Quebec Dam	Adjacent Property: Impact on Previous Dam Remnants	Adjacent Property: Impact on Highway Cairn	Adjacent Property: Impact on Superintendent's Office	Adjacent Property: Impact on Superintendent's House	Adjacent Property: Impact on Dam Building 124 Shed	Adjacent Property: Dam Workshop and Garage	Adjacent Property: Cultural Heritage Landscape
Destruction, removal or relocation of any, or part of any, heritage attribute or feature.	Yes	Yes	No	No	No	No	No	No
Alteration (which means a change in any manner and includes restoration, renovation, repair or disturbance).	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Shadows created that alter the appearance of a heritage attribute or change the exposure or visibility of a natural feature or plantings, such as a garden.	No	No	No	No	No	No	No	No
Isolation of a heritage attribute from its surrounding environment, context or a significant relationship.	No	No	No	No	No	No	No	No
Direct or indirect obstruction of significant views or vistas from, within, or to a built or natural heritage feature.	No	No	No	No	No	No	No	No

A change in land use (such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces).	No	No	No	No	No	No	No	No
Soil disturbance (such as a change in grade, or an alteration of the drainage pattern, or excavation, etc.).	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes

The replacement of the Quebec Dam will remove the existing structure, which will also alter the existing industrial landscape. The layout area which will be used during construction has the potential to impact all the properties except the shed that remains from Dam Building 142 due to its location away from the three proposed location.

### **Considered Alternatives and Mitigation Strategies**

The following is a consideration of generally-accepted mitigation options or alternatives as each applies to the subject property and adjacent properties with CHVI. The following considers possible alternatives:

**Retention:** This option provides for cultural heritage resources to be retained in their original location but allowing for the possibility of adaptive re-use. Generally-speaking, retention is the best mitigation option.

The Dam Superintendent's House, the Dam Workshop and Garage, the shed of Dam Building 142 as well as the cairn, will be retained in their original locations.

The Quebec Dam is not proposed for retention as reports indicate it is functionally obsolete. It is also possible that Option 1 will lead to the destruction of the Dam Superintendent's Office due to its proximity with the installation of the cofferdam for this option. The removal of the dam and the office will result in the loss of cultural heritage value. However, the construction of a new dam is consistent with the evolving cultural heritage landscape of which it is a part. Should the office be demolished, it would be relocated temporarily in the Dam Workshop and Garage waiting for a permanent solution.

**Relocation:** This option allows for a cultural heritage resource to be moved within or beyond the subject property, provided an appropriate context is maintained. This option assumes that the cultural heritage resource is moved to retain its heritage integrity and value.

The Dam Superintendent's Office and the Quebec Dam's size and function makes it impossible to relocate.

**Symbolic Conservation:** This option allows for the recovery of unique heritage components and incorporation into the new construction in remembrance of the past.

From a heritage conservation perspective, this is not a strong option for mitigation. It is also not a viable option as the proposed development is the replacement of a working piece of infrastructure that does not allow for placement of symbolic conservation features. With regard to the potential demolition of the office, symbolic conservation does not make sense due to its limited heritage value.

**Salvage and Documentation:** This option allows the demolition of the structures, ensuring thorough documentation of the property is carried out and that structural components, such as interior trim or brick, are removed for reuse elsewhere. From a heritage conservation perspective, this is not a strong option for mitigation.

Given that the replacement structure will be a dam of similar use and purpose as the existing dam, salvage and reuse of exiting parts is feasible as the travelling crane could be reused in other dams owned by PSPC. A feature that could be salvaged is the stoplogs, which could be incorporated into an interpretive panel for the island. The panel could explain: A) the dams' engineering, B) their significance to the management of water on the Ottawa River and, C) their importance in the development of the Town of Temiscaming.

The three tables below provide mitigation measure for each of the heritage values under each of the three construction options.





**Option 1: Dam Downstream of Current Location**

Cultural heritage property	Considered alternatives and mitigation measures for Option 1
Subject Property: Impact on Quebec Dam	Each of the three options for the construction of the new dam will require the demolition of the existing dam. It is recommended that there be a thorough examination and documentation of the existing dam be conducted prior to demolition for cultural heritage and historical retention purposes. It is also recommended that parts of the existing dam be salvaged and reused in the new infrastructure where possible.
Adjacent Property: Impact on Previous Dam Remnants	It is possible that Option 1 will lead to the destruction of the Original Dam Remnants. It is recommended that reasonable measures be taken to avoid its destruction. In the event where destruction is necessary, then it is recommended that there be a thorough examination and documentation of the Previous Dam Remnants be conducted prior to demolition for cultural heritage and historical retention purposes.
Adjacent Property: Impact on Highway Cairn	Given the proximity of the Highway Cairn to the construction area in Option 1, there is a possibility of an alteration or disturbance during construction.. It is recommended that mitigation measures be applied to ensure the cairn’s retention, including the installation of protective barriers, and restoring the cairn in the event of an accidental alteration.
Adjacent Property: Impact on Superintendent’s Office	It is possible that Option 1 will lead to the destruction of the Superintendent’s Office. It is recommended that reasonable measures be taken to avoid its destruction. In the event where destruction is necessary, then it is recommended that there be a thorough examination and documentation of the Superintendent’s Office be conducted prior to demolition for cultural heritage and historical retention purposes.
Adjacent Property: Impact on Superintendent’s House	Given the proximity of the Superintendent’s House to the construction area in Option 1 there is a possibility of an alteration or disturbance during construction. The goal for the Superintendent’s House is for it to be retained in its current location. It is recommended that mitigation measures be applied to ensure the building’s retention, including the installation of protective barriers, and restoring the building in the event of an accidental alteration.
Adjacent Property: Impact on Dam Building 142 Shed	Due to its location away from the subject property (Quebec Dam), as well as distance from the proposed layout sites, no impacts are expected on the shed of the Dam Building 142.
Adjacent Property: Dam Workshop and Garage	Given the proximity of the Dam Workshop and Garage to the construction area in Option 1 there is a possibility of an alteration or disturbance during construction. The goal for the Dam Workshop and Garage is for it to be retained in its current location. It is recommended that mitigation measures be applied to ensure the buildings’ retention, including the installation of protective barriers, and restoring the buildings in the event of an accidental alteration.

**Option 2: Dam Upstream of Current Location**

Cultural heritage property	Considered alternatives and mitigation measures for Option 1
Subject Property: Impact on Quebec Dam	Each of the three options for the construction of the new dam will require the demolition of the existing dam. It is recommended that there be a thorough examination and documentation of the existing dam be conducted prior to demolition for cultural heritage and historical retention purposes. It is also recommended that parts of the existing dam be salvaged and reused in the new infrastructure where possible.
Adjacent Property: Impact on Previous Dam Remnants	It is possible that Option 2 will lead to the destruction of the Original Dam Remnants. It is recommended that reasonable measures be taken to avoid its destruction. In the event where destruction is necessary, then it is recommended that there be a thorough examination and documentation of the Previous Dam Remnants be conducted prior to demolition for cultural heritage and historical retention purposes.
Adjacent Property: Impact on Highway Cairn	Given the proximity of the Highway Cairn to the construction area in Option 2, there is a possibility of an alteration or disturbance during construction.. It is recommended that mitigation measures be applied to ensure the cairn's retention, including the installation of protective barriers, and restoring the cairn in the event of an accidental alteration.
Adjacent Property: Impact on Superintendent's Office	Given the proximity of the Superintendent's Office to the construction area in Option 2 there is a possibility of an alteration or disturbance during construction. The goal for the Superintendent's Office is for it to be retained in its current location. It is recommended that mitigation measures be applied to ensure the building's retention, including the installation of protective barriers, and restoring the building in the event of an accidental alteration.
Adjacent Property: Impact on Superintendent's House	Given the proximity of the Superintendent's House to the construction area in Option 2 there is a possibility of an alteration or disturbance during construction. The goal for the Superintendent's House is for it to be retained in its current location. It is recommended that mitigation measures be applied to ensure the building's retention, including the installation of protective barriers, and restoring the building in the event of an accidental alteration.
Adjacent Property: Impact on Dam Building 142 Shed	Due to its location away from the subject property (Quebec Dam), as well as distance from the proposed layout sites, no impacts are expected on the shed of the Dam Building 142.
Adjacent Property: Dam Workshop and Garage	Given the proximity of the Dam Workshop and Garage to the construction area in Option 2 there is a possibility of an alteration or disturbance during construction. The goal for the Dam Workshop and Garage is for it to be retained in its current location. It is recommended that mitigation measures be applied to ensure the buildings' retention, including the installation of protective barriers, and restoring the buildings in the event of an accidental alteration.



**Option 3: Dam in Same Location as Current Dam**

Cultural heritage property	Considered alternatives and mitigation measures for Option 1
Subject Property: Impact on Quebec Dam	Each of the three options for the construction of the new dam will require the demolition of the existing dam. It is recommended that there be a thorough examination and documentation of the existing dam be conducted prior to demolition for cultural heritage and historical retention purposes. It is also recommended that parts of the existing dam be salvaged and reused in the new infrastructure where possible.
Adjacent Property: Impact on Previous Dam Remnants	It is possible that Option 3 will lead to the destruction of the Original Dam Remnants. It is recommended that reasonable measures be taken to avoid its destruction. In the event where destruction is necessary, then it is recommended that there be a thorough examination and documentation of the Previous Dam Remnants be conducted prior to demolition for cultural heritage and historical retention purposes.
Adjacent Property: Impact on Highway Cairn	Given the proximity of the Highway Cairn to the construction area in Option 3, there is a possibility of an alteration or disturbance during construction. It is recommended that mitigation measures be applied to ensure the cairn's retention, including the installation of protective barriers, and restoring the cairn in the event of an accidental alteration.
Adjacent Property: Impact on Superintendent's Office	Given the proximity of the Superintendent's Office to the construction area in Option 3 there is a possibility of an alteration or disturbance during construction. The goal for the Superintendent's Office is for it to be retained in its current location. It is recommended that mitigation measures be applied to ensure the building's retention, including the installation of protective barriers, and restoring the building in the event of an accidental alteration.
Adjacent Property: Impact on Superintendent's House	Given the proximity of the Superintendent's House to the construction area in Option 3 there is a possibility of an alteration or disturbance during construction. The goal for the Superintendent's House is for it to be retained in its current location. It is recommended that mitigation measures be applied to ensure the building's retention, including the installation of protective barriers, and restoring the building in the event of an accidental alteration.
Adjacent Property: Impact on Dam Building 124 Shed	Due to its location away from the subject property (Quebec Dam), as well as distance from the proposed layout sites, no impacts are expected on the shed of the Dam Building 142.
Adjacent Property: Dam Workshop and Garage	Given the proximity of the Dam Workshop and Garage to the construction area in Option 3 there is a possibility of an alteration or disturbance during construction. The goal for the Dam Workshop and Garage is for it to be retained in its current location. It is recommended that mitigation measures be applied to ensure the buildings' retention, including the installation of protective barriers, and restoring the buildings in the event of an accidental alteration.



