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Abbreviations

AAD	average annual damage
ACO	Aboriginal Consultation Office
AEP	Alberta Environment and Parks
AESRD	Alberta Environment and Sustainable Resource Development
CEA Agency	Canadian Environmental Assessment Agency
CEAA	*Canadian Environmental Assessment Act*
CEAR	Canadian Environmental Assessment Registry
COR	Certificate of Recognition
COREL	Certificate of Recognition Equivalency Letter
CRA	Commercial, Recreational and Aboriginal
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
ECO Plan	Environmental Construction Operations Plan
FAP	Flood Advisory Panel
GDP	gross domestic product
IR	information request
LAA	local assessment area
LUA	land use area
MC1	McLean Creek
MNL	mitigated noise limit
NRCB	Natural Resources Conservation Board
Old North-South Trail	Old Blackfoot Trail and Old Stoney Trail
PAM	project administration manual
PDA	Project development area
PFDAT	Provincial Flood Damage Assessment Tool
Project	Springbank Off-stream Reservoir
RAA	regional assessment area

RFDAM	Rapid Flood Damage Assessment Model
SAFRTF	Southern Alberta Flood Recovery Task Force
SCRT	specific concerns and response tables
SOMC	species of management concern
TAS	traffic accommodation strategy
TLC	Temporary Letter of Certification
TLRU	traditional land and resource use
TOR	terms of reference
TUS	Traditional Use Study
VC	valued component

General
May 2019

3 GENERAL

3.1 PUBLIC ENGAGEMENT AND ABORIGINAL CONSULTATION

Question 127

Volume 1, Section 6.2, Table 6-2, Page 6.2

In Table 6-2 Alberta Transportation indicates that the only AEP attended the Water Collaborative meeting in which the purpose of the meeting was a Project update.

a. Confirm if Alberta Transportation should have been included under the *Attending* column for this meeting. If so, correct the table so that the change is reflected. If not, why was Alberta Transportation not in attendance for a meeting in which the purpose was to discuss an update to their proposed Project?

Response 127

a. Alberta Transportation should not have been included under the "Attending" column for the meeting.

   The Water Collaborative was an intermittent series of open meetings with stakeholders held at the McDougall Centre in Calgary by AEP. These meetings were held to provide updates on all flood related work underway (e.g., ongoing flood studies, available grants, and project updates). Updates on SR1 were included in these meetings prior to Alberta Transportation becoming the Project proponent. The Water Collaborative last met on November 5, 2015, shortly after the announcement that Alberta Transportation would be the lead on SR1.

Question 128

Volume 3A, Section 11.2.2.2, Page 11.23

Alberta Transportation describes Species of Management Concern and species of cultural importance raised during the Project-specific Indigenous Engagement program.

a. Explain why Tsuut'ina Nation and the Stoney Nakoda Nations' input was cited. Was input from the other Treaty 7 First Nations incorporated into the identification of traditionally used species? If so, describe.

Response 128

a. As noted in Volume 3A, Section 11.2.2.2, the input cited from Tsuut'ina Nation and Stoney Nakoda Nations are provided as examples of culturally important species that are also species of management concern (SOMC). That section of the environmental assessment also incorporates the results of the literature review that indicates, of the 86 wildlife SOMC with the potential to occur in the wildlife RAA, 31 are wildlife species of traditional importance to Indigenous groups engaged on the Project, including the identified Treaty 7 First Nations.

   Results of the literature review are in Volume 3A, Section 14.2.3 and Table 14-3. That literature review incorporated information from publicly available sources for Kainai First Nation, Piikani Nation, Siksika Nation, Stoney Nakoda Nations, Tsuut'ina Nation, Ermineskin Cree Nation, Louis Bull Tribe, Montana First Nation, Samson Cree Nation, Foothills Ojibway, Métis Nation of Alberta, Region 3, and Métis Nation of British Columbia. The table lists traditional resources that are known to exist within the RAA reported in the publicly available literature for each Indigenous group, including the 31 wildlife species of cultural importance.

   As noted in Volume 3A, Section 11.1.3, information about wildlife species of cultural importance was also obtained through the Indigenous engagement process for the Project, including through available Traditional Use Studies (TUS). Alberta Transportation received a TUS report from Piikani Nation, as well as a joint interim TUS from Blood Tribe and Siksika Nation prior to filing the EIA.

Question 129

Volume 3A, Section 14.1.1, Page 14.1
Volume 1, Section 7.2, Page 7.1

Alberta Transportation states *The assessment of TLRU is guided by: The Government of Alberta's Guidelines on Consultation with Treaty 7 First Nations on Land and Resource Management (the Guidelines), which commits Alberta to consultation with Treaty 7 First Nations where land management and resource development have the potential to adversely impact Treaty rights and traditional uses (GOA 2014).* A similar statement was provided in Volume 1, Section 7.2, Page 7.1. The Guidelines (2014) speak to First Nations consultation, however, they do not speak to the assessment of Traditional Land and Resource Use (TLRU).

a. Clarify what is meant by the statements saying that TLRU was guided by the Government of Alberta's Guidelines (2014) considering that these guidelines do not speak to the assessment of TLRU.

Response 129

a. The intent of Volume 3A, Section 14.1.1 is to identify and describe the regulatory and policy setting within which the assessment of TLRU has been conducted. As discussed in the section, the Government of Alberta's *Guidelines on Consultation with First Nations on Land and Resource Management* are included in that section to demonstrate compliance with Government of Alberta policy and conformity with the Terms of Reference (TOR) for the Project issued by Alberta Environment and Sustainable Resource Development (AESRD) (2015).

   The *Guidelines* are cited because they guide the required level of consultation that is related to the nature of the Project and its potential impact on Treaty rights and traditional uses at the Project location in Alberta, and the First Nation(s) and/or Métis Settlement to be consulted (GoA 2016). The *Guidelines* also outline the expectations and responsibilities of all parties involved in the consultation process.

   For this Project, the Alberta Consultation Office determined that Level III consultation with an EIA was required. In particular, the *Guidelines* are designed to promote the following:

   1) gaining a better understanding of First Nations' concerns regarding potential adverse impacts of a project on the exercise of treaty rights and traditional uses

   2) substantially addressing the concerns through a meaningful process

   3) developing positive working relationships. (GoA 2014; p. 1)

   The *Guidelines* also outline expectations for information sharing, including opportunities for First Nations to identify potential adverse impacts on the exercise of their treaty rights and traditional uses.

   The TOR for the Project state that:

   > *The EIA report shall be prepared considering all applicable provincial and federal legislation, codes of practice, guidelines, standards, policies, directives and the South Saskatchewan Regional Plan* (AESRD 2015; p. 3).

   The TOR for the Project also directs Alberta Transportation in preparing EIA to refer to the *Guide to Preparing Environmental Impact Assessment Reports in Alberta* (GOA 2013), which identifies the *Guidelines on Consultation with First Nations on Land and Resource Management* as a relevant assessment process document.

The information gathered through the Indigenous engagement process, including Traditional Use Studies completed by Indigenous groups, provided opportunities for Indigenous groups to identify potential adverse impacts on the exercise of their treaty rights and traditional uses, and informed the TLRU assessment (see Volume 4, Appendix B).

REFERENCES

AESRD (Alberta Environment and Sustainable Resource Development). 2015. Terms of Reference: Environmental Impact Assessment Report for Alberta Transportation's Proposed Springbank Off-Stream Reservoir Project.

CEAA (Canadian Environmental Assessment Act). 2012. *Canadian Environmental Assessment Act, 2012 (S.C. 2012, c. 19, s. 52).* Available at: http://laws-lois.justice.gc.ca/PDF/C-15.21.pdf. Accessed January 2017.

CEA Agency (Canadian Environmental Assessment Agency). 2016. Guidelines for the Preparation of an Environmental Impact Statement Pursuant to the Canadian Environmental Act, 2012. Springbank Off-Stream Reservoir Project. Alberta Transportation.

GoA (Government of Alberta). 2013. Guide to Preparing Environmental Impact Assessment Reports in Alberta.

GoA. 2014. *The Government of Alberta's Guidelines on Consultation with First Nations on Land and Resource Management.* Available at: http://indigenous.alberta.ca/documents/First_Nations_Consultation_Guidelines_LNRD.pdf.

GoA. 2016. *The Government of Alberta's Proponent Guide to First Nations and Métis Settlements Consultation Procedures*. Available at: http://indigenous.alberta.ca/documents/Proponent-Guide-June6-2016.pdf?0.276972591644153.

Question 130

Volume 3A, Section 14.1.2, Page 14.8

Alberta Transportation provided a summary of the Traditional Use Studies (TUS) reports submitted to Alberta Transportation from Treaty 7 First Nations by the time of EIA filing.

a. Has Alberta Transportation received a joint final report from Kainai First Nation and Siksika Nation and reports from Stoney Nakoda Nations, or Tsuut'ina Nation since the filing of the EIA? If so, provide the dates of when the reports were submitted.

Response 130

a. Since filing the EIA in March 2018 and up to March 31, 2019, Alberta Transportation has received final Traditional Use Studies (TUS) from the following Treaty 7 First Nations:

- Tsuut'ina Nation (received April 3, 2018)
- Kainai First Nation (received June 25, 2018)

Alberta Transportation has not yet received a TUS from Stoney Nakoda Nations or a final TUS from Siksika Nation.

Alberta Transportation has followed up with Stoney Nakoda Nations since December 2016 regarding receipt of their TUS; including January 24 and 30 2017, February 17 and 26 2017, March 23 2017, April 27 2017, August 23 2017, and June 4 2018. On September 13, 2018, Alberta Transportation met with Stoney Nakoda Nations to discuss the TUS and the anticipated delivery date. During this meeting, Stoney Nakoda Nations committed to providing a budget to complete their TUS, with the expectation that the TUS would be submitted by the end of 2018. Alberta Transportation asked for a budget again via email on October 24, 2018 and December 18, 2018, and in person on December 19, 2018. On December 19, 2018, Stoney Nakoda Nations again indicated they would send a budget. During a meeting on February 22, 2019, Stoney Nakoda Nations indicated that a TUS is no longer expected to be provided for the Project and, as of March 31, 2019, a TUS budget has not been provided. Alberta Transportation remains available to discuss the completion of a TUS at Stoney Nakoda Nations' interest.

Since submission of the interim joint TUS, Alberta Transportation has followed up with Siksika Nation regarding completion of the final TUS including January 12, 2018, April 26, 2018, February 20, 2019, March 4, 2019. On March 12, 2019, Siksika Nation indicated they would be submitting a budget for finalizing the TUS. As of March 31, 2019, Alberta Transportation has not yet received a budget request.

Question 131

Volume 3A, Section 14.1.2, Page 14.9

Alberta Transportation has committed to reviewing project specific TLRU against the results of the EIA and providing a formal response to the Treaty 7 First Nations.

a. If this commitment has been completed when was it completed? If it has not been completed when does Alberta Transportation expect to provide the formal response to the Treaty 7 First Nations?

Response 131

a. Since filing the EIA in March 2018 and up to March 1, 2019, Alberta Transportation has received Traditional Use Studies (TUS) from the following Treaty 7 First Nations:

- Tsuut'ina Nation (received April 3, 2018)
- Kainai First Nation (received June 25, 2018)

Alberta Transportation reviewed the Project-specific information, concerns and recommendations provided in the Tsuut'ina Nation TUS and provided a written response on November 23, 2018. On December 12, 2018, Alberta Transportation met with Tsuut'ina Nation to discuss their TUS and Alberta Transportation's provided response.

Alberta Transportation is currently reviewing the TUS provided by Kainai First Nation and will be providing Kainai First Nation with a written response. The timeline for completion of this task has not yet been established but is anticipated to be complete prior to the Natural Resources Conservation Board (NRCB) hearing.

Question 132

Volume 3A, Section 14.1.4.1, Page 14.15

Alberta Transportation has described the local and regional assessment areas for wildlife and biodiversity and aquatic ecology being used for spatial boundaries for TLRU. However, Alberta Transportation has not explained how vegetation and wetlands were considered. A component of traditional use is plant gathering for medicinal and cultural purposes.

a. Explain why the vegetation and wetlands boundaries were not incorporated into the spatial boundaries for TLRU. If it had been included, explain if the results would have changed the overall assessment of impacts of the Project on current use.

Response 132

a. The vegetation and wetland boundaries are the same as those for wildlife and biodiversity and, therefore, the results of the TLRU assessment do consider effects within these identical boundaries.

   Volume 3A, Section 14 considers various traditional activities, practices, sites, areas, and resources, including, but not limited to, hunting, trapping, fishing, plant gathering, use of trails and travelways, use of habitation areas, and use of cultural and spiritual sites and areas. More specifically, Section 14 assesses the potential for change in the availability of traditional resources for current use (including plant species relied upon), change in sites or areas for current use (including plant gathering sites or areas) and change in access to traditional resources or areas relied upon for current use. The results of the overall assessment of potential effects from the Project on current use would not have changed had Section 14.1.4.1 directly linked the spatial boundaries to the vegetation and wetlands assessment.

Question 133

Volume 3A, Section 14.1.7, Page 14.19
Volume 3A, Section 14.1.7, Page 14.20

Alberta Transportation states that First Nations *have the ability to exercise rights on unoccupied Crown land or other Crown land to which they have a right of access for that purpose. Alberta Transportation also states that a small portion of the Project is located on Crown land and includes rights-of-way (ROWs) for roads and road allowances and the bed and banks of the Elbow River and its tributaries.*

a. How much of the Project Development Area (PDA) is currently Crown land (in ha) versus private land (in ha)?

b. How much Crown land will be unoccupied should the private land be purchased or expropriated?

Response 133

a. When the Project was initiated, Crown land within the PDA only consisted of the beds and shores of Elbow River; approximately 6 ha. As of March 2019, Alberta Transportation has acquired 312 ha for the PDA. The remaining 1,120 ha remains private freehold land.

b. Once the land within the PDA has been acquired by Alberta Transportation, it will become Crown land. Since filing the EIA, Alberta Transportation has created a draft post-construction land use document for the Project. This document was drafted using feedback from First Nations gathered through the engagement process for the Project (see the response to IR2, Appendix IR2-1). This document provides the draft principles of future land use for the Project, which was developed through the engagement process and includes feedback received by First Nations and stakeholders. The principles apply to the land use area (LUA) outlined in yellow in Figure 1 of Appendix IR2-1. The primary use of all lands within the PDA, including the LUA, is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses such as First Nations' traditional activities, including the exercise of treaty rights such as hunting will be allowed within the LUA. Further details can be found in Appendix IR2-1.

Question 134

Volume 3A, Section 14.1.2, Page 14.8
Volume 3A, Section 14.1.7, Page 14.20

Alberta Transportation has stated that Tsuut'ina Nation submitted a draft TUS report, however, did not provide *permission to use the information in the report in this assessment had not been received as of March 16, 2018.* However, the EIA also states *Tsuut'ina Nation noted that the TUS results should be included in the EIS*. The statements are contradictory to each other.

a. Was any of the information contained in the draft TUS incorporated into the EIA? If yes, explain where and how it was incorporated.

Response 134

a. The results of the draft TUS report were not included because, as stated in Volume 3A, Section 14.1.2, Page 14.8 and Volume 3A, Section 14.1.7, page 14.20, "A draft TUS report from Tsuut'ina Nation has also been received, but permission to use the information in the report (in this assessment) had not been received as of March 16, 2018". An updated version of the TUS report was received after the EIA was filed in March 2018 (on April 3, 2018).

During consultation following the receipt of the TUS report, Tsuut'ina Nation noted that TUS resullts should be included in the EIA. Tsuut'ina Nation provided its permission on May 11, 2018, per email (V. Mathers, Mandell Pinder LLP. May 11, 2018). Alberta Transportation reviewed the Project-specific information, concerns and recommendations provided in the Tsuut'ina Nation TUS and provided a written response on November 23, 2018. On December 12, 2018, Alberta Transportation met with Tsuut'ina Nation to discuss their TUS and Alberta Transportation's provided response.

Question 135

Volume 3A, Section 14.2.1, Page 14.22
Volume 3A, Section 14.2.1, Page 14.23

Alberta Transportation described workshops held in February and March 2018 with a few Treaty 7 First Nations.

a. Since March 16, 2018, has Transportation held additional workshops with any Treaty 7 First Nations?

Response 135

a. After the EIA was submitted, Alberta Transportation requested meetings with the five Treaty 7 First Nations to discuss their concerns and Alberta Transportation's responses that were detailed in Volume 1, Section 7, Table 7-3 to Table 7-7, which were provided to the First Nations on March 23, 2018.

   A meeting was held on April 26, 2018 with Siksika Nation to discuss their concerns and Alberta Transportation's responses as in Volume 1, Section 7, Table 7-5. After the April 26, 2018 meeting, Siksika Nation requested to reschedule an on-reserve workshop that had been planned for February 27, 2018 but was cancelled during the workshop held on February 26, 2018. Alberta Transportation requested dates for this workshop following April 26, 2018. Siksika Nation initially requested the workshop be held in September; however, it was not carried out until December 10, 2018 due to Siksika Nation's availability. The December 10, 2018 workshop provided information on the Project and gave community members the opportunity to ask Alberta Transportation questions.

   A workshop was held on March 20, 2018 with Stoney Nakoda Nations to discuss TLRU. Additional meetings were held with Stoney Nakoda Nations on June 4 and September 13, 2018 to discuss their concerns and Alberta Transportation's responses as in Volume 1, Section 7, Table 7-4. A meeting was held February 22, 2019 to discuss some of Stoney Nakoda Nations' specific concerns and the proposed mitigation measures.

   With Tsuut'ina Nation, meetings were held on May 14-15, 2018; August 8, 2018; September 21, 2018; and October 11, 2018 to discuss their concerns and Alberta Transportation's responses as provided in Volume 1, Section 7, Table 7-3. Further meetings to discuss concerns were held December 6, 2018 and February 21, 2019.

   A meeting was held on August 7, 2018 with Kainai First Nation to discuss their concerns and Alberta Transportation's responses as in Volume 1, Section 7, Table 7-7 *SR1 Specific Concerns and Responses – Kainai First Nation*.

Meetings with Piikani Nation were held on September 18-19, 2018 and December 17, 2018. The September 18-19, 2018 meetings were held for the purpose of discussing concerns and Alberta Transportation's responses as in Volume 1, Section 7, Table 7-6. Previous workshops and meetings that had been tentatively planned for May 31-June 1, 2018; June 18-19, 2018; and August 21-22, 2018 were postponed by the Nation.

Question 136

Volume 3A, Section 14.2.2.1, Page 14.25
Volume 3A, Section 14.2.2.2, Page 14.26
Volume 3A, Section 14.2.2.3, Page 14.27
Volume 3A, Section 14.2.2.4, Page 14.28
Volume 3A, Section 14.2.2.4, Page 14.29
Volume 3A, Section 14.2.2.5, Page 14.30
Volume 1, Section 7.2, Table 7-1, Page 7.3

The EIA describes the reserve(s) for each Treaty 7 First Nation and for some Treaty 7 First Nations provides a distance from the Project Development Area (PDA) to the reserve.

a. Explain why Alberta Transportation chose to describe the reserves that they did within the EIA.

b. Provide the distance of each reserve from the PDA.

c. Provide an explanation for how distance was calculated (e.g. straight line between the two areas, road travel distance, etc.).

Response 136

a. Alberta Transportation has engaged with all First Nations identified for inclusion in the Project by the Alberta Aboriginal Consultation Office (ACO), which included all five Treaty 7 First Nations (See Volume 3A, Section 14.1.2). All reserves belonging to the Treaty 7 Nations are described in the summary of each Indigenous group in Volume 3A, Section 14.2.2. Volume 1, Section 7.2, Table 7-1 describes the distances from the PDA to the nearest reserve or the reserve with the largest population of each Treaty 7 First Nation. The locations of the reserves for each Treaty 7 First Nations are also mapped in Volume 1, Section 7, Figure 7-1 and Volume 3A, Section 14, Figure 14-1 and Figure 14-2.

b. Table IR136-1 provides the distances from the PDA to all reserves associated with each of the Treaty 7 Nations engaged in the Project.

c. The distances between a reserve and the PDA are calculated from nearest edge to nearest edge, using the shortest distance following a straight line.

Table IR136-1 Distances of the Closest Edge of the PDA to the Closest Edge of a Reserve

Indigenous Group or Organization	Reserve	Distance from PDA
Treaty 7 Nations		
Tsuut'ina Nation	Tsuut'ina Nation 145	619 m
Stoney Nakoda Nations (Bearspaw First Nation, Chiniki First Nation, and Wesley First Nation)	Big Horn 144A	186 km
	Eden Valley 216	61 km
	Stoney 142-142-144	11 km
	Stoney 142B	28 km
Siksika Nation	Siksika 146	78 km
Piikani Nation	Peigan Timber Limit "B"	144 km
	Piikani	155 km
Kainai First Nation (Blood Tribe)	Blood 148	170 km
	Blood 148A	222 km

Question 137

Volume 3A, Section 14.2.3, Page 14.40

Footnote 12 states that the *Project Area is used when specific areas were not provided by Indigenous groups and is assumed to be the RAA in this assessment.*

a. Explain why the Regional Assessment Area (RAA) was assumed and not the Local Assessment Area (LAA) or PDA.

Response 137

a. Information shared by Indigenous groups engaged on the Project for consideration in the EIA is reported as received. As noted throughout Volume 3A, Section 14.2.3, Indigenous groups provided baseline traditional land and resource use information with respect to the Project. In several instances, Indigenous groups did not identify specific sites or areas, but rather stated generally that traditional land and resource use occurred in the "Project area". In the absence of specific spatial information provided by Indigenous groups, the assessment conservatively attributes this information to the largest of the three TLRU assessment areas, the RAA. This allows for considering potential Project-related effects that might extend beyond the PDA or TLRU LAA.

Question 138

Volume 3A, Section 14.2.6, Page 14.56
Volume 3A, Section 14.2.6, Table 14-5, Page 14.58

Alberta Transportation states that *Siksika Nation and Kainai First Nation expressed the importance of the Elbow River to Blackfoot traditions and culture in the TUS report for the Project.* However, Table 14-5 does not list the Elbow River under Siksika Nation and Kainai First Nation culture use sites and areas.

a. Clarify the discrepancy between the statement and Table 14-5.

Response 138

a. Use of Elbow River by Siksika Nation and Kainai First Nation is an omission from Table 14-5. Table IR138-1 provides a revision, as noted in red. The results of the Siksika Nation and Kainai First Nation traditional use studies (TUS) for the Project—indicating the importance of Elbow River to Blackfoot traditions and culture—are considered in the effects assessment in Volume 3A, Section 14.3.3.1 and Section 14.3.4.1. The omission of Elbow River from Table 14-5 does not influence the results of the effects assessment.

Table IR138-1 Current Use Sites and Areas within the RAA (revision to Volume 3A, Section 14, Table 14-5)

Project Boundary	Site or Area	Kainai First Nation	Piikani Nation	Siksika Nation	Stoney Nakoda Nations	Tsuut'ina Nation	Ermineskin Cree Nation	Foothills Ojibway	Louis Bull Tribe	Montana First Nation	Samson Cree Nation	Métis Nation of Alberta, Region 3	Métis Nation British Columbia
PDA	Elbow River (fishing, gathering, water source)	✓		✓		✓							
	Medicinal plant gathering areas	✓		✓									
	Blackfoot traditional camps	✓		✓									
	Archaeological and cultural sites	✓	✓	✓		✓							

Table IR138-1 Current Use Sites and Areas within the RAA (revision to Volume 3A, Section 14, Table 14-5)

Project Boundary	Site or Area	Kainai First Nation	Piikani Nation	Siksika Nation	Stoney Nakoda Nations	Tsuut'ina Nation	Ermineskin Cree Nation	Foothills Ojibway	Louis Bull Tribe	Montana First Nation	Samson Cree Nation	Métis Nation of Alberta, Region 3	Métis Nation British Columbia
LAA	Bow River					✓							
RAA	McLean Creek					✓							
	Archaeological and cultural sites		✓										

NOTES:
Blank cells indicate absence of data for the respective Indigenous group; however, an absence of data should not imply an absence of use at the particular site or area.

Question 139

Volume 3A, Section 14.3.2.1, Pages 14.61-14.66
Volume 3A, Section 14.1.3.2, Table 14-1, Page 14.13
Volume 3B, Section 14.2.2.1, Pages 14.3-14.6

This section describes the potential pathways that could affect the availability of traditional resources as identified by Indigenous groups as well as the results from analyses completed in other sections of the EIA (e.g. Section 8 Aquatic Ecology). The potential pathways in Sections 14.3.2.1 and 14.2.2.1 do not completely match the effect pathways as shown on Table 14-1.

a. Clarify the discrepancy between the potential pathways in Sections 14.3.2.1 and 14.2.2.1 versus Table 14-1.

Response 139

a. The narrative in Sections 14.3.2.1 and 14.2.2.1 draws from the effect pathways listed by other environmental and socio-economic valued components (VCs) that also support the exercise of traditional land and resource use (TLRU). Table 14-1 is a presentation of effects and pathways that are specifically relevant for assessing potential Project-related effects on TLRU, which rely on multiple and overlapping influences from many VCs. The pathways described

in the narrative are not intended to exactly match those is Table 14-1 and instead reflect the analysis of effects pathways presented in Table 14-1.

Table IR139-1 concords effect pathways used for traditional use resources (as listed in Table 14-1) to the representative effect pathways for other VCs.

Table IR139-1 Relationship Between the Effect Pathways Used for Traditional Use Resources and Effect Pathways for Other VCs

Potential Environmental Effect[1]	Effect Pathway[1]	Relationship to Volume 3A, Section 14.3.2.1	Representative VC Pathway(s) in Volume 3B, Section 14.2.2.1
Change in availability of traditional resources for current use	• Vegetation clearing associated with construction could result in a loss of habitat for species of traditional importance, including plants and animals relied on for traditional hunting, trapping, or plant harvesting	• Change in Habitat (Vegetation, Wildlife, Fish) • Change in Wildlife Biodiversity • Change in Mortality (Wildlife, Fish) • Change in Water Quantity and Quality	• Change in Habitat (Vegetation, Wildlife, Fish) • Change in Mortality (Wildlife, Fish)
	• Sensory disturbance has the potential to affect the availability of habitat for species of traditional importance	• Change in Movement Patterns (Wildlife, Fish) • Changes in Conditions for Current Use	• Change in Movement • Changes in Conditions for Current Use
	• Loss or alteration of habitat resulting from disturbance to watercourses	• Change in Riparian Vegetation • Change in Water Quantity and Quality • Change in Drinking Water	• Change in Channel Morphology • Change in Drinking Water
	• Potential effects on wildlife health which could affect the availability of traditional resources	• Change in Country Foods	• Change in Wildlife Health • Change in Country Foods
	• Indirect effects on the experience of Indigenous peoples which adversely alter the perceived value of availability of traditional resources for current use	• Changes in Conditions for Current Use	• Changes in Conditions for Current Use

[1] As defined in Volume 3A, Table 14-1

Question 140

Volume 3A, Section 14.3.2.1, Page 14.62
Volume 3A, Section 14.3.2.1, Page 14.66

Change in Riparian Vegetation was listed as a potential project pathway, as Piikani Nation noted a concern regarding potential effects on the health of riparian vegetation that require flooding and scouring to survive. Alberta Transportation's response was that the *Project would not eliminate flooding and scouring of Elbow River* and that water will only be diverted from the Elbow River when the Glenmore Reservoir cannot handle larger floods, therefore has not been analyzed further as a potential Project pathway for TLRU.

On page 14.62, Transportation states *Siksika Nation…also noted the potential effects on downstream waters and riparian areas from construction.* This was included under the Change in Habitat project pathway.

a. Explain why the potential effects on riparian areas from construction was not included under Change in Riparian Vegetation.

Response 140

a. An assessment for effects on riparian vegetation from construction is provided in Volume 3A, Sections 14.3.2.1, 14.3.2.3, and Table 14-8. The pathway for construction effects on vegetation is the same as that for wildlife habitat; therefore, effects on riparian vegetation are considered in the change in habitat pathway. As stated in Volume 3A, Section 14.3.2.1, under Change in Habitat, construction effects on riparian vegetation are expected to occur as a result of vegetation clearing, which could result in a reduction in the availability of traditional use species.

Question 141

Volume 3A, Section 14.3.3.2, Page 14.75

Alberta Transportation states *the area along the Elbow River flood plain (Area A) will be accessible for some TLRU activities; this will be a conservation zone with public access and opportunities for low impact recreation.*

a. Describe the TLRU activities that will be permitted in Area A.

b. Describe what low impact recreation means.

Response 141

a-b. Since filing the EIA, Alberta Transportation has created a draft post-construction land use document for the Project. This document provides the draft principles of future land use for the PDA, which was developed through the engagement process and includes feedback received by First Nations and stakeholders (see the response to IR2, Appendix IR2-1). The principles apply to the land use area (LUA) outlined in yellow in Figure 1 of Appendix IR2-1. The primary use of all lands within the PDA, including the LUA, is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses such as First Nations' traditional activities (including the exercising of treaty rights such as hunting) will be allowed within the LUA. Further details can be found in Appendix IR2-1.

Question 142

Volume 3A, Section 14.3.3.2, Page 14.75
Volume 3A, Section 14.1.3.2, Table 14-1, Page 14.13
Volume 3A, Section 14.3.3.3, Pages 14.75-14.76

Table 14-1 includes measurable parameters for the Potential Environmental Effect of Change in Access to traditional resources or areas for current use. Many of the listed measureable parameters haven't been fully described in Sections 14.3.3.2 and 14.3.3.3, such as *area (ha) with access restrictions.*

a. Provide a description of these measurable parameters and the potential change in access to traditional resources or areas for current use.

Response 142

a. Since filing the EIA, Alberta Transportation has created a draft post-construction land use document for the Project. This document was drafted using feedback from First Nations gathered through the engagement process for the Project (see the response to IR2, Appendix IR2-1). The primary use of all lands within the PDA is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses include traditional activities (the exercise of treaty rights such as hunting) and will be allowed to occur within the land use area (LUA) identified in Figure 1 of Appendix IR2-1. As such, the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to exercise TLRU.

Although there is now a new land use plan, the following provides Information relevant to each of the measurable parameters identified in Table 14-1 at the time of filing the EIA. (and it refers to the now outdated classification of Area B, Area C, and Area D).

- number of trails and travelways no longer accessible

  As described in Volume 3A, Section 14.3.3.3, two trails (known as Old Blackfoot Trail and Old Stoney Trail (Old North-South Trail)) and a historical trading route, identified by Indigenous groups, are conservatively assumed to be partially intersected by the PDA. The use of Elbow River as an access route is also considered in Section 14.2.5. Apart from these trails and travelways, the assessment notes that Alberta Transportation has requested but not received further information from Indigenous groups about the specific degree to which the PDA is being accessed for traditional purposes. The TLRU assessment conservatively anticipates that the residual effects on access to traditional resources, current use sites or locations are anticipated to be high in magnitude in the PDA.

- area (ha) with access restrictions

  The area of the PDA with access restrictions is approximately 895 ha within Areas B, C and D during dry operations. The Project is located predominately on privately held lands, with access only available upon obtaining permission from the relevant land owner. However, there is in absence of specific information to assess the degree Indigenous groups have obtained permission to access the PDA for traditional purposes. Given this absence of information, the assessment, therefore, conservatively assumes that the residual effects on access to traditional resources, current use sites or locations are high in magnitude.

- area (ha) of altered land use management

  The Project will alter land use management throughout the PDA, which totals approximately 987 ha. The PDA will be operated by AEP for the life of the Project.

- time required to access different current use locations

  As noted in Volume 3A. Section 14.3.3.3, Alberta Transportation has not received information from Indigenous groups about the specific degree to which the PDA is being accessed for traditional purposes. Given this absence of information regarding access, the assessment therefore, conservatively assumes that the residual effects of the Project on access to traditional resources, current use sites or locations are high in magnitude.

- identification of change in access from participating Indigenous groups

  Indigenous groups have identified potential ways in which the Project could affect access to traditional resources or sites. This information is considered in Volume 3A, Section 14.3.3, as follows:

  – Kainai First Nation, Piikani Nation, and Siksika Nation expressed concern that there is potential for cultural and spiritual sites in their traditional territories may become inaccessible as a result of the Project

  – Stoney Nakoda Nations inquired whether Crown land would be set aside to offset effects of the Project.

  – Siksika Nation and Kainai First Nation identified Elbow River as an important travel route and its importance to Blackfoot traditions and culture (KCO & SCO 2017).

  – Siksika Nation explained that the Project "is in the middle of a prime transport corridor for our people along the Elbow River between the prairies and the mountains."

  – Tsuut'ina Nation identified that there is potential for the Project to affect the Nation's ability to use Elbow River as a transportation route.

  – Kainai First Nation and Ermineskin Cree Nation reported that, in general, navigable waterways were travel routes.

  – In the Kainai First Nation and Siksika Nation Traditional Use Studies (TUS) and the Piikani Nation TUS, two trails were identified during fieldwork. Few details were provided about these trails, but they occur on private lands and appear to be primarily historical.

  – Through the engagement consultation process for the Project, Kainai First Nation reported that there is a travelway in the Project area on a private property.

Question 143

Volume 3A, Section 14.3.4.1, Page 14.78

A project interaction and pathway identified by Tsuut'ina Nation was that *access to private land currently used to practice traditional activities* will be removed as a result of the Project. This project pathway was included in the Potential Environmental Effect for Change in Sites or Areas for Current Use. However, not in Change in Access to Traditional Resources or Areas for Current Use.

a. Explain why it was not included in the Access to Traditional Resources or Areas for Current Use.

i. Would this pathway change the results of the assessment after application of mitigation measures and assessment of residual effects? Explain why or why not.

Response 143

a. Since filing the EIA, Alberta Transportation has created a draft post-construction land use document for the Project. This document was drafted using feedback from First Nations as identified through the engagement process (see the response to IR2, Appendix IR2-1). The primary use of all lands within the PDA is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses include traditional activities (the exercise of treaty rights such as hunting) and will be allowed to occur within the land use area (LUA) identified in Figure 1 of Appendix IR2-1. As such, the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to exercise TLRU.

   At the time of EIA filing, the pathway "access to private land currently used to practice traditional activities**"** is included within the assessment of residual effects under the Change in Access to Traditional Resources or Areas for Current Use section, which states:

   "Although the specific degree to which the PDA is being accessed for traditional purposes is unknown, given that the majority of the land is private, the residual effects of the Project on access to traditional resources, current use sites or locations are anticipated to be high in magnitude because of the loss of access to Areas B, C, and D" (Volume 3A, Section 14.3.3)." [the use of Area B, C, and D is now outdated, given the new land use plan for the PDA.]

   i. No change to results of the traditional land and resource use (TLRU) assessment is warranted because the pathway is assessed in the Change in Access to Traditional Resources or Areas for Current Use.

Question 144

Volume 3A, Section 14.3.4.1, Pages 14.76-14.78
Volume 3A, Section 14.3.4.2, Table 14-7, Pages 14.79-14.80
Volume 3A, Section 14.3.2.2, Table 14-6, Pages 14.67-14.68

Some Treaty 7 First Nations stated that gathering sites for medicinal plants are found in the PDA including the Elbow River near the diversion inlet and sluiceway. Table 14-6 presents a recommendation from Siksika Nation and Kainai Treaty 7 First Nation to relocate medicinal and ceremonial plant to another area for future use. This was not included in Table 14-7, however.

a. Clarify the discrepancy between Table 14-6 and Table 14-7.

Response 144

a. These two different sets of mitigation measures are correct in that they refer to mitigation of two different Project effects.

   Table 14-6 presents recommendations and mitigation requests from Indigenous groups for the effect "change in availability of traditional resources for current use". Table 14-7 presents recommendations and mitigation requests from Indigenous groups for "change in current use sites and areas".

   The recommendation from Siksika Nation and Kainai First Nation to relocate medicinal and ceremonial plants to another area for future use is a mitigation on the availability of a traditional resource, in this case, medicinal and ceremonial plants. Relocating medicinal and ceremonial plants would not effectively mitigate potential Project effects on current use sites and areas.

   As noted in Section 14.3.4.3, current use sites or areas located within the area of permanent structures and the reservoir will be permanently removed. The mitigation recommendation from Siksika Nation and Kainai First Nation to relocate medicinal and ceremonial plants to another area would not serve to avoid or reduce effects on those sites and areas and is, therefore, not included in Table 14-7.

Question 145

Volume 3B, Section 14.1.1, Page 14.2
Volume 3A, Section 14.1.3.2, Table 14-1, Page 14.13

Alberta Transportation states *potential effects, effects pathways and measureable parameters used to characterize and assess effects on TLRU are provided in Volume 3A, Table 14-1.* Review of Volume 3A, Table 14-1 shows various effect pathways that are specific to construction and dry operations, however, there are no specific effect pathways for flood and post-flood operations.

For example, under the Potential Environmental Effect for Change in access to traditional resources or areas for current use an effect pathway was listed as *Construction and dry operations could result in the loss, alteration, or restriction of access (including trails and travelways) to current lands and resources used for traditional purposes*. A tangible, direct effect pathway was not provided for flood and post-flood operations.

a. Explain why flood and post-flood operations are not reflected in Volume 3A, Table 14-1.

b. What effect pathways were used for flood and post-flood?

Response 145

a. The assessment reporting is organized by themes into seven volumes. In particular, Volume 3A assesses effects from construction of the physical components of the Project and operation during dry (non-flood) conditions. Volume 3B assesses effects during flood and post-flood conditions. The assessment of VCs in Volume 3B relies on the identification of potential effects, effects pathways and measurable parameters used to characterize and assess effects on TLRU, which are provided in Volume 3A, Table 14-1.

b. The assessment of residual environmental effects on TLRU for flood and post-flood conditions is presented in Volume 3B, Section 14.2. This section includes a discussion of Project interactions and pathways, mitigation measures and residual effects for each potential Project effect on TLRU.

Question 146

Volume 3B, Section 14.2.2.2, Page 14.6
Volume 3A, Section 14.3.2.2, Table 14-6, Pages 14.67-14.68
Volume 3A, Section 14.3.2.2, Page 14.69

This section references mitigation measures previously discussed in Volume 3A, Section 14.3.2 and the mitigation measures discussed in the various biophysical and socio-economic assessments for flood and post-flood operations.

a. Provide a table summarizing the mitigation measures referred to in the sections above to assist in the review and understanding of Residual Effects on TLRU.

Response 146

a. The TLRU assessment relies on TLRU-specific mitigation as well as mitigation for the different biophysical and socio-economic valued components (VCs) that affect quality of life and availability of resources. A complete listing of mitigation measures for all biophysical and socio-economic VCs for the construction and dry operation phase and the flood and post-flood phase of the Project is provided in Volume 4, Appendix C. All of the recommended mitigation measures listed in that appendix are considered to be applicable mitigation for potential effects of the Project on TLRU. Alberta Transportation's proposed measures to mitigate potential effects on TLRU further include:

- maintaining access to identified current use sites (located outside of the designated construction and project site limits) during construction and operations, including for hunting and fishing and advising Indigenous groups on post-construction land access;

- notifying Indigenous groups regarding Project activities and schedules, including provision of Project maps and design components, and discussing key traditional harvesting periods;
- avoiding substantial interference with public navigation of Elbow River through the following design practices:
  - as part of construction, a permanent portage will be developed around the instream water intake components,
  - signs directing traffic to detours will be installed during construction of road realignments and modifications, and
  - signs will be installed along the existing Elbow River channel and multiple signs will be placed upstream and downstream of the water intake components on both banks of Elbow River warning users that they are approaching instream water intake components and directing them to a portage location.

Since filing the EIA, Alberta Transportation has created a draft post-construction land use document for the Project. This document was drafted using feedback from First Nations gathered through the engagement process for the Project (see the response to IR2, Appendix IR2-1. The primary use of all lands within the PDA is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses include traditional activities, including the exercise of treaty rights such as hunting will be allowed to occur within the LUA identified in Figure 1 of Appendix IR2-1. As such, the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to practice TLRU.

Discussions with Indigenous groups regarding mitigation measures are ongoing.

Question 147

Volume 3B, Section 14.2.3.1, Page 14.12
Volume 3B, Section 12.5.1, Page 12.12

Alberta Transportation states that access along trails potentially located in Area A *would likely be maintained during floods*, however, Section 12.5.1 states *recreation in Area A…would be suspended* in the event of a flood.

a. Clarify the discrepancy between the two statements.

Response 147

a. Since filing EIA, Alberta Transportation has created a draft post-construction land use document for the Project. This document provides the draft principles of future land use for the PDA, which was developed through the engagement process and includes feedback received by First Nations and stakeholders (see the response to IR2, Appendix IR2-1). The draft principles apply to the land use area (LUA) outlined in yellow in Figure 1 of Appendix IR2-1. The primary use of all lands within the PDA, including the LUA, is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses such as post-flood remediation actions and First Nations' traditional activities will be allowed within the LUA. Further details can be found in Appendix IR2-1.

Question 148

Volume 3B, Section 14.2.3.1, Page 14.13

Alberta Transportation states that *discussion of access to current use sites or areas will not be undertaken further* (i.e. mitigation, residual effects, etc.) as they are assumed to be within the *area of the reservoir, where sedimentation is most likely to occur, but where access to the public would be limited after construction.* However, an assumption was made that the trails, although their locations are not exactly known, could be in Area A.

a. Why was the assumption made that other current use sites (e.g. ceremonial sites, cultural landscapes, etc.) are only within the reservoir footprint and do not extend into Area A?

b. Would the assessment on access to current use sites change if other current use sites are assumed to be in Area A?

Response 148

BACKGROUND INFORMATION

Since filing of the EIA, Alberta Transportation has created a draft post-construction land use document for the Project (Appendix IR2-1). This document provides the draft principles of future land use for the PDA, which was developed through the engagement process and includes feedback received by First Nations and stakeholders. The principles apply to the land use area (LUA) outlined in yellow in Figure 1 of Appendix IR2-1. The primary use of all lands within the PDA, including the LUA, is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor.

Although there is now a new land use plan, the following provides Information relevant to each of the measurable parameters identified in Table 14-1 at the time of filing the EIA. (and it refers to the now outdated classification of Area B, Area C, and Area D).

a. The TLRU assessment does not assume that current use sites and areas are only within the reservoir footprint and do not extend into Area A.

   Volume 3B, Section 14.2.4 assesses potential Project effects on change in current use sites and areas and recognizes that the known sites identified by Indigenous groups (in Volume 3B, Section 14.2.4 and Volume 3A Section 14.2.6) are not an exhaustive list; additional sites may be present in the RAA (including Area A) even if they have not been specifically identified by Indigenous groups.

   As described in Volume 3A, Section 14.3.1, the method for identifying potential Project interactions and pathways includes results of the Indigenous engagement process for the Project where potential interactions have been identified by Indigenous groups in relation to the Project.

   In this context, the assessment acknowledges that Kainai First Nation raised a concern that there is potential for the Project to affect access to current use sites or areas, noting that physical and cultural heritage (e.g., ceremonial sites, burial sites, and cultural landscapes) would "no longer be visible so revisiting these sites will stop." It is conservatively assumed that Kainai First Nation was referring to sites in the off-stream reservoir that would be covered by sediment post-flood and, therefore, no longer visible. Because these sites mentioned by Kainai First Nation are assumed to be in areas within the PDA that, at the time of the EIA filing, would no longer be accessible due to construction and dry operations of the Project (i.e., Area B and Area C), they are not further discussed in the assessment of residual effects on changes to access to current use sites and areas. Similarly, at the time of the EIA filing, it was understood that other current use sites and areas that may exist in Area A may be temporarily inaccessible due to flood and post-flood conditions.

   The potential effects of construction and dry operations on the change in access to traditional resources or area for current use are assessed in Volume 3A, Section 14.3.3.1.

b. The assessment assumes that current use sites or areas may occur within Area A. Therefore, no change to the TLRU assessment is warranted.

Question 149

Volume 3B, Section 14.2.3.2, Page 14.13
Volume 3B, Section 12.5.1, Page 12.12

Residual effects on change in access to Area A did not speak to the access restriction during a flood as discussed in Section 12.5.1.

a. Provide a discussion on any residual effects, taking into consideration potential mitigation measures, on access to Area A as a result of access restrictions during a flood.

b. Discuss when access restrictions would potentially be lifted in a post-flood scenario.

Response 149

a-b. Since filing of the EIA, Alberta Transportation has created a draft post-construction land use document for the Project (Appendix IR2-1). This document provides the draft principles of future land use for the PDA, which was developed through the engagement process and includes feedback received by First Nations and stakeholders. The principles apply to the land use area (LUA) outlined in yellow in Figure 1 of Appendix IR2-1. The primary use of all lands within the PDA, including the LUA, is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor.

Question 150

Volume 3B, Section 14.2.6, Table 14-2, Page 14.18
Volume 3B, Section 14.2.4.3, Pages 14.16 and 14.17

In Table 14-2, Alberta Transportation states that the change in current use sites or areas is reversible, however, Section 14.2.4.3 states *the effects resulting from flood and post-flood operations of the project would be restricted to the PDA (the reservoir), short term and reversible, except for effects from deeper sedimentation... Effects on cultural sites would be long term in these areas.*

a. Explain whether Table 14-2 should also include a reference to the irreversibility for cultural sites under sediment > 10 cm, as was done for other categories where this consideration was applicable.

Response 150

a. Volume 3B, Section 14, Table 14-2 is incorrect. Residual effects on change in current use sites or areas during flood and post-flood operations should be characterized as “reversible” and “irreversible”.

As is implied in Volume 3B, Section 14.2.4.3, residual effects from deeper sedimentation would be long term and irreversible for current use sites and areas that are under greater than 10 cm of sediment. Therefore, the reversibility characterization for current use sites and areas in Table 14-2 should read "R/IR (IR for cultural sites under sediment greater than 10 cm)".

Question 151

Addendum May 14, 2018, Debris Deflector, Section 2.4, Page 2.3

Alberta Transportation states *indigenous engagement for the project is ongoing and the debris deflector will be incorporated in those ongoing engagement activities.*

a. Since the filing of the addendum in May 2018, has Alberta Transportation had the opportunity to discuss the debris deflector with the Treaty 7 First Nations?

i. If yes, were any issues or concerns raised regarding this project component? How were these issues and concerns addressed?

ii. If no, when does Alberta Transportation anticipate discussing the addendum with the Treaty 7 First Nations?

Response 151

a. The debris deflector was discussed in detail at the May 3, 2018 Technical Advisory Group meeting held by the Canadian Environmental Assessment Agency. The debris deflector has been discussed individually with Tsuut'ina Nation (May 14-15, 2018), Stoney Nakoda Nations (June 4, 2018), and Piikani Nation (September 18-19, 2018). The deflector has not yet been discussed with either Kainai First Nation or Siksika Nation.

i. No concerns regarding the debris deflector were expressed by Tsuut'ina Nation during the meeting on May 14-15, 2018.

At the meeting held on June 4, 2018, Stoney Nakoda Nations expressed concerns regarding the potential loss of fish habitat. Stoney Nakoda Nations had indicated that they would discuss fish habitat loss at their next Elders meeting but during the February 22, 2019 meeting with Alberta Transportation, fish habitat was not discussed. Alberta Transportation is not aware whether Stoney Nakoda Nations have discussed their concerns on fish habitat with their elders. At the June 4th meeting, Alberta Transportation described that there will be habitat replacement for fish habitat, as required by Fisheries and Oceans Canada (DFO). DFO will determine how much habitat will need to be replaced. Maps and figures were shown at the meeting to identify where there would be fish habitat loss.

At the meeting held on September 18-19, 2018, the debris deflector was discussed with Piikani Nation and no concerns regarding this structure were expressed.

ii. Alberta Transportation was not able to discuss the debris deflector at the August 7, 2018 meeting with Kainai First Nation because the focus was on their TUS report.

Alberta Transportation met with Siksika Nation April 26, 2017, and this was before the debris defector was added to the design. An on-reserve community meeting was held with Siksika Nation on December 10, 2018 and Alberta Transportation was unable to discuss the debris deflector due to the number of questions from the meeting participants regarding the other components and how the Project would work.

Question 152

Volume 1, Section 7.4, Tables 7-3, Pages 7.8-7.34
Volume 1, Section 7.4, Table 7-4, Pages 7.35-7.41
Volume 1, Section 7.4, Table 7-5, Pages 7.42-7.47
Volume 1, Section 7.4, Table 7-6, Pages 7.48-7.53
Volume 1, Section 7.4, Table 7-7, Pages 7.54-7.60

Alberta Transportation described the Treaty 7 First Nations concerns and follow-up responses from Alberta Transportation.

a. Confirm if this information is the same information in a summary format as presented in the Specific Concerns and Response Tables as part of the Government of Alberta's consultation documentation.

b. Describe the efforts undertaken by Alberta Transportation to discuss the concerns expressed by the Treaty 7 First Nations.

Response 152

a. Yes, the concerns listed in Volume 1, Section 7, Table 7-3 to Table 7-7 are summarized from the Specific Concerns and Response Tables (SCRT) created as part of the Government of Alberta consultation process. Duplicate concerns were removed and related concerns were grouped together. The tables and the SCRT's are organised by topic. Some concerns had been previously responded to, so these responses are included in the tables. Other concerns are more technical in nature and are responded to in more depth with information related to the various valued component assessments. All the responses from the tables were brought in to the SCRTs (see the response to IR153, Appendix IR153-1).

b. Since filing the EIA, Table 7-3 to Table 7-7 were sent to the First Nations under cover letter dated March 23, 2018, by email and registered mail. On April 16, 2018, Alberta Transportation extended offers to each First Nation to meet to review the tables. This offer was followed up on until a response was received from each First Nations. These proposed full day meetings were planned to review concerns to date and evaluate if the responses provided in the tables adequately addressed the concerns.

   Meetings were held with Siksika Nation (April 26, 2018 and December 10, 2018); Tsuut'ina Nation (May 14-15, 2018, August 8, 2018, September 21, 2018, October 11, 2018, and December 6, 2018, February 21, 2019); Stoney Nakoda Nations (June 4, 2018 and February 22, 2019); Kainai First Nation (August 7, 2018); and Piikani Nation (September 18-19, 2018 and December 17, 2018).

   Alberta anticipates building upon engagement efforts to date to continue to strengthen relationships with potentially affected Indigenous groups. Information provided throughout the regulatory phase will be used to inform Project plans and mitigation, as appropriate. Alberta Transportation is also providing written responses to the Traditional Use Studies (TUS) and technical reviews submitted by the First Nations since March 2018 that will respond to concerns and recommend mitigation measures.

Question 153

Volume 1, Section 7.4, Tables 7-3, Pages 7.8-7.34
Volume 1, Section 7.4, Table 7-4, Pages 7.35-7.41
Volume 1, Section 7.4, Table 7-5, Pages 7.42-7.47
Volume 1, Section 7.4, Table 7-6, Pages 7.48-7.53
Volume 1, Section 7.4, Table 7-7, Pages 7.54-7.60

Tables 7-3 to 7-7 summarize the issues, concerns and recommendations from Treaty 7 First Nations and the responses and outcomes from Alberta Transportation.

a. Since the filing of the EIA in March 2018, have any new issues, concerns and/or recommendations been raised by Treaty 7 First Nations? Has there been any subsequent responses and outcomes provided from Alberta Transportation?

   i. If yes, explain the new information from the Treaty 7 First Nation(s) and Alberta Transportation's response.

Response 153

a. Since the filing of the EIA, Alberta Transportation has met with the Treaty 7 First Nations, as listed in Table IR153-1.

Table IR153-1 Meetings Between Alberta Transportation and Treaty 7 Nations After EIA Filing

First Nation	Meeting Dates
Blood Tribe/Kainai	August 7, 2018
Piikani Nation	September 18-19, 2018 December 17, 2018
Siksika Nation	April 26, 2018 December 10, 2018
Stoney Nakoda Nations	June 4, 2018 September 13, 2018 February 22, 2019
Tsuut'ina Nation	May 14-15, 2018 August 8, 2018 September 21, 2018 October 11, 2018 December 6, 2018 February 21, 2019

Since March 2018, Alberta Transportation has also received a final TUS from the Blood Tribe/Kainai, and technical reviews of the EIA from the Blood Tribe/Kainai, Piikani Nation, and Tsuut'ina Nation. Alberta Transportation has provided responses to the issues and concerns raised, where possible, both at meetings and in writing, and explained the proposed mitigation measures. Written responses to the technical reviews provided by the First Nations are forthcoming. Further consultation is anticipated to ensure all issues and concerns are responded to.

i. Appendix IR153-1 provides the consolidated record of consultation logs and specific concerns and response tables which detail First Nation concerns, recommendations, and Alberta Transportation's responses up to February 28, 2019.

Question 154

Volume 1, Section 7.4, Table 7-4, Page 7.38

Alberta Transportation states *Alberta Transportation has requested the location of the two traplines and where the Stoney members trap in order to determine if there is potential impact from the Project.*

a. Has this information been provided to Alberta Transportation? If so, will the assessment of potential impacts on TLRU change when incorporating this information?

Response 154

a. Volume 3A, Section 14.2.6, Page 14.81 states, "Stoney Nakoda Nations identified traplines[2] and trapping near the Project; however, exact locations had not yet been provided as of March 16, 2018. If any of these sites are located within the PDA, it is anticipated that they will be adversely affected and cannot be restored or replaced within the RAA". At a meeting on 4 June 2018, Stoney Nakoda Nations advised that the traplines are located west of Bragg Creek and there are no active traplines in the PDA. Because the traplines have been confirmed to be located outside the PDA, they are not anticipated to be adversely affected by Project activities. The TLRU assessment nonetheless conservatively assumed trapping and other TLRU activities may occur with the RAA.

Question 155

Volume 4, Appendix B, Section 3.1.1, Page 3.4
Volume 4, Appendix B, Section 3.1.2.1, Page 3.10
Volume 4, Appendix B, Section 3.1.3.1, Page 3.15
Volume 4, Appendix B, Section 3.1.4.1, Page 3.22
Volume 4, Appendix B, Section 3.1.5.1, Page 3.28 and 3.30

Site visit dates were provided for the Treaty 7 First Nations.

a. Provide a list per Treaty 7 First Nation of site visit dates including any site visits completed since filing of the EIA.

[2] Based on available information, these are not registered traplines.

Response 155

a. Since August 2014 the following site visits with Treaty 7 First Nations have occurred:

Kainai First Nation:

- April 7, 2016 (driving tour)
- June 27-July 1, 2016
- July 11-14, 2016
- July 20, 2016
- July 22, 2016
- September 6-7, 2016
- Completed a site visit in May 2018 as part of their review of the EIA for Canadian Environmental Assessment Agency (CEA Agency) without Alberta Transportation involvement.

Piikani Nation:

- July 20, 2016 (driving tour)
- August 8-10, 2016
- August 15-17, 2016
- August 30-31, 2016
- October 3-7, 2016
- No site visits have been completed since filing the EIA

Siksika Nation:

- April 27, 2016 (driving tour)
- July 19-21, 2016
- August 9-10, 16, 2016
- September 13, 2016
- No site visits have been completed since filing the EIA

Stoney Nakoda Nations:

- October 20, 2016 (driving tour)
- October 24-28, 2016
- October 31 – November 4, 2016
- No site visits have been completed since filing the EIA

Tsuut'ina Nation:

- October 12-21, 2016
- July 13-14, 2017
- July 18-21, 2017
- July 24-25, 2017
- August 9-10, 2017
- March 5, 6, 2018 (driving tours)
- Completed site visits July 19-26, 2018 without Alberta Transportation involvement.

Question 156

Volume 4, Appendix D

TOR 1[B] requires Alberta Transportation to describe how Aboriginal community input was incorporated into aspects of the EIA including reclamation. It is unclear where in Volume 4, Appendix D Aboriginal input on reclamation was incorporated.

a. Explain how Treaty 7 First Nations input on reclamation was incorporated into the conservation and reclamation section of the EIA.

Response 156

a. Input provided by Treaty 7 First Nations on reclamation is summarized in Volume 3A, Section 14, Table 14-6 and reproduced here as Table IR156-1 for ease of reference.

Alberta anticipates building upon engagement efforts to date to continue to strengthen relationships with potentially affected Indigenous groups. Information provided throughout the regulatory phase will be used to inform Project plans and mitigation, as appropriate.

Additionally, through the engagement process that gathered feedback from First Nations, a draft principles of future land use for the Project has been developed (see the response to IR2, Appendix IR2-1). The primary use of all lands within the PDA is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses include traditional activities, including the exercise of treaty rights such as hunting will be allowed to occur within the land use area (LUA) identified in Figure 1 of Appendix IR2-1. As such, the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to exercise TLRU.

Table IR156-1 Mitigation for Change in Availability of Traditional Resources for Current Use (from Volume 3A, Section 14, Table 14-6)

Recommendations and Mitigation Requests from Indigenous groups	Mitigation Measures to be Implemented on the Project
Kainai First Nation, Siksika Nation and Stoney Nakoda Nations asked for the protection of sloughs associated with Elbow River and riparian areas within the Project area in the TUS report (KCO & SCO 2017) and through the engagement process for the Project.	Wetlands are present in the LAA, with most occurring along drainages and adjacent to Elbow River. To the extent possible, wetlands would be avoided (including temporary disturbance). Where avoidance is not possible, disturbance will be minimized. Permanent project disturbances would result in the permanent clearing of vegetation and wetlands. During the construction phase, areas of temporary disturbance would only have above ground vegetation clearing, leaving the soils intact, though there are some areas of soil disturbance; wetlands will be recontoured and seeded with an approved custom native wetland seed mix. Construction and dry operation of the Project would result in the loss of 31 ha of wetland area in the PDA. However, permanent disturbance of wetland area will be replaced or compensated for in accordance with the Alberta Wetland Policy (see Volume 3A, Section 10.1.1). No vegetation and wetland land units would be completely lost, and no lasting effects to vegetation and wetlands would be anticipated. Accordingly, with application of mitigation recommended in the Vegetation and Wetlands section (see Volume 3A, Section 10), no additional mitigation is needed.
Siksika Nation and Kainai First Nation recommended relocating medicinal and ceremonial plants to another area where they would not be affected by the Project for future use (KCO & SCO 2017).	Alberta Transportation will provide opportunities for harvesting or relocating medicinal and ceremonial plants prior to construction.
Through the engagement process for the Project, Stoney Nakoda Nations reported concern with the lack of wildlife crossings currently incorporated into the Project design, including the adjacent highways (i.e., Highway 22, Highway 8) and asked that wildlife crossings be implemented into the Project design.	With respect to project design, the side slopes and bottom of the diversion channel will be vegetated, with the following exceptions. Where the diversion channel passes through bedrock, the channel would remain as an exposed bedrock cut. Articulated concrete matting will be provided in select areas of the channel where pipelines cross. Riprap erosion protection will be provided at critical areas including at bridge crossings, around the emergency spillway and for a 1.4 km stretch at the diversion channel outlet structure. The south portion, farthest from Elbow River, will be a 450-m earthen embankment vegetated with native grasses. The floodplain berm will also be covered with materials conducive to ungulate movement (see Section 11).

Table IR156-1 Mitigation for Change in Availability of Traditional Resources for Current Use (from Volume 3A, Section 14, Table 14-6)

Recommendations and Mitigation Requests from Indigenous groups	Mitigation Measures to be Implemented on the Project
Through the engagement process for the Project, Louis Bull Tribe expressed concern regarding reclamation of the Project area.	At the end of construction, areas disturbed by construction that are not required for operation and maintenance will be topsoiled and seeded to meet Alberta Environment and Parks reclamation requirements.
Through the engagement process for the Project, Ermineskin Cree Nation asked that any project built in the area preserve and allow for natural growth.	Herbicide use in the immediate vicinity of a watercourse will not be allowed unless approved by DFO and AEP. Weeds will be controlled during construction through multiple measures, such as herbicide, mowing, wicking, and hand picking. After construction, disturbed areas will be stabilized and reclaimed. Temporary work spaces will be reclaimed using native species that are compatible with pre-construction site conditions, as outlined in the reclamation plan (see Volume 4, Appendix D). At the end of construction, areas disturbed by construction that are not required for operation and maintenance will be topsoiled and seeded to meet Alberta Environment and Parks reclamation requirements.

Question 157

Volume 3A, Section 14.2.7, Page 14.60
Volume 3A, Section 14.3.5.1, Page 14.82
Volume 3A, Section 8.2.2.1, Page 8.20
Volume 3A, Section 14.2.7, Page 14.60
Volume 3A, Section 12.2.2.1, Page 12.19

The concordance table lists Sections 8.2.2, 12.2.2, 14.2.7 and 14.3.5 as the sections that speak to current and potential use of the fish resources by Aboriginal, sport or commercial fisheries. Sections 14.2.7 and 14.3.5 do not speak to the current and potential use of the fish resources by Aboriginal, sport or commercial fisheries. It speaks to other Indigenous commercial activities. Section 8.2.2 directs the reader to Section 12 and 14. Section 12 provides a high level summary that Treaty 7 First Nations harvesting activities for subsistence may include fishing (and other activities).

a. Where in the EIA is the information regarding current and potential use of the fish resources by Aboriginal fisheries? If this information is not in the EIA provide this information or explain why this information was excluded.

Response 157

a. Incorrect cross referencing is in the concordance table with respect to current and potential use of fish resources by commercial, recreational and Aboriginal (CRA) fisheries.

   The assessment of CRA fisheries is provided in Volume 3A, Section 8. Table 8-4 lists the traditional fisheries resources within the TLRU RAA and refers to Volume 3A, Section 14.2.4 for additional details regarding the current and potential use of Aboriginal fisheries, which are assessed as traditional resources according to the interpretation provided in the *Fisheries Act*.[3]

   There are no commercial fishing licenses issued for Elbow River to Indigenous groups and there are no treaty or Indigenous rights to commercial fishing in Alberta.

Question 158

Volume 3A, Section 11.2.2.2, Page 11.23
Volume 3A, Section 8.2.2.3, Table 8-4, Page 8.28

Alberta Transportation states *of the 86 wildlife SOMC that have the potential to occur in the RAA, 31 are wildlife species of traditional importance to Indigenous communities.*

a. Provide a table of the 31 species of traditional importance similar to Table 8-4.

Response 158

a. There are two tables that refer to wildlife species of traditional importance

   - Volume 3A, Section 14, Table 14-3
   - Volume 4, Appendix H, Section 3, Table 3-12

   Table 14-3 (reproduced as Table IR158-1) lists the number of traditionally important wildlife species identified by each Indigenous group, similar to Table 8-4 (for fish species of traditional importance). The number of traditionally important wildlife differs between Table 14-3 (i.e., 36) and Table 3-12 (i.e., 31). Differences between tables arise from species being grouped in Table 14-3 (e.g., owls, grouse) and differences in the spatial boundaries of the regional assessment areas (RAAs). The wildlife RAA (context for Table 3-12) is smaller than the traditional land and resource use RAA (context for Table 14-3), which incorporates the Elbow River watershed; therefore, Table 14-3 will include species that fall outside the wildlife RAA.

[3] As per Section 2.1 of the *Fisheries Act*, Aboriginal, in relation to a fishery, means that fish is harvested by an Aboriginal organization or any of its members for the purpose of using the fish as food, for social or ceremonial purposes or for purposes set out in a land claims agreement entered into with the Aboriginal organization

Table IR158-1 Traditional Resources within the RAA (from Volume 3A, Section 14, Table 14-3)

	Traditionally Used Resource	Kainai First Nation	Piikani Nation	Siksika Nation	Stoney Nakoda Nations	Tsuut'ina Nation	Ermineskin Cree Nation	Foothills Ojibway	Louis Bull Tribe	Montana First Nation	Samson Cree Nation	Métis Nation of Alberta, Region 3	Métis Nation British Columbia
Wildlife	badger		✓										
	bear (black, grizzly)		✓		✓		✓	✓		✓	✓	✓	✓
	beaver	✓	✓		✓		✓			✓	✓	✓	
	bobcat, bobtail						✓					✓	
	cougar						✓				✓	✓	
	coyote	✓	✓			✓		✓				✓	
	deer (mule, white-tailed)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	duck (American coot)	✓	✓	✓		✓	✓		✓		✓	✓	✓
	eagle (golden, bald)	✓	✓		✓	✓							
	elk	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	fox (red)	✓	✓			✓						✓	
	fisher									✓			
	goose (Canada, white, dark)	✓	✓	✓		✓	✓		✓		✓	✓	✓
	gopher		✓										
	grebe											✓	
	grouse (including prairie[1], mountain[2])		✓	✓			✓				✓		✓
	hare, rabbit	✓	✓		✓	✓	✓		✓		✓	✓	✓
	lynx						✓			✓	✓	✓	
	marten									✓			
	moose	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
	mountain goat[3]	✓	✓			✓	✓						✓
	mink	✓								✓	✓		
	muskrat	✓			✓		✓		✓	✓	✓	✓	

Table IR158-1 Traditional Resources within the RAA (from Volume 3A, Section 14, Table 14-3)

	Traditionally Used Resource	Kainai First Nation	Piikani Nation	Siksika Nation	Stoney Nakoda Nations	Tsuut'ina Nation	Ermineskin Cree Nation	Foothills Ojibway	Louis Bull Tribe	Montana First Nation	Samson Cree Nation	Métis Nation of Alberta, Region 3	Métis Nation British Columbia
	Owl		✓										
	partridge (chukar)	✓	✓										✓
	pheasant											✓	✓
	porcupine	✓	✓			✓							
	ptarmigan												✓
	sheep (bighorn sheep)[3]	✓	✓	✓		✓	✓	✓		✓	✓		✓
	skunk										✓		
	Sprague's pipit										✓		
	squirrel	✓	✓			✓	✓			✓	✓		
	swan	✓	✓	✓		✓					✓		
	weasel						✓				✓		
	wolverine[3]							✓			✓	✓	
	wolf	✓	✓			✓	✓	✓			✓		

NOTES:
[1] Assumed to be sharp-tailed grouse.
[2] Assumed to be spruce and ruffed grouse.
[3] Species occurring outside the wildlife RAA.

Question 159

Volume 3C, Section 2.1.3, Page 2.2

Alberta Transportation states that they are *willing to discuss possible monitoring and economic opportunities with Indigenous groups.*

a. Have discussions occurred with the Treaty 7 First Nations regarding the proposed monitoring program?

i. If yes, describe what discussions occurred and what the outcomes of the discussions were.

ii. If no, explain why this discussion has not yet occurred.

b. Describe what monitoring was performed in conjunction with the Treaty 7 First Nations.

Response 159

a. Discussions have occurred with each Treaty 7 First Nation regarding monitoring and economic opportunities. Table IR159-1 lists the dates and types of consultation that included monitoring and economic opportunities as part of the Project. Appendix IR159-1 provides the portion of the specific concerns and response tables (SCRT) regarding monitoring and economic opportunities as part of the Project. Refer to the response to IR160 regarding the outcomes of discussions with each Treaty 7 First Nation about monitoring and economic opportunities.

Table IR159-1 Date and Consultation Type with Treaty 7 First Nations for Project Monitoring and Economic Opportunities

Treaty 7 Nation	Date and Consultation Type
Blood Tribe	November 25, 2014 – Meeting September 15, 2016 - Meeting March 13, 2017 – Traditional Use Studies (TUS) June 15, 2018 – Letter from JFK October 29, 2018 – Open house
Piikani Nation	September 15, 2016 - meeting June 15, 2018 – statement of concern June 15, 2018 – technical review September 18-19, 2018 – meetings December 17, 2018 - meeting

Table IR159-1 Date and Consultation Type with Treaty 7 First Nations for Project Monitoring and Economic Opportunities

Treaty 7 Nation	Date and Consultation Type
Siksika Nation	August 10, 2016 – site visit September 15, 2016 - meeting March 13, 2017 – TUS April 26, 2018 – meeting
Stoney Nakoda Nations	February 22, 2019 – meeting
Tsuut'ina Nation	October 28, 2016 – meeting April 3, 2018 – TUS May 14-15, 2018 - meetings August 8, 2018 - meeting September 21, 2018 – meeting
Ermineskin Cree Nation	June 25, 2018 – Technical review (PGL) June 25, 2018 – TUS June 26, 2018 - meeting
Louis Bull Tribe	November 6, 2018 – meeting November 19, 2018 – open house November 22, 2018 - TUS
MNA R3	August 3, 2017 – letter February 22, 2018 - meeting
Montana Frist Nation	June 27, 2018 – meeting
Samson Cree Nation	November 29, 2016 - meeting

b. Alberta Transportation clarifies that no monitoring programs were previously undertaken and that there are no current monitoring programs occurring for the Project.

Question 160

Volume 3C, Section 2.0, Pages 2.1-2.16

TOR 1[B] requires Alberta Transportation to discuss how Aboriginal community input was incorporated into monitoring for the Project. It is unclear how Alberta Transportation incorporated Aboriginal community input into current and proposed monitoring programs.

a. Describe how Treaty 7 First Nations input was incorporated into the Project's current and proposed monitoring programs.

Response 160

a. Alberta Transportation clarifies that there are no current monitoring programs occurring for the Project.

Alberta Transportation is preparing draft monitoring programs for hydrogeology (see the response to IR46, Appendix IR46-1), surface water (see the response to IR302, Appendix IR302-1), vegetation (see the response to IR407, Appendix IR407-1), and wildlife (see the response to IR425, Appendix IR425-1), for which Treaty 7 First Nations have previously identified concerns or recommendations. Each of these proposed programs and the related concerns or recommendations shared by participating Treaty 7 First Nations are discussed below.

At the request of the interested Indigenous groups, Alberta Transportation will make available monitoring data. The method by which this data is shared with Indigenous groups and the type of monitoring data provided will be determined through ongoing engagement with the interested Indigenous group.

HYDROGEOLOGY

The draft groundwater monitoring plan is designed to determine whether there are changes to the volume or quality of the groundwater in the hydrogeology LAA and RAA as a result of construction or operations. Because the potential interactions that could lead to effects on groundwater resources vary depending upon the specific location and Project phase, the groundwater monitoring program will employ appropriate methods for pre-construction, construction, dry operations, and flood/post-flood operations. Monitoring well locations have not yet been finalized, but locations will consider practical field constraints, land access, and input from Indigenous groups. Selection of groundwater monitoring wells will be based on the need to detect potential changes to groundwater levels and quality that could arise from interactions between the Project and groundwater resources. At the request of the interested Indigenous groups, Alberta Transportation will make available monitoring data for those programs, as described in Volume 3C, Section 2.0. The method by which this data is

shared with Indigenous groups and the type of monitoring data provided will be determined through ongoing engagement with the interested Indigenous group.

Table IR160-1 describes the specific requests or recommendations related to groundwater monitoring that have been made by Treaty 7 First Nations through the consultation process for the Project and in submissions made by Indigenous groups to regulatory agencies.

Table IR160-1 Treaty 7 First Nations Groundwater Monitoring Requests and Recommendations

Groundwater Monitoring Requests or Recommendations	Source	EIA Reference (if applicable)[4]
Kainai First Nation		
"Please require the proponent to install monitoring wells on Tsuut'ina IR 145 that are representative of Tsuut'ina members' private water wells and use the hydraulic head data from these monitoring wells to calibrate the Numerical Groundwater model."	JFK Law Corporation 2018a (CEAR #47), p. 2	--
"Please require the proponent to conduct a water well survy of the Tsuut'ina private water wells and monitor water levels, prior to and during construction and during dry operations until groundwater under project conditions reaches static conditions and well interference can be assessed."	JFK Law Corporation 2018a (CEAR #47), p. 3-4	--
"In the revised Numerical Groundwater report, please use monitoring wells located on Tsuut'ina IR 145, both surficial and upper bedrock aquafers, to calibrate the model."	JFK Law Corporation 2018a (CEAR #47), p. 3-4	--
Piikani Nation		
"Baseline assessments involve multiple rounds of water quality samples through all the seasons, with statistics applied to establish both Baseline values spatially in the monitored units, as well as the range of natural variation in parameters (if any), by location and aquifer. The results as presented were not considered Baseline, but rather a snapshot in time of conditions in fall 2016, during low water. Additional monitoring is required to validate assessment predictions to better understand potential effects on groundwater quality and quantity in the RAA."	Piikani Nation Statement of Concern (CEAR 48)	--
"Long-term effects on groundwater resources downgradient of the Project did not appear to have been explicitly addressed in the numerical groundwater flow model. No sensitivity analysis or assessment of the model limitations and uncertainties appeared to have been performed on the model. Further monitoring of the existing network along with additional further water level monitoring at locations at further distances from the PAA are recommended to help verify model predictions and reduce uncertainty."	Piikani Nation Statement of Concern (CEAR 48)	--

[4] -- indicates the referenced information was received following the submission of the EIA.

Table IR160-1 Treaty 7 First Nations Groundwater Monitoring Requests and Recommendations

Groundwater Monitoring Requests or Recommendations	Source	EIA Reference (if applicable)[4]
"Piikani Nation requests that Alberta Transportation: i. monitor the effects of dewatering during construction; and ii. perform adequate groundwater (levels and quality) monitoring during construction and dry operation of the Project to confirm the localized effects of the derivation ditch on groundwater surface water interaction."	Piikani Nation Statement of Concern. Annex 2 – Technical Review of EIS (CEAR 48)	--
"Piikani Nation requests that Alberta Transportation: iii. consults with community members to inform and participate in monitoring activities related to culturally sensitive areas and considers incorporating the role groundwater plays in sustaining identified areas for monitoring and mitigation."	Piikani Nation Statement of Concern. Annex 2 – Technical Review of EIS (CEAR 48)	--
Groundwater levels: Existing wells within the project footprint area were tested to establish baseline data and will be monitored as required during operation of the off-stream reservoir to determine if the temporarily stored flood water is causing contamination of the ground water. Piikani Nation is interested in being involved with that. We have technicians who work alongside our Elders, and scientists. There is an opportunity for an education and practicum component that our technicians could be a part of	Engagement meeting, September 18-19, 2019	--
Tsuut'ina Nation		
"Please require the proponent to install monitoring wells on Tsuut'ina IR 145 that are representative of Tsuut'ina members' private water wells and use the hydraulic head data from these monitoring wells to calibrate the Numerical Groundwater model."	JFK Law Corporation 2018b (CEAR #50), p. 2	--
"Please require the proponent to conduct a water well survey of the Tsuut'ina private water wells and monitor water levels, prior to and during construction and during dry operations until groundwater under project conditions reaches static conditions and well interference can be assessed."	JFK Law Corporation 2018b (CEAR #50), p. 3	--
"In the revised Numerical Groundwater report, please use monitoring wells located on Tsuut'ina IR 145, both surficial and upper bedrock aquafers, to calibrate the model."	JFK Law Corporation 2018b (CEAR #50), p. 10	--

SURFACE WATER QUALITY

Water quality follow-up and monitoring will be implemented to measure any changes in the water quality in Elbow River because of construction and, after a diverted flood, the release of impounded water from the reservoir. Follow-up and monitoring will also confirm success of the erosion and sediment control measures for the Project. Because of the related and overlapping dynamics among the hydrology, water quality and aquatic ecology, the draft surface water monitoring plan integrates monitoring elements of each into a single program. This approach reduces redundancies and improves collaboration among these related programs. During construction, suspended solids and turbidity will be monitored. During operations (including dry operations, flooding and post-flooding), monitoring will be conducted on:

- Elbow River stream flows
- reservoir depth and volume
- turbidity and suspended solids
- fish stranding and rescue
- water quality

Table IR160-2 describes the specific requests or recommendations related to surface water monitoring have been made by Treaty 7 First Nations through the consultation process for the Project and in submissions made by Indigenous groups to regulatory agencies.

Table IR160-2 Treaty 7 First Nations Surface Water Monitoring Requests and Recommendations

Surface Water Monitoring Requests and Recommendations.	Source	EIA Reference (if applicable)[5]
Piikani Nation		
"Piikani Nation requests that Alberta Transportation: ii. ensures that water quality monitoring programs (Volume 3C, Section 2) following flood events include consistently instructing the analytical laboratory to provide "low level" detection limits for nutrients (notably phosphorus) and other parameters to ensure trophic categories can be assessed and guidelines are adhered to"	Piikani Nation Statement of Concern. Annex 2 – Technical Review of EIS (CEAR 48), p. 35	--
"Piikani Nation requests that Alberta Transportation: iii. is required to monitor inorganic mercury and methylmercury in reservoir sediments, water overlying sediments, at the low-level outlet during water release, and in fish tissue just prior to salvaging fish back to the Elbow River."	Piikani Nation Statement of Concern. Annex 2 – Technical Review of EIS (CEAR 48), p. 36	--

[5] -- indicates the referenced information was received following the submission of the EIA.

Table IR160-2 Treaty 7 First Nations Surface Water Monitoring Requests and Recommendations

Surface Water Monitoring Requests and Recommendations.	Source	EIA Reference (if applicable)[5]
Water quality: Modelling and studies show there's not enough time for methylmercury levels to increase in the reservoir. Prior to releasing the temporarily stored flood waters back into the Elbow, the water will be sampled so we know the quality of the water released into Glenmore Reservoir	Engagement meeting, September 18-19, 2019	--

WILDLIFE

The draft wildlife mitigation and monitoring plan is designed to monitor the effectiveness of mitigation designed to reduce predicted changes in wildlife habitat, wildlife movement and mortality risk.

Mitigation monitoring for changes in habitat will focus on the amount (ha) of direct habitat loss accrued during each construction year.

Mitigation monitoring for changes in mortality risk will focus on the construction phase and will include metrics such as the number of animal-vehicle collisions during construction within the wildlife LAA (i.e., Highway 1, Highway 8, Springbank Road) as well as the number of reported wildlife–human conflicts and number of nuisance animals removed from the Project site.

To determine if Project structures act as a barrier to wildlife movement and evaluate the effectiveness of mitigation measures, a remote camera monitoring program will be implemented. During post-flood operations, a wildlife habitat assessment will be conducted following drainage of the off-stream reservoir to evaluate habitat suitability for key individual species of management concern (SOMC) or species groups. Habitat assessments will be conducted along a series of transects selected from pre-existing maps to be representative of local habitat diversity.

Table IR160-3 describes the specific requests or recommendations related to wildlife monitoring have been made by Treaty 7 First Nations through the consultation process for the Project and in submissions made by Indigenous groups to regulatory agencies.

Table IR160-3 Treaty 7 First Nations Wildlife Monitoring Requests and Recommendations

Wildlife Monitoring Requests and Recommendations.	Source	EIA Reference (if applicable)[6]
Kainai First Nation		
"Although project effects on species richness and relative abundance are difficult to assess without monitoring, the Project has potential to affect bird and amphibian species richness and relative abundance through the loss and alteration of land cover types ... Provide details on a robust monitoring program to monitor project effects on wildlife and biodiversity during construction and operation."	JFK Law Corporation 2018a (CEAR #47), p. 5	--
Piikani Nation		
"A follow-up and monitoring program was proposed by Alberta Transportation to be designed to verify predictions made on Project effects to wildlife movement in the LAA during construction and dry operation, monitor wildlife use of the diversion channel during dry operation, and where appropriate determine effectiveness of mitigation to reduce Project effects on wildlife movement. Alberta Transportation should provide a more detailed description of its monitoring program and provide capability for the Piikani Nation to participate in the monitoring program."	Piikani Nation Statement of Concern. Annex 2 – Technical Review of EIS (CEAR 48), p. 67	--
"The EIA contained a list of broad mitigations and monitoring actions to reduce Project effects on biodiversity, but it did not present criteria or thresholds to use for monitoring and measuring the effectiveness of mitigations to re-establish biodiversity to support traditional land uses on reclaimed areas. It is Piikani Nation's view that monitoring plans for biodiversity should be completed as a condition for approval and that the plans should be submitted to Piikani Nation for examination and input."	Piikani Nation Statement of Concern. Annex 2 – Technical Review of EIS (CEAR 48), p. 70	--
Wildlife: trail cameras will be installed at key locations to monitor wildlife movement through and around the project components; monitoring for nests and species at risk will be done prior to construction. More detailed monitoring plans will be developed in accordance with the project specific Environmental Construction Operations Plan (ECO Plan)	Engagement meeting, September 18-19, 2019	--

[6] -- indicates the referenced information was received following the submission of the EIA.

Table IR160-3 Treaty 7 First Nations Wildlife Monitoring Requests and Recommendations

Wildlife Monitoring Requests and Recommendations.	Source	EIA Reference (if applicable)[6]
Stoney Nakoda Nations		
Wildlife studies are needed to understand the movement of wildlife in and out of that area. The Stoney Nakoda Nation have seen evidence of bison habitat there from years gone by. Grizzly bears have been seen in the area and Stoney Nakoda Nations know this is a corridor or path for animals to travel. A wider long-term migration study or cumulative effects study for the region is needed. More wildlife are seen in agricultural areas, getting closer to urban areas and away from the mountains. This is evident from moose trying to traverse Deerfoot Trail. This is related to logging operations in mountains or eastern slopes area. This might not be a big area for migration, but it is still an important area for wildlife, that is why there a wildlife crossing is needed. Stoney Nakoda Nations cited long standing issues with wildlife management.	Engagement meeting, September 14, 2017	--
Tsuut'ina Nation		
"Although project effects on species richness and relative abundance are difficult to assess without monitoring, the Project has potential to affect bird and amphibian species richness and relative abundance through the loss and alteration of land cover types ... Provide details on a robust monitoring program to monitor project effects on wildlife and biodiversity during construction and operation."	JFK Law Corporation 2018b (CEAR #50), p. 5	--
Tsuut'ina Nation noted that Indigenous Inclusion planning and monitoring should be included as part of the Project and recommended that Tsuut'ina Nation formulate a Compliance Verification Model to mitigation and monitor the region over the life-cycle of the Project. This would include, but not be limited to, monitoring for air quality emissions, medicinal plants, wildlife corridors, and habitat, and would work towards a sustainable future for Tsuut'ina Nation.	Engagement meeting, October 28, 2016	--
Tsuut'ina Nation requested monitoring during construction for wildlife. The concern is that wildlife will be impacted, and animal habitat continuity needs to be ensured. This is a discussion that relates to Treaty impacts. Tsuut'ina Nation have concerns about grizzly bear, black bear, elk, and various other species.	Engagement meeting, September 21, 2018	--
Tsuut'ina Nation requested involvement in pre- and post-monitoring. There is a large wildlife corridor that runs through the area and Tsuut'ina want to make sure the elk continue to use that cooridor. Tsuut'ina Nation want to be involved with the placement and installations of remote cameras.	Engagement meeting, September 21, 2018	--

VEGETATION

The draft vegetation and wetland mitigation, monitoring and revegetation plan is designed to determine the effectiveness of mitigation measures to address changes to vegetation and wetlands, achievement of revegetation goals, and define additional actions that may be needed if mitigation measures are not effective. If selected targets and goals are not achieved in the specified time frame for a land use area, potential reasons will be evaluated and the need for further mitigation (e.g., weed control) or revegetation measures (e.g., supplemental seeding) determined.

Table IR160-4 describes the specific requests or recommendations related to vegetation monitoring have been made by Treaty 7 First Nations through the consultation process for the Project and in submissions made by Indigenous groups to regulatory agencies.

Table IR160-4 Treaty 7 First Nations Vegetation Monitoring Requests and Recommendations

Vegetation Monitoring Requests and Recommendations.	Source	EIA Reference (if applicable)[7]
Kainai First Nation		
"Post construction and post flood monitoring of vegetation and ecosystems is not discussed as part of the environmental impact assessment. Post-construction monitoring of reclaimed areas and post-flood conditions will be important to determine the effectiveness of mitigation measures."	JFK Law Corporation 2018a. Annex 2 Technical Review of EIS (CEAR #47), p. 3	--
Piikani Nation		
"The EIA presented some brief statements about monitoring [vegetation and wetlands], but there was no indication that the Piikani Nation would be engaged in monitoring [vegetation and wetlands], including in the planning and implementation phases of monitoring. It is necessary that Alberta Transportation engages affected Indigenous communities when developing [vegetation and wetlands] reclamation monitoring plans to help define meaningful monitoring criteria and indicators for traditional land use objectives and targets. Piikani Nation is concerned that [vegetation and wetlands] monitoring will not involve Indigenous communities and requests that Alberta Transportation provides opportunities and financial capacity for the community to meaningfully participate in the planning and implementation of [vegetation and wetlands] monitoring to help define meaningful monitoring targets, criteria and indicators for traditional land use objectives."	Piikani Nation Statement of Concern. Annex 2 – Technical Review of EIS (CEAR 48), p. 51	--

[7] -- indicates the referenced information was received following the submission of the EIA.

Table IR160-4 Treaty 7 First Nations Vegetation Monitoring Requests and Recommendations

Vegetation Monitoring Requests and Recommendations.	Source	EIA Reference (if applicable)[7]
"Piikani Nation requests that Alberta Transportion, in collaboration with Piikani Nation, develops Project-specific triggers and limits for the Project's mitigation, management and monitoring plans that reflect Community TEK and ecological and cultural values."	Piikani Nation Statement of Concern. Annex 2 – Technical Review of EIS (CEAR 48), p. 90	--
Siksika Nation		
Siksika Nation expressed concerns about the potential impact to medicinal and ceremonial plants. Siksika Nation requested the opportunity to monitor the Project area before and after a flood to understand what is growing in the Project area. Some plants may or may not grow back and Siksika Nation wants to avoid overharvesting. Siksika Nation stated that transplanting is a good idea but stated that Elders and knowledge holders would need to determine where suitable habitat is for transplanting. Siksika Nation stated that late May through late June is the ideal time period to conduct this type of study.	Engagement meeting, April 26, 2018	--
Tsuut'ina Nation		
"For every tree removed, the same type of tree should be replanted by First Nations close to where it was removed"	Tsuut'ina Nation and Trailmark Systems. Tsuut'ina Traditional Land Use Report for the Proposed Springbank Off-Stream Reservoir Project. Confidential TUS Report, submitted to by Tsuut'ina Nation Alberta Transportation March, 2018	--
Tsuut'ina Nation noted that Indigenous Inclusion planning and monitoring should be included as part of the Project and recommended that Tsuut'ina Nation formulate a Compliance Verification Model to mitigation and monitor the region over the life-cycle of the Project. This would include, but not be limited to, monitoring for air quality emissions, medicinal plants, wildlife corridors, and habitat, and would work towards a sustainable future for Tsuut'ina Nation.	Engagement meeting, October 28, 2016	--

SUMMARY

Final monitoring programs will comply with all approval conditions (both provincial and federal). The programs will respond to future refinement of Project planning/design and the results of ongoing engagement with Indigenous groups and stakeholders.

Question 161

Volume 3C, Section 2.0, Pages 2.1-2.16

It is unclear whether a commitment has been made to disseminate monitoring data to Aboriginal communities.

a. How will monitoring data be disseminated to Aboriginal communities?

b. What type of monitoring data will be provided?

Response 161

a-b. At the request of interested Indigenous groups, Alberta Transportation will make available monitoring data for those programs described in Volume 3C, Section 2.0. The method by which this data is shared with Indigenous groups and the type of monitoring data provided will be determined through ongoing engagement.

General
May 2019

3.2 NOISE

Question 162

Volume 1, Section 4.3, Page 4.1

Alberta Transportation states *The Project will comply with noise level restrictions required by the County of Rocky View or potential conditions within the development permit issued by the County for the Project.*

a. Alberta Transportation does not indicate what the noise level restrictions are for the County of Rocky View. Provide the noise level restrictions. Are there any phases of the Project where noise is expected to exceed the restrictions set by the County of Rocky View? If so, how will this noise be mitigated to ensure no noise exceedances? How will noise be monitored to ensure that noise exceedance does not occur and that the proposed mitigation measures are working throughout the various phases of the project?

b. Has Alberta Transportation applied for the development permit? If so, what are the noise conditions specified in the development permit? If not, when does Alberta Transportation plan to apply for the development permit? Once this permit has been issued how will the potential noise conditions specified within this permit be communicated to AEP?

Response 162

a. Rocky View County Bylaw No. C-5772-2003 pertains to noise. The bylaw does not contain quantitative limits for noise. Exemptions listed in the Bylaw relevant to the Project include:

   (i) "construction activities and related Noise during the daytime"

   (ii) "work performed in relation to a highway or public utility by the owner or operator of the public utility, or its contractor"

   Given the exemptions listed above, Rocky View County may apply conditions within the development permit relating to nighttime construction activities. Alberta Transportation will require its construction contractor to adhere to all conditions within the development permit. Alberta Transportation's contractor management and auditing processes are detailed in Volume 4, Appendix C. Noise mitigation measures are listed in Volume 3A, Section 4.4.2.2 and Volume 4, Appendix C, Table C-1, page C.4. The Rocky View County Bylaw is provided in Appendix IR162-1.

b. Alberta Transportation has not yet applied for a development permit, but it will do so after the Project has received regulatory approval. When the development permit has been issued, a copy will be provided to AEP.

Question 163

Volume 3A, Section 4.1.1, Page 4.1
Volume 3A, Section 4.1.2, Page 4.1

Alberta Transportation states *the overall assessment scope of the acoustic environment is guided by the Canadian Environmental Assessment Agency (CEA Agency)* and that *The effects of the assessment focuses on humans; it does not discuss effects on wildlife*.

Alberta Transportation then goes on to state *The effect of noise on animal behavior is further discussed in Volume 3A, Section 11*.

These statements are contradictory.

a. **Was the effect of noise on animal behavior addressed in volume 3A, Section 11? If so, list the specific sections where the effects of noise are addressed. Correct the required statements and update the section to correct the contradiction.**

b. **If no effects of noise were addressed in Volume 3A, Section 11 then questions (b) – (f) apply. Explain why noise resulting from all stages of the project did not include wildlife especially when project construction is to occur 24 hours a day. List the species in the area that could be affected from noise. Be sure to include species that may be drawn to the PDA as a result of the noise and those that may move further away from the PDA to avoid the noise.**

c. **How does noise impact the species movement and mortality risk (if species are drawn to the noise would this increase the number of vehicle collisions as they would be drawn to the PDA)?**

d. **If any species are to avoid the noise where is it expected that these species will move to?**

e. **If any of the species from (c) move to another area is there a chance that predator prey relationships might change? Explain and provide the rationale behind the conclusion.**

f. **What are the proposed mitigation measures on the wildlife that could be affected by noise? Explain how these mitigation measures will be implemented and followed throughout the life of the project.**

Response 163

a. The acoustic assessment in Volume 3A, Section 4 considered the effects of noise on humans while the wildlife assessment in Volume 3A, Section 11 considered the effect of noise on animal behaviour. The effects of noise, also termed "sensory disturbance", on animal behavior is specifically discussed in Volume 3A, Sections 11.1.3, 11.1.4, 11.2.1, 11.2.2, 11.4.1 through 11.4.4, 11.4.7 and 11.5. The assessment contained in Volume 3A, Section 4 focuses on human noise interaction; it does not discuss effects on wildlife.

b-f. These questions are not applicable because the effects of noise on animal behaviour are addressed in Volume 3A, Section 11.

Question 164

Volume 3A, Section 4.4.2.3, Page 4.43
Volume 3A, Section 4.4.2.2, Page 4.42
Volume 3A, Section 4.4.2.3, Page 4.45
Volume 3C, Section 1.1.3.3, Page 1.3
Volume 4, Part 2, Appendix F, Page 4C.2-4C.7

Alberta Transportation states on page 4.42 that *The application of mitigation options discussed in Section 4.4.2.2, may be applied in order to reduce the noise contribution from the construction activities and achieve compliance with the thresholds.*

Alberta Transportation states *However, with the application of mitigation, such as those discussed in Section 4.4.2.2, the residual effect on the acoustic environment are expected to be reduced to achieve Health Canada's noise objectives at many of the receptor sites.*

Alberta Transportation also states that *Mitigation measures were not incorporated in the acoustic models for the assessment of effects since the construction equipment list and schedule are preliminary*. Alberta Transportation provides the *complete list of all Project construction related noise sources* in Appendix 4C.

Alberta Transportation goes to state that *Upon availability of the detailed construction execution plan, Mitigation measures will be developed to meet assessment noise thresholds.*

a. The sentences from page 4.42 and 4.43 are contradictory. Confirm if Alberta Transportation has mitigation measures in place for noise. If so, what are these mitigation measures? How will Alberta Transportation ensure that these mitigation measures will be adopted and followed throughout all stages of the project? Correct the statements above so that all sections within the EIA are consistent and say the same thing regarding mitigation.

b. If there are no mitigation measures in place explain why none have been developed and provide mitigation measures. Appendix 4C indicates that it is the complete list and goes on to list all construction related equipment. With this list being provided in addition to the noise levels then mitigation measures should be able to be developed. Discuss if the utilization of this equipment will result in any noise level exceedances. If there are noise exceedances how will these be monitored and addressed?

c. With no mitigation measures discussed how does Alberta Transportation know that they will be able to meet noise thresholds if no assessment and study has been conducted in order to determine what mitigations will and won't work?

Response 164

a. Noise mitigation measures are listed in Volume 3A, Section 4.4.2.2 and Volume 4, Appendix C, Table C-1, pages C.4, C.22 and C28. Alberta Transportation will delegate responsibility for noise mitigation and monitoring to the contractor through the requirements of the *Environmental Construction Operations Plan* (ECO Plan); see Volume 4, Supporting Documentation, Document 4, Page 10. Alberta Transportation will ensure that required mitigation measures are adopted and followed throughout construction by implementing their contractor management and auditing processes, which are detailed in Volume 4, Appendix C, pages C1 and C2.

   For clarification, the noise model results do not include the effect of noise mitigation measures. The assessment identifies that noise mitigation measures will be needed to reduce noise disturbance and adhere to MNL threshold limits listed in Health Canada (2017).

   Noise mitigation measures available to the contractor include both administrative and physical controls. Administrative controls involve ongoing planning, monitoring feedback, and decisions by the project manager, and cannot be pre-selected without constraining the project management process. The contractor's construction schedule, equipment selection, sequence of operations, and concurrent activities must be known in order to implement specific noise mitigation measures to adhere to the applicable mitigated noise level (MNL) thresholds. Physical controls include, for example, mufflers, shrouds, and temporary noise barriers.

   Alberta Transportation will require the construction contractor to engage a qualified acoustic consultant and implement a construction noise management plan. The contractor's noise management plan, as approved by Alberta Transportation will incorporate commitments made with respect to noise and possible conditions imposed as part of regulatory approvals. Compliance with the noise management plan will be monitored by contractor management and Alberta Transportation.

The construction noise management plan may result in the need for the development of additional site-specific mitigation measures.

For clarity, the following adjustments are made to text in Volume 3A, Section 4 (cited by the preamble to this IR); strikeout indicates delete words and red text indicates added words:

- On page 4.43, "The application of mitigation options discussed in Section 4.4.2.2, ~~may~~ will be applied, as necessary, in order to reduce the noise contribution from the construction activities and achieve compliance with the thresholds."
- On page 4.45, "However, with the application of mitigation as necessary, such as those discussed in Section 4.4.2.2, the residual effect on the acoustic environment are expected to be reduced to achieve Health Canada's noise objectives at many of the receptor sites."
- On page 4.42, "*Mitigation measures were not incorporated in the acoustic models for the assessment of effects since the construction equipment list and schedule are preliminary, as provided in Volume 4, Appendix F, Attachment 4C*."
- On page 4.45, "Upon development of the detailed construction execution plan, the suggested mitigation measures will be applied, as necessary, ~~mitigation measures would be developed~~ to meet assessment noise thresholds."

b. Volume 4, Appendix F, Attachment 4C, page 4C.2, contains a list of equipment based on preliminary knowledge of construction requirements. However, final equipment selection and application of noise mitigation measures will only occur during the development of a construction execution plan.

Additional mitigation measures identified in the addendum to the EIA, "Annex 2 – Early Technical Issues- Question 14" (submission to Canadian Environmental Assessment Agency [CEA Agency], Natural Resources Conservation Board [NRCB] and Alberta Environment and Parks [AEP] on 11 May 2018) are listed below and will be applied as needed in the construction noise management plan:

- limit construction activities to dam site and diversion channel during the nighttime period
- use broadband back-up alarm for all construction equipment
- select stationary equipment such as light towers with low noise emissions
- source mobile equipment with low noise emissions where available and needed
- where practical, place temporary site buildings and material stockpiles as noise barriers
- use natural landform as a noise barrier
- design vehicle routes to maximize available topographic shielding towards nearby receptors

- implement truck schedule and speed limits for material transport which reduce cumulative noise
- nominate off-site or screened waiting areas for trucks to avoid a congregation of idling vehicles
- schedule non-critical path activities which generate noise during the daytime only
- reduce the equipment count or hours of noisy activity during the nighttime
- place stationary equipment behind earth berms, behind temporary noise barriers, or inside portable enclosures where practical

The contractor will identify other suitable noise mitigation strategies. Alberta Transportation will delegate responsibility for the implementation of noise mitigation and monitoring to the contractor through the requirements of the ECO Plan (see Volume 4, Supporting Documentation, Document 4, page 10). Alberta Transportation will ensure that required mitigation measures are adopted and followed throughout construction by implementing their contractor management and auditing processes, which are detailed in Volume 4, Appendix C, pages C1 and C2. Any exceedances will be addressed through the implementation of the proposed mitigation through the construction noise management plan.

c. Volume 3A, Section 4.4.2.3 outlines the expected Project noise effects without mitigation measures, based on the preliminary construction design. It is common practice to use the preliminary Project construction details to identify potential noise issues and a suite of possible mitigation options. As discussed in a., a list of proven mitigation measures has been compiled up to and including curtailing certain activities during nighttime. These mitigation measures can be progressively applied by the contractor to reduce noise exposure levels. Based on Albert Transportation's experience mitigating noise effects at other projects—along with the availability of proposed mitigation measures for the Project— construction noise can be successfully mitigated to meet appropriate noise thresholds.

REFERENCE

Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

3.3 SOCIO-ECONOMIC

Question 165

Volume 1, Section 2.2.1, Page 2.2

Alberta Transportation states *Five potential locations for flood mitigation measures on the Elbow were identified (AMEC Environmental and Infrastructure 2014).*

a. Describe how AMEC (2014) searched for new sites. Explain how AMEC assured the sites were the *best options*.

Response 165

a. Following the floods of June 2013, the Government of Alberta set up the Southern Alberta Flood Recovery Task Force (SAFRTF). In October 2013, AMEC Environment and Infrastructure, a Division of AMEC Americas Limited (AMEC), was contracted to provide a flood mitigation feasibility study for the Bow River, Elbow River, and Oldman River basins (see AMEC 2014).

   The scope of AMEC's work pertaining to the Elbow River basin included:

   - flood mitigation measures for the Elbow River basin upstream of Calgary city limits
   - review of proposals by the Flood Advisory Panel (FAP) for dry dams at EQ1 (Quirk Creek) and EC1 (Canyon Creek) on Elbow River

   A study by WER Engineering Ltd., IBI Group, and Ecos Engineering (1986) identified potential dam sites at McLean Creek (MC1), Ford Creek (FC1) and Mitchell (EQ1 on Quirk Creek) sites. AMEC added a site at Springbank Road (SR1) (see Figure IR165-1). Diversions of Elbow River have been considered in the past; including a diversion into Priddis Creek and Fish Creek, and a tunnel diversion from Glenmore Reservoir into the Bow River (referred to as the Calgary Tunnel in the AMEC report). AMEC's flood mitigation feasibility study, therefore, focused on the sites presented by SAFRTF, FAP, their own version of SR1, and previously suggested diversions of Elbow River.

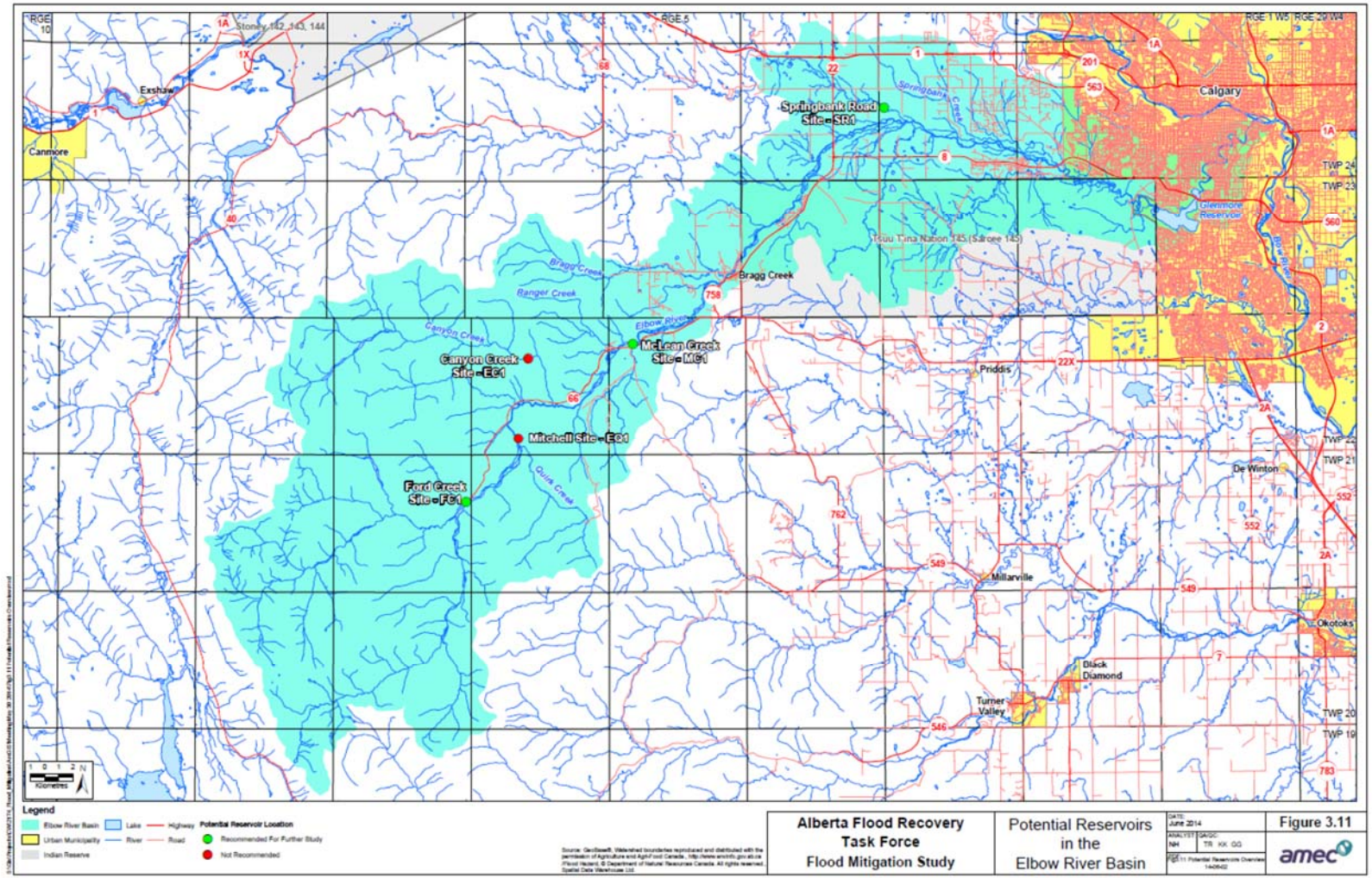

Figure IR165-1 Potential Reservoirs in the Elbow River Basin (from AMEC 2014)

OPTION EVALUATION

AMEC (2014) use a complex multi-criteria decision making (MCDM) tool to evaluate reservoir and diversion flood mitigation options. The variables identified by AMEC (2014) in the comparative analysis included the following:

- seven structural and six non-structural flood mitigation options
- twenty-one areas across three river basins
- three mandatory conditions criteria
- thirteen desired outcome criteria
- four weighting schemes
- one scoring system

The key findings of that evaluation for reservoir and diversion options follow.

RESERVOIR OPTIONS

As stated In Volume 1, Section 2.2.1, the Quirk Creek option was dismissed due to slope stability concerns. The Canyon Creek option was dismissed because the volume was too small for the amount required for flood mitigation. AMEC dismissed the Ford Creek site because it offers no apparent advantages to the MC1 Option site and it controls only 30% of the watershed upstream of Calgary.

AMEC (2014) recommended that assessments of SR1 and the MC1 Option be progressed until such time that one becomes the preferred scheme.

DIVERSION OPTIONS

The Priddis Creek diversion, part of a 1986 Elbow River Floodplain Management Study, was dismissed by AMEC because, without substantial engineering, it would be severely harmful to the regime of Priddis and Fish Creeks and that using Priddis Creek to carry Elbow River overflow would greatly increase flood risk to properties already at risk. AMEC acknowledged that the Calgary Tunnel solution would not mitigate flooding for development in flood-prone areas downstream of the outfall on the Bow River, where other measures such as dyking may be required and that further conceptual and detailed design of the tunnel was required. The City of Calgary was carrying out such studies and AMEC did not examine the tunnel any further. In a later study, the Glenmore Reservoir diversion tunnel was rejected by the IBI Group's review of options (IBI Group 2015) because it had the lowest benefit/cost ratio of the alternatives reviewed.

REFERENCES

AMEC Environment and Infrastructure. 2014. Southern Alberta Flood Recovery Task Force Flood Mitigation Measures for the Bow River, Elbow River and Oldman River Basins. 4 volumes and appendices. Available at https://open.alberta.ca/publications/con0015233.

IBI Group. 2015. Benefit/cost analysis of flood mitigation projects for the City of Calgary: Glenmore Reservoir Diversion. Prepared for Government of Alberta.

WER Engineering Ltd., IBI Group, and ECOS Engineering. 1986. Elbow River Floodplain Management Study.

Question 166

Volume 1, Sec. 2.2.1.1, Table 2-1, Page 2.4
Volume 4, Supporting Documents, 1. IBI Report", Page 3, PDF page 13 of 884

Alberta Transportation states *In 2015, the IBI Group (2015) was commissioned by the GOA to undertake a benefit/cost analysis of the Glenmore Reservoir underground diversion tunnel. … Table 2-1 reports the results of the analysis.*

In 2017, the IBI Group updated the results for the MC1 and off-stream reservoir options based on further engineering and environmental studies IBI Group (2017).

In addition, Alberta Transportation provides the IBI Report *Benefit/Cost Analysis (2017)* in Volume 4.

Alberta Transportation does not state in the EIA the Flood Mitigation Options Assessment report by IBI/Golder (February 2017) for the City of Calgary. IBI/Golder (February, 2017) indicates a benefit/cost ratio of 3.22 on pdf page 24 (the page in not enumerated in the document). The IBI/Golder (February 2017) is not referenced in the EIA.

a. **Explain why cost-benefit ratio in Volume 1, Table 2-1 is different from the cost-benefit ratio in Volume 4?**

b. **Explain why the benefit/cost ratios in Volume 1, Table 2-1 are lower than the 3.22 benefit/cost ratio in the IBI report (February 2017) considering that IBI made both estimates.**

c. **Explain how two floods with the same frequency yield different levels of damage.**

General
May 2019

Response 166

A number of variables used in the 2017 Benefit/Cost Analysis have changed since its submission (see Volume 4. Supporting Documentation, Document 1). The 2019 Benefit/Cost Analysis (BCA) has been provided in the response to IR6, Appendix IR6-1. . the 2019 BCA provides background on the previous benefit/cost analysis.

a. The benefit/cost ratio in Volume 1, Table 2-1 is based on the 2015 benefit/cost study that considered now outdated flood modelling and cost estimates. The benefit/cost ratios are different between the 2015 report referenced in Table 2-1 and the 2017 benefit/cost study (see Volume 4, Supporting Documentation, Document 1) because the damage estimates changed as a result of the updated hydrology and hydraulics modelling for Bow River and Elbow River. The updated modelling results predict higher flood elevations for the assessed floods. The 2015 study included preliminary cost estimates, which were updated for the 2017 benefit/cost study based on more detailed engineering design of SR1 and the MC1 Option).

b. The "SR1" referenced in the *City of Calgary Flood Mitigation Options Assessment* report, February 2017) is not referring to SR1 in isolation but also considers additional mitigation from flood adjustments on Bow River, including changes to the operating regime of the Trans Alta dams, and to modifications to the berms and barriers throughout the City, along with drainage improvements. See the response to IR23, Appendix IR23-1, which provides rationale and results for:

    1. updated damage estimates
    2. intangible damage estimates
    3. evaluation of flood mitigation measures comprised a variety of structural and non-structural measures.

    Appendix IR23-1 (in the response to IR23) does not consider SR1 or the MC1 Option as stand-alone options and, therefore, the benefit/cost ratio cannot be directly compared to the report provided in Volume 4, Supporting Documentation, Document 1.

c. The different levels of damage are discussed in Section 2.2 of Appendix IR23-1 (see the response to IR23).

    More current hydraulic modelling predicts water levels that are on average 0.27 m higher for Bow River and 0.38 m higher for Elbow River than water levels predicted by the 2012 modelling, upon which the 2015 damage amounts were estimated. These water level increases and new groundwater modeling resulted in a doubling of the average annual damage from $84 million to $168 million, with the largest impact (62%) attributable to the increase in peak discharge.

Question 167

Volume 1, Section 2.2.1, Page 2.4

Alberta Transportation states *The costing for the Project included the costs of additional flood mitigation to protect Bragg Creek and Redwood Meadows*.

a. Explain whether estimates of the Project's costs and benefits exclude all planned or built flood mitigation projects/efforts on the Elbow River. If not, list all non-Project mitigation efforts and provide estimates of the double-counted benefits.

Response 167

a. This is a reference to IBI (2015)[8]. As stated, the cost included an estimate for flood protection upstream. An additional $8.9 million was added to the cost based on the $6.17 million from AMEC (2014) and some additional work required in Rocky View County based on 2013 damages.

There are no double-counted benefits. At the time, no damage estimates upstream of Calgary were available to derive benefits from. The 2015 benefit/cost study included SR1, the MC1 Option, and the diversion tunnel. To appropriately reflect that the MC1 Option had upstream benefits in relation to the other two, the upstream mitigation estimate was added to the costs of SR1 and the diversion tunnel, in the absence of benefit estimate for the MC1 Option.

Further assessment of the Glenmore Reservoir diversion has not been conducted. See response to IR6 regarding the benefit/cost analysis for mitigation at Bragg Creek in relation to SR1 and the MC1 Option.

REFERENCES

AMEC. 2014. Southern Alberta Flood Recovery Task Force Flood Mitigation Measures for the Bow River, Elbow River and Oldman River Basins. Submitted to Southern Alberta Flood Recovery Task Force, Calgary, Alberta. June 2014.

[8] https://open.alberta.ca/publications/benefit-cost-analysis-of-flood-mitigation-projects-for-the-city-of-calgary-glenmore-reservoir

Question 168

Volume 3A, Section 17.4.2, Page 17.30

Alberta Transportation states *The Project's workforce is estimated to peak at 360 persons during construction with an additional 155 persons directly employed through contractors retained by the Project.*

a. Identify:

i. the types and approximate number of trades and professionals needed for each stage of the project.

ii. other major construction projects in the Economic Regional Assessment Area during the Project's construction period.

iii. potential regional shortages of trades and professionals during construction.

Response 168

a. i. The construction labour force breakdown for the Project was estimated from the breakdown provided in Volume 1, Section 7.3.2.1 of the Site C Clean Energy Project Environmental Impact Statement (BC Hydro 2013). Of the peak labour force (direct and contract personnel) of 515 persons, an estimated 70% (361 persons) will be trades and labourers, with the remaining 30% comprised of management, supervisory, and professional positions. Heavy equipment operators, truck drivers, and labourers will account for an estimated 60% of the trades and labourers (217 persons), with the balance (154 persons) comprised of a variety of skilled labour positions, including carpenters, welders, and electricians.

For both routine dry operations and maintenance and flood operations. the Project will require a minimum staff complement of five full-time positions, including operators, supervisors, and maintenance staff.

ii. Other projects or activities within the employment and economy RAA for consideration of cumulative environmental effects are identified in Volume 3C, Section 1.1.4, Table 1-1.

iii. As stated in the response to IR17, Appendix IR17-1, Section 17.4.2.5, construction will require a direct workforce of 360 persons (550 PYs) with an additional 155 persons (275 PYs) directly employed through contractors. Based on the Project's design, demand for skilled labour would be greatest among occupations in trades, transport and equipment operators. In 2011, there were approximately 91,125 persons employed in trades, transport and equipment operation and related occupations in the employment

and economy LAA. Based on an assumed unemployment rate of 6% an estimated 5,467 persons could be available to work on the Project, which exceeds Project demand by a large margin. Therefore, direct employment with the Project is not expected to contribute to labour shortages in the employment and economy LAA.

Based on the estimated demand for professional labour and in consideration of existing employment trends in professional occupations (see Volume 3A, Section 17.2.2.4, Table 17-10), regional shortages are not anticipated.

REFERENCES

BC Hydro. 2013. Site C Clean Energy Project Environmental Impact Statement (EIS). Available at: https://www.ceaa-acee.gc.ca/050/evaluations/document/85328?culture=en-CA . Accessed: February 7, 2019

Question 169

Volume 1, Section 3.3.3, Page 3.28
Volume 1, Section 3.3, Page 3.22
Volume 1, Section 3.3.8, Table 3-7, Page 3.31

Alberta Transportation states *The workforce for both the construction and operation of the Project are expected to be sourced from Calgary and vicinity and to be housed at facilities in the Calgary area. There will be no work camps.*

Alberta Transportation also states that *Project construction will be continuous (24 hours per day), weather permitting.*

a. Identify:

i. Trades and professionals that would work 7 day a week on 12 hour shifts.

ii. Trades and professionals that would be required on site continually over several days and why.

iii. The break areas and what these break areas will entail.

b. Explain whether the 24 hour a day schedule is, in part, to reduce the overall construction time and thus reduce the length of time adjacent residents are subject to light, noise, traffic, and dust impacts. If not, explain why a 24 hour schedule is proposed.

General
May 2019

Response 169

a. The Project construction workforce is discussed below.

i-ii. Table IR169-1 presents the proposed construction workforce and the duration of their involvement (7 days a week and 12-hour shifts, continually over several days). Only the earthwork activity is expected to be carried out 24 hours a day, 7 days a week throughout the duration of construction. That would apply to trucks, equipment operators, laborer's and foremen. The other trades are expected to work on a standard schedule. There are no plans to have temporary residences or lodging for work crews within the PDA.

Table IR169-1 Project Construction Workforce

Occupation	7 days a week, 12 hr shifts	Continually over several days	Duties
Truck Driver	X		Earthworks and haul of equipment and materials
Heavy Equipment Operator	X		Excavation, placement, compaction
Crane operator		X	Lift of materials and prefabricated units
Traffic Accommodation		X	Traffic accommodation, delivery of materials, roadwork
Carpenter	X		Formwork
Welder		X	Diversion structure elements, miscellaneous
Electrician		X	Electrical and communications
Labourer	X		Multiple roles
Equipment/Vehicle Maintenance		X	Repair of equipment
Iron worker		X	Bridges, diversion inlet superstructure
Steel fixer		X	Diversion structure, bridges, low-level outlet
Mason			Limited involvement
Pipefitter			Limited involvement
Crew Forman	X		Supervision
Supervisors		X	Supervision
Site Safety Manager	X		Site safety
Civil Engineer		X	Inspection

Table IR169-1 Project Construction Workforce

Occupation	7 days a week, 12 hr shifts	Continually over several days	Duties
Geotechnical Engineer		X	Inspection
Mechanical Engineer		X	Inspection
Electrical Engineer		X	Inspection
Environmental Monitor		X	Environmental Monitoring
Materials Testing	X		Materials Testing

iii. Break areas for the construction workforce will occur at the construction worksite office site. The design and layout of the site will be the responsibility of the successful contractor and will include a job office, dining facilities, first aid office, and restroom and toilet facilities. The location of the site office(s) will be determined by the contractor. It may include an office near the diversion structure and one near the off-stream dam. The contractor may elect to have smaller offices for sub-contractors at laydowns for sub-components (e.g. bridge contractor). All site offices will be located within the PDA.

b. Alberta Transportation will require that the contractor will have continuous (24 hours per day) construction for earthworks, weather permitting, to reduce the overall construction time in order to have flood protection for the City of Calgary and downstream communities, in place sooner. A shorter construction time will also reduce the length of time adjacent residents are subject to potential light, noise, traffic, and dust impacts.

Question 170

Volume 3A, Section 17.4.1.4, Page 17.25
Volume 3A, Section 17.4.2.4, Page 17.31

Alberta Transportation states *Alberta transportation will adhere to government procurement policies and procedures with respect to labour and goods and services.*

a. List the Alberta Government procurement policies and procedures relevant to the project and explain how these apply to the Project.

General
May 2019

Response 170

a. With respect to procurement of goods, services and construction, the policy outcomes for the Alberta Government are:

- meet business needs and objectives for each Ministry
- ensure equal and fair access to government procurements is provided to qualified vendors, suppliers and contractors
- demonstrate best value to the government for each procurement
- produce appropriate documentation
- meet legislative, policy, and trade agreement requirements

These Legislative, policy and trade agreement requirements ensure equal and fair access to government procurements is provided to qualified vendors, suppliers and contractors, wherever they are located.

The following policies and procedures are relevant to the Project:

- May be determined pursuant to a contribution agreement between the Alberta Government and Her Majesty the Queen in Right of Canada as it relates to any Federal funding that may be provided. The contribution agreement may require contain a requirement for the Alberta Government to report on community employment benefits relating to the agreement.
- With respect to labour on projects in excess of $15 million, or an expected construction duration of 2 years or longer, Alberta Transportation requires (http://www.transportation.alberta.ca/Content/docType29/production/SP_C006%20%28Apprenticeship%20Plan%29.pdf)":
  - "Apprentices hired and registered under this Contract shall remain employed for the duration of time that the trade in which they are training is required on the Project.
  - The Prime Contractor shall hire a minimum of 1 registered apprentice from one of the following qualifying trades:
    - carpentry
    - crane and hoisting equipment operations
    - electrical
    - elevator construction
    - gas-fitting
    - heavy equipment technician
    - ironworking
    - plumbing
    - refrigeration and air-conditioning mechanics

- sheet metal
- welding

– Each Subcontractor hired under this Contract for work valued at $500,000, or greater, and which requires the use of trades from the above noted list; shall also employ a minimum of 1 registered apprentice in the execution of the work."

- Additional information can be found in the project administration manual (http://www.transportation.alberta.ca/5772.htm.)

Question 171

Volume, 3A, Section 17.4.1.5, Table 17-14, Page 17.25
Volume 3A, Section 17.4.1.5, Table 17-15, Page 17.26

a. Provide and explain the rationale behind the assumptions that:

i. All expenditures are made in Alberta.

ii. 20% of expenditures are made outside the LAA (Local Assessment Area for the socio-economic assessment).

Response 171

a. As the legislative, policy and trade agreement requests ensure equal and fair access to qualified vendors, suppliers and contractors, wherever they are located, the rationale for expenditure assumptions are as follows:

i. Alberta has a well developed civil construction works industry, including engineering firms, large construction companies, and materials and equipment suppliers that are capable of constructing the Project. Much of the construction expenditure will comprise of earth moving, and construction using heavy fill materials (i.e. stone, earth, and concrete). Alberta construction companies and materials suppliers may have a cost advantage due to their proximity to the Project site, supporting the assumption that the all expenditures will be within Alberta; and

ii. The employment and economy LAA includes those businesses within the City of Calgary, which it is assumed will be capable of supplying the majority of goods, equipment, and services needed to construct the Project. These businesses may have a cost advantage position due to their proximity to the Project site.

Question 172

Volume 3A, Section 17.4.3.5, Page 17.36

The concordance table indicates that the engineering and contracting plan is located in Volume 3A, Section 17.4.3.5. There is no engineering and contracting plan at that location.

a. Provide the engineering and contracting plan. Update the concordance table if required so it reflects the location of the engineering and contracting plan.

Response 172

a. As detailed in the concordance table, the AEP Final Terms of Reference (Section 7.1[C] f)) require that the assessment "Describe factors that may affect existing socio-economic conditions including: the overall engineering and contracting plan for the Project". This is described in Volume 3A, Section 17.4.3.5, hence the direction within the concordance table. However, an updated version of Volume 3A, Section 17.4 is provided in the response to IR17, Appendix IR17-1.

   As presented in the updated Section 17.4.3.5, engineering and construction services are expected to bring in $120 million to the employment and economy LAA, which accounts for 58% of the capital expenditures within the LAA of $208 million for construction of the Project. Annual project expenditures on labour during dry operations is expected to be $440,000, which is 24% of total annual Project expenditures of $1.8 million. The detailed engineering and contracting approach will be developed as part of the Project's construction plan, and contracting opportunities will be communicated to the business community in the local area, including Indigenous groups. The Terms of Reference do not request an engineering and contracting plan as part of the environmental assessment.

Question 173

Volume 3B, Section 12.2.2.1, Page 12.6

Alberta Transportation states *deposits such as gravel and debris would be cleaned up.*

a. Confirm whether the cost of cleaning gravel and debris was included in operational costs. If it is not included in operational costs explain why not.

Response 173

a. The cost of cleaning gravel and debris was included in the operational cost of the Project. Annual maintenance (non-flood year) debris clean up is estimated at $89,000.00. Following a diverted flood, debris clean up in the diversion structure, diversion channel and reservoir is estimated to be $388,000.00.

Question 174

Volume 3A, Section 12.4.2.3, Page 12.35

Alberta Transportation states *Residual effects because of changed in industrial land use, change in recreational land use, and indirect effects because of noise, light, and air emissions are predicted to be moderate because they are outside normal range of variability for the region*.

a. Does Alberta Transportation mean to say *inside* normal range as opposed to *outside* normal range? If so, correct the statement to reflect this change. If not, explain how the impacts are expected to be moderate when outside of the normal range.

Response 174

a. The statement in Volume 3A, Section 12.4.2.3, Page 12.35 is correct. The effects have been determined to be moderate based on the definitions in Volume 3A, Section 12.1.5, Table 12-2: a moderate magnitude is "measurable change in land use patterns that falls outside normal variability of existing conditions but would not prevent activities from continuing elsewhere in the LAA".

   The effects are expected to be moderate because, even though they are outside normal variability of existing conditions, they would not prevent the activities from continuing elsewhere in the land use and management LAA.

   If the effects had been predicted to be inside the normal range of variability, they would have been rated as low magnitude.

Question 175

Volume 3A, Section 12.5, Page 12.39
Volume 1, Section 3.3.8, Page 3.31

Alberta Transportation states *integrated landscape management would also be employed in the PDA through timely reclamation of the construction area.*

a. The Construction Schedule in Volume 1 Section 3.3.8 does not include the timing of when reclamation will occur. Clarify when reclamation is anticipated to occur.

Response 175

a. Reclamation will occur following completion of the individual construction segments, as described in in Volume 1, Section 3.3.8, Table 3-7. Details on reclamation, soil handling and revegetation mitigation measures are provided in Volume 4, Appendix D, Section 4.4, Section 4.6, Section 5, and Section 6.

Question 176

Volume 3A, Section 16.3, Page 16.13

Alberta Transportation states P*roject workers are anticipated to be local, it is not likely that additional population-based demands would be placed on community infrastructure and services.*

a. Explain Alberta Transportation's planned emergency medical scenarios.

b. Explain how sanitation, waste and power services are provided to the construction site and if there are any links to local services.

Response 176

a. In accordance with Alberta Transportation (2017a), the Province assigns prime contractor responsibilities, as specified in the *Occupational Health and Safety Act*, to all parties with which it enters into contracts and agreements. Therefore, medical scenarios will be addressed by the designated contractor. For example, possession of a Certificate of Recognition (COR), Temporary Letter of Certification (TLC), or Certificate of Recognition Equivalency Letter (COREL) issued by the Alberta Construction Safety Association is a mandatory requirement for all construction services work for highways, bridges, and water management projects. The requirements of a COR require the contractor to have procedures in place that address safety and emergency medical scenarios.

b. In accordance with Alberta Transportation (2017b), it is the Contractor's responsibility to provide sanitation, waste and power services as well as for determining the means of providing these services to the work site. Such means for managing these services are provided below:

- Due to the location of the Project, it is expected that on-site self-contained sanitation units will be provided. Sanitation facilities for male and female workers on site will be accordance with the requirements of Alberta Health Services.
- Construction waste will be removed from the site by the Contractor and disposed of at a waste disposal facility, unless otherwise specified. Burning, burying, or otherwise discharging construction waste on the site will not be permitted.
- Options are available to the Contractor to provide electrical services through either on-site generation or connection to the local power grid.

REFERENCES

Alberta Transportation. 2017a. Section 01441, Work Site Safety. Available at: https://www.transportation.alberta.ca/Content/docType125/Production/Section01411.pdf

Alberta Transportation. 2017b. Section 01510, Existing and Temporary Utilities. Available at: https://www.transportation.alberta.ca/Content/docType125/Production/Section01510.pdf

Question 177

Volume 3A Section 16.4, Page 16.14

Alberta Transportation states *the presence of construction vehicles and equipment on the local roads and highways and transportation of project workers to the project site would periodically increase local traffic and cause brief traffic disruptions.*

a. Estimate the maximum additional traffic that might occur, for example, during shift change. Estimate how many truck trips are to occur during the busiest one-week period. Clarify whether a highest traffic scenario was created. If not, why not?

Response 177

a. A peak hour traffic scenario has not been completed at this stage of the Project design. Following the selection of the contractor, a traffic accommodation strategy (TAS) will be developed by the contractor in accordance with Alberta Transportation (2010). The TAS will be reviewed by Alberta Transportation to confirm approval of its details.

The highest traffic estimate will consider the number of haul truck trips per day and the number of construction workers per shift. The details on the TAS will not be available until construction staging and logistics have been finalized. A copy of the TAS will be provided to AEP. Any comments received from AEP will be taken under consideration by Alberta Transportation.

REFERENCES

Alberta Transportation. 2010. Specifications for Bridge Construction. Appendix A, Section 7, Specifications 7.1. Available at: http://www.transportation.alberta.ca/Content/docType246/Production/10bcsApxA.pdf

Question 178

Volume 4, Appendix A Concordance Tables, Table A-1, Page A.43

The Terms of reference states *Describe the impacts of additional proposed flood mitigation projects or a combination of those projects on the effectiveness of the project.*

a. Provide a list of the names and locations of all planned or built flood mitigation projects and actions for the Elbow River from the McLean Creek project to the City of Calgary. Indicate when these projects were built or will be built.

b. Describe the flood mitigation impacts of these mitigation measures. Clarify whether the benefits of the Project were adjusted to consider the impact of each of these projects as this relates to TOR 7.1A.

Response 178

a. Aside from the Project, only the Rocky View County Bragg Creek Flood Mitigation Project is currently in planning stages on Elbow River. The MC1 Option is not being applied for; it is not a project.

The Bragg