Publics Services and Procurement Canada

Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec)

Environmental Impact Statement
PART D – Baseline Conditions and Impact Assessment
Chapter 10 Methodology

TETRA TECH

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PUBLIC SERVICES AND PROCUREMENT CANADA

Environmental Impact Statement
Timiskaming Dam-Bridge of Quebec Replacement Project (Quebec)

Our Reference: 32760TT (60ET)

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REVISIONS

Revision nº	Description	Date	By
00	Preliminary Report - Version for comments	March 2022	JR
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02	EIS – Version for the Impact Assessment Agency Review	September 2022	JR
03	EIS – Second Version for the Impact Assessment Agency Review	February 2023	JR

TABLE OF CONTENT

LIST OF TABLES

LIST OF APPENDIXES

PART D – BASELINE CONDITIONS AND IMPACT ASSESSMENT

10 METHODOLOGY

For the purposes of this study, the general methodology for assessing environmental effects follows the following steps:

1. Identification of Valued Components (VCs);
2. Identification of Project components;
3. Identification and description of interactions between VCs and Project components;
4. Development of mitigation measures;
5. Identification of residual effects;
6. Characterize the residual adverse effects within the ecological or social context in terms of their magnitude, geographic extent, duration, frequency and reversibility;
7. Assess the significance of the adverse residual effects;
8. Where there are significant adverse effects, the probability / likelihood that they will occur will be provided.

The following paragraphs describe the steps of this methodology in detail. The cumulative effects assessment methodology is described in Chapter 17.

10.1 VALUED COMPONENTS (VCS)

Valued Components (VCs) are those elements of the host environment that are likely to be adversely affected by the proposed replacement of the Timiskaming dam in Quebec. The selection of these project-specific VCs was made by considering the requirements of Section 5 of the CEAA (2012), which provides a framework for the practice of environmental assessment of a project, by conducting a diligent review of the available documentation, particularly at the stages of identification of the Project's needs and constraints, and description of the physical, natural and human environments (see Part D of this report), as well as by integrating VCs shared by Indigenous communities.

Thus, the VCs were grouped into three categories:

- Human Environment / Indigenous VCs;
- VCs in the physical environment;
- Biological VCs.

10.1.1 Indigenous Groups' VCs

Indigenous groups involved in the preparation of the EIS were engaged in identifying their own VCs, methodologies to determine project interactions, definitions used for criteria to characterize potential project and cumulative effects, in identifying mitigation measures for adverse effects or enhancements for positive effects, and in the assessment of significance of the residual effects. As noted above, when they were provided, these Indigenous-development methods were used collaboratively to assess effects on Indigenous Peoples and are included in Part D, Chapter 13. In addition, when Indigenous or local knowledge was shared to better understand the ecological or social context and impacts of other VCs, this has been used to determine impacts. The following sections provide VCs that have been identified by Indigenous groups involved in the EIS. When specific VCs were not provided by the Indigenous group, a list of preliminary VCs were prepared and used in the effects assessment based on concerns and interests shared through correspondence and other consultation activities (Chapter 8).

10.1.1.1 Kebaowek, Wolf Lake and Timiskaming First Nations VCs

Kebaowek First Nation (KFN), Wolf Lake First Nation (WLFN) and Timiskaming First Nation (TFN) have chosen to conduct their own Indigenous-led studies to enhance the information gathered to date for the Project. TFN, KFN, WLFN noted that intrinsic to this engagement is recognizing TFN, KFN, WLFN (SART) First Nations rights are inherent, pre-existing of western law, are long-standing, and constitutionally protected; and should not be conflated with other Indigenous groups. This Indigenous-led assessment has determined the following high level values/aspirations for this assessment:

1. The Statement of Asserted Rights and Title 2013 (SART) asserts authority of the three nations over their traditional territory, and re-establishes their title to the lands on both sides of the Kichi-Sibi (Ottawa River). This is the highest priority value for all three;
2. Sufficient Lands and Services to enable their people and future generations to live in harmony with one another and with the land, plants, animals and waters around them;
3. Culturally safe space and opportunity for younger generations to reclaim their language and culture;
4. Control over development and services on their territory;
5. Ability to heal their people and territory from historical events, and get reparations for the cumulative effects visited upon them.

Section 13.1 provides more details on values, interests and needs determined by the communities for this assessment.

10.1.1.2 Antoine Nation

Based on concerns and interests shared through consultation with the Antoine Nation members, the following are a preliminary draft list of their VCs:

- Fish health and abundance and fish habitat for the following species: Walleye, Pike, Smallmouth Bass, Speckled/Brook Trout, Sturgeon, Muskellunge, Perch, Lake Whitefish, Sunfish, Carp and Sucker;
- The effects of the proposed fish passage on these fish species;
- The effects of the Project on the spawning areas for these fish species;
- Participation in fish monitoring activities long-term;
- Ottawa River water quality and levels as well as the potential for impacts on fish, water, humans from dislodging organic contaminant mats potentially present on the bed of the Ottawa River due to construction activities;
- Long Sault Island;
- Medicinal plant abundance and quality including: Sweetgrass, Puffball Mushroom;
- Access and travel throughout territory;
- Land based activities as foundation for well-being;
- Ecosystem integrity (free from pollution, overexploitation, crowding);
- Large game and large game habitat;
- Antoine Nation Rights;
- Antoine Nation ownership of land;
- Economic development and employment opportunities.

10.1.1.3 AOO

The AOO developed and submitted to PSPS a list of VCs that were likely to be present in the study area, likely to be negatively impacted by the Project, is significant to the AOO members, is identified in the AOO Algonquin Knowledge and Land Use Study (AKLUS) and is likely to adversely impact the AOO's rights and interests related to the VC.