## Comments and advice for the proponent

### Comment 1-39 Heritage policy terminologies

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.1 (Effects of potential accidents or malfunctions)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Summary, sections 2 and 6.15*

#### Comments and advice

In section 2 of the EIS Summary, in Table 2.1, the proponent compares the project location options by issue. The Ontario Ministry of Citizenship and Multiculturalism (MCM) suggests a revision of the terminology in the Societal Issues section. It notes that the archaeology criterion should be described as follows:

- Physical and Cultural Heritage – Archaeological Resources and Areas of Archaeological potential
- Physical and Cultural Heritage – Built Heritage Resources and Cultural and Heritage Landscapes

MCM believes that the terminology and framework in section 6.15 of the Summary should be aligned with the federal environmental assessment process and associated guidance (e.g. [Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site or Thing](#)).

MCM recommends that the terminology in section 6.15 be revised to adequately reflect the local policies. The proponent is instructed to:

- replace “follow the protocols outlined by the Ministry of Tourism and Culture of Ontario” with “comply with the *Ontario Heritage Act*”;
- in section 6.15 in the table “Mitigation measures for potential destruction of archaeological resources (on Long Sault Island),” reword numbers 1 and 2as follows:
  - 1. Halt activities if any archaeological resources are discovered, protect the site, notify Indigenous groups and the Ontario Ministry of Citizenship and Multiculturalism.
  - 2. Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the *Ontario Heritage Act*. The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the Registrar, Ontario Ministry of Public and

Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (at [archaeology@ontario.ca](mailto:archaeology@ontario.ca)) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

- in section 6.15 in the table “Mitigation measures for potential destruction of marine archaeological artefacts,” reword the terminology in number 2 as follows:
  - 2. Comply with the *Ontario Heritage Act* and/or Quebec Standards and Guidelines for Consultant Archaeologists

PSPC Response:

Noted for future publications and for the terrestrial chance-find protocol to be developed.

### Comment 1-40 Adding archaeological studies to the Ontario Register

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.1 (Effects of potential accidents or malfunctions)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Summary, section 6.15*

#### Comments and advice

In section 6.15 of the EIS Summary, the proponent shares a summary of the archaeological impact assessment. Please note that MCM asks that the archaeological studies be added to the Ontario Public Register of Archaeological Reports when completed. It is requested that the following analyses be added to the Ontario Register:

- Timiskaming Dam Complex: Québec dam replacement. Archeological Potential assessment Submitted to Tetra Tech inc. by Archéotec inc. (2017).
- The forthcoming Marine Archaeological Assessment 2023.

PSPC Response :

The Marine Archaeological Survey report (ARA, 2023) was sent to MCM and was added to the Ontario Public Register of Archaeological Reports. The Archeological Potential Assessment submitted to Tetra Tech inc. by Archéotec inc. (2017) has not been added to the Ontario Register as it was conducted by a Quebec archaeologist under the Quebec regulations. However, reference to this report was made in the Marine Archaeological Survey report (ARA, 2023).



## Accidents or Failures

### Information requests directed to the proponent

#### IAAC-1-89 Storage of petroleum products

##### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.1 (Effects of potential accidents or malfunctions)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 15.2*

##### Context

In section 15.2, the proponent refers to fuel storage systems and containers.

However, no information on the amount and type of petroleum product that would be stored is presented. This information is needed to determine whether an emergency response plan, in line with environmental emergency requirements, would be required.

#### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) provide details of the quantity and type of petroleum products the proponent intends to store on the project site.

##### PSPC Response:

Given the contractor has not been selected yet, methodology and equipment are unknown at this point and, only assumptions can be made based on experience with similar projects. Being close to City of Temiskaming, small size trucks will likely fill up at local gas stations. For heavy machinery such as crane, bulldozer, pile driver, and compactor, the most probable means of filling will be a tanker truck. Such a tanker truck would not be allowed to park on the work site when not filling up the machinery. For emergency purpose, contractors often keep a small quantity of fuel, usually stored in a double-wall aboveground storage tank not larger than 4,500 liters. Most probable fuel to be stored on site would be diesel fuel.

#### IAAC-1-90 Risk scenario – earthquakes

##### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.1 (Effects of potential accidents or malfunctions)*



*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 15.1*

## Context

Table 15.1 indicates that, for the operation phase of the proposed dam-bridge, the probability of an earthquake occurring is low. This probability is not presented for the construction phase. Earthquakes that could cause the dam-bridge to fail must be considered in all phases of the project.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) define what “low” means, given the estimated 75-year operating period of the proposed dam-bridge and the proximity of potentially damaging earthquakes in the vicinity over the past 90 years; and

### PSPC Response:

According to Public Safety Canada:

- earthquakes under a magnitude of 3.5 are generally not felt
- earthquakes of magnitude 5.5 to 6.0 will cause slight damage to nearby buildings
- earthquakes of magnitude above 7.0 are severe and could cause wide-spread damage

PSPC response to AEIC-1-29 presents a summary of earthquakes recorded between 1985 and 2023 in a 50 km radius around the project site (reproduced below). During this period, only one earthquake had a magnitude that could be felt. It occurred near the City of Témiscaming in January 2000, and had a magnitude of 5.5, without causing damage to the existing dam-bridge.

This analysis supports the “low” probability of occurrence of a major earthquake found in Table 15.1 of Section 15.1 of the EIS. This probability of occurrence stands for both the construction and operation phases.

Summary						
Magnitude	< 2	2	3	4	5	≥ 6
<b>Total</b>	98	50	9	0	1	0

- B) although it may be negligible, indicate whether the probability of an earthquake occurring during the construction phase has been assessed. If so, provide details of this assessment.

### PSPC Response:

See PSPC response above.

## IAAC-1-91 Valve opening system – risk of failure

## References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.1 (Effects of potential accidents or malfunctions)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 15.1*

## Context

In Table 15.1, the EIS presents various risks of accidents and failures, as well as protection and mitigation measures to address these risks. However, the EIS does not address the risks of a mechanical failure in the event of a power outage for the valve opening system.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) specify whether there is a risk of failure of the mechanical valve opening system in the event of a power failure and what measures would be used to prevent such a failure.

### PSPC Response:

Yes, there is a risk that the mechanical sluice gates cannot be used due to a power outage. However, there are generators on site if this happens. This is covered in Section 16.2.1 of the EIS with the statement: *“Note that generators are on site in case of any power failure”*.

## Comments and advice for the proponent

### Comment 1-41 Project-specific emergency response plan

#### References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.1 (Effects of potential accidents or malfunctions)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 11.2.2.2.2, 11.2.3.3.2.3, 15.1, 15.2 and 15.3*

#### Comments and advice

The project-specific emergency response plan was not presented in the EIS. According to sections 11.2.2.2.2 and 11.2.3.3.2.3, the plan would be developed in cooperation between Public Services and Procurement Canada, Tetra Tech and the contractor responsible for the construction. In Table 15.1 of the EIS, the emergency response plan is mentioned several times, and in section 15.2, it is specified that the plan would be reviewed annually, and that training would be provided to responders.

The proponent must note that it must develop, prior to each phase of the project and in consultation with the competent authorities, an accident or malfunction response plan applicable to each phase of the project. This plan may be enhanced with consultation activities and must include, but not be limited to:

- consideration for hazardous materials that would be stored on the project site;
- consideration of the impacts of different potential accidents or failure scenarios on the health, traditional food (fish, vegetation, etc.) and safety of the population;





- definition of the communication mechanisms between the stakeholders listed in section 15.3.1 of the EIS (proponent, local emergency responders, communities, etc.) and include an updated list of their contact details.

#### Comment 1-42 Consequences in the event of a dam-bridge failure

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.1 (Effects of potential accidents or malfunctions)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 15.1*

### Comments and advice

NRCan is of the opinion that all consequences that could arise from the failure of the dam-bridge due to an earthquake (or other event) should be identified in Table 15.1. It is recommended that the following two additional consequences be considered (but not limited to):

- reduced water storage for hydroelectric dams on the Ottawa River
- loss of access between Timiskaming and North Bay (the alternative land route is 304 kilometres instead of 66 kilometres)



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# Effects of the Environment on the Project

## Information requests directed to the proponent

### IAAC-1-92 Seismic events

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.2 (Effects of the environment on the project)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Table 15.1 and section 16.2.6*

#### Context

According to section 16.2.6 of the EIS, the design values defined in the National Building Code of Canada (NBCC, 2015) for earthquakes have been used to design the dam structures to ensure that the dam is capable of resisting to potential earthquakes in the area. It is also stated in Table 15.1 that the updated 2020 version (or latest version) will be used for the final design.

NRCan notes that the Canadian Dam Association's (CDA) Dam Safety Guidelines (CDA, 2013) require an assessment of the consequence level of the dam. This assessment is not presented in the EIS.

NRCan explains that the 2-per-cent probability of exceedance over 50 years in the NBCC would be equivalent to some level of consequence of the CDA recommendations. In addition, NRCan notes that the 2020 NBCC design values were published in March 2022 and are expected to be adopted by the various jurisdictions over the next few years.

#### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) indicate whether an assessment of the consequence level, in accordance with the CDA Dam Safety Guidelines (2013), has been carried out for the Quebec Timiskaming Dam-Bridge; and

##### PSPC Response:

The report « SR.2.2.H - Analyse des aspects hydrauliques » prepared by the consultant Tetra Tech dated on March 13, 2017, describes the approach followed based on the CDA's recommendations in order to establish the consequence classification rating for the Timiskaming Quebec dam (see Appendix N).

- B) if applicable, indicate the assessed consequence level for the dam-bridge.

##### PSPC Response:

The consequence classification rating is "high".

## IAAC-1-93 Integration of climate change into the design of the dam

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.1 (Effects of potential accidents or malfunctions) and 7.6.2 (Effects of the environment on the project)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 9, 15.1 and 16.2.1*

### Context

In Table 15.1, the EIS identifies major flooding as a risk to the operation of the new dam and classifies major flooding as having a low probability of occurrence, but indicates that it could impact water quality, aquatic wildlife, and associated uses.

Section 16.2.1 explains that the dam design would follow the CDA Dam Safety Guidelines, which specify that the reference flood used in design calculations must be for a 1000-year flood plus 1/3 of the Probable Maximum Flood (PMF). In addition, it is stated that the design would also take into account climate change, since the flow rate for a 1:1,000-year return period flood is 5,281.8 m<sup>3</sup>/second, whereas the design flow rate is 6,532.5 m<sup>3</sup>/second. Also, the use of mechanised gates instead of wooden beams (the system currently used) would allow for better responsiveness to specific events.

Section 16.2.1 mentions that details of the design flow can be found in section 9, but these details are not included.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) provide details of how the effects of climate change have been incorporated into the design of the dam, including changes in seasonal and annual rainfall totals, and changes in the magnitude and/or frequency of extreme events;

#### PSPC Response:

Last paragraph of Section 11.1.3 of the EIS confirms that climate change was taken into account for the design of the new dam-bridge:

“The climate change projections by Ouranos indicate that, under a high emissions scenario (worst-case scenario), the annual average temperature, which was 4.3 C in 1981–2010, will increase to 7.5 C ± 3.2 C during the 2041–2070 period and then to 10.0 C ± 5.7 C during the 2071–2100 period. Annual precipitation, which totaled 941 mm in 1981–2010, will increase to 1,012 mm ± 69 mm during the 2041–2070 period and then to 1,057 mm ± 116 mm during the 2071–2100 period, again under a high emissions scenario. Snow accounted for 222 mm of the total precipitation in 1981–2010, 189 mm ± 34 mm in 2041–2070 and 160 mm ± 61 mm in 2071–2100. This means that precipitation in the form of snow will gradually decrease as precipitation in the form of rain increases. Climate change has been taken into account in the design of the dam, particularly with regard to the flood levels and gate design, which will allow the gates to open more quickly to better respond to events.”

