

Analysis Report



WHETHER TO DESIGNATE THE **CHIN RESERVOIR EXPANSION AND MODERNIZATION PROJECT** IN ALBERTA PURSUANT TO THE *IMPACT ASSESSMENT ACT*

June 2022



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Purpose

The Impact Assessment Agency of Canada (the Agency) prepared this report for consideration by the Minister of Environment and Climate Change (the Minister) in responding to a request to designate the Chin Reservoir Expansion and Modernization Project (the physical activities referred to as the Project) pursuant to section 9 of the *Impact Assessment Act* (the IAA).

Project

The St. Mary River Irrigation District (the Proponent) is proposing to expand and modernize the Chin Reservoir, an off-stream reservoir on the St. Mary main canal located south of Taber, Alberta. As proposed, the Project would increase the reservoir's flood capacity, including relocation of the east dam, and upgrading existing reservoir structures to align with provincial dam safety regulations. The Project would increase the reservoir's water storage capacity by approximately 128 million cubic metres and the footprint of the flooded area by approximately 708 hectares.

Context of Request

On April 12, 2022, the Minister received a request to designate the Project from Ecojustice on behalf of Alberta Wilderness Association, Bow Valley Naturalists, Society of Grasslands Naturalists, Sierra Club Canada Foundation – Prairie Chapter, Canadian Parks and Wilderness Society – Southern Alberta Chapter, Southern Alberta Group for Environment, Nature Alberta, Arlene Kwasniak and David Swann. Two additional requests were received on May 12, 2022, from Blood Tribe/Kainai and Siksika Nation. The requesters raised concerns regarding the potential effect of the Project on the environment including impacts to fish and fish habitat, species at risk, migratory birds, federal lands and the rights of Indigenous peoples as well as transboundary impacts on water.

The Agency sought input from the Proponent, federal authorities, the Government of Alberta, and five potentially affected Indigenous groups: Blood Tribe/Kainai, Piikani Nation, Siksika Nation, Tsuut'ina Nation and Metis Nation of Alberta Region 3. Public comments that were submitted to the Agency and the Minister of Environment and Climate Change were also considered.

The Proponent responded to the Agency on May 12, 2022, with information about the Project, a response to the requesters' concerns, and its view that the Project should not be designated. The Government of Alberta also notified the Proponent on February 22, 2022, that an Environmental Impact Assessment (EIA) for the Project is required pursuant to the *Environmental Protection and Enhancement Act* (EPEA).

Advice on applicable legislative mechanisms and potential effects due to the Project was received from Canada Infrastructure Bank (CIB), Fisheries and Oceans Canada (DFO), Environment and Climate



Change Canada (ECCC), Natural Resources Canada (NRCan), Health Canada (HC), Transport Canada (TC), Indigenous Services Canada (ISC), Department of National Defence (DND), Women and Gender Equality Canada (WAGE), and Alberta Environment and Parks (AEP).

Project Context

Project Overview

The Proponent is proposing to expand the Chin Reservoir, an existing off-stream reservoir on the St. Mary main canal. The proposed expansion will include relocating the east dam approximately 10 kilometres east and positioning the new dam approximately 30 kilometres southeast of the town of Taber (Figure 1). In addition to increasing water storage, the Project will modernize the existing ancillary reservoir structures to align with provincial dam safety regulations and increase the flood handling capacity of the reservoir. The reservoir capacity will be increased by raising the height of the existing dams and relocating the east dam to add approximately 128 million cubic metres of storage, with a new flooded area of 708 hectares, a 42 percent increase in the reservoir's footprint. The Project's construction is expected to take place from 2023 to 2028.

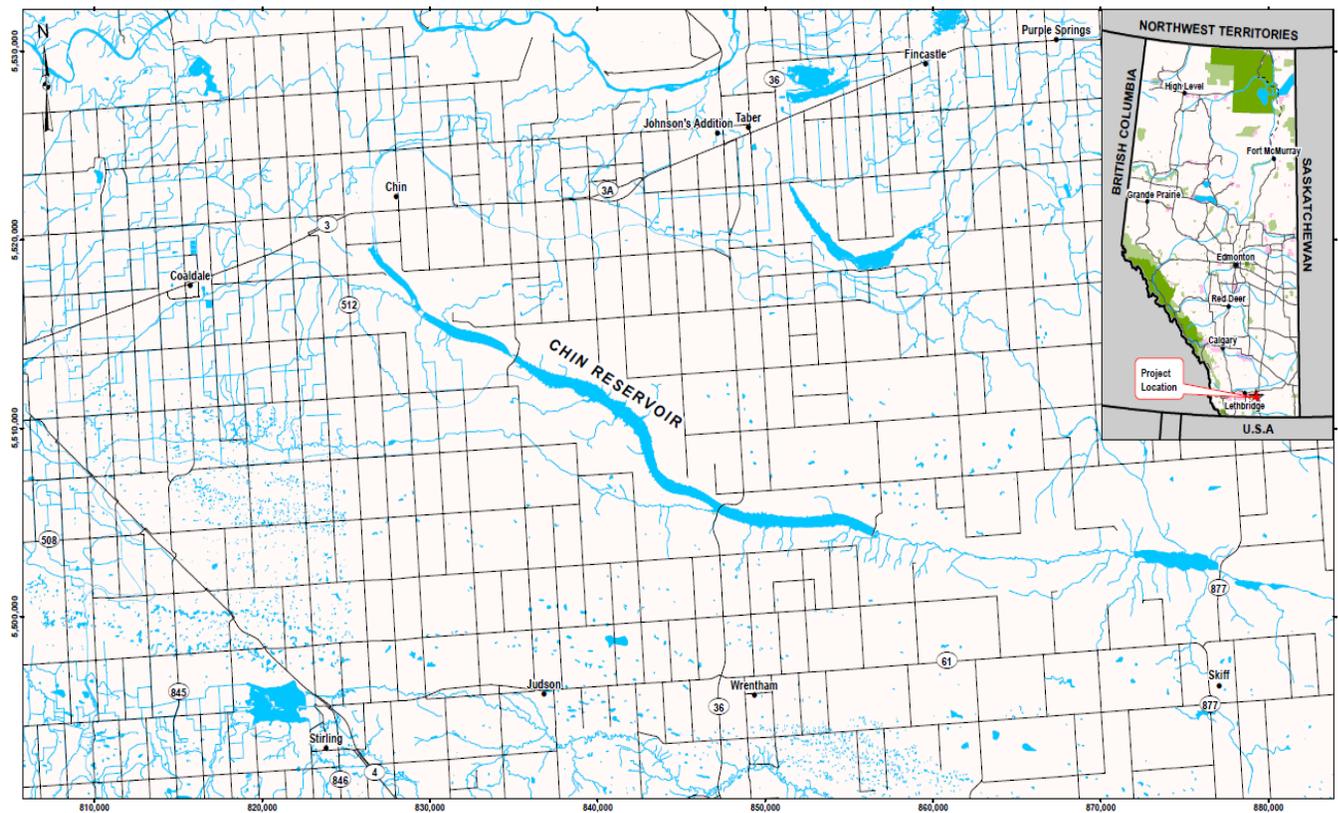
The Project is part of the Alberta Irrigation investment partnership between the Government of Alberta, the CIB and a consortium of 10 Irrigation Districts to modernize irrigation district infrastructure and increase water storage capacity in southern Alberta. The investment is for infrastructure rehabilitation projects and the construction or enlargement of up to four off-stream irrigation storage reservoirs. The overall investment consists of grant funding from the Government of Alberta (30 percent contribution), up front funding by the involved Irrigation Districts (20 percent contribution) and financing by the CIB to be repaid by the Irrigation Districts (50 percent contribution). "The Canada Infrastructure Bank is responsible for meeting all of its legal obligations, including responding to the Duty to Consult Indigenous groups and ensuring that projects have met environmental assessment and other regulatory requirements."¹ The preliminary cost estimate for the Project is \$133 million.