The AOO notes that this list was validated by reviewing the data contained in the draft chapters of the Impact Statement provided by PSPC, existing AKLUS data and reviews of previous environmental studies. This was also validated through workshops with the AOO consultation office staff. The final list was submitted to PSPC on November 29, 2021. Additional health and socio-economic VCs were provided in review comments on the Preliminary draft EIS. The VCs identified are:

- Economic development for Indigenous peoples and businesses;
- Employment opportunities;
- Education and training opportunities;
- Community well-being;
- Key fish species: Kichi-Sìbì Pimisi (American Eel), Lake Sturgeon, Lake Whitefish and Walleye;
- Other Fish Species (Bass, Yellow Perch, Northern Pike, Lake Trout, etc.);
- Freshwater Mussel Species (e.g. Hickorynut Mussel);
- Species at Risk Turtles (Snapping Turtle, Midland Painted Turtle, etc.);
- Waterfowl Species (Ducks, Geese, Common Loon);
- Riparian Plants and Medicine Species (e.g. staghorn sumac, chokecherry, red raspberry, wolf willow);
- The Kichi-Sìbì (Ottawa River);
- Long Sault Island;
- Access and Travel throughout Algonquin Lands and Waters (e.g., canoe and portage routes, boat launches, shore and boat based angling locations).

Detailed rationale for the selection of these VCs is contained in Part D, Section 13.3 and Appendix 10.1.

10.1.1.4 AOPFN

Based on the concerns and interests expressed by AOPFN during the preparation of the EIS, the following preliminary VCs have been identified :

- Fish – health, abundance, habitat, and cumulative effects on fish (especially American Eel and Lake Sturgeon), impacts from suspended sediments;
- Wildlife – disturbance to turtle habitat;
- Riparian and terrestrial plants – disturbance to species and habitat;
- Medicinal plants – abundance, habitat, access;
- Access and travel throughout Algonquin Lands and Waters – access to medicinal plants, other country foods;
- Safety – structural integrity of the dam;
- Long Sault Island;
- Ottawa River – downstream impacts;
- AOPFN Rights;
- Economic development and education opportunities.

These VCs were further supported with the values that were identified in the ATKLUS report (Urban Systems, November 2021) based on engagements with AOPFN knowledge holders, Chief and Council, the AOPFN Advisory Committee, ATKLUS interview data, a literature search and expert knowledge. These values include:

- Cultural continuity, knowledge and land use – particularly the need for cultural revitalization;
- Fish and wildlife abundance and diversity (Bass, Northern pike, Pickerel, Trout, Deer, moose, partridge and ‘other’ wildlife;
- Land and water – co-management and co-governance; community-based monitoring, action planning;

- Health and wellbeing – Algonquin country foods;
- Cumulative effects of dam development on loss of territorial use.

10.1.1.5 MNO

The MNO provided the following initial list of VCs derived from concerns expressed by the MNO during the review of the preliminary draft EIS (see Appendix 8.3):

- Métis harvesting – hunting, trapping, fishing and gathering in preferred locations;
- Métis way of life – access to culturally significant areas, recognition of MNO jurisdiction, cultural connections, sense of place;
- Métis stewardship – fish;
- Métis economy – changes to trade economy due to availability of resources;
- Métis rights – loss of access during construction or operation.

10.1.2 VCs from the Legislation, the Guidelines and the Scientific Experience

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

Physical components		Concordance with Canadian Acts, Laws, Regulations	Justification/Rationale
Air	Air quality	Due diligence	Yes, local receptors could be affected by increased in airborne dust and pollutant from the Project.
	Noise	Due diligence	Yes, local receptors could be affected by increased noise from the Project.
Soil	Volumes and sediment quality	Due diligence	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	Due diligence	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	Due diligence	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.

Physical components		Concordance with Canadian Acts, Laws, Regulations	Justification/Rationale
	Groundwater quantity	Due diligence	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 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	Due diligence	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	Due diligence	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	Due diligence	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 Section 5(1) CEAA 2012	Yes, under CEAA 2012 Section 5.1 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, Northern Pike, Lake Trout,	Section 5(1) CEAA 2012 Fisheries Act (1985)	Yes, under CEAA 2012 Section 5.1, 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
	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) CEAA 2012	Yes, under CEAA Section 5(1), 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	Due diligence	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)	Due diligence	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 seven components:

Indigenous / Non Indigenous Assessment Component		Concordance with Canadian Acts, Laws, Regulations	Justification/Rationale
Indigenous Groups	Health and socio-economics	Section 5(2) CEAA 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. Health and well-being are closely tied to cultural land, water and resource uses and are valued by Indigenous groups. Use of natural and Indigenous laws for land and water stewardship is valued by Indigenous groups. Ecosystem integrity including areas that are free from pollution, overexploitation and crowding are valued by Indigenous groups.
	Physical and cultural heritage	Section 5(2) CEAA 2012	Yes, any cultural and physical heritage feature for Indigenous people will be evaluated. Cultural continuity (the ability to pass on Indigenous language, culture, knowledge) is valued by Indigenous groups. The Ottawa River and Long Sault Island have historical cultural heritage value to Indigenous groups. 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.
	Current use of land and resources for traditional purposes Access and Travel throughout Algonquin Lands and Waters (e.g. canoe and portage routes, boat launches, shore and boat based angling locations) The Kichi-Sìbì (Ottawa River) Long Sault Island	Section 5(2) CEAA 2012 Canada Navigable Waters Act (L.R.C. (1985), ch. N-22	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. There is an interest in retaining or enhancing Long Sault Island for contemporary use. Indigenous groups value the historical importance of Long Sault Island and the area in general for Algonquin people. 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.
	Structure, site or thing with historical, archaeological, paleontological or Architectural significance	Section 5(2) CEAA 2012	The Ottawa River and Long Sault Island are significant sites with value to Indigenous groups.
	Aboriginal or Treaty rights	Section 5(1) (c) CEAA 2012	Land jurisdiction, stewardship, harvesting rights, Algonquin governance systems were noted as values held by Indigenous groups.