Section 16.2.1 of the EIS gives further information on climate change consideration given to the new dam design:

“The design of the dam is in accordance with the Canadian Dam Association Dam Safety Guidelines, which specify that the design flood used in design calculations must be 1,000 years plus 1/3 of the maximum probable flood (MPF). The dam design also takes into account climate change. The 1,000-year flood flow is 5,281.8 m<sup>3</sup>/s, while the design flow is 6,532.5 m<sup>3</sup>/s (see Chapter 9), which will help manage additional flows and intense rainfall events associated with climate change. The use of mechanized gates instead of wooden stop logs (the system currently in use) also provides a better responsiveness to particular events (30 minutes to reach a flow of 1,000 m<sup>3</sup>/s instead of 5 hours – see figure below). Note that generators are on site in case of power failure.”

- B) consider how these potential changes will influence design values such as PMP (Probable Maximum Precipitation) and PMF (Probable Maximum Flood), in addition to other possible climate-related effects; and

PSPC Response:

See PSPC Response to AEIC-1-93 A) above.

- C) explain how climate change has been taken into account – for example, does the proponent consider that the CDA Dam Safety Guidelines it cites are sufficient to take into account the effects of climate change? If so, provide justification for this approach.

PSPC Response:

See PSPC Response to AEIC-1-93 A) above. In addition, Section 16.3.2 of the EIS concludes the following for the 75-year operation period of the new dam:

“During the period of operation, climate change is likely to cause a slight increase in maximum accumulated precipitation over 5 days (Table 16.1). Total annual liquid precipitation will also increase, with the greatest increases anticipated in spring and autumn. The design of the dam discharge capacity takes into account climate change, and the dam can continue being managed to maintain forecast water levels in Lake Timiskaming and limit downstream flooding.”



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## Cumulative Effects

### Information requests directed to the proponent

IAAC-1-94 General – cumulative effects assessment

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.3 (Cumulative effects assessment)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 17*

#### Context

Section 17.4.1.1 of the EIS states that a cumulative effects assessment is not required for each valued component (VC) discussed in Chapters 11 to 14 for which the assessment resulted in a non-significant effect.

It is important to note that a non-significant effect does not constitute the absence of a residual effect on a VC. Moreover, regardless of the predicted significance of those effects, an assessment of cumulative effects caused by the project and/or other past, present, and reasonably foreseeable future physical activities must be conducted on all VCs for which residual environmental effects of the project remain after the implementation of mitigation measures.

Furthermore, as noted in section 17.4.1 of the EIS and in the Agency's technical guidance (Technical Guidance for Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act (2012)*), in order to determine the scope of the cumulative effects assessment, four elements need to be identified: VCs, spatial boundaries, temporal boundaries and the interaction between the residual effects of the designated project and those of other physical activities. The four scoping elements are complementary.

Some VCs were excluded from the cumulative effects assessment based on the assumption that there will be no cumulative effects for these components because of the absence of other reasonably foreseeable activities occurring in the same area at the same time. The Agency considers this to be an error in the interpretation of its technical guidance on scoping.

Physical activities are generally not the primary consideration in determining spatial boundaries for cumulative effects assessment. Spatial boundaries should be based on the geographic extent of the VC (which may be mobile), the area of influence of the project (effects), and the area of influence of other physical activities. Physical activities outside the spatial boundary may also affect a VC within the spatial boundary. The pathways of effects help to capture the causal relationship between the project, the chosen VC and other physical activities. The technical guidance provides more details on the elements of this paragraph.



A VC cannot be rejected on the basis that there are no other activities taking place at the same time. A VC that is already affected by past activities can be retained even if no non-project activities are planned in the future.

The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) review the list of VCs retained and excluded from the cumulative effects assessment, taking into account the context of this question and including any additional VCs whose effects were reassessed in the previous sections of the Information Request and for which residual environmental effects are predicted;

PSPC Response:

After further discussion with IAAC on February 15, 2024, Table 17.1 of Section 17.4.1.1 of the EIS was revised (see bellow). The only modification is the addition of the Air quality VC to the cumulative effects assessment.

Table 17.1 of the EIS: Rationale behind the selection of VCs

Valued Component	Residual effect from the project?	Is the VC likely to be affected by other past, present, and future projects in the spatial and temporal boundaries?	Selected	Rationale
Air quality	Yes	Yes	Yes	The residual effects of the Project on air quality and noise would be temporary and limited to the construction period. These effects would not interact with any future foreseeable physical activities. The temporary effects of the Project on air quality will be combined with emissions from the Rayonier plant which started in 1917.
Soil and groundwater (including erosion)	Yes	No	No	Residual effects will be limited to the construction period and no other physical activities are planned for the same period of time and same location that could affect soil and groundwater and consequently result in the release of suspended solids. There will be no residual effect after construction. Suspended solids from other sources are considered in the fish habitat assessment.
Water contaminants (mercury)	No	Yes	Yes	Although the Project itself has no impact on mercury levels in water, this component is of interest to Indigenous groups and is therefore addressed in the cumulative effects study.
Water quantity (flows, velocities)	Yes	Yes	Yes	The residual impact for the modifications of flows and velocities is limited to the construction period. Given that other past projects (dams) have impacted the flow regime of the Ottawa River, and Indigenous groups, this component has been selected for the cumulative effects.
Fish and fish habitat (including water quality modifications - SS)	Yes	Yes	Yes	The Project will result in temporary and permanent effects on fish and fish habitat. Considering that the residual effects of the Project could be cumulative with other physical activities and that this component is of interest to Indigenous groups, this component has been retained in the cumulative effects study. The Project's impact on water quality, primarily suspended sediments, combined with the impacts from other past, present or future foreseeable projects on water quality in general, may influence fish and fish habitat. However, the Project impacts will be offset by the restoration of the fish habitat. Spawning areas below the dams in Ontario and Quebec are important whitewater spawning areas for many species.
Migratory birds (terrestrial and waterfowl)	Yes	No	No	Non-significant residual Project effects on migratory birds are expected. The temporary effects of the Project on the terrestrial species are limited to Long Sault Island which will be revegetated at the end of the construction. The revegetation program will be done in collaboration with the Indigenous groups. At the end, this could even result in a positive effect depending on the chosen vegetation. Waterfowl may be affected negatively due to noise in the work area, but a positive impact can be associated with providing calm water areas downstream of the cofferdam. Past experience has demonstrated that birds will adjust quickly to construction noise and use the construction area despite the nuisance. Given the very specific impact and the short-term duration, and that there will be no overlap of other

Valued Component	Residual effect from the project?	Is the VC likely to be affected by other past, present, and future projects in the spatial and temporal boundaries?	Selected	Rationale
				projects and that in some cases the impact may even be positive, the component has not been selected for the cumulative effects.
Species at risk (sturgeon, eel, turtles, hickorynut mussels, bats)	Yes	Yes	Yes	<p>Residual effects are expected on sturgeon and turtles. Cumulative effects on turtles have not been addressed here given that the impacts are limited to the work area and are temporary, and no other physical activities that could have an impact on turtles are being planned at the same time in the same spatial area.</p> <p>Hickorynut mussels are not recorded in the area due to the absence of sandy substrate, so it has not been selected for the cumulative effect assessment. This species is indirectly considered in the cumulative effects assessment due to its close relationship with the sturgeon at certain stages of its life cycle.</p> <p>No eels are present in the area. However, the fishway could have a positive long-term effect (but still unknown for now), in combination with other upcoming fishway projects on downstream dams and they are therefore considered in the cumulative effects assessment.</p> <p>Sturgeon has been selected for the cumulative effects assessment as sturgeon spawning has been confirmed downstream of the Timiskaming Dam Complex. The Project will have direct impact on those spawning grounds and on fish life cycles, which will be compensated for by the offsetting program. Spawning areas below the dams in Ontario and Quebec are probably the only whitewater spawning areas for sturgeon. However, other future foreseeable projects could have cumulative effects on this species.</p> <p>Even if some bat species at risk (little brown bat, tricolor bat and Northern long eared myotis bats) are present and feed on insects in the project area, other physical activities are not expected to affect insects in this area, so no cumulative effects on bats are anticipated.</p>
Vegetation	Yes	No	No	Part of the vegetation (mainly grass with some native vegetation near the shore) on Long Sault Island will be impacted by the Project during construction, but those effects will be reversed following construction by implementing a revegetation plan, in collaboration with the Indigenous groups. The residual Project effect is limited to the construction period and in a limited area that is not expected to be impacted by other future foreseeable projects, and the impact on vegetation will be positive due to the implementation of the revegetation plan. For that reason, vegetation has not been selected for the cumulative effect assessment.
Wildlife	Yes	No	No	The vegetation within the construction area will be disturbed and/or cut. These changes could impact the wildlife around the work area. The work area is a small area, already disturbed by human presence and industries, but is home to observed mustelids which have homes in the rocks around the dam replacement area and feed on the local fisheries. This



Valued Component	Residual effect from the project?	Is the VC likely to be affected by other past, present, and future projects in the spatial and temporal boundaries?	Selected	Rationale
				area will be restored after closure of the work site, aiming for an improvement in the available habitat compared to the pre-work condition. To our knowledge, no other future foreseeable project or physical activity in the vicinity will cause wildlife habitat loss. Noise could also disturb wildlife, but simulations indicate that this has only localized effects (distance less than 500 meters). Given the localized and short duration of noise impacts on wildlife, and considering that natural noise from water circulation is already high, this VC has not been selected for the cumulative effects assessment.
Physical and Cultural Heritage	Yes	Yes	Yes	Residual Project effects are predicted for the physical and cultural heritage values of Long Sault Island, the Ottawa River and any archaeological resources found on or in them. due to alteration of these natural heritage landscape features and to potential artifact destruction during construction. The altered natural aesthetic of these features has impacted their value and use for the purposes of practicing Indigenous culture which in turn could impact the health and wellbeing of Indigenous groups. Although no artifacts were found in the 2017 survey, to prevent irreversible impacts to artifacts that could be found in the riverbed, an archeological assessment will occur in collaboration with Indigenous groups before construction. Dam and bridge construction (and re-construction), roads, linear infrastructure such as pipelines, human settlement, natural resource development (forestry, mining) have and will continue to impact the physical and cultural heritage values of the Ottawa River and Long Sault Island. Therefore, this VC will be scoped into the cumulative effects assessment.
Fish and Fish Harvesting	Yes	Yes	Yes	Residual Project effects to fish and fish harvesting include impacts from water contamination, destruction of fish habitat and bridge lights which impact fish abundance and availability for harvesting; fencing and signage limiting fishing access. All of the effects have the potential to lead to decreased fish abundance and therefore availability for fishing. Reduced fish could impact fish consumption and cultural continuity which affects Indigenous health and well-being. To increase native fish species a fishway is proposed to be installed during the construction of the dam. While the fish ladder is anticipated to have positive effects, there remains the possibility that providing a fishway to a wide variety of fish species may degrade fish populations, by connecting water bodies that were previously separated by the dam and allowing predation by introduced fish species or migration out of certain areas of the Ottawa River. These effects may also alter fish abundance and fishing. The combined effect of the fishway at the Timiskaming Dams with other fish passages constructed on downstream dams could result in cumulative impacts on fishing in the future. Contaminants from other past, present and future foreseeable physical activities may create real or perceived barriers to fishing because of concern about fish health and possible risks of consuming those fish. Past, present and future foreseeable urban and resource developments adjacent to the Ottawa River cumulatively impacts access to the river for fishing. Fishing is therefore brought forward into the cumulative effects assessment.

Valued Component	Residual effect from the project?	Is the VC likely to be affected by other past, present, and future projects in the spatial and temporal boundaries?	Selected	Rationale
Wildlife and Wildlife Harvesting	Yes	Yes	Yes	Anticipated residual Project effects on wildlife and wildlife harvesting include wildlife mortality and habitat loss due to Project activities impacting harvested species abundance and therefore their availability for harvesting. Wildlife mortality from Project activities may include direct casualties, or indirect, for example, impacts to fish abundance may impact wildlife populations that rely on them. Any negative impact to wildlife could result in a negative impact to harvesting and therefore could impact diet, health and wellbeing and cultural continuity. Project disturbance to wildlife and hunting is anticipated during Project construction and will act in combination with human settlement, traffic, roads, and industrial developments to perpetuate impacts on wildlife abundance and harvesting in this area well into the future. Therefore, wildlife harvesting is brought forward into the cumulative effects assessment.
Harvesting of Plants and Natural Materials	Yes	Yes	Yes	<p>Indigenous people who harvest riparian plants and natural materials in the vicinity of the Project have been and will continue to be impacted by the loss of plants and natural materials on Long Sault Island and the banks of the Ottawa River during construction and, in the immediate footprint of the Project throughout the operation phase. Avoidance of the Project area for plant/natural material harvesting because of real or perceived contamination of plants and natural materials from dust, chemicals, spills and roadway runoff has likely contributed to the avoidance of the Project area for harvesting. These effects are primarily from the (past and presently proposed) Project construction, traffic using the roadway, and nearby industrial influences (Rayonier) which will interact and have interacted with Project effects in the past, present and future.</p> <p>Reductions in plant harvesting and use could limit the opportunity for Indigenous groups to teach about cultural plants thereby disrupting cultural continuity and negatively affecting health and wellbeing that may have been supported through the consumption and use of plants for food or medicines.</p> <p>A re-vegetation plan for Long Sault Island is planned in collaboration with Indigenous groups to mitigate some of the past effects on plant harvesting and provides an opportunity for renewed Indigenous stewardship of the plants and natural materials on Long Sault Island. Therefore harvesting of plants and natural materials is considered in the cumulative effects assessment.</p>
Health and Socio-Economics	Yes	No	No	<p>Anticipated but non-significant negative residual Project effects on health and socio-economic conditions are expected on:</p> <ul style="list-style-type: none"> <li>• barriers to employment from potential racism, sexism, or bullying.</li> <li>• decreased participation in cultural events,</li> </ul>

Valued Component	Residual effect from the project?	Is the VC likely to be affected by other past, present, and future projects in the spatial and temporal boundaries?	Selected	Rationale
				<ul style="list-style-type: none"> <li>• increases in non-indigenous land and resource uses</li> <li>• disruption of community life (non-Indigenous)</li> <li>• demands on health care facilities (non-indigenous).</li> </ul> <p>These effects result from limited Project employment opportunities during construction and not from changes to the environment from the Project. Under CEAA 2012, the changes to health and socio-economic conditions were focused on those that are caused by change to the environment. Furthermore, there are many employment opportunities available regionally, it is challenging to predict how individual employer policies and corporate cultures could impact employee behaviours and choices. For these reasons this VC is not brought forward into the cumulative effects assessment.</p>
Water Use	Yes	Yes	Yes	<p>Some Indigenous people have reported that they avoid the use of the Ottawa River for drinking, swimming, and bathing, and will do so- particularly during Project construction - because of real or perceived contaminants in sediment and dam construction materials. The Project effects are combined with the effects on river water quality from human settlement (municipal storm and wastewater outfalls), other dam construction, roadway run-off, agricultural run-off, natural resource development (mining, forestry), and nuclear research facilities that introduce sediments, metals and other contaminants to the river. These have and will continue to contribute to impacts on water quality and therefore its use. It is for these reasons that water use is brought forward into the cumulative effects assessment.</p>
Access and Travel Throughout Algonquin Lands and Waters	No	No	No	<p>Indigenous groups' access to travel through the Ottawa River has been impacted since the construction of the dams located throughout the watershed. While many other travel routes within the Ottawa River watershed have been altered or made inaccessible, the construction of the original Timiskaming dam did not impede travel routes as the Long-Sault rapids impeded river navigation and portage routes were necessary to traverse this part of the Ottawa River (Archéotec, 2017, 2017a). The construction of the dam with bridge has increased interprovincial access which has a number of socio-economic benefits. Furthermore, no negative residual Project effects to navigation on the Ottawa River or Algonquin Lands are expected. Nearby boat launches are not expected to change and the existing dam will remain open for travel until the construction of the replacement dam is complete.</p>

- B) review the “Rationale” justifications in Table 17.1 of the EIS to understand why a VC is or is not selected; and

PSPC Response:

See revised Table 17.1 of Section 17.4.1.1 above.

- C) carry out the cumulative effects assessment of the newly selected VCs.

PSPC Response:

Historic trends, Past Projects

In the temporal boundary period 1 (pre-1909 before colonization), air quality would only be affected by forest fires and by wood fires for heating, cooking and cultural needs of Indigenous communities. Noise would be very limited and dominated by the sound of cascades and rapids.

The opening of the first paper mill in what is now City of Temiscaming in 1909, introduced a degradation in air quality and noise during the temporal boundary period 2 (1909 to present day). As industrial and municipal activity increased (now Rayonier), so did secondary sources of air and noise emissions (trucking, urban development, etc.). This also led the opening of the territory to other industrial activities and settlement in the region such as logging, mining and agriculture. Over the years leading to present day, regulations were enforced to improve air and noise emissions, but the important volume of activity of the Rayonier plant and in the City of Temiscaming maintains pressure on air quality and noise environment.

Present and Future Projects

In the immediate vicinity of the project site, no future project is identified. However, Rayonier activities and city life in Temiscaming are expected to remain. Regional activities such as forestry, agriculture, and mining should remain at similar levels, with induced transportation effects in and around the project site.

Timiskaming Dam-Bridge Replacement Project in Québec

The residual effects of the project on air quality and noise would be temporary and limited to the construction period. The temporary effects of the project on air quality and noise will be combined with emissions from the Rayonier plant and the road traffic passing on the dam-bridge.

These effects would not interact with any future foreseeable physical activities as they will cease upon completion of the project.

Mitigation

Mitigation measures already proposed in the EIS to minimize air and noise emissions during construction will reduce the impact. No other measures appear necessary.

Significance and Follow-up

Air and noise emissions are limited in time (construction period) and in intensity (small project footprint). A monitoring program will be implemented to assess compliance with set limits for air and noise emissions during construction. No cumulative effects are expected for air and noise emissions, and a follow-up program is not required.

**IAAC-1-95 Cumulative effects assessment – AOPFN**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.3 (Cumulative effects assessment)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 17*

## Context

The AOPFN has identified a number of concerns regarding the cumulative effects assessment (Chapter 17). In particular, the AOPFN is concerned about the overlap of foreseeable activities with the project and access to travel on Algonquin lands and waters. The AOPFN does not agree that the original dam does not impede access, as the report notes historic portage routes that have been overloaded on Long Sault Island. The AOPFN mentions that any changes to the river or shoreline has impeded travel. The AOPFN also refers to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the cumulative effects of foreseeable future projects.

With respect to mitigation measures, the AOPFN states that the section does not appear to provide specific mitigation measures for cumulative effects, but rather relies on project-specific mitigation in place prior to residual effects.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) specify whether and how projects outside the physical project area have been taken into account;

#### PSPC Response:

Table 17.4 of the EIS identifies activities outside of the EIS study zone that were considered for cumulative impact assessment (see below).

Table 17.4 of the EIS: Scope Summary for Cumulative Effects Assessment

Sector of activity	Concrete activities and influences	Past projects		Present projects	Future projects	Valued Components								Description of anticipated effects	
		Occurs pre-disturbance (Period 1)	Occurs colonization period (period 2)	Occurs during construction (period 3a)	Occurs post-construction (period 3b)	Biophysical VCs				Indigenous Peoples VCs					
						Water quality (mercury)	Water quantity(flows)	Fish and fish habitat	Species at Risk (eel and sturgeon)	Physical and cultural Heritage	Fish and fish harvesting	Wildlife and wildlife harvesting	Plants and Natural Materials		Water Use
Forestry	Lumber, dredging, sawdust	√	√	√	√	√		√	√	√	√	√	√	√	The clearing of forest plots for timber harvesting results in the loss of vegetation, but also in erosion related to bare soil and access roads. Log driving on the Ottawa River has had repercussions on the river, which are still perceptible in some places (logs on the river bottom, accumulation of organic matter, which can generate methylmercury by bacterial decomposition), thus degrading fish habitat. Logging activities began in the late 18 <sup>th</sup> century in the area and continue to this day.
Pulp and paper	Pulp and Paper sector of Activity Rayonier plant operational changes over time Ex: J. MacLaren, Resolute, Cellulose, Whitebirch, Kruger, EB Eddy Paper and manufactures industrials, and others	√	√	√	√	√	√	√	√	√	√	√	√	√	The first sawmill was opened around 1880, on Gordon Creek, which was also used for log driving. In 1917, the pulp and paper mill began its activities. Rayonier's operations have had, and continue to have, an impact on water quality due to the release of certain contaminants (including mercury) into the river. Accumulations of organic material are present on the banks, degrading fish habitat and water quality at these locations and downstream.
Dams – hydroelectric, reservoirs, other dams	All dams and structures that are influencing flows in the Ottawa River watershed (including on all tributaries)  Including the potential Onimiki project on the Gordon Creek.		√	√	√	√	√	√	√	√	√	√	√	√	The construction of dams along the Ottawa River, which took place from the beginning of the last century until the 1960s, modified natural flows according to the specific needs of each dam (flood control, power generation, etc.). The construction also modified the ecosystems which were transformed into reservoirs instead of natural watercourses. This has altered the annual distribution of flows as well as fish habitats. The creation of reservoirs also results in flooding of terrestrial land, loss of vegetation and habitat, and the production of methylmercury in the early years, which is bioaccumulated in fish, increasing the concentration of mercury in fish flesh, which also affects the quantity of fish that can be consumed without health risk. In turn, this leads to changes in traditional activities and real or perceived potential effects on human health. Most of those effects (loss of lands, change in water management) will be perpetuated for the life of those dams.  A new project still at the development stage (Quebec provincial process underway – Project notice is not public yet on the MELCCFP Registry as of December 2022) consisting of two mini-power plants is planned on the Gordon Creek by the City of Temiscaming, Kebaowek First Nation and Wolf Lake First Nation. These projects would be classified as mini-hydroelectric and run-of-river hydroelectric plants. This project will take advantage of the existing facilities at Kipawa Lake (which is already a reservoir). Few technical data are currently available on the project but an ecological flow and an aesthetic flow are planned for the residual section of the Gordon Creek. A first plant would be built at the end of Lack Tee. A tunnel is planned downstream of the Lumsden dam with a second power plant just before the discharge of water into Lake Timiskaming, about 2 km upstream of the Timiskaming Quebec Dam (OBVT, 2017b; <a href="#">Description du projet Onimiki - OnimikiOnimiki</a> ).
Agricultural activities	Agricultural activities and fish farms.	√	√	√	√	√		√	√	√	√	√	√	√	Farming results in deforestation of plots and then the risk of water contamination from soil erosion (suspended solids) and fertilizer or other fertilizers. This can affect fish and fish habitats. Farming was one of the first means of subsistence for early settlers in the area, and remains an occupation for some today.