AEP has determined that an EIA of the Project is required pursuant to Section 44(1)(a) of the EPEA. The draft Terms of Reference have been submitted by the Proponent to AEP for review and include assessment of potential effects of the Project on wildlife, fish, migratory birds, species at risk, rare plants, surface water, groundwater, air quality, noise, human health, historical resources and socio-economic considerations.

¹ From the *Statement of Priorities and Accountabilities*. [Infrastructure Canada - Statement of Priorities and Accountabilities – Canada Infrastructure Bank](#)



Figure 1: Location of the Project



Source: Klohn Crippen Berger, 2022

Alternative Text: Chin Reservoir is oriented northwest to southeast in the centre of the figure, south of Provincial Highway 3. The town of Taber is positioned approximately 16 kilometres northeast of the reservoir's midpoint.

Project components and activities

The Chin Reservoir is currently impounded by two dams, the West Dam and the East Dam. The only outlet on the reservoir is the irrigation outlet structure on the West Dam where water discharges into the Stafford Reservoir and ultimately the St. Mary River Irrigation District main canal. The expansion of the Chin Reservoir will result in two separate projects for regulatory review; the construction of the East Dam and maintenance on the West Dam.

The Projects will include the following:

- decommissioning of the current East Dam;
- construction of a new East Dam with spillway structure approximately 10 kilometres east of the current location;



- replacement of the Low Level Irrigation Outlet at the West Dam;
- replacement of the West Dam Chin Chute;
- raising of the West Dam and inclusion of a toe berm;
- minor upgrades to the Chin Hydro Plant riprap; and
- replacing the road over the crest of the West Dam.

Water volumes available within the existing provincial *Water Act* licences held by the Proponent will be used to fill and maintain the reservoir levels and the existing East Dam will be decommissioned once the water levels on both sides of the dam are balanced at the minimum operation level.

Analysis of Designation Request

Authority to designate the Project

The *Physical Activities Regulations* (the Regulations) of the IAA identify the physical activities that constitute designated projects.

The most applicable entry in the Regulations to the Project is the following:

(59) The expansion of an existing dam or dyke on a natural water body, if the expansion would result in an increase in the surface area of the existing reservoir of 50 percent or more and an increase of 1 500 ha or more in the annual mean surface area of that reservoir.

The Project, as described in the information provided by the Proponent, includes the expansion of an existing dam that would result in a surface area increase of 708 hectares (42 percent increase), and as such is not described in the Regulations.

Under subsection 9(1) of the IAA, the Minister may, by order, designate a physical activity that is not prescribed in the Regulations. The Minister may do this, if, in the Minister's opinion, the physical activity may cause adverse effects within federal jurisdiction or adverse direct or incidental effects, or public concerns related to those effects warrant the designation.

The carrying out of the Project has not substantially begun and no federal authority has exercised a power or performed a duty or function that would permit the Project to be carried out, in whole or in part.²

² The Minister cannot designate a physical activity if the carrying out of the physical activity has substantially begun, or a federal authority has exercised a power or performed a duty or function in relation to the physical activity (subsection 9(7) of the IAA).



Given this understanding, the Agency is of the view that the Minister may consider designating the Project pursuant to subsection 9(1) of the IAA.

Potential adverse effects within federal jurisdiction

The Agency's analysis identified the potential for adverse effects within federal jurisdiction that may result from carrying out the Project. Overall, the potential adverse effects within federal jurisdiction would be limited and managed through project design, mitigation measures, and existing legislative mechanisms.

Relevant federal legislative mechanisms include the *Migratory Birds Convention Act, 1994*, the *Fisheries Act*, *Canadian Environmental Protection Act, 1999*, and the *Species at Risk Act* (SARA), as applicable. Provincial legislative mechanisms relevant to the Project include the provincial EIA under the province of Alberta's EPEA. If approved, the provincial approval would include terms and conditions to mitigate potential environmental effects for all stages of the development. Under the provincial regime, any future proposed amendments to the Project would require review via submission and approval of notices of alteration, or submission of a new proposal for major alterations.

Annex 1 provides a summary table of the potential adverse effects within federal jurisdiction and associated public concerns, mitigation measures proposed by the Proponent, and relevant legislative mechanisms that would apply, should the Project proceed. Annex 2 lists the potential federal and provincial authorizations relevant to the Project.

Fish and fish habitat

The Agency considered information provided by the Proponent, DFO, ECCC, AEP, the requesters, Indigenous groups, and the public, and is of the view that, with appropriate project design and mitigation, the potential for effects to fish and fish habitat is limited.

Concerns expressed by the requesters included the potential for impacts to aquatic habitats due to Project activities, including effects to riparian habitat availability and inadequate habitat offsets for aquatic species at risk in the reservoir expansion area. The requesters noted the Project may adversely affect critical habitat for fish species at risk, including Rocky Mountain Sculpin habitat along Lee Creek and the St. Mary River adjacent to Blood Indian Reserve. Additionally, the requesters expressed concerns regarding the likelihood of Project activities contributing to the existing issues of invasive fish and aquatic vegetation species in Alberta's fisheries. The requesters also noted potential effects to the Oldman River Basin as it is a critical water supply for the region and according to the Alberta Government's South Saskatchewan Regional Plan, is already facing significant pressure and demands on water resources in the region³.

³ Alberta Government. Amended in 2017. South Saskatchewan Regional Plan 2014 – 2024. [south-saskatchewan-regional-plan-2014-2024-may-2018.pdf](https://www.alberta.ca/south-saskatchewan-regional-plan-2014-2024-may-2018.pdf) (alberta.ca)



Concerns expressed by the public related to fish and fish habitat included effects to aquatic ecosystem health, riparian habitat, and in-stream flows by Project activities.

The Proponent indicated that the assessment of potential effects to fish is included in the Terms of Reference for the EIA required by AEP. Year one of baseline studies have been completed for fish and has followed the *Alberta Sensitive Species inventory Guidelines*⁴. Temporary effects to fish and fish habitat are expected with the refurbishment of the West Dam. The expansion of the reservoir is expected by the Proponent to have long-term positive effects by creating aquatic habitat. The Proponent will submit an application for an authorization to DFO and acknowledges that quantification of change in habitat and offsetting may be required. It is expected that monitoring of fish and fish habitat will be a condition of any authorization issued by DFO.

DFO stated that there is currently insufficient information to determine whether the Project will result in adverse effects, but that a project of this nature has the potential to result in the harmful alteration, disruption or destruction of fish habitat and/or death of fish. As such, the Project may require authorization under the *Fisheries Act*. According to DFO, it is unlikely that a permit will be required under the *Species at Risk Act* for aquatic species at risk as there are currently no aquatic species at risk mapped for the Project footprint. The Fish and Fish Habitat Protection Program of DFO reviews projects for the impacts to fish and fish habitat, by ensuring compliance with the *Fisheries Act* and *Species at Risk Act*. Through this program, DFO may provide information to the Proponent in order to avoid and mitigate the negative impacts of the proposed Project.

ECCC advised that construction of the Project may adversely affect air quality through the introduction of particulate matter; air contaminant emissions can result in contamination of nearby waterbodies and may affect fish and fish habitat. ECCC noted that the construction, expansion, operation, and maintenance of the Project could cause erosion and result in deposition of soils and sediments to waterbodies. Surface water quality may be degraded by hydrological changes, reduction of wetland function, and by increased runoff/mobilization of agricultural chemicals, wastes, and other contaminants due to agricultural expansion. Expansion of the reservoir may result in mobilization of mercury in newly flooded agricultural areas, which may release agricultural chemicals. The adverse effects to surface water quality could result in adverse effects to fish and fish habitat; however, adverse effects could be reduced through mitigation measures and confirmatory monitoring. ECCC noted the Project will result in a limited loss of riparian habitat and wetlands.

Potential effects of the Project to water quality and quantity are being addressed through the EIA process under the provincial EPEA and *Water Act*. AEP noted there are general approval condition prohibitions related to the release of deleterious substances, to protect water quality. Additionally, AEP indicated the Alberta Wetland Policy will be adhered to if any impacts to wetlands by the Project are identified.

⁴ <https://open.alberta.ca/dataset/93d8a251-4a9a-428f-ad99-7484c6ebabe0/resource/f4024e81-b835-4a50-8fb1-5b31d9726b84/download/2013-sensitivespeciesinventoryguidelines-apr18.pdf>



Migratory birds and species at risk

The Agency considered information provided by the Proponent, ECCC, the requesters, Indigenous groups, and the public, and is of the view that existing legislation provides a framework to address potential adverse effects to migratory birds and terrestrial species at risk.

The requesters expressed concern on adverse effects of the Project on migratory birds and species at risk due to habitat loss, habitat alteration, habitat fragmentation, functional habitat loss, inadequate habitat offsets, indirect mortality, and contribution to the existing issues of invasive species.

The requesters indicated the Project footprint includes important permanent and temporary wetland habitats and native grasslands for many waterfowl and migratory bird species, including bird species at risk. The requesters additionally indicated the cumulative impacts of the irrigation projects on the overall security of the South Saskatchewan River Basin could adversely affect migratory bird habitats.

Concerns expressed by the public included potential effects of the Project on species at risk and their habitats, including impacts to native grasslands.

The requesters stated that species at risk and their critical habitat are identified within the Project area. A non-exhaustive list of species at risk that may be impacted by the Project provided by the requesters included SARA-listed endangered species (burrowing owl and great short-horned lizard), threatened species (tiny cryptantha, thick-billed longspur, and rocky mountain sculpin), and species of special concern (great plains toad and northern leopard frog). Lake sturgeon, listed as endangered under the Committee on the Status of Endangered Wildlife in Canada, were also included by the requesters.

The Proponent indicated that the assessment of potential effects to plants, wildlife, migratory birds, and species at risk are included in the Terms of Reference for the EIA required by AEP. One year of baseline studies have been completed for wildlife and migratory birds. Rare plant surveys are planned for spring 2022 and will be completed using the Alberta Native Plant Council Guidelines for Rare and Vascular Plant Surveys in Alberta⁵. Mitigation strategies will be included in the EIA required by AEP. Restoration and monitoring are expected to be conditions of any approvals issued by the province under EPEA and the *Water Act*.

ECCC noted that activities associated with the Project will result in a loss of native prairie habitat, and habitat for migratory birds and SARA-listed species, and the new dam will disrupt wildlife movement in the river valley. Construction during migratory bird nesting season could disturb migratory bird eggs and nests. ECCC advised the Project may adversely affect surface water quality, which could result in adverse effects to migratory birds. ECCC noted that the Project is not located on federal lands and there are no SARA orders in place for the proposed Project location. Only the SARA prohibitions pertaining to migratory birds would apply to the Project, they would not apply to critical habitat unless an order is put in place or additional activities or components are added to the Project scope. As no species at risk critical habitat has been observed within or adjacent to the Project area, ECCC has indicated that it is unlikely that a SARA permit will be required for the Project. However, 24 SARA-listed species ranges overlap the Project site,

⁵ <https://anpc.ab.ca/wp-content/uploads/2015/01/Guidelines-For-Rare-Plant-Surveys-in-AB-2012-Update.pdf>



including 13 species included in the *Migratory Birds Convention Act, 1994*. ECCC noted that no tiny cryptantha or greater short-horned lizard have been identified at the Project site.

Potential effects to wildlife, including migratory birds and species at risk, and relevant mitigation measures, are being considered in the provincial EIA process under EPEA. The Proponent will develop a wildlife management plan as part of an Environmental Protection Plan that will be required if an EPEA approval is issued by AEP. The Proponent will also be required to adhere to applicable federal legislation, such as the *Migratory Birds Convention Act, 1994* and the *Species at Risk Act*.

Indigenous peoples of Canada

The Agency considered information provided by Blood Tribe/Kainai, Siksika Nation, the requesters, the Proponent, AEP, ECCC, ISC, HC, DFO, WAGE, and the public. The Agency is of the view that the Project has the potential to cause adverse effects to the health, social, or economic conditions of Indigenous peoples or environmental effects that would lead to adverse effects to physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structures, sites, or things that are of historical, archaeological, or paleontological significance to the Indigenous peoples of Canada. The Agency expects that existing legislation will provide a framework to address these potential effects.

Blood Tribe/Kainai and Siksika Nation expressed concerns regarding impacts associated with Project flooding on Blackfoot historical resources. There is a high likelihood that Blackfoot historical resources and artifacts are present within the Project area and have the potential to be lost or altered due to Project activities. The areas around streams and rivers in southern Alberta are of significant historical and cultural importance to Siksika Nation. Blood Tribe/Kainai's reserve lands are in the Oldman River Basin and Blood Tribe/Kainai relies on the basin for drinking water, community and commercial water needs, and agricultural water supply. The quality of this basin is of critical importance to Blood Tribe/Kainai.

The requesters indicated concerns that the conversion of native grasslands to agricultural lands can lead to the destruction of important cultural sites, and water infrastructure can complicate and constrain access to and evaluation of archaeological sites. Effects to water rights were also raised as a concern in the Oldman River Basin and the South Saskatchewan River Basin where surface water is fully, or nearly fully, allocated. The requesters also highlighted the link between cultural and ecological resources of the land and the well-being of Indigenous peoples.

Concerns expressed by the public included potential effects of the Project on the health and well-being of communities near the Project and within the South Saskatchewan River Basin, including Indigenous communities.

ISC advised that the information provided regarding the Project is insufficient to determine whether the Project may pose adverse direct or incidental effects; however, ISC indicated changes from the Project activities may interfere with land use/access, loss of traditional lands, and ability to hunt, fish, gather, and/or trap, as well as the ability for Indigenous peoples to practise their culture. ISC recommended the potential impacts of the proposed Project should be considered over an extended period of time (80-100 years) and include consideration of the impacts of advancing climate change on food security and traditional activities of Indigenous peoples.



ECCC advised that construction of the Project may adversely affect air quality through the combustion of fossil fuels by construction equipment and through physical disturbance of land introducing particulate matter into air. Air pollutants as a result of the Project could potentially affect human health and sensitive ecosystem receptors at local and regional extents. The Project could also impact water availability for communities near the Project, including Indigenous groups, as irrigation and related canals and reservoirs increase the amount of water lost to evapotranspiration.

HC advised that, though the information provided is not sufficient to evaluate the extent of potential impacts, some Project activities may lead to a risk of adverse human health effects and corresponding potential impacts to Indigenous health. The Project may impact human health through potential changes to air quality, water quality, noise, and country foods. A human health risk assessment that identifies all relevant contaminants and potential exposure pathways should be completed for the Project. AEP indicated that EIA reports under EPEA must identify issues related to human health.

WAGE indicated that the Project's potential effects relating to women and the advancement of gender equality could include impacts to cultural heritage and changes to health, social, and economic conditions of Indigenous peoples. Indigenous peoples may suffer adverse effects to cultural and ecological resources and water rights as a result of the Project, and Indigenous peoples' access to archaeological resources within the Project footprint or in areas that may be impacted by the Project could be limited.

The Proponent indicated that the provincial Aboriginal Consultation Office issued a decision that consultation is not required under the *Water Act*. A decision from the Aboriginal Consultation Office is outstanding on Indigenous consultation requirements with respect to application under EPEA. AEP indicated that work with Alberta Indigenous Relations is ongoing and the Proponent will be notified when a decision is made.

The Proponent noted that the Project footprint is located on private lands and no traditionally used sites have been identified within the Project area.

Pursuant to the Alberta *Historical Resources Act*, the Proponent submitted a Historical Resources Overview to Alberta Culture and the Status of Women. The Proponent is required to complete a Historical Resources Impact Assessment and a paleontological Historical Resources Impact Assessment for the proposed expansion footprint, including areas around the existing West Dam, the proposed site for the new East Dam, the existing reservoir that may be affected by a raise in reservoir levels, along the proposed construction access roads, and at the locations of potential borrow pits. The assessments are planned for 2022 and the results will also be submitted to AEP as part of the EIA. The Proponent also completed a review of historical resources downstream of the Project area as part of the dam safety consequence study for the proposed East Dam as required by the Alberta *Dam Safety Directive*.

The Agency understands that Project activities could adversely affect sites of importance and land use by Indigenous peoples. The provincial EIA process is expected to provide a framework to address potential adverse effects of the Project including impacts to current use of lands and resources for traditional purposes. Similarly, the potential for changes that could affect Indigenous health, such as changes to air quality, noise levels, and surface water and groundwater quality, will be considered by the provincial environmental impact assessment process.

Should DFO consider issuing a *Fisheries Act* authorization for the Project, consultation with Indigenous groups would be undertaken. The authorization process through the DFO Fish and Fish Habitat Protection



Program may involve consultation and/or accommodation on potential impacts to Indigenous peoples of Canada. When making a decision under the *Fisheries Act*, the Minister shall consider any adverse effects that the decision may have on the rights of Indigenous peoples of Canada.

Federal lands

The Agency considered information provided by the Proponent, DND, ISC and the requesters and is of the view that the potential for changes to the environment on federal lands is limited.

The requesters expressed concern regarding the potential for downstream impacts to federal lands, including reserve lands and Canadian Forces Base (CFB) Suffield from Project activities. Potential adverse impacts noted by the requesters included possible water flow impacts on riparian corridors within the CFB Suffield National Wildlife Area, which could impact species at risk. Responses from both CFB Suffield and 3rd Canadian Division Support Base Detachment Southern Alberta indicated that DND does not have any concerns regarding impacts of the Project on CFB Suffield, including within CFB Suffield National Wildlife Area.

Potential adverse impacts to reserve lands noted by the requesters included large withdrawals and altered flow regimes on riparian and aquatic ecosystems through Blood Reserve No. 148 (St. Mary and Belly Rivers), Piikani Reserve No. 147 (Oldman River), and Siksika Reserve No. 146, including the Blackfoot Crossing Historic Site (Bow River).

The Proponent indicated that the Project expansion would be on privately owned land and does not include any provincial parks, federal lands or protected areas. Significant alterations to flow regimes through the Blood Reserve No. 148 (St. Mary and Belly Rivers), Piikani Reserve No. 147 (Oldman River), and Siksika Reserve No. 146, including the Blackfoot Crossing historic site (Bow River) are not expected.

Blood Reserve No. 148, the nearest federal reserve land, would be approximately 60 kilometres west of the Project, and CFB Suffield would be approximately 95 kilometres northeast. The Agency is of the view that there is limited potential for impacts to federal lands including reserves and CFB Suffield.

Transboundary effects

Consideration of transboundary effects include transboundary waters, greenhouse gas (GHG), other air emissions and climate change. The Agency considered information from the Proponent, ECCC, the requesters and Indigenous groups with respect to transboundary effects. The Agency is of the view that existing legislation provides a framework to address the potential for adverse effects in other provinces.

The requesters indicated that the Project may decrease the water volume input and affect the water quality of the Oldman and South Saskatchewan rivers due to increased water diversions from the rivers and reduced return flows to the rivers. The Oldman and South Saskatchewan rivers flow from Alberta to Saskatchewan and concerns have been raised surrounding water quality and quantity into Saskatchewan and beyond if the Project proceeds. The requesters also noted the *Bow, Oldman and South Saskatchewan River Basin Water Allocation Order*⁶ issued by the Province of Alberta that closed the watersheds to new

⁶ https://open.alberta.ca/publications/2007_171

surface water allocation licences. Concern regarding the potential of the Chin Reservoir cumulatively with other irrigation projects to contribute to the expansion of total irrigated lands in Alberta was also noted, as this would enable conversion of dry cropland and native grassland habitats to irrigated agricultural land.

The Proponent has indicated that there will be no water-related transboundary effects due to the Project. Water diversion will not exceed currently licensed volumes and is not expected to adversely affect access to water downstream of the Project's existing diversion location. Assessment of Project effects on water quality is included in the Terms of Reference for the EIA required by AEP. AEP indicated that impacts to water quality will be addressed in both the EIA and the *Water Act* application.

ECCC indicated that the Chin Reservoir does not flow to the United States. The Chin Reservoir receives water from the St. Mary Main Canal and water from the St. Mary Main Canal is managed according to the International Joint Commission 1921 Order on apportionment of the St Mary and Milk Rivers⁷. ECCC noted the Project may impact water availability downstream, including into the Province of Saskatchewan, as irrigation and related canals and reservoirs increase the amount of water lost to evapotranspiration. The provinces of Alberta and Saskatchewan are members of the Prairie Provinces Water Board, a Federal-Provincial governance body that helps facilitate collaborative transboundary water management in the prairie region. A Master Agreement on Apportionment⁸ sets the requirements and responsibilities, and the Government of Alberta is responsible for ensuring compliance with that agreement. Compliance with the Master Agreement on Apportionment is expected to manage potential effects of the Project on water moving from Alberta to Saskatchewan.

The requesters indicated that irrigation agriculture can be a major emitter of GHGs and cultivation of native grasslands results in significant releases of GHGs. Concerns from members of the public included potential effects of emissions produced by Project activities.

The loss of carbon sequestration capacity due to flooding of grasslands will be assessed as part of the EIA required by AEP. However, since the Project is a reservoir, the EIA will not consider impacts on carbon sequestration capacity related to the conversion of grasslands to cultivated agriculture.

ECCC indicated that the Project may hinder the Government of Canada's ability to meet its commitments in respect of climate change, as Project activities may result in greenhouse gas emissions, or impact carbon sinks including native prairie grassland habitat.

Pursuant to the *Canadian Environmental Protection Act, 1999*, facilities are subject to federal GHG emissions reporting requirements if they emit ten kilotonnes or more of GHG emissions, in carbon dioxide equivalent units per year. The Project will be subject to these reporting requirements if GHG emissions exceed this threshold. At this time the Proponent has not provided an estimate of GHG emissions associated with the Project.

Other considerations

⁷ <https://legacyfiles.ijc.org/dockets/Docket%209/Docket%209%201921-10-04%20Order.pdf>

⁸ <https://www.alberta.ca/master-agreement-on-apportionment.aspx>



Cumulative effects

The Agency considered information provided by the Proponent, ECCC, ISC, HC, the requesters, the public, Blood Tribe/Kainai, and Siksika Nation, and is of the view that existing legislation provides a framework to address cumulative effects. Cumulative effects were mentioned as a concern of the requesters and Indigenous groups. Inclusion of the Project in the Alberta Irrigation investment partnership program and the associated cumulative effects of the projects involved were also noted by the requesters.

Members of the public expressed concerns regarding potential cumulative effects of the Project and other proposed irrigation projects in the area and supported a federal impact assessment to assess cumulative effects.

ECCC noted that Project-related effects on water quantity and quality would contribute to the cumulative effects of existing anthropogenic influences and future projects on the affected watershed (South Saskatchewan River Basin). ECCC has identified that the Project will contribute to the existing high cumulative effects of loss of native prairie grassland in Alberta, through direct loss of native prairie, and indirectly through the expansion of irrigated agricultural land area replacing native prairie grassland. ECCC recommends that the Proponent use conservation allowances to mitigate further loss and fragmentation of native prairie habitat near the Project.

ISC indicated that cumulative effects due to oil, gas, and agricultural activities over the past several decades is a common concern surrounding impacts to Indigenous groups. HC advised that there may be cumulative effects with other proposed irrigation projects.

AEP noted there are native grassland management strategies to protect native grasslands under the South Saskatchewan Regional Plan. Effects of the Project on native grasslands will be addressed in the provincial EIA of the Project.

The Proponent noted that the Project's contribution to cumulative effects within the Oldman Watershed and the South Saskatchewan River Basin will be minimal.

Potential adverse direct or incidental effects

Direct or incidental effects refer to effects that are directly linked or necessarily incidental to a federal authority's exercise of a power or performance of a duty or function that would permit the carrying out, in whole or in part, of a physical activity, or to a federal authority's provision of financial assistance for the purpose of enabling that physical activity to be carried out, in whole or in part.

The Project may require a *Fisheries Act* authorization from DFO if the Project could cause harmful alteration, disruption, or destruction of fish habitat or death of fish. The CIB may provide funding for the Project in the form of a loan that would be repaid by the Proponent.

The carrying out of the Project has the potential to cause adverse direct or incidental effects; however, potential effects are expected to be addressed through the requirements set by the relevant federal authorities or the provincial EIA process under the EPEA.

Potential federal authorizations or approvals are listed in Annex 2.

Public concerns

Public comments that were submitted to the Agency and the Minister of Environment and Climate Change were considered. The public concerns expressed a desire for a comprehensive federal impact assessment to be conducted for the Project, including assessment of cumulative effects of the Project and other proposed irrigation projects in the region. The concerns expressed regarding the Project by the requesters, public, and Indigenous groups that relate to effects within federal jurisdiction are noted above in the relevant section and in Annex 1, along with the associated mitigation measures proposed by the Proponent, if any, and applicable regulatory mechanisms that may address these concerns. Additional concerns submitted to the Agency by the public included a lack of information regarding the location and extent of the Project and the resulting increased irrigated land area, and effects of the project and subsequent irrigation on native grasslands, groundwater and surface water, and nearby communities.

The Proponent indicated that 17 landowners attended an initial open house event for the Project in Taber, Alberta on March 11, 2022, and that support for the Project was high with no conflicting opinions voiced during the event.

The draft Terms of Reference for the EIA has been submitted by the Proponent to AEP for review. Once the draft Terms of Reference are approved by AEP, a public comment period will be conducted on the proposed terms.

The Agency is of the view that existing legislation provides a framework to address the concerns within federal jurisdiction and adverse direct or indirect effects and include opportunities for public participation and consideration of public comments (see Annex 2).

Potential adverse impacts on the section 35 rights of Indigenous peoples

The Agency considered submissions from Indigenous groups and relevant advice from federal and provincial authorities. In relation to subsection 9(2) of the IAA, the Agency is of the view that while there is the potential for the physical activities to cause adverse impacts on rights that are recognized and affirmed by section 35 of the *Constitution Act, 1982* (section 35 rights), existing legislation provides a framework to address such impacts.

The Project is located within Treaty 7 territory and within the Métis Nation of Alberta Region 3. The Agency sought views from five potentially impacted Indigenous groups and received comments from two groups: Blood Tribe/Kainai and Siksika Nation. Both Nations noted that the Project would cause significant impacts to section 35 rights by removing their ability to practise traditional activities such as hunting, fishing, trapping, gathering, and ceremonial practices within the proposed Project area.

The Agency understands that the provincial decision is pending on whether the EIA process under Alberta's EPEA will include consultation.



Regional and strategic assessments

There are no regional or strategic assessments pursuant to sections 92, 93, or 95 of the IAA that are relevant to the Project.

Conclusion

To inform its analysis, the Agency sought and received input from the Proponent, ECCC, DFO, HC, NRCan, ISC, TC, WAGE, DND, CIB and the Government of Alberta. In addition, the Agency considered the comments and concerns received from the public, Blood Tribe/Kainai and Siksika Nation.

The Agency is of the view that existing legislation provides a framework to address the potential for adverse effects, as described in subsection 9(1) of the IAA. These include the EIA process under Alberta's EPEA, which can include enforceable terms and conditions to mitigate potential environmental effects for all stages of the development, and federal legislative mechanisms such as an authorization under the *Fisheries Act* which would include additional Indigenous consultation activities (Annexes 1 and 2).

While there is the potential for the physical activities to cause adverse impacts on the section 35 rights of the Indigenous peoples of Canada, existing legislation will provide a framework to address potential impacts to section 35 rights caused by the Project.

Annexes

Annex 1: Analysis Summary Table

Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
<p>A change to fish and fish habitat, as defined in subsection 2(1) of the <i>Fisheries Act</i></p>	<p><u>Public and Indigenous Communities:</u> Concerns related to potential for adverse effects to fish and fish habitat due to Project activities. Effects to the fish habitat along Lee Creek and the St. Mary River adjacent to the Blood Indian Reserve and habitat for fish species at risk including the Rocky Mountain Sculpin. Effects to riparian habitat availability and inadequate habitat offsets for aquatic species at risk in the reservoir expansion area. Concerns related to the contribution of the Project to invasive fish and aquatic vegetation species in Alberta’s fisheries.</p> <p><u>Federal Authorities:</u> DFO stated that the Project has the potential to result in the harmful alteration, disruption or destruction of fish habitat and/or the death of fish and may require authorization under the <i>Fisheries Act</i>. It is unlikely that a permit will be required under the <i>Species at Risk Act</i> for aquatic species at risk because there are currently no aquatic species at risk mapped for the Project area.</p> <p>ECCC advised that the Project may adversely affect air quality through the introduction of particulate matter through activities which cause a physical disturbance to land, such as earth moving, land clearing and</p>	<p>The Fish and Fish Habitat Protection Program of DFO reviews projects for their impacts to fish and fish habitat by ensuring compliance with the <i>Fisheries Act</i> and <i>Species at Risk Act</i>. Through this program, DFO may provide information to the Proponent in order to avoid and mitigate the negative impacts of the proposed Project.</p> <p>DFO may issue a <i>Fisheries Act</i> paragraph 35(2) (b) Authorization if the Project is likely to cause the harmful alteration, disruption, or destruction of fish habitat and/or a <i>Fisheries Act</i> paragraph 34.4(2) (b) Authorization if</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p>transportation; air contaminant emissions can result in contamination of nearby waterbodies and may affect fish and fish habitat. ECCC noted that the construction, expansion, operation, and maintenance of the Project could cause erosion and result in deposition of soils and sediments to waterbodies. Surface water quality may be degraded by hydrological changes, reduction of wetland function, and by increased runoff/mobilization of agricultural chemicals, wastes, and other contaminants due to agricultural expansion. Expansion of the reservoir may result in mobilization of mercury in newly flooded agricultural areas, which may release agricultural chemicals. The adverse effects to surface water quality could result in adverse effects to fish and fish habitat; however, adverse effects could be reduced through mitigation measures and confirmatory monitoring. ECCC noted the new East Dam will result in a limited loss of riparian habitat and wetlands.</p> <p><u>Proponent:</u> Temporary effects to fish and fish habitat are expected with the refurbishment of the West Dam. The expansion of the reservoir is expected to have long-term positive effects by creating aquatic habitat. The Proponent will submit an application for an authorization to DFO and acknowledges that quantification of change in habitat and offsetting may be required. It is expected that monitoring will be a condition of any authorization issued by DFO.</p> <p>Water volumes authorized by existing <i>Water Act</i> licence(s) are sufficient to support the expansion. No additional withdrawals will be required and adverse effects are not expected for fish and fish habitat in the rivers</p>	<p>the Project is likely to result in the death of fish. The <i>Species at Risk Act</i> sets out prohibitions relating to harming at risk species or destroying any part of their critical habitat. Assessment of potential effects to fish and water quality is included in the Terms of Reference for the EIA required by AEP.</p> <p>Approval under Alberta's The <i>Water Act</i> regulates the allocation, protection and conservation of water and applies to the proposed construction, operation and maintenance of the reservoirs, dam facilities, canals and alteration of wetland habitat and any loss or alteration of fish habitat.</p>

Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	within the Oldman River Watershed or the South Saskatchewan River Basin.	
A change to aquatic species, as defined in subsection 2(1) of the <i>Species at Risk Act</i>	<p>See the section “A change to fish and fish habitat, as defined in subsection 2(1) of the <i>Fisheries Act</i>” for fish species at risk.</p> <p>The Project will not affect the marine environment so marine plants will not be affected.</p>	See the section “A change to fish and fish habitat, as defined in subsection 2(1) of the <i>Fisheries Act</i> ”.
A change to migratory birds, as defined in subsection 2(1) of the <i>Migratory Birds Convention Act, 1994</i>	<p><u>Public and Indigenous Communities:</u> Concerns were expressed regarding the potential of the Project to adversely affect wetlands and native grassland habitats for migratory bird species, including migratory bird species at risk. Cumulative impacts of the Project and other irrigation projects were noted to potentially contribute to expansion of irrigated agricultural lands into migratory bird habitats, and adversely affect the overall security of the South Saskatchewan River Basin leading to impacts on migratory bird habitats throughout the basin.</p> <p><u>Federal Authorities:</u> ECCC noted that activities associated with the Project will result in a loss of native prairie, and habitat for migratory birds and SARA-listed species, and the new dam will disrupt wildlife movement in the river valley. Construction during migratory bird nesting season could disturb migratory bird eggs and nests. ECCC advised the Project may adversely affect surface water quality, which could result in adverse effects to migratory birds. ECCC noted that the Project is not located on federal lands and there are no SARA orders in place for the proposed Project location; only the SARA prohibitions pertaining to migratory birds would apply and</p>	Permitting requirements under the <i>Species at Risk Act</i> for migratory bird species at risk may be applicable under a specific set of circumstances, as described in section 73 of the <i>Species at Risk Act</i> . Prohibitions are in place for the migratory birds, their nests, eggs, and habitat (including native prairie grassland) under the <i>Migratory Birds Convention Act 1994</i> , wherever they occur regardless of land tenure.



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p>would not apply to critical habitat unless an order is put in place or if additional activities or components are included in the Project scope. As no species at risk critical habitat has been observed within or adjacent to the Project area, ECCC has indicated that it is unlikely that a SARA permit will be required for the Project. However, 24 SARA-listed species ranges overlap the project site and may utilize the area, including 13 species included in the <i>Migratory Birds Convention Act, 1994</i>.</p> <p><u>Proponent:</u> Assessment of potential effects to migratory birds are included in the Terms of Reference for the EIA required by AEP. Year one of baseline studies have been completed for migratory birds and the Proponent has noted incidental observation data for potentially occurring species. Mitigation strategies will be included in the EIA required by AEP. Restoration and monitoring are expected to be conditions of approvals issued.</p>	<p>Assessment of potential effects to migratory birds is included in the Terms of Reference for the EIA required by AEP.</p>
<p>A change to the environment that would occur on federal lands</p>	<p><u>Public and Indigenous Communities:</u> Concerns regarding potential adverse impacts to reserve lands due to large water withdrawals and altered flow regimes on riparian and aquatic ecosystems, and potential adverse impacts to riparian corridors and species at risk within the CFB Suffield National Wildlife Area due to Project-related changes in water flow.</p> <p><u>Federal Authorities:</u> Responses from both CFB Suffield and 3rd Canadian Division Support Base Detachment Southern Alberta indicated that DND does not have any concerns regarding impacts of the Project on CFB Suffield land, including for CFB Suffield NWA.</p>	<p>Not applicable</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p><u>Proponent:</u> The Proponent is of the view that the Project will not cause changes to the environment on federal lands. The Proponent indicated that the expansion area of the Project is on privately owned land and does not include any provincial parks, federal lands or protected areas. Significant alterations to flow regimes are not expected.</p>	
<p>A change to the environment that would occur in a province other than the one in which the Project is being carried out or outside Canada</p>	<p><u>Public and Indigenous Communities:</u> Concerns regarding the decrease in water volume and effects to water quality of the Oldman and South Saskatchewan rivers due to increased water diversions and reduced return flows due to the Project. Concerns that the Project will impact water quality and quantity in Saskatchewan.</p> <p>Concerns were expressed regarding greenhouse gas emissions. Irrigation agriculture can be a major emitter of greenhouse gas and cultivation of native grasslands results in significant releases of greenhouse gas. The overall Alberta Irrigation investment partnership program that the Project is part of would also contribute to emissions.</p> <p><u>Federal Authorities:</u> ECCC noted the Project may impact water availability downstream, including into Saskatchewan, as irrigation and related canals and reservoirs increase the amount of water lost to evapotranspiration. Furthermore, Project activities have the potential to be affected by future climate change, possibly resulting in impacts to the environment. Alberta and Saskatchewan are members of the Prairie Provinces Water Board and the Government of Alberta is responsible for ensuring compliance with the Master of Agreement on Apportionment with Saskatchewan.</p>	<p>Alberta's EPEA requires cooperation with governments of other jurisdictions to prevent and minimize transboundary environmental impacts.</p> <p>Existing authorizations under Alberta's <i>Water Act</i> would remain in effect and any new authorizations, which are not anticipated, would be subject to provincial approval in accordance with the <i>Bow, Oldman and South Saskatchewan River Basin Water Allocation Order</i>.</p> <p>Facilities are subject to federal greenhouse gas</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p>ECCC noted that Project activities may result in greenhouse gas emissions, or impact carbon sinks and may hinder the Government of Canada's ability to meet its commitments in respect of climate change. Combustion of fossil fuels during construction can result in the emission of air contaminants such as sulfur oxides, nitrogen oxides, volatile organic compounds, and fine particulate matter.</p> <p>HC indicated the potential for changes to air quality, but did not comment on the potential extent of such effects.</p> <p><u>Proponent:</u> The Proponent has indicated that there will be no transboundary effects including impacts to water resources due to the Project. Water diversion will not exceed currently licensed volumes and is not expected to adversely affect access to water downstream of the Project's existing diversion location. Assessment of Project effects on water quality is included in the Terms of Reference for the EIA required by AEP. The Proponent anticipated that water quality monitoring conditions will be included in a provincial approval under EPEA if one is issued.</p> <p>Loss of carbon sequestration capacity related to the conversion of grasslands to cultivated agriculture is not part of the EIA scope for the Project. The loss of carbon sequestration capacity due to the replacement of grasslands landcover with reservoir water will be assessed as part of the EIA.</p>	<p>emissions reporting requirements, pursuant to the <i>Canadian Environmental Protection Act, 1999</i>, if they emit ten kilotonnes or more of greenhouse gas emissions, in carbon dioxide equivalent units per year.</p> <p>Assessment of effects related to carbon sequestration and water quality are included in the Terms of Reference for the EIA required by AEP.</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
<p>With respect to the Indigenous peoples of Canada, an impact - occurring in Canada and resulting from any change to the environment - on physical and cultural heritage</p>	<p><u>Public and Indigenous Communities:</u> Concerns were raised regarding the conversion of native grasslands to agricultural lands that can lead to the destruction of important cultural sites.</p> <p>Blood Tribe/Kainai and Siksika Nation expressed concerns regarding potential impacts to historical resources and artifacts belonging to the Blackfoot. The areas around streams and rivers in southern Alberta are of significant historical and cultural importance to Siksika archaeological sites and impacts. The relationship to the area is crucial to cultural, social and economic well-being of families and communities within in the area.</p> <p><u>Federal Authorities:</u> ISC advised that changes from the Project activities may interfere with land use/access, loss of traditional lands, and ability to hunt, fish, gather, and/or trap, as well as the ability for Indigenous peoples to practise their culture.</p> <p>WAGE indicated that the Project’s potential effects relating to women and the advancement of gender equality could include impacts to cultural heritage.</p> <p><u>Proponent:</u> The Proponent noted that Indigenous consultation requirements related to regulatory applications under the EPEA have not been issued by the Aboriginal Consultation Office.</p>	<p>Section 49 of Alberta’s EPEA requires the Proponent to include a description of potential positive and negative environmental, social, economic, and cultural impacts of the proposed activity, including cumulative, regional, temporal, and spatial considerations.</p> <p>Alberta’s <i>Historical Resources Act</i> designates and protects moveable and immoveable historic resources. A Historical Resources Impact Assessment is required by Alberta Culture and Status of Women.</p> <p>Compliance with the Alberta <i>Dam Safety Directive</i> by completing a</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p>Pursuant to the Alberta <i>Historical Resources Act</i>, the Proponent submitted a Historical Resources Overview to Alberta Culture and the Status of Women and is required to complete a Historical Resources Impact Assessment and a paleontological Historical Resources Impact Assessment. The assessments are planned for 2022 and the results will also be submitted to AEP as part of the EIA. The Proponent also completed a review of historical resources downstream of the Project area as part of the dam safety consequence study for the proposed East Dam as required by the Alberta <i>Dam Safety Directive</i>.</p>	<p>dam safety consequence study.</p>
<p>With respect to the Indigenous peoples of Canada, an impact - occurring in Canada and resulting from any change to the environment - on current use of lands and resources for traditional purposes</p>	<p><u>Public and Indigenous Communities:</u> Concerns regarding potential effects to water rights in the Oldman River Basin and the South Saskatchewan River Basin where surface water is fully or nearly fully allocated. Blood Tribe/Kainai's reserve lands are in the Oldman River Basin and the Nation relies on the basin for drinking water, community and commercial water needs, and agricultural water supply.</p> <p><u>Federal Authorities:</u> ISC noted that development activities can result in a potential loss of food security for Indigenous groups (i.e., traditional foods). The loss of lands with native habitats and associated wildlife, coupled with effects to soils, air, water, and fish habitat can have an effect on Indigenous groups' use of lands and resources for traditional purposes.</p> <p>WAGE identified Indigenous peoples may suffer adverse effects to cultural and ecological resources and water rights as a result of the Project.</p>	<p>Section 49 of Alberta's EPEA requires the Proponent to include a description of potential positive and negative environmental, social, economic, and cultural impacts of the proposed activity, including cumulative, regional, temporal, and spatial considerations.</p> <p>Existing authorizations under Alberta's <i>Water Act</i> would remain in effect and any new authorizations, which are not anticipated, would be subject to</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p><u>Proponent:</u> The Proponent noted that Indigenous consultation requirements related to regulatory applications under EPEA have not been issued by the Aboriginal Consultation Office. The Project footprint is located on private lands and no traditionally used sites have been identified and no requests to visit the Project location have been received by the current landowners.</p>	<p>provincial approval in accordance with the <i>Bow, Oldman and South Saskatchewan River Basin Water Allocation Order</i>.</p>
<p>With respect to the Indigenous peoples of Canada, an impact - occurring in Canada and resulting from any change to the environment - on any structure, site, or thing that is of historical, archaeological, paleontological or architectural significance.</p>	<p><u>Public and Indigenous Communities:</u> Concerns were expressed regarding water infrastructure that can complicate and constrain access to and evaluation of archaeological sites. Blood Tribe/Kainai and Siksika Nation expressed concerns regarding potential impacts to historical resources and artifacts belonging to the Blackfoot. The areas around streams and rivers in southern Alberta are of significant historical and cultural importance to Siksika archaeological sites and impacts. The relationship to the area is crucial to cultural, social and economic well-being of families and communities within in the area.</p> <p><u>Federal Authorities:</u> ISC noted potential impacts to sacred sites and other cultural and heritage-sensitive areas and impacts to the ability of Indigenous peoples to practise their culture.</p> <p>WAGE stated that Indigenous peoples' access to cultural and archaeological resources within the Project footprint or in areas that may be impacted by the Project could be affected.</p>	<p>Section 49 of Alberta's EPEA requires the Proponent to include a description of potential positive and negative environmental, social, economic, and cultural impacts of the proposed activity, including cumulative, regional, temporal, and spatial considerations.</p> <p><i>Alberta's Historical Resources Act</i> designates and protects moveable and immoveable historic resources. A Historical Resources Impact</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p><u>Proponent:</u> The Proponent noted that Indigenous consultation requirements related to regulatory applications under the EPEA have not been issued by the Aboriginal Consultation Office.</p> <p>Pursuant to the Alberta <i>Historical Resources Act</i>, the Proponent submitted a Historical Resources Overview to Alberta Culture and the Status of Women and is required to complete a Historical Resources Impact Assessment and a paleontological Historical Resources Impact Assessment. The assessments are planned for 2022 and the results will also be submitted to AEP as part of the EIA. The Proponent also completed a review of historical resources downstream of the Project area as part of the dam safety consequence study for the proposed East Dam as required by the Alberta <i>Dam Safety Directive</i>.</p>	<p>Assessment is required by Alberta Culture and Status of Women.</p> <p>Compliance with the Alberta <i>Dam Safety Directive</i> by completing a dam safety consequence study.</p>
Any change occurring in Canada to the health, social, or economic conditions of the Indigenous peoples of Canada	<p><u>Public and Indigenous Communities:</u> Concerns were raised regarding the link between cultural and ecological resources of the land and the well-being of Indigenous peoples.</p> <p><u>Federal Authorities:</u> ISC advised that the information provided regarding the Project is insufficient for the determination as to whether or not the Project may pose adverse direct or incidental effects; however, ISC indicated changes from the Project activities may interfere with land use/access, loss of traditional lands, and ability to hunt, fish, gather, and/or trap, as well as the ability for Indigenous peoples to practise their culture. ISC recommended the potential impacts of the proposed Project should be considered over an extended period of time (80-100 years) and include</p>	<p>Section 49 of Alberta's EPEA requires EIA reports to include issues related to human health.</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p>consideration of the impacts of advancing climate change on food security and traditional activities of Indigenous peoples.</p> <p>HC advised that, though the information provided by the Proponent is not sufficient to evaluate the extent of potential impacts, some Project activities may lead to a risk of adverse human health effects and corresponding potential impacts to Indigenous health. The Project may impact human health through potential changes to air quality, water quality, noise, and country foods. HC advised that a human health risk assessment that identifies all relevant contaminants and potential exposure pathways should be completed for the Project.</p> <p>ECCC advised that construction of the Project may adversely affect air quality through the combustion of fossil fuels by construction equipment and through physical disturbance of land introducing particulate matter into air. Air pollutants as a result of the Project could potentially affect human health and sensitive ecosystem receptors at local and regional extents. The Project could also impact water availability for communities near the Project, including Indigenous communities, as irrigation and related canals and reservoirs increase the amount of water lost to evapotranspiration.</p> <p>WAGE indicated that the Project's potential effects relating to women and the advancement of gender equality could include changes to health, social, and economic conditions of Indigenous peoples.</p> <p><u>Proponent:</u> The Proponent noted that Indigenous consultation requirements related to regulatory applications under the EPEA have not been issued by the</p>	



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	Aboriginal Consultation Office. A socio-economic assessment is included in the Terms of Reference for EIA required by AEP.	
Adverse direct or incidental effects	<p><u>Federal Authorities:</u> DFO stated that there is insufficient information to determine whether the Project will result in adverse effects. However, projects of this nature have the potential to result in the harmful alteration, disruption or destruction of fish habitat and/or the death of fish. As such, DFO may need to issue a <i>Fisheries Act</i> paragraph 35(2)(b) Authorization if the Project is likely to cause the harmful alteration, disruption or destruction of fish habitat and/or a <i>Fisheries Act</i> paragraph 34.4(2)(b) Authorization if the Project is likely to result in the death of fish.</p> <p><u>Proponent:</u> The Proponent will submit an application for an authorization to DFO.</p>	Activities that result in the death of fish or the harmful alteration, disruption or destruction of fish habitat are prohibited unless authorized under the <i>Fisheries Act</i> .
Effects on federally listed Species At Risk under the <i>Species at Risk Act</i>	<p><u>Public Concerns:</u> Concerns regarding potential effects of the Project to species at risk due to critical habitat loss, habitat alteration, habitat fragmentation, functional habitat loss, inadequate habitat offsets, indirect mortality, and the contribution to existing issues with invasive species in fisheries. Cumulative effects of the Project and other regional irrigation projects were noted to potentially adversely affect the overall security of the South Saskatchewan River Basin leading to impacts on species at risk habitats throughout the basin.</p>	<p>Compliance with the <i>Species at Risk Act</i>.</p> <p>Assessment of potential effects to species at risk is included in the Terms of Reference for the EIA required by AEP.</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the Impact Assessment Act	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p><u>Federal Authorities:</u> ECCC noted that activities associated with the Project will result in a loss of native prairie habitat and habitat for migratory birds and SARA-listed species, and the new East Dam will disrupt wildlife movement in the river valley. ECCC noted that the Project is not located on federal lands and there are no SARA orders in place for the proposed Project location; only the SARA prohibitions pertaining to migratory birds would apply and would not apply to critical habitat unless an order is put in place or if additional activities or components are included in the Project scope. As no species at risk critical habitat has been observed within or adjacent to the Project area, ECCC has indicated that it is unlikely that a SARA permit will be required for the Project. However, 24 SARA-listed species ranges overlap the project site and may utilize the area, including 13 species included in the <i>Migratory Birds Convention Act, 1994</i>.</p> <p><u>Proponent:</u> Assessment of potential effects to species at risk are included in the Terms of Reference for the EIA required by AEP. Year one of baseline studies have been completed for wildlife and migratory birds and the Proponent has noted incidental observation data for potentially occurring species. Rare plant surveys are planned for spring 2022. Mitigation strategies will be included in the EIA. Restoration and monitoring are expected to be conditions of approvals issued.</p>	

Annex 2: Potential federal and provincial authorizations relevant to the Project

Authorization	Description
Federal	
<i>Fisheries Act</i> Authorization	<p>A <i>Fisheries Act</i> paragraph 35(2)(b) authorization would be required if the activities are likely to cause the harmful alteration, disruption, or destruction to fish habitat and/or a <i>Fisheries Act</i> paragraph 34.4(2)(b) Authorization if the activities are likely to result in the death of fish. However, as proposed, it is likely that the Project would cause the death of fish, and/or the harmful alteration, disruption, or destruction of fish habitat. DFO may be required to exercise a power or perform a duty.</p> <p>The <i>Fisheries Act</i> paragraph 36(3) prohibits the deposit of deleterious substances into waters frequented by fish, unless authorized by regulations or other federal legislation.</p>
<i>Species at Risk Act, 2002</i> Permit	<p>For non-aquatic species listed in Schedule 1 of the <i>Species at Risk Act</i> as Extirpated, Endangered, or Threatened, a permit may be required from ECCC (e.g., under section 73 of the <i>Species at Risk Act</i>) for activities that affect a listed terrestrial wildlife species, any part of its critical habitat, or the residences of its individuals, where those prohibitions are in place. Such permits may only be issued if: all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted; all feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat or the residences of its individuals; and if the activity will not jeopardize the survival or recovery of the species.</p> <p>However, as proposed, it is unlikely that a <i>Species at Risk Act</i> permit would be required for the Project. It is possible that prohibitions may come into force in the future through Orders in Council for individuals, residences, and critical habitat on Project-implicated, non-federal lands. If such an order is put in place, it may require a SARA permit.</p>
<i>Canadian Environmental Protection Act, 1999</i>	<p>The Project may require greenhouse gas emissions reporting if ten kilotonnes or more of greenhouse gases are emitted in carbon dioxide equivalent units per year. This would be in addition to reporting required from the Strategic Assessment of Climate Change, should an impact assessment be required.</p>
<i>Migratory Birds Convention Act, 1994</i> Permit	<p>The <i>Migratory Birds Convention Act, 1994</i> protects migratory birds and their eggs and nests, wherever they occur, regardless of land tenure. A permit would be required if construction and clearing activities are scheduled within the migratory bird nesting season.</p>



Authorization	Description
Provincial	
<i>Environmental Protection and Enhancement Act (EPEA)</i>	<p>EPEA supports and promotes the protection, enhancement and wise use of the environment. AEP reviews applications under EPEA to assess the potential environmental impacts of a proposed project.</p> <p>Pursuant to Schedule 1(c) of the Environmental Assessment (Mandatory and Exempted Activities) Regulation the Project is a mandatory activity. Pursuant to Section 44(1)(a) of the EPEA an EIA report for the Project is required. The EIA report is to be prepared in accordance with the provisions of Division 1 of Part 2 of EPEA.</p>
<i>Historical Resources Act</i>	<p>Provides for the use, designation and protection of moveable and immovable historic resources. Projects such as this one that require a provincial EIA require an application under the <i>Historical Resources Act</i>. Clearance is required prior to any site preparation or construction work occurring. A Historical Resources Impact Assessment is required by Alberta Culture and Status of Women.</p> <p>In the case of incidental historical finds, all activities that may impact the resource are to cease while it is being evaluated.</p>
<i>Water Act</i>	<p>Regulates the allocation, protection and conservation of water and applies to the proposed construction, operation and maintenance of the reservoirs, dam facilities, canals and alteration of wetland habitat and any loss or alteration of fish habitat.</p> <p>The water volumes authorized by the existing water diversion licences held by the Proponent will not be altered but the licenses will be amended to reflect the changes to expand the existing reservoir.</p>
<i>Public Lands Act</i>	<p>Prohibits the disturbance of the bed and shore of water bodies and other public lands administered by the Minister of AEP. The Proponent is working with Alberta Public Lands regarding a historical and currently non-functional stock watering reservoir that is designated public land and is less than one hectare. The remaining lands are privately owned.</p>
<i>Alberta Soil Conservation Act</i>	<p>Requires that appropriate measures be taken to prevent soil loss or deterioration from occurring. Mitigation and monitoring to protect soils during construction and operation will be included in the EIA required by AEP.</p>
<i>Weed Control Act</i>	<p>Prevention of the spread of invasive and noxious weeds. Mitigation and monitoring to control weeds during construction and operation will be included in the EIA required by AEP.</p>



Authorization	Description
<i>Wildlife Act</i>	Prohibits the disturbance of wildlife and wildlife habitat as administered by the Fish and Wildlife Branch of AEP. Assessment of potential effects to rare plants, wildlife, migratory birds, fish and species at risk are included in the terms of reference for the EIA.
Intergovernmental	
<i>Master Agreement on Apportionment (MAA)</i>	Schedule A of the MAA governs the sharing of waters of eastward-flowing streams between Alberta and Saskatchewan. The Government of Alberta is responsible for ensuring compliance with the Agreement. Compliance with the Master Agreement on Apportionment is expected to manage potential effects of the Project on water moving from Alberta to Saskatchewan.