Indigenous / Non Indigenous Assessment Component		Concordance with Canadian Acts, Laws, Regulations	Justification/Rationale
Non Indigenous People	Health and socioeconomics	Section 5(2) CEAA 2012	Yes, health and socio-economics could be impacted by the Project, positively or negatively.
	Architectural, archaeological and cultural heritage	Section 5(2) CEAA 2012	Yes, any cultural and physical heritage features will be evaluated. The Stage 1 and 2 archaeological surveys conducted in 2017 did not reveal any archaeological sites that could be further impacted by the Project.
	Land use	Section 5(2) CEAA 2012	Yes, fishing, trails (snowmobiles) and other land use in the Project area could be impacted by the construction and operation of the dam.
	Navigation	Canada Navigable Waters Act (L.R.C. (1985), ch. N-22	Yes, navigation could be impacted during construction.

All the VCs identified in the previous sections are integrated into the interrelationship grid (Tables 10.1 and 10.2).

10.2 PROJECT COMPONENT

The Project components have been extensively documented in Chapter 7 of this report. However, for the purposes of this environmental effects assessment, the Project components have been grouped into the following categories:

1. Preparation of the work;
2. Construction Activities:
    a. Phase 1 - Water Control;
    b. Phase 2 - Construction of the new dam;
    c. Phase 3 - Road Work;
    d. Phase 4 - Demolition of existing dam.
3. Operation of the new dam;
4. Demobilization of the new dam;
5. Emergency situations.

10.3 INTERACTION OF VCS AND PROJECT COMPONENTS

The detailed assessment of the environmental effects of the interactions identified in Table 6.9 (presented in Chapter 6) for the selected Option 1 and reproduced here in Tables 10.1 and 10.2 is described in more detail in Chapters 11, 12, 13 and 14, which includes the potential mitigation measures that will need to be implemented to minimize the environmental effects of the work.

The assessment is based on consultation with previous studies of this type of project, consultations with Indigenous communities, the public, stakeholder groups and the experience of the various specialists involved in the Project.

Table 10.1 Matrix of Interactions Between Environmental and Project Components - Physical, Biological and Socio-Economic Environment (non-Indigenous People) - Option 1 (Downstream of the Existing Dam)

	Valued Components (VCs)																			
	Physical Environment									Biological Environment						Socio-economic Environment				
	Air		Soil		Water					Aquatic		Terrestrial				Non-Indigenous People				
	Due diligence									Section 5(1) CEAA 2012		Sect. 5(1) CEAA 2012		Sect. 5(1) CEAA 2012		Section 5(2) CEAA 2012				
Construction Sequences and Tasks	Air quality	Noise	Sediment volume and quality	Soil Volume and Quality	Groundwater Quantity	Groundwater quality	Surface Water Dynamics	Surface Water Quality	Ice	Endangered Aquatic Species (Species at Risk Act (2002)	Fish and Habitat (Fisheries Act (1985))	Migratory Birds Convention Act (MBCA 1994)	Wildlife Species and Habitats	Endangered Species (Species at Risk Act 2002)	Wetlands and Plant Life	Health and socioeconomics	Architectural/ archaeological Heritage and Culture	Land use	Navigation
WORK PREPARATION																			
Land clearing, earthworks for the implementation of storage areas	X	X	X	X		X		X		X	X	X	X	X	X	X	X	X	
Temporary construction site facilities (trailers)	X	X	X	X		X		X		X	X	X	X	X	X	X	X	X	
Waste management			X	X		X		X		X	X		X	X		X			
CONSTRUCTION																			
Operation of machinery and generators	X	X	X	X		X		X		X	X	X	X	X	X	X			
Phase 1: Water management																			
Construction of the cofferdam	X	X	X				X	X	X	X	X	X				X	X	X	X
Dewatering	X	X	X		X			X		X	X	X				X	X	X	
Phase 2: Construction of the new dam																			
Extension of the new apron	X	X	X	X		X		X		X	X	X				X			
Construction of the new dam	X	X	X									X	X			X			
Construction of the fish passage (if this option is chosen)	X	X	X					X		X	X	X				X			
Dismantlement and removal of the cofferdam	X	X	X				X	X	X	X	X	X				X		X	X
Phase 3: Road work																			
Relocation of the roadway (layout)	X	X	X	X		X		X		X	X	X	X	X	X	X		X	
Re-routing of existing utilities (power cables, telephone cables and pipeline)	X	X	X	X		X		X		X	X	X	X	X	X	X		X	
Traffic maintenance																X		X	
Phase 4: Demolition of the old dam																			
Demolition of the old dam	X	X	X				X	X	X	X	X	X				X			X
Removal and disposal of construction waste	X	X	X	X		X		X		X	X	X	X	X	X	X			
Final landscaping and site restoration	X	X	X	X		X		X		X	X	X	X	X	X	X		X	
OPERATION																			
Routine maintenance for the entire useful life of the dam	X	X	X	X		X		X		X	X	X	X	X	X	X		X	X
Opening and closing of the bays							X			X	X					X		X	X
DEMOBILIZATION																			
Not expected before 75 years	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EMERGENCIES (SITE PREPARATION, CONSTRUCTION AND OPERATION)																			
Spills/overflows			X	X		X		X		X	X	X	X	X	X	X			
Traffic collisions													X			X		X	
Malfunctions or leaks (dam or cofferdam)			X	X		X	X	X		X	X	X	X	X	X	X			X

X: potential interrelations
NA: Not applicable/assessed

Table 10.2 Matrix of Interactions Between Environmental and Project Components - Socio-Economic Environment (Indigenous People) - Option 1 (Downstream of the Existing Dam)

	Valued Component (VCs)																								
	Human Environment																								
	Indigenous People																								
	Section 5(2) CEAA 2012																								
	Kebaowek, Wolf Lake and Timiskaming FN					Antoine Nation					Algonquins of Ontario (AOO)					Algonquins of Pikwakanagan First Nation (AOPFN)					Métis Nations of Ontario				
Construction Sequences and Tasks	Health and socio-economics	Physical and cultural heritage	Current use of Land and resources	Architectural/ archaeological CI Heritage and Culture	Rights	Health and socio-economics	Physical and cultural heritage	Current use of Land and resources	Architectural/ archaeological CI Heritage and Culture	Rights	Health and socio-economics	Physical and cultural heritage	Current use of Land and resources	Architectural/ archaeological CI Heritage and Culture	Rights	Health and socio-economics	Physical and cultural heritage	Current use of Land and resources	Architectural/ archaeological CI Heritage and Culture	Rights	Health and socio-economics	Physical and cultural heritage	Current use of Land and resources	Architectural/ archaeological CI Heritage and Culture	Rights
WORK PREPARATION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Land clearing, earthworks for the implementation of storage areas																									
Temporary construction site facilities (trailers)																									
Waste management																									
CONSTRUCTION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operation of machinery and generators																									
Phase 1: Water management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Construction of the cofferdam																									
Dewatering																									
Phase 2: Construction of the new dam	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Extension of the new apron																									
Construction of the new dam																									
Construction of the fish passage (if this option is chosen)																									
Dismantlement and removal of the cofferdam																									
Phase 3: Road work	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Relocation of the roadway (layout)																									
Re-routing of existing utilities (power cables, telephone cables and pipeline)																									
Traffic maintenance																									
Phase 4: Demolition of the old dam	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Demolition of the old dam																									
Removal and disposal of construction waste																									
Final landscaping and site restoration																									
OPERATION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Routine maintenance for the entire useful life of the dam																									
Opening and closing of the bays																									
DEMOBILIZATION	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Not expected before 75 years																									
EMERGENCIES (SITE PREPARATION, CONSTRUCTION AND OPERATION)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Spills/overflows																									
Traffic collisions																									
Malfunctions or leaks (dam or cofferdam)																									

X: potential interrelations
NA: Not applicable/assessed

10.4 QUANTIFICATION OF THE EFFECTS

The interactions identified in Tables 10.1 and 10.2 show the potential environmental and social effects based on Indigenous and scientific knowledge of the conditions of the receiving environment and of the Project components. Each of these interactions will be characterized according to specific criteria in order to assess the significance of the potential effects on the components of the environment.

10.4.1 Evaluation Criteria

The analysis takes into account five criteria in order to quantify the environmental and social effects as much as possible. When it was shared, Indigenous and local community knowledge was used in defining the evaluation criteria for VCs.

10.4.1.1 Magnitude

This criterion uses the notion of the intensity of the effect. The timing of the effect can influence its intensity and is taken into account in this indicator. The adverse timing of the effect may vary depending on the environmental component concerned. Examples include the spawning period for Project interventions in fish habitat or nighttime for noise issues. The ecological and social context of the component is also taken into consideration when judging the magnitude. In this case, three levels of intensity have been retained:

- **Low**: Little modification to the characteristics of the component. Difficult to quantify;
- **Medium**: Modification of some component characteristics. The modification can be quantified;
- **High**: Modification of all or the main characteristics of the component. This change is quantifiable.

10.4.1.2 Geographic Extent

This criterion qualifies the spatial dimension of the potential effect generated. It refers to the distance or area over which the disturbance will be felt. Three perimeters have been retained:

- **Project footprint**: The extent is punctual when the intervention only affects an environmental element located in the Project footprint, including the work areas as defined on Figure 7.1, or really near the Project footprint (a few meters);
- **Local**: The scope is local when the intervention affects part or all the study area selected for the component, beyond the Project footprint;
- **Regional**: The scope is regional when the intervention goes beyond the study area.

10.4.1.3 Duration

This criterion refers to the notion of duration of exposure to the potential effect. Three periods have been retained and a notion of reversibility is integrated:

- **Short or momentary**: The residual effects will be felt in a reversible manner over a short period of time that will not exceed one work phase (less than 6-8 months);
- **Medium**: Residual effects will occur in a reversible manner in more than one work phase and may extend for the entire construction period (6-8 months to 3 years);
- **Long**: The residual effects will occur beyond the construction period (more than 3 years) but will be reversible within a few years (1-2) after construction;
- **Permanent:** The residual effects will be irreversible and will be perpetuated over the life of the Project (75 years).

10.4.1.4 Frequency

This criterion refers to the notion of repetitiveness of the effect; three cases are therefore considered.

- **Punctual**: The residual effect occurs once during construction or operation period;
- **Cyclic**: The residual effect recurs intermittently but repeatedly (e.g., in a particular season) over either the construction or operation periods;
- **Continuous**: The residual effect occurs consistently and without interruption throughout the construction and/or operation period.

10.4.1.5 Reversibility

This criterion refers to the possibility that the effect will diminish over time and the component will return to its original characteristics. The effect may therefore be reversible or irreversible.

10.5 SIGNIFICANCE OF THE EFFECTS

Based on the five criteria determined above, the following analysis grid was developed to identify the significance of potential effects (which can be positive, negative or neutral) on environmental components.

Three levels of significance of potential effects were retained:

- **Significant effect (S)**: Means that the effect is permanent, and that it affects the integrity, diversity and sustainability of the element. Such an effect markedly or irremediably alters the quality of the environment;
- **Non-significant effect (NS):** Means that the effect is perceptible, temporary and/or of low recurrence, that it affects little the environmental component and that the latter is not affected in an irreversible way. Such an effect is of short duration and/or small extent;
- **Negligible effect (N):** Means that the effect is nil or practically nil, that it does not affect the environmental component in an observable or quantifiable way and that it is similar to a natural effect that can occur randomly. Such an effect is usually short-lived and small in extent.

To obtain a significant effect, the multiplication of the criteria have to be between 32 and 81 (most criteria have the highest values). A non-significant effect is when the multiplication gives a result between 6 and 27 (criteria usually have medium values) and a negligible effect is when the multiplication of the criteria give between 1 and 4 (most of the criteria have a low value). Given that, the matrix provides 15 possibilities of negligible effects, 60 possibilities of non-significant effects and 15 possibilities of significant effects (Table 10.3).

Where possible and appropriate, many of the interactions may be assessed as a group, by category or by VC. For each of these groupings, the detailed analysis will be presented in Chapter 20 along with a summary table.

Table 10.3 Effect Significance Matrix

Magnitude	Geographic extent	Reversibility	Duration	Frequency	Significance
Low (1)	Project footprint (1)	Reversible (1)	Short or momentary (1)	Punctual (1)	N
				Cyclic (2)	N
				Continuous (3)	N
			Medium (2)	Punctual (1)	N
				Cyclic (2)	N
				Continuous (3)	NS
			Long (3)	Punctual (1)	N
				Cyclic (2)	NS
				Continuous (3)	NS
		Irreversible (2)	Permanent (4)	-	NS
	Local (2)	Reversible (1)	Short or momentary (1)	Punctual (1)	N
				Cyclic (2)	N
				Continuous (3)	NS
			Medium (2)	Punctual (1)	N
				Cyclic (2)	NS
				Continuous (3)	NS
			Long (3)	Punctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	NS
		Irreversible (2)	Permanent (4)	-	NS
	Regional (3)	Reversible (1)	Short or momentary (1)	Punctual (1)	N
				Cyclic (2)	NS
				Continuous (3)	NS
			Medium (2)	Punctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	NS
			Long (3)	Punctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	NS
		Irreversible (2)	Permanent (4)	-	NS

Magnitude	Geographic extent	Reversibility	Duration	Frequency	Significance
Medium (2)	Project footprint (1)	Reversible (1)	Short or momentary (1)	Ponctual (1)	N
				Cyclic (2)	N
				Continuous (3)	NS
			Medium (2)	Ponctual (1)	N
				Cyclic (2)	NS
				Continuous (3)	NS
			Long (3)	Ponctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	NS
		Irreversible (2)	Permanent (4)	-	NS
	Local (2)	Reversible (1)	Short or momentary (1)	Ponctual (1)	N
				Cyclic (2)	NS
				Continuous (3)	NS
			Medium (2)	Ponctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	NS
			Long (3)	Ponctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	S
		Irreversible (2)	Permanent (4)	-	S
	Regional (3)	Reversible (1)	Short or momentary (1)	Ponctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	NS
			Medium (2)	Ponctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	S
			Long (3)	Ponctual (1)	S
				Cyclic (2)	S
				Continuous (3)	S
		Irreversible (2)	Permanent (4)	-	S

Magnitude	Geographic extent	Reversibility	Duration	Frequency	Significance
High (3)	Project footprint (1)	Reversible (1)	Short or momentary (1)	Ponctual (1)	N
				Cyclic (2)	NS
				Continuous (3)	NS
			Medium (2)	Ponctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	NS
			Long (3)	Ponctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	NS
		Irreversible (2)	Permanent (4)	-	NS
	Local (2)	Reversible (1)	Short or momentary (1)	Ponctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	NS
			Medium (2)	Ponctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	S
			Long (3)	Ponctual (1)	NS
				Cyclic (2)	S
				Continuous (3)	S
		Irreversible (2)	Permanent (4)	-	S
	Regional (3)	Reversible (1)	Short or momentary (1)	Ponctual (1)	NS
				Cyclic (2)	NS
				Continuous (3)	NS
			Medium (2)	Ponctual (1)	NS
				Cyclic (2)	S
				Continuous (3)	S
			Long (3)	Ponctual (1)	S
				Cyclic (2)	S
				Continuous (3)	S
		Irreversible (2)	Permanent (4)	-	S

10.5.1 Mitigation Measures

Once the environmental effects have been identified, mitigation measures are identified to avoid, minimize or manage any potential negative effects. Many socio-economic effects can be positive or depending on different perspectives, bi-directional (both positive and negative). If the effect could be considered positive or desirable, then enhancement measures are proposed. Mitigation measures must be technically and economically feasible.

These mitigation measures are included in the environmental and social monitoring program presented in Part G (Chapters 22 and 23) of this report and will be implemented during the life of the Project as appropriate.

10.5.2 Residual Effects

The application of mitigation measures allows for a review of the significance of the potential effects of the Project on the components of the environment. This results in residual effects that can be divided into three categories as defined in Section 10.5. In the case of a significant residual effect, which permanently or significantly affects a component of the environment, compensation, replacement, restoration or compensation measures may be required with a follow-up program.

When an effect is significant, a probability of occurrence is attached to it, either that it is very likely to occur or that it is unlikely or uncertain to occur. In the latter case, the uncertainty may arise from a lack of data or knowledge about the effects of the Project, and in these circumstances, monitoring or follow-up will be required.

The likelihood of the residual effect occurring is assessed according to the Agency's Operational Policy Statement: Determining the Likelihood of Significant Adverse Environmental Effects of a Project under the Canadian Environmental Assessment Act (2012).

Appendix 10.1 AOO Vs

1.4 VALUED COMPONENT SELECTION METHODOLOGY

The following text on VCs was submitted to PSPC earlier in 2021 and has been adjusted to account for the completion of the AKLUS.

We completed the preliminary AOO VCs selection process by considering the following key questions:

1. Is the VC likely to occur within the TQDR Project Study Area?
2. Is it possible that the VC will be adversely impacted by TQDR Project components and activities?
3. Has the VC been previously identified as important to the AOO?
4. Has the VC been previously mapped through an AKLUS?
5. Will the TQDR Project cause potential impacts to the exercise of AOO rights and interests, in relation to this VC?

To answer these questions, we implemented the following review and validation processes:

1. Review of draft or preliminary EIS information provided by PSPC to date
2. Review of existing AKLUS data
3. Review of priorities on previous AOO environmental assessment consultation and engagement files

4. Validation workshop with AOO consultation office staff

First, we completed a review of draft or preliminary EIS sections or technical supporting documents (e.g., fish censuses, description of the existing biological and physical environments, archaeological assessment reports, etc.) that have been provided by PSPC to date.

We reviewed these documents to determine which species and environmental or cultural features were present within the Project Study Areas. All species and environmental or cultural features present were then collected in list form. Then, they were assessed for their potential to be impacted by the Project.

This assessment is ongoing as further documents and project plans are released by PSPC. In general, potential impacts from the Project that were considered included:

- Disruptions to foraging, spawning, nesting, or other critical life history stages
- Sensory disturbance
- Impacts resulting from sedimentation or erosion
- Impacts resulting from changes in water flows or levels
- Accidental release of contaminants
- Direct disturbance or removal of lands and waters

Second, we completed an analysis of available AKLUS data. Specifically, we assessed which Land Use and Occupancy features have been documented on the Kichi-Sìbì, plus a 100-metre buffer on either side of the river, a distance that roughly corresponds to PSPC's terrestrial environment Study Area (Biofilia, 2019). We also included the results of the AKLUS data analysis to prepare the list of VCs.

In addition to these approaches, the SVS project team relied upon our professional judgment, gained through many years of supporting the AOO with consultation and engagement on projects subject to environmental assessment processes.

Third, we reviewed the draft AOO VCs results with the AOO's consultation office staff through an online workshop. This allowed us to validate the results of the desktop scoping exercise, whereby we analyzed the AKLUS results for VCs, and to refine the draft list of preliminary AOO VCs based on AOO staff's in-depth local knowledge of the Project Study Area. This document has been reviewed and approved by the AOO's Planning and Environment Working Group and the Algonquin Negotiation Representatives Table.

Valued Component Selection Results

The following is a list of preliminary AOO VCs, stemming from the methods described above. It should be noted that the AOO generally view and value all species (including all species at risk), abiotic components of the lands and waters, and their cultural and spiritual values holistically. However, this component-based list has been developed to align with the environmental impact assessment process. The AOO reserve the right to revise this list and express support for protecting components of the lands and waters not captured in the table below.

Table 1: Preliminary AOO VCs for the Timiskaming Dam-bridge of Quebec Replacement Project

PRELIMINARY AOO VALUED COMPONENT*	BRIEF RATIONALE FOR INCLUSION

Kichi-Sìbì Pimisi (American Eel)	The AOO recognize that this species is unlikely to occur in the TQDR Project areas today, as a result of its extirpation from the Kichi-Sìbì basin. However, this is a species of immense cultural importance that was previously a staple of the Algonquin diet. Considering this, the AOO have a strong interest in restoring viable populations of Kichi-Sìbì Pimisi throughout its historical range in Ontario. It is the AOO's expectation that all proponents conducting in-water works will account for this in environmental assessments, avoid further activities that would obstruct the potential future passage of Kichi-Sìbì Pimisi, and seek opportunities for enhancements that may enable future passage.
	
	This is a fish species and therefore, at face value, relates to the aquatic environment component of the Draft EIS. However, the importance of this preliminary VC to the AOO is holistic in nature and relates specifically to the following:
	
	• Effects on current use of lands and resources for traditional purposes, including the availability of, and access to, adequate amounts of cultural foods and medicines for personal and community use. This is also directly tied to:
	
	  ○ Physical environment (e.g., sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area)
	
	  ○ Aquatic environment (e.g., fish habitat, adequate populations, and passage upstream and downstream, Algonquin interests in stewardship within the AOO Settlement Area)

	• Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being. This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.
Lake Sturgeon	This is an at-risk fish species that is culturally valued and historically fished by Algonquins. It is known to occur in the TQDR Project Study Areas and may be adversely impacted by Project activities. This is a fish species and therefore, at face value, relates to the aquatic environment component of the Draft EIS. However, the importance of this preliminary VC to the AOO is holistic in nature and relates specifically to the following: • Effects on Current Use of Lands and Resources for Traditional Purposes, including the availability of, and access to, adequate amounts of cultural foods and medicines for personal and community use. This is also directly tied to the: o Physical environment (e.g. sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area) o Aquatic environment (e.g., fish habitat, spawning, adequate populations, and passage upstream and downstream, Algonquin interests in stewardship within the AOO Settlement Area) • Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being. This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.
Lake Whitefish	This is a fish species that is culturally valued and commonly fished by Algonquins. It is known to occur in the TQDR Project Study Areas and may be adversely impacted by Project activities. This is a fish species and therefore, at face value, relates to the aquatic environment component of the Draft EIS. However, the importance of this

	preliminary VC to the AOO is holistic in nature and relates specifically to the following:
	
	• Effects on current use of lands and resources for traditional purposes, including the availability of, and access to, adequate amounts of cultural foods and medicines for personal and community use. This is also directly tied to the:
	
	  ○ Physical environment (e.g., sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area)
	
	  ○ Aquatic environment (e.g., fish habitat, spawning, adequate populations, and passage upstream and downstream, Algonquin interests in stewardship within the AOO Settlement Area)
	
	• Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being.
	
	This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.

Pickerel/Walleye	This is a fish species that is culturally valued and commonly fished by Algonquins. It is known to occur in the TQDR Project Study Areas and may be adversely impacted by Project activities. This is a fish species and therefore, at face value, relates to the aquatic environment component of the Draft EIS. However, the importance of this preliminary VC to the AOO is holistic in nature and relates specifically to the following: • Effects on current use of lands and resources for traditional purposes, including the availability of, and access to, adequate amounts of cultural foods and medicines for personal and community use. This is also directly tied to the: ○ Physical environment (e.g. sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area)

	○ Aquatic environment (e.g. fish habitat, spawning, adequate populations, and passage upstream and downstream, Algonquin interests in stewardship within the AOO Settlement Area) • Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being. This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.
Other Fish Species of importance (such as bass, yellow perch, northern pike, lake trout)	These are fish species that are culturally valued and regularly fished by Algonquins. They are likely to occur within the TQDR Project Study Areas and may be adversely impacted by Project activities. This is a fish species grouping and therefore, at face value, relates to the aquatic environment component of the Draft EIS. However, the importance of this preliminary VC to the AOO is holistic in nature and relates specifically to the following: • Effects on current use of lands and resources for traditional purposes, including the availability of, and access to, adequate amounts of cultural foods and medicines for personal and community use. This is also directly tied to the: ○ Physical environment (e.g., sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area) ○ Aquatic environment (e.g., fish habitat, spawning, adequate populations, and passage upstream and downstream, Algonquin interests in stewardship within the AOO Settlement Area) • Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being. This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.
Freshwater Mussel Species (e.g. hickorynut mussel)	While freshwater mussel species are not typically consumed by Algonquins, they have important relationships with other species of significance to Algonquins (e.g., Lake Sturgeon). In addition, hickorynut mussels are an at-

	risk species within the unceded AOO Settlement Area. The AOO subsequently have an interest in protecting these species and ensuring they are considered through this environmental assessment process. This is an aquatic species grouping and therefore, at face value, relates to the aquatic environment component of the Draft EIS. However, the importance of this preliminary VC to the AOO is holistic in nature and relates specifically to the following: • Physical environment (e.g., sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area) • Aquatic environment (e.g., fish habitat, spawning, adequate populations, and passage upstream and downstream, Algonquin interests in stewardship within the AOO Settlement Area) • Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being. This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.
Species at Risk including turtles (Snapping Turtle, Midland Painted Turtle,)	These are species of great cultural importance to Algonquins that may occur in the TQDR Project Study Areas and have the potential to be adversely impacted by the Project. Turtles have significance in Algonquin culture, ceremony and spirituality. A turtle is part of the creation story of the land itself, and the land is often traditionally referred to as "Turtle Island." As a symbol, turtles are associated with long life, patience, protection, and fertility. Turtles are said to have a role in the spirituality of Algonquins, representing healing, wisdom, and devoutness. The back of turtle shells such as snapping turtles are used as a lunar calendar: on a turtle's back the circle of scales that surround the edge add up to 28, the number of days that comprise the monthly 28-day lunar cycle. The centre of the shell has thirteen larger scales representing the 13 moons of the lunar calendar. This is a wildlife species grouping and therefore, at face value, relates to the aquatic and terrestrial environment components of the Draft EIS. However, the importance of this preliminary VC to the AOO is holistic in nature and relates specifically to the following:

	• Physical environment (e.g., sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area) • Aquatic environment (e.g., habitat, adequate populations, and passage upstream and downstream, Algonquin interests in stewardship within the AOO Settlement Area) • Terrestrial environment (e.g., wildlife, riparian habitat, nesting, Algonquin interests in stewardship within the AOO Settlement Area) • Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being. This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.

Waterfowl Species (Ducks, Geese, Common Loon)	These are waterfowl species that are harvested and/or culturally valued by Algonquins. They are likely to occur within the TQDR Project Study Areas and may be adversely impacted by Project activities.
	
	This is a wildlife species grouping and therefore, at face value, relates to the terrestrial and aquatic environment components of the Draft EIS. However, the importance of this preliminary VC to the AOO is holistic in nature and relates specifically to the following:
	• Effects on current use of lands and resources for traditional purposes, including the availability of, and access to, adequate amounts of cultural foods and medicines for personal and community use. This is also directly tied to the:
	  ○ Physical environment (e.g., sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area)
	  ○ Terrestrial environment (e.g., wildlife, riparian habitat, nesting, Algonquin interests in stewardship within the AOO Settlement Area)
	• Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being.

	This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.

Riparian Plants and Medicine Species	Algonquins have a strong interested in gathering riparian plant species (e.g., staghorn sumac, chokecherry, red raspberries, wolf willow, etc.) for edible and medicinal purposes. In addition to this, riparian plant species provide important forage and habitat for wildlife species of importance to Algonquins. The terrestrial environment for the TQDR Project contains species that are traditionally gathered by Algonquins. It is possible that they will be adversely impacted by Project activities.
	
	This is a plant and medicines species grouping and therefore, at face value, relates to the terrestrial and aquatic environment components of the Draft EIS. However, the importance of this preliminary VC to the AOO is holistic in nature and relates specifically to the following:
	
	• Effects on current use of lands and resources for traditional purposes, including the availability of, and access to, adequate amounts of cultural foods and medicines for personal and community use. This is also directly tied to the:
	  ○ Physical environment (e.g., sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area)
	  ○ Terrestrial environment (e.g., plants, riparian habitat, nesting, Algonquin interests in stewardship within the AOO Settlement Area)
	• Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being.
	
	This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.

The Kichi-Sìbì (Ottawa River)	The Kichi-Sìbì is the lifeblood of the AOO. It is a place where Algonquins complete spiritual canoe journeys, fish, trap, harvest wildlife, gather plants and medicines and visit spiritual locations and their ancestors today. It provides important resources and habitat for the species that Algonquins harvest. It was a commonly used travel route by past generations. Therefore, the Kichi-Sìbì is where many Algonquin settlements were located.

Historically significant sites, burial sites, and areas of high archaeological potential are commonly found along the Kichi-Sìbì.

This is the most holistic preliminary AOO VC. Its importance relates specifically to the following:

- Effects on current use of lands and resources for traditional purposes, including the availability of, and access to, adequate amounts of cultural foods and medicines for personal and community use, access to travel routes and cabins for conducting land use practices, and effects of sites or areas that are used by Algonquins either for permanent residences or on a seasonal/temporary basis. This is also directly tied to the:
    - Physical environment (e.g., bedrock and soils, local climate, sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area)
    - Aquatic environment (e.g., water used for sustenance, cultural and spiritual purposes, fish habitat, spawning, adequate populations, and passage upstream and downstream, Algonquin interests in stewardship within the AOO Settlement Area)
    - Terrestrial environment (e.g., wildlife, riparian habitat, nesting, Algonquin interests in stewardship within the AOO Settlement Area)
- Effects on physical and cultural heritage, including continued use to access culturally or historically significant sites, historical and current cultural heritage impacts on the Kichi-Sìbì downstream of the dam, and any structures, sites, or things of historical or archaeological significance.
- Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being, access to clean drinking water, commercial and recreational activities, and transport on the river reservoir.

This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.

Île Long Sault

River islands close to rapids, such as Île Long Sault, have great cultural importance to Algonquins both historically and in contemporary times. Locations like this were historically used by Algonquins as camping sites, canoe journey rest stops, portions of portage routes, and fishing locations. Considering this, they are candidate locations for archaeological and cultural heritage features or artifacts, and are important stops on Algonquins' spiritual canoe journeys today. Further, it is known that Algonquins historically held cultural ceremonies and activities (e.g., weddings) on Île Long Sault and therefore it is of high significance to Algonquin families. It is also possible that this island provides ecological value to species of importance to Algonquins, by serving as a wildlife movement corridor (e.g., supporting wildlife movement across the Kichi-Sìbì). Project activities (e.g., road re-routing, construction of the new dam-bridge) will occur on Île Long Sault, making it subject to potential adverse impacts.

This is a physical location within the Project footprint and therefore, at face value, relates to the physical environment component of the Draft EIS. However, the importance of this preliminary VC to the AOO is holistic in nature and relates specifically to the following:

- Effects on physical and cultural heritage, including continued access to culturally or historically significant sites, historical and current cultural heritage impacts on the Kichi-Sìbì downstream of the dam, and any structures, sites, or things of historical or archaeological significance.

- Effects on current use of lands and resources for traditional purposes, including the availability of, and access to, adequate amounts of cultural foods and medicines for personal and community use, access to travel routes and cabins for conducting land use practices, and effects of sites or areas that are used by Indigenous People either for permanent residences or on a seasonal/temporary basis. This is also directly tied to the:

    - Physical environment (e.g., bedrock and soils, local climate, sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area)

    - Aquatic environment (e.g., water used for sustenance, cultural and spiritual purposes, fish habitat, spawning, adequate populations, and passage upstream and

	downstream, Algonquin interests in stewardship within the AOO Settlement Area) ○ Terrestrial environment (e.g., wildlife, wildlife habitat connectivity, riparian habitat, nesting, Algonquin interests in stewardship within the AOO Settlement Area) • Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being, commercial and recreational activities, and transport on the river reservoir. This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.
Access and Travel throughout Algonquin Lands and Waters	Algonquins' ability to access the lands and waters of the unceded AOO Settlement Area is integral to the exercise of inherent Indigenous Rights. Activities associated with the TQDR Project have the potential to impede access to canoe or boat launches, portage or boating routes, and important personal fishing areas for Algonquins. This is a preliminary AOO VC based in land use practice and therefore, at face value, relates to the traditional lands and resources use component of the Draft EIS. However, the importance of this preliminary VC to AOO is holistic in nature and relates specifically to the following: • Effects on current use of lands and resources for traditional purposes, including access to adequate amounts of cultural foods and medicines for personal and community use, access to travel routes and cabins for conducting land use practices, and effects of sites or areas that are used by Algonquins either for permanent residences or on a seasonal/temporary basis. This is also directly tied to the: ○ Physical environment (e.g., bedrock and soils, local climate, sediment and water movements and their interconnection with the surrounding environment, Algonquin interests in stewardship within the AOO Settlement Area) ○ Aquatic environment (e.g., water used for sustenance, cultural and spiritual purposes, fish habitat, spawning, adequate populations, and passage upstream and downstream, Algonquin interests in stewardship within the AOO Settlement Area)

- Terrestrial environment (e.g., wildlife, riparian habitat, nesting, Algonquin interests in stewardship within the AOO Settlement Area)

- Health and socio-economic conditions, including the state of physical, emotional, mental and spiritual well-being, commercial and recreational activities, and transport on the river reservoir.

This preliminary AOO VC should be incorporated into the Draft EIS analysis in a way that is holistic and robust.

**Note: List of species may be validated or further refined based on the results of the AOO TQDR Project-specific Algonquin Knowledge and Land Use Study.*