Sector of activity	Concrete activities and influences	Past projects		Present projects	Future projects	Valued Components								Description of anticipated effects	
		Occurs pre-disturbance (Period 1)	Occurs colonization period (period 2)	Occurs during construction (period 3a)	Occurs post-construction (period 3b)	Biophysical VCs				Indigenous Peoples VCs					
						Water quality (mercury)	Water quantity(flows)	Fish and fish habitat	Species at Risk (eel and sturgeon)	Physical and cultural Heritage	Fish and fish harvesting	Wildlife and wildlife harvesting	Plants and Natural Materials		Water Use
															<p>In 2020, there were 897 registered farms in the Outaouais Region (MAPAQ, 2020). The agricultural area covers 316,068 hectares, or 10% of the Outaouais area (MAPAQ, 2020).</p> <p>Agriculture has led to the deforestation and appropriation of Indigenous traditional territory. Today, agricultural activities account for 5.36% (7 844 km<sup>2</sup>) of land usage within the watershed (Ottawa Riverkeeper, 2022), making up an estimated 6,000 farms (ECCC, 2018). Agriculture is heavily reliant on potable water for crop and cattle irrigation; hence several farms are in close proximity to the watershed. Agriculture can lead to adverse impacts on the watershed due to nutrient, pesticide, and sediment runoff. Increased nutrients in the watershed can lead to algae bloom, which decreases dissolved oxygen and sunlight that are vital for aquatic species, and increased sediment or sediment accumulation can reduce the viability of fish spawning habitat.</p>

- B) demonstrate, to the extent possible, that foreseeable future projects would not impact on culture and heritage or traditional use and that measures are taken to avoid, minimize or offset potential impacts;

PSPC Response:

Section 17 of the EIS already addresses cumulative impacts of foreseeable future projects and of historic modifications of land use that will remain current after completion of this project (city dwellings, agriculture, mining, forestry, etc.). PSPC can only be responsible for mitigation of its own impacts but is open to participate in regional initiatives as to working to off-setting cumulative impacts.

- C) confirm whether and how, to the extent possible, the shoreline of Long Sault Island has been physically altered over time; and

PSPC Response:

Prior to the development of the initial Timiskaming Dams, oral history characterizes Long Sault Island as boulderous wetlands (Scarlett Janusas 2013b, p. 9 and 15). Nevertheless, cartographic archival records accurately depicting the configuration of Île Long Sault are scarce and imprecise (Archéotec 2017, p. 12). Archéotec's 2017 conducted an Archaeologic Evaluation that compared historical archival pictures from when the first Quebec dam was built in 1912 and when the Quebec dam was rebuilt in 1934. Their evaluations of these photos showed that the upstream portion of the island appeared very low-lying compared to later pictures of the island taken when the Quebec dam was rebuilt. Furthermore, they state that "the raising of the upstream portion of the island is evidenced through the presence of fill material and the absence of vegetation" (Archéotec 2017, p. 15).

A plan overlay of Long Sault Island in 1915, prepared by Archeotec in 2017, shows several changes of the island shape through time, specifically on the right bank and the south bank of the island (see figure below, from Archeotec inc., 2017. Timiskaming Dam Complex: Québec Dam Replacement. Archeological Potential assessment. 34p).

- D) specify how mitigation measures for cumulative effects have been identified.

PSPC Response:

PSPC is committed to implementing mitigation measures related to cumulative effects that occur on its own project site and to improving site conditions to increase native habitat for plants, animals and fish. PSPC has consulted extensively with Indigenous groups and they have suggested mitigations for addressing cumulative effects – many of which will be implemented collaboratively with the Indigenous groups. PSPC remains open to participating in regional initiatives to off-set cumulative impacts.





(Archeotec, 2017)

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.3 (Cumulative effects assessment)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 21*

## Context

The Kebaowek, Wolf Lake and Timiskaming First Nations (SART) disagree with the reasoning in Chapter 21 of the EIS regarding the cumulative effects of the project: “[...] the Project is a replacement of infrastructure that has been present in the Ottawa River for over a century, it is a perpetuation of an historic effect on the Ottawa River. Therefore, the effects of the Project remain the same when taken on balance with the effects of other past, present or future projects.”

The dam-bridge replacement proposal favoured in the EIS creates a new footprint and additional loss of fish habitat (spawning). The proposed activities add additional stress to Lake Sturgeon and other populations of aquatic species in the watershed.

Lake Sturgeon, the largest freshwater species in the Ottawa River, have important spiritual and cultural ties to SART First Nations. When First Nations see that spawning numbers are declining from one study to the next, it indicates to them that the species is suffering from the cumulative effects caused by the dam replacement, its operations, and their effects on their life cycle and the overall aquatic ecosystem.

It is necessary to recognise the cumulative effects of fragmentation, flooding and hydrological alterations induced by dams. These are cumulative effects specific to this project that, adding to the historical cumulative effects.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) review the selection of indicators for the components valued by the Kebaowek, Wolf Lake and Timiskaming First Nations on:
  - i. Lake Sturgeon spawning habitats;
  - ii. Indigenous fishing; and
  - iii. the ability to exercise rights;

### PSPC Response:

Table 17.1 of the EIS presents the VCs considered for the cumulative effects assessment and shows that fish and fish habitat, lake sturgeon, fish and fish harvesting were included (see revised Table 17.1 in PSPC Response to IAAC-1-94 A)).

The rights assessments contained in Chapter 13 are done so taking into account a context that is influenced by the project in conjunction with past present and future activities – and is inherently a

cumulative effects assessment on rights as is noted in IAAC's guidance material on rights assessment<sup>3</sup>. Note this excerpt in Chapter 13.1 regarding SART's assessment of impact on their rights (emphasis added):

“ . . . individual community reports focus on and present information about the interface between SART community's exercise of our rights and responsibilities to cultural practices and the TDQRP proposed development. It does so within a **context appropriate to SART communities given the land use constraints and on the ground and in water cumulative contamination realities** we must contend with.” Since the rights were assessed in Chapter 13, they were not re-assessed or re-stated in Chapter 17.

B) review the rationale for why these VCs were or were not retained; and

PSPC Response:

See rationale found in revised Table 17.1 in PSPC Response to IAAC-1-94 A).

C) where appropriate, carry out the cumulative effects assessment of the selected components.

PSPC Response:

See cumulative effects assessment in revised Table 17.4 in PSPC Response to IAAC-1-95 A).

## IAAC-1-97 Assessment of cumulative effects on Species at Risk

### References

*CEAA, August 2018. Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.3.3 (Species at Risk) and 7.6.3 (Cumulative effects assessment)*

*Tetra Tech, February 2023. Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 17*

### Context

ECCC believes that each of the Species at Risk for which a residual effect is predicted (even if it is small) should be subject to a separate cumulative effects analysis, because each faces its own unique reality, threats and/or issues.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) provide a specific cumulative effects assessment for each Species at Risk that is present or likely to be present and for which the project is likely to cause a residual effect. The analysis should:
  - i. take into account information contained in relevant species recovery documents, including known

<sup>3</sup> : « The next step in assessing impacts on the exercise of rights is to develop a comprehensive understanding of the contextual factors relevant to consider in the assessment, conducted in consultation with the rights-holding community. Broadly speaking, this entails reviewing information about the conditions necessary to allow a community to exercise its rights and how **historical and current cumulative effects may already impact those conditions, or how future foreseeable projects may have an impact.** » (emphasis added, P.9 IAAC *Assessment of Potential Impacts on the Rights of Indigenous People*)

threats to these species;

- ii. provide an understanding of the residual effects of the project and predict how they are likely to combine with those of past, present and reasonably foreseeable physical activities, as well as the foreseeable effects of this combination; and
- iii. consider the additional information provided in response to questions IAAC-1-58.

#### PSPC Response:

Table 1 of Section 12.5 of the EIS identifies 24 endangered species that could potentially be present in the study zone, based on overlap of species range with the study zone, field observations and reported historical occurrences. As stated in PSPC response to AEIC-1-58, Table 1 of Section 12.5 of the EIS was adapted to assess effects of the project on these species. Of the 24 species identified, 9 species are likely to experience residual effect. Detailed cumulative effects assessment is already found in Sections 17.5.4 and 17.5.5 of the EIS for Lake sturgeon and American eel. The cumulative effects assessment of the 7 remaining species is found below.

### **Cumulative effects assessment on species at risk present or susceptible to be present in the study zone**

#### **Northern Myotis, Little Brown Bat and Tri-colored Bat**

The Northern Myotis, the Little Brown Bat and the Tri-colored Bat are addressed in the same section since these three species are addressed in the same COSEWIC report (2013) and share similarities, such as population trends, threats, etc.

#### **1 Analysis**

Most of the historical trend information comes from the COSEWIC status report (2013), unless specified otherwise.

[Northern Myotis, Myotis septentrionalis, Tri-colored Bat, Perimyotis subflavus, Little Brown Myotis, Myotis lucifugus \(publications.gc.ca\)](#)

#### **1.1 Historic Trends, Past Projects**

The northern myotis (*myotis septentrionalis*) and the little brown bat (*myotis lucifugus*) used to be common in their range in eastern Canada, with a population over 10 million for the two species before the arrival of the fungal disease caused by *Pseudogymnoascus destructans* (Pd), also known as “White-nose Syndrome”. From the data collected from known hibernacula, a decline of 98% for the northern myotis and 99.8% for the little brown bat have been recorded in Quebec, comparing data collected before and after White-nose Syndrome.

The low occurrence of the tri-colored bat (*Perimyotis subflavus*) makes it difficult to keep track of the species' trends. Due to the White-nose Syndrome, a decline of 94% of the tri-colored bat was recorded in the caves in Quebec. High death rate has been reported only in the White-nose Syndrome range.

In addition to this major threat for these species, anthropogenic disturbances like chemical or physical removal of maternity colonies, chemical contamination and uses of insecticides on their prey, changes in forest structure and wind turbines may participate in the decline of the species. However, the impacts and mortality factors of these disturbances are unknown.

COSEWIC identified dams and water management and use as “negligible” threats for these species. Construction of new dams can have negative impacts associated with the removal, degradation and fragmentation of their foraging and roosting habitat, caused by flooding of their hibernacula or maternity



roosts, deforestation or changes in flow patterns resulting in blockage of airflow or new microclimatic conditions.

New large dam projects are considered likely to impact a negligible proportion of the total population with a severity potentially extreme, while considered a smaller severity for smaller dam projects.

## 1.2 Present and Future Projects

The area surrounding the project site has considerably evolved in the last century. Present day conditions are far from the initial forested environment. The territory is now hosting a variety of activities putting pressure on bat population by retrieving wooded surfaces: agriculture, mining, city dwelling, forestry, paper mills. Future landscape and land use are not expected to evolve significantly in near future. In turn, some anthropogenic structures are used as nesting and maternity habitat. As mentioned in the EIS, maternity roosts have been recorded within one kilometer upstream of the dam in an abandoned building on the left bank.

## 1.3 Timiskaming Dam-Bridge Replacement Projects in Québec

Bats were seen flying over the project site during 2017 and 2021 field surveys, mainly attracted by insects associated with the Lake Témiskaming and the Ottawa River. The new dam-bridge will not affect water flow or water level. No known bat habitat would be affected by construction and demolition work.

## 2 Mitigation

A specific bat survey will be conducted 2 years prior to demolition work. Should bat nesting be confirmed in the existing dam-bridge, exclusion netting will be installed. If hibernating bats are present, exclusion netting will be installed with a valve allowing bats to exit the dam-bridge but not to return. Bat Conservation International gives detailed methodology on how to install such valve device ([Bats in Homes & Buildings - Bat Conservation International](#)). The same netting/valve device will also work for resident and migrating bats, preventing them from entering the existing structure. The specific anchoring technique will depend on location and material of openings. To be efficient, netting anchors will need to prevent any opening larger than 4 mm.

PSPC will also explore the opportunity to integrate a structure to the project design to provide resting and maternity opportunities for bats on the new dam-bridge. If not feasible, PSPC will also explore ways to adapt some of its operational buildings on Long Sault Island to provide resting and maternity opportunities for bats.

## 3 Significance

The initial construction of the dam-bridge in the 1900s had little impact on bat populations as it did not affect any nesting or hibernation site at the time. Logging activities and change of land use for agricultural, industrial, and residential purpose is the primary cause of stress on bat populations in the area. The reconstruction of the dam-bridge will not cause cumulative effects on the 3 bats species considered here. In fact, integration structures providing resting and maternity opportunities for bats to the new dam-bridge will contribute to improve bat habitat conditions. Feeding opportunity will remain constant as water level and flow will be unchanged.

## 4 Follow-up

If installed, follow-up on use of nesting/maternity structures integrated to the new dam-bridge will be implemented to assess efficiency. Follow-up conditions will be determined in consultation with SART to complement its bat monitoring program on its territory.

## 2 Common Nighthawk

### 1 Analysis

Most of the historical trend information comes from the COSEWIC status report (2007 and 2018), unless specified otherwise.

#### 1.1 Historic Trends, Past Projects

The common nighthawk (*Chordeiles minor*) is a migratory, well-camouflaged and aerial insectivore bird breeding across Canada. Migratory birds were highlighted as an important hunting, cultural and spiritual element for the consulted Indigenous communities. However, the common nighthawk was not specifically reported as hunting or cultural importance.

In 2018, the common nighthawk population was estimated at 900 000 adults in Canada by Breeding Bird Survey. Its preferred habitats are generally clearings or open grounds. The common nighthawk forages mostly in open areas during the crepuscular period, and sometimes, during the day. Open water and artificial lighting can be particularly favoring to attract foraging flocks even though their needs for foraging can be met in a wide range of habitats.

Since 1970, 68% of Canada northern population has declined, but a slowdown is observed in this trend over the past decade. Factors like the reduction of aerial insects' population, changes in precipitation, temperature and hydrological regimes or severe or extreme weather can be attributed to the common nighthawk decline.

COSEWIC identified dams and water management and use as “negligible” threats for the species. Other threats include other ecosystem modifications (high-low), with for example reforestation being an activity with a potential negative impact since the common nighthawk habitat is composed of open areas; residential and commercial development (Negligible); agricultural (non-timber) crops, livestock, farming and ranching (negligible); or transportation and service corridor – roads and railroads (Negligible), just to name a few.

#### 1.2 Present and Future Projects

Current and future projects have mixed effect on common nighthawk. Agriculture provides open space suitable for this species, but pesticide use reduces insects on which they feed. Urban dwelling also create open space but constant activity and large paved/grassed areas are not suitable for nesting. Mining and industrial activities provide wide surfaces suitable for nesting, but heavy machinery traffic poses risk to nests. Finally, forestry opens spaces for nesting but only for a short time with reforestation efforts. This mix of opportunities and threats to common nighthawk is not expected to evolve significantly in near future.

Several individuals were observed foraging over the Ottawa river and the Rayonier plant during the 2017 field survey supporting the EIS.

#### 1.3 Timiskaming Dam-Bridge Replacement Projects in Québec

Dam and bridge structures are not recognized as suitable habitat for common nighthawk. This species is often observed around dams as it feeds on insects emerging from water bodies and reservoirs. The replacement of the Timiskaming Québec dam-bridge is not expected to have residual impact on common nighthawk. However, temporary impact may occur during construction period as parts of the grass areas on Long Sault Island will be disturbed by machinery and material storage. This impact is deemed reversible as the open areas suitable for common nighthawk will be restored.

### 2 Mitigation

Before undertaking construction activities, the work site will be inspected by a biologist to locate and protect common nighthawk nests. After initial inspection/protection of nests, daily rounds will be implemented to avoid further nesting. This will be documented in a wildlife management program required of the contractor.

### 3 Significance

The initial construction of the dam-bridge in the 1900s had little impact on common nighthawk populations as it did not affect any significant nesting site at the time. The reconstruction of the dam-bridge will not cause cumulative effects on the species. Feeding opportunity will remain constant as water level and flow will be unchanged.

### 4 Follow-up

No specific follow-up measure is planned for this species.

## 3 Barn Swallow

### 1 Analysis

Most of the historical trend information comes from the COSEWIC status report (2021), unless specified otherwise.

#### 1.1 Historic Trends, Past Projects

Population estimates based on 2006-2015 Breeding Birds Survey for the barn swallow is 510,000 in Quebec, representing 7.9% of population in Canada, with a conservative estimate of 6.4 million mature individuals. The Barn swallow is an aerial insectivore, with an anticipated decline of between 3% and 30% in the next ten years, facing similar threats to the common nighthawk like intensive agriculture, decline of aerial insect populations, loss of habitat and climate change.

#### 1.2 Present and Future Projects

Similarly to common nighthawk, current and future projects have mixed effect on bar swallow. Agriculture provides open space suitable for this species, but pesticide use reduces insects on which they feed. Urban dwelling also creates open space and anthropogenic structures suitable for nesting, but constant activity limits nesting activity. Mining and industrial activities provides nesting opportunities, constant noise and vibration also limits nesting. Finally, forestry opens spaces for nesting but only for a short time with reforestation efforts. This mix of opportunities and threats to common nighthawk is not expected to evolve significantly in near future.

Several individuals were observed flying around the dam-bridge site during the 2017 and 2021 field surveys supporting the EIS.

#### 1.3 Timiskaming Dam-Bridge Replacement Projects in Québec

Many anthropogenic structures are documented as being suitable nesting habitat for barn swallow such as bridges. However, no such nesting activity was documented on the Timiskaming Québec dam-bridge. The replacement of the Timiskaming Québec dam-bridge is not expected to have residual impact on barn swallow.

### 2 Mitigation

A specific bird survey will be conducted 2 years prior to demolition work. Should barn swallow nesting be confirmed on the existing dam-bridge, exclusion netting will be installed in the fall prior to demolition. The specific anchoring technique will depend on location and material of openings. To be efficient, netting anchors will need to prevent any opening larger than 4 mm.

PSPC will also explore the opportunity to integrate a structure to the project design to provide nesting opportunities for barn swallow on the new dam-bridge. If not feasible, PSPC will also explore ways to adapt some of its operational buildings on Long Sault Island to provide nesting opportunities.

### 3 Significance

The initial construction of the dam-bridge in the 1900s had little impact on barn swallow populations as it did not affect any nesting site at the time. The reconstruction of the dam-bridge will not cause cumulative effects on the species. In fact, integration structures providing nesting opportunities for barn swallow to the new dam-bridge will contribute to improve habitat conditions. Feeding opportunity will remain constant as water level and flow will be unchanged.

### 4 Follow-up

If installed, follow-up on use of nesting structures integrated to the new dam-bridge will be implemented to assess efficiency. Follow-up conditions will be determined in consultation with SART to complement its wildlife monitoring program on its territory.

## 4 Yellow-banded Bumble Bee

### 1 Analysis

Most of the historical trend information comes from the COSEWIC management plan (2022), unless specified otherwise.

([Yellow-banded Bumble Bee \(\*Bombus terricola\*\): management plan proposed 2022 - Canada.ca](#))

[COSEWIC Assessment and Status Report on the Yellow-banded Bumble Bee \*Bombus terricola\* in Canada - 2015 - Canada.ca](#)

#### 1.1 Historic Trends, Past Projects

The Yellow-banded Bumble Bee (*Bombus terricola*) can be found in a wide variety of open habitats and is a generalist pollen forager. It used to be the most recorded species from all the bumble bee in Canada. Few data collections of the species exist prior to 2010. The Yellow-banded Bumble Bee, endemic of North America, has approximately 50 to 60% of its population in Canada. A declined of the relative abundance of the species in 10 regional sites across Canada was observed recently, going from 20% before 2004 to 4% between 2004 and 2013. The species has not been assessed in Quebec but is listed in the “Liste des espèces susceptibles d’être désignées menacées ou vulnérables”.

COSEWIC identified dams and water management and use as “negligible” threat for the species. The loss of riparian meadows, changes in seasonal water levels in floodplain and flooding of its habitat are part of the potential threats related to dams. Other threats include invasive non-native or alien species (including pathogens, viruses, and competition with other species), pollution (from pesticide, herbicide and fungicide uses), habitat loss from cropland expansion, and climate change and severe weather.

#### 1.2 Present and Future Projects

Current and future projects have mixed effects on Yellow-banded Bumble Bee. Agriculture provides open space suitable for this species, but pesticide use causes damage to populations. Urban dwellings also create open space and increased interest in urban gardening provides foraging opportunities for the species. Mining and industrial activities have open spaces but represent a more sterile environment, with limited suitable vegetation for Yellow-banded Bumble Bee. Finally, forestry opens spaces for nesting but only for a short time with reforestation efforts. This mix of opportunities and threats to Yellow-banded Bumble Bee is not expected to evolve significantly in the near future.

Surveys conducted upstream and downstream of the new dam-bridge project, including a sampling on Long Sault Island, identified several species Yellow-banded Bumble Bee forages on. For example, Pearly Everlasting (*Anaphalis margaritacea*), Raspberry (*Rubus idaeus*), Butter-and-eggs (*Linaria vulgaris*), Large-



leaved Aster (*Eurybia macrophylla*) or Labrador Tea (*Rhododendron groenlandicum*). Yellow-banded Bumble Bee has also been recorded foraging on invasive plant species in disturbed areas.

### 1.3 Timiskaming Dam-Bridge Replacement Projects in Québec

The Timiskaming Dam-Bridge project is projected to temporarily disturb 1 ha of riparian vegetation suitable for Yellow-banded Bumble Bee. It may affect nesting and foraging for the duration of the project. No permanent cumulative effect is expected.

## 2 Mitigation

Long Sault Island, a PSPC property, will be revegetated after completion of the project. Now mostly covered by grass and having poor biodiversity potential, PSPC is committed to working with Indigenous groups to identify culturally significant indigenous vegetation to integrate in final landscaping design.

## 3 Significance

The initial construction of the dam-bridge in the 1900s flooded riparian habitat suitable for Yellow-banded Bumble Bee. Since then, new riparian habitat has grown replacing initial habitat. Extension of Long Sault Island could have represented additional habitat for the species, but the grass covering most of the surface has limited biodiversity potential. The reconstruction of the dam-bridge will not cause cumulative effects on the species as the new landscaping on Long Sault Island will provide suitable habitat for the Yellow-banded Bumble Bee.

## 4 Follow-up

Follow-up on use by Yellow-banded Bumble Bee of new vegetation habitat on Long Sault Island will be implemented in collaboration with Indigenous groups.

## 5 Monarch

### 1 Analysis

Most of the historical trend information comes from the COSEWIC status report (2016) and the COSEWIC management plan (2016), unless specified otherwise.

([Monarch \(\*Danaus plexippus\*\): COSEWIC assessment and status report 2016 - Canada.ca](#);

[Monarch \(\*Danaus plexippus\*\): management plan 2016 - Canada.ca](#);

[Monarch \(\*Danaus plexippus\*\) \(publications.gc.ca\)](#))

### 1.1 Historic Trends, Past Projects

The Monarch (*Danaus plexippus*) is a migratory species with a broad distribution and a complex life cycle, with four distinct stages (adults, eggs, caterpillar, chrysalis). This species needs also four different habitats (overwintering, breeding, staging areas and nectaring habitats). Milkweeds are the exclusive food plants for Monarchs during their larval stage. Milkweed species tend to grow in open and periodically disturbed areas.

The average area occupied by Monarch colonies overwintering in Mexico went from 5.91 ha in 1994-2004 to 3.36 ha in 2004-2016.

Approximately 10% of eastern monarchs arriving in Canada fly the entire journey, with most females stopping in the southern United States to breed and the next generations continuing the journey to Canada. About two or three generations will stay in Canada between June and October until the next overwinter migration to the south.

In addition to the threat related to habitat loss in Mexico during overwintering and other threats during its migration, new dam construction projects in Canada, new urban development and agricultural activities accompanied by an increase in pesticides and herbicides uses can have an impact on the potential new generations birthing in Canada due to further loss of foraging plant and loss of breeding and nectaring habitat. A decrease in milkweed abundance would reduce the capacity of adults to lay eggs and reduce the food plant availability for caterpillars.

### 1.2 Present and Future Projects

Colonization in the Témiscaming area initially created new open areas suitable for milkweed growth. However, flooding after construction of the Timiskaming Dam Complex and the widespread use of herbicides in agricultural and dwelling areas countered this initial improvement. Threats to monarchs is not expected to evolve significantly in the near future, unless the recent awareness programs continue to bring popular support and involvement as seen recently across North America.

### 1.3 Timiskaming Dam-Bridge Replacement Projects in Québec

As mentioned in Section 12 of the EIS (Appendix 12.5, Table 2), no milkweed was observed during the vegetation surveys of 2017 and 2021. However, Indigenous groups have confirmed presence of the species during migration period close to the site of the Timiskaming Québec dam-bridge.

The temporary disturbance of 1 ha of riparian area may induce potential residual effects that include disturbance and loss or degradation of foraging plants and nectaring habitat for adult monarchs. No permanent cumulative effect is expected.

## 2 Mitigation

Long Sault Island, a PSPC property, will be revegetated after completion of the project. Now mostly covered by grass and having poor biodiversity potential, PSPC is committed to working with Indigenous groups to identify culturally significant indigenous vegetation to integrate in final landscaping design.

## 3 Significance

The initial construction of the dam-bridge in the 1900s flooded riparian habitat suitable for monarch. Since then, new riparian habitat has grown replacing initial habitat. Extension of Long Sault Island could have represented additional habitat for the species, but the grass covering most of the surface has limited biodiversity potential. The reconstruction of the dam-bridge will not cause cumulative effects on the species as the new landscaping on Long Sault Island will provide suitable habitat for the monarch.

## 4 Follow-up

Follow-up on use by monarch of new vegetation habitat on Long Sault Island will be implemented in collaboration with Indigenous groups.

## IAAC-1-98 Mercury levels in water – cumulative effects

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.5 (Surface water), 7.3.1 (Fish and fish habitat) and 7.6.3 (Cumulative effects assessment)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 17.5.1*

## Context

According to section 17.5.1.3 of the EIS, “Dam installation likely contributed to the increased water mercury levels and affected fish flesh in the past, but mercury levels have returned to pre-disturbance levels and the effect on fish flesh has faded.”

Although section 17.5.1.1 presents the analysis that led to this conclusion, the EIS does not provide any documentation or data to support the claim that mercury concentrations in water have returned to pre-dam-bridge levels.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) provide documentation or data to support the claim that mercury concentrations in the water have returned to pre-dam-bridge levels.

#### PSPC Response:

PSPC primary source of information is taken from a publication from Hydro-Québec found in Appendix O, supported by 10 scientific publications. The statement that mercury levels at this time should have returned to initial conditions before construction of the initial dam in the early 1990s is supported by “SCHETAGNE, R., THERRIEN J. 2013. *Suivi environnemental du complexe La Grande. Évolution des teneurs en mercure dans les poissons. Rapport synthèse 1978-2012*. GENIVAR inc. et Hydro-Québec Production. 174 p. »

## Comments and advice for the proponent

### Comment 1-43 Table 17.1 – recommendation for changes

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.3 (Cumulative effects assessment)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 17.4.1*

#### Comments and advice

Table 17.1 of the EIS, under the section “Soil and water (erosion and sediments in water - SS)” states: “Suspended solids from other sources are considered in the fish habitat assessment.” The Kebaowek, Wolf Lake and Timiskaming First Nations (SART) recommend that this section should mention the worst-case possibility of sediment release in excess of the DFO threshold during the removal of the project cofferdam or of the contaminated soils identified by the Kitchi Sibi Technical Team in the vicinity of the project replacement site.

PSPC Response:

This has been discussed in the EIS, Chapter 12, Section 12.2.3 Fish and Fish Habitat. Also, Section 17.5.3.1.3 discusses the installation of a turbidity curtain to mitigate the impacts from the project such as potential exceedances of DFO's criteria for SS:

*"The Project includes the installation of a turbidity curtain that will avoid sediments from the work (construction and demolition of the cofferdam) from being transported downstream and will help avoid exceedances related to DFO's criteria for suspended solid."*

Regarding the "Water contaminants" section of Table 17.1 of the EIS, the proponent includes mercury as a contaminant. SART recommends that analysis should be conducted for all contaminants listed in the Camille Harbour report.

PSPC Response:

Neither the project nor the operation of the dam will affect the contaminant levels in water or fish. Mercury was selected for its specific concern to Indigenous groups, based on its relationship with the creation of reservoirs following the initial construction of dams in early 1930s. Considering the latest, other contaminants have not been selected.

#### Comment 1-44 Cumulative effects – larval drift

### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, section 7.6.3 (Cumulative effects assessment)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 17.2*

### Comments and advice

The proponent indicates in Table 17.2 of the EIS, under the section "Species at risk (sturgeon, eel)": "Lake Temiscaming upstream (up the Notre-Dame-du-Nord dam – centrale de la Première-Chute) to Ottawa River downstream up to Otto Holden Dam. For the migration barriers, the spatial boundary extends up to Carillon dam since it is the first dam in the downstream part of the Ottawa River that blocks the eel migration (main course of the river)." The Kebaowek, Wolf Lake and Timiskaming First Nations (SART) states that the project has a direct effect on larval drift. The SART communities demand that the proponent be responsible for the operational effects of the dam, as it is the dam operator. Multiple Lake Sturgeon spawning beds appear to be present, although little information is available on their success rates. Further discussion about larval drift occurring outside the study area or the possibility that something else is impacting this life stage would be beneficial.

PSPC Response:

In the draft consultation and communications plan for SART, PSPC has also added Fish/Fish Habitat for discussion and resolution. PSPC has reviewed the consultation and communications plans with the SART to ensure that the plan and the topic reflect how SART wishes to be consulted and what issues should be resolved.



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# Monitoring and Follow-up Programs

## Information requests directed to the proponent

### IAAC-1-99 Monitoring and follow-up of pumped water upstream of the cofferdam (Phase 1)

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.2.2 (Changes to surface water), 7.4 (Mitigation measures) and 9 (Follow-up and monitoring programs)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 11.2.3.4.8*

#### Context

Section 11.2.3.4.8 of the EIS presents a measure that would avoid the discharge of turbid water during the construction phase by treating the pumped water before it is discharged to an aquatic environment. More information is needed on this measure to determine the effect of pumped water on the water quality of the receiving environment.

#### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) indicate which applicable criteria, standard or guideline would be used as a threshold for managing pumped water to determine whether the water should be treated and explain what treatment would take place if it were exceeded; and

#### PSPC Response:

The main criteria considered to manage pumping water are suspended solids and petroleum products, the most probable contaminants to be found in the pumping water. For suspended solids, PSPC intends to set the discharge limit to 25 mg/L as recommended in the 2016 publication by MDDELCC and ECCC cited in AEIC-1-100 bellow. For petroleum products, PSPC intends to set the discharge limit at 15 mg/L, as this is representative of the most stringent regulations enforced in Ontario and Québec, mostly in municipal by-laws.

- B) if applicable, specify any management alternative of pumped water.

#### PSPC Response :

Before any discharge of pumping water, the contractor will be required to direct the water to a retention device in order to sample and analyse the water for suspended solids and petroleum products. Should the water exceed the set limits, different methods can be implemented: settling basin, filtration trench, Envirobags, weir tank, or a combination of these.

**IAAC-1-100 Monitoring and tracking of SS, temperature, pH, metals and mercury**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.2.2 (Changes to surface water), 7.4 (Mitigation measures) and 9 (Follow-up and monitoring programs)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 7.1.2, 11.2.3.4 and 22.4*

## Context

Section 22.4 of the EIS states that the project would use the same SS monitoring criteria suggested by DFO for the Champlain Bridge deconstruction project. ECCC is of the opinion that SS monitoring for the Timiskaming Dam-Bridge project should be based on concrete recommendations or criteria rather than on an application example. ECCC recommends that the proponent consult the [Recommendations for the management of suspended solids \(SS\) during dredging activities](#).

The same section states that the monitored contaminants would include metals and mercury, and that mercury would be sampled weekly. It is not specified which other metals would be included in the monitoring and how often they would be analyzed.

It is also indicated that SS monitoring would be continuously maintained during installation and removal of the cofferdam as well as at the beginning of Phase 2, when half of the gates on the east side (Quebec) would be in operation. On the one hand, according to Figure 7.2, half of the gates on the west side would be open at the start of Phase 2. On the other hand, given the lack of information on whether some of the construction described at the start of Phase 1 would be undertaken in water (see question IAAC-1-18), it seems important that the monitoring period for SS include all construction that would be undertaken in water.

The duration of the monitoring program for temperature, pH, metals and mercury is not indicated. ECCC believes that this monitoring, particularly for mercury, should make it possible to verify whether, following the demolition of the existing dam-bridge, contaminants would be resuspended when the gates are reopened (Phase 4). ECCC believes that the demolition of the existing structure could expose sediments upstream of the old dam-bridge whose level of contamination is unknown and that these sediments could be resuspended when the gates are opened, particularly if explosives were to be used for the demolition.

Section 22.4 states that, when the SS exceed the targeted concentration levels at 100 metres downstream of the construction for more than six consecutive hours, construction would be suspended and measures to limit the suspension of sediments would be applied when construction resumes. On the one hand, there is no mention of alert thresholds that would be used in order to avoid reaching concentrations that could cause an effect on water quality (e.g. at 80% of the threshold value). On the other hand, the mitigation measures planned to limit the resuspension of sediments are not shared.

Finally, in section 11.2.3.4, it is stated that all water quality monitoring results would be compared to the CCME guidelines and Quebec's surface water quality criteria and that, in the event of non-compliance,



mitigation measures would be implemented. However, in sections 11.2.3.4.1 and 22.4 the proponent does not present measures in the event that criteria or guidelines for metals or mercury are exceeded.

**The Agency instructs the proponent (Public Services and Procurement Canada) to:**

- A) for SS monitoring, specify the criteria or guidelines that will be used and give the reference;

PSPC Response:

The methodology described in Section 22.4 to monitor suspended solids is in fact taken from the 2016 publication from MDDELCC and ECCC, with monitoring done 100 m and 300 m downstream of the work site and at a reference point upstream.

- B) identify the metals that will be included in this monitoring and their frequency of analysis;

PSPC Response:

An initial 14-metal list is recommended for water quality analysis with addition of mercury: Ag, As, Ba, Cd, Cr, Co, Cu, Sn, Mn, Mo, Ni, Pd, Se, Zn + Hg. This metal list is usually processed by most environmental laboratories providing flexibility to PSPC to secure an agreement with a local laboratory preferably.

- C) specify which gates of the existing dam-bridge would be open at the start of Phase 2;

PSPC Response:

At the beginning of Phase 2, Gates 10 to 6 will be reopened which is on the west side of the dam.

- D) describe the duration of the SS monitoring program to ensure that it covers the period of in-water construction and beyond (including the return to normal SS concentrations);

PSPC Response:

The surface monitoring program will be extended to begin before start of construction work (4 to 6 months) to set baseline conditions and extend after demolition work (4 to 6 months) to assess return to initial conditions.

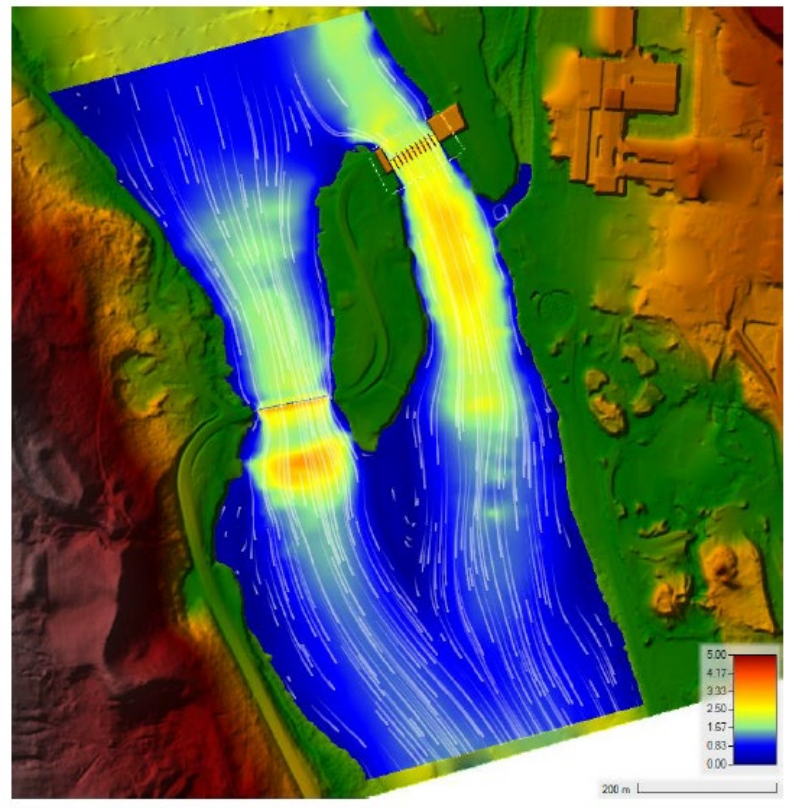
- E) characterize the sediments likely to be resuspended when the gates upstream of the structure due to be demolished are reopened in Phase 4. Specify the density and distribution of samples (including the number of surface and depth samples), the volume of sediment to be removed and the parameters to be analyzed;

PSPC Response:

As PSPC does not expect to retrieve sediments upstream of the existing dam-bridge for Phase 4 work, no such sediment characterization will be planned. It must be considered that water flow upstream of the existing dam-bridge is high and limits sedimentation in front of the structure (see Figure 11-21 of the EIS below). In addition, a 5 m long concrete apron is found upstream of the existing structure also limiting accumulation of sediment, and the sluice-gates of the new dam-bridge will be 19 m downstream of the existing dam-bridge (see Figure 6.1 of the EIS below).



Figure 11-21 2D Hydraulic Modeling of the Flow When All the Dam Bays are Open









- l) present the mitigation measures for water quality monitoring of metals or mercury that would be implemented in case of criteria or guidelines being exceeded.

PSPC Response:

An approach similar to K) above would be implemented.

**IAAC-1-101 PH monitoring during demolition – upstream part**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.2.2 (Changes to surface water), 7.4 (Mitigation measures) and 9 (Follow-up and monitoring programs)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, section 22.4*

## Context

Section 22.4 of the EIS states that the water between the new dam-bridge and the turbidity curtain during the demolition of the existing structure could be treated to lower its pH if the pH were to exceed 9, and that the product and the methodology used would be discussed with Indigenous peoples.

## The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) specify the product and describe the methodology that would be used to lower the pH of the water between the new dam-bridge and the turbidity curtain during the demolition of the existing structure, should the pH exceed 9.

PSPC Response:

There are some common compounds used to lower water pH (alum, carbon dioxide, phosphoric acid), but their use must be adapted to specific site conditions and pH levels. Work methods can also influence surface water exposure to material affecting pH, such as concrete having not being exposed to water previously. An approach gaining more attention is to retrieve large section of concrete instead of crushing a structure in small pieces to reduce exposure. PSPC is also committed to discussing with the Indigenous groups should pH level rise above 9.

**IAAC-1-102 Soil monitoring and follow-up program**

## References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, sections 7.1.3 (Topography, terrestrial environments and soil) and 9 (Follow-up and monitoring programs)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, sections 11.1.9.3, 22 and 23*

## Context

Section 11.1.9.3 of the EIS states that, if a contaminated site or contaminated soils are found on Long Sault Island, environmental monitoring during construction will identify any new contamination and the actions to take at the appropriate time. However, sections 22 and 23 of the EIS do not describe any monitoring or follow-up in relation to soils during construction.

### The Agency instructs the proponent (Public Services and Procurement Canada) to:

- A) detail the soil monitoring and follow-up program referred to in section 11.1.9.3 and when and how it will be implemented to identify any new contaminations. This should include, but not be limited to, the number and location of sampling sites, the methodology (frequency, duration, etc.), the contaminants analyzed, the applicable quality criteria and the soil management plan in the event of criteria being exceeded.

#### PSPC Response:

Numerous soil sampling reports have been produced over the years on soil conditions in the work site and risk of finding further soil contamination is considered low. PSPC will require of the contractor to include in its Environmental Protection Plan specific monitoring during soil excavation to detect visual and organoleptic indications of contamination. Should suspected contamination be identified, PSPC will need to be notified, and work stopped to allow soil sampling. Depending on the situation, number and location of samples may vary, as well as chemical analysis. Most common analysis usually include petroleum products (C10-C50), metals (14-metal list + mercury), VOC and PAH. Depending on technical and schedule constraints, soil can either remain in place until laboratory results are known, or they can be stored in impervious containers. All confirmed contaminated soil will need to be disposed of in approved treatment centers.

## Comments and advice for the proponent

### Comment 1-45 Monitoring and follow-up programs

#### References

CEAA, August 2018. *Guidelines for the Preparation of an Environmental Impact Statement, Part 2, Sections 9.1 (Follow-up program) and 9.2 (Monitoring program)*

Tetra Tech, February 2023. *Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec) Environmental Impact Statement, Summary*

#### Comments and advice

Upon reading the EIS Summary submitted by the project proponent, the TCO is of the opinion that the environmental effects during the replacement of the Timiskaming Dam-Bridge appear to be well controlled by the mitigation measures described in the document. However, it is undeniable that the monitoring and follow-up of the measures put in place will be an important aspect in ensuring their effectiveness, since the



consequences on the environment may be quite different if failures occur in the deployment and application of the mitigation measures.

# Annexes

## Annex I: Periods for conducting freshwater mussel surveys and relocation efforts

### Inventaires

Les niveaux d'eau élevés pourraient retarder le début des inventaires ou obliger la suspension des activités dans le cours d'eau. Les inventaires sont inefficaces lors des crues ou immédiatement après. De plus, les conditions peuvent être non sécuritaires. Les basses eaux constituent le meilleur moment pour la collecte des moules, lorsque la vitesse de courant et la turbidité sont faibles. Lors des inventaires, il faut également tenir compte du seuil de température minimum lors des activités d'enfouissement. Les moules ne sont pas des espèces capables de thermorégulation. Elles ne doivent pas être perturbées lors des périodes où les tissus risquent le gel en étant exposés à de basses températures puisque cela pourrait accroître la vulnérabilité des moules à la prédation ou le risque qu'elles soient emportées en aval en raison de leurs capacités d'ancrage plus lentes. Certaines espèces de moules indigènes s'enfouissent plus profondément pendant les périodes de froid, ce qui réduit la probabilité de la détection.

**L'échantillonnage de moules indigènes vivantes peut être effectué entre le 1er juin et le 30 septembre et seulement lorsque la température de l'eau est supérieure à 16° C. En deçà de cette température, la manipulation des moules est interdite.** Les propositions d'activités en dehors de cette période, ou toute restriction liée à la température de l'eau, doivent être approuvées par le MFFP. Il faut être conscients que la période d'échantillonnage doit prévoir un délai pour que les moules puissent s'enfouir de nouveau.

### Travaux de relocalisation et suivi

L'activité d'enfouissement des moules diminue grandement sous les 16°C et l'effort de relocalisation doit être déployé au moins un mois avant la baisse de la température de l'eau sous les 16°C. Le moment auquel chute la température de l'eau sous les 16°C varie selon le cours d'eau ainsi que d'une année à l'autre. Il faut tenir compte d'une période pour l'enfouissement des moules. En général, la température de l'eau en surface atteint les 16°C entre la mi-septembre et la fin septembre. Ainsi, la relocalisation doit être achevée entre la mi-août et la fin d'août, ce qui signifie que l'activité de suivi peut être réalisée entre la mi-septembre et la fin septembre.

Tiré et adapté de :

Mackie, G., Morris, T.J., et Ming, D. (2008). Protocole pour la détection et détournement des espèces de moules d'eau douce en péril en Ontario et des Grands Lacs. Rapport manuscrit canadien des Sciences halieutiques et aquatiques. 2790 : vi +50 p.

Le 6 mai 2019  
Direction de l'expertise sur la faune aquatique  
Ministère des Forêts, de la Faune et des Parcs





## Annex II: Barn and White-fronted Swallows (individuals and typical nests)

**Hirondelles rustique et à front blanc**



Mesure de protection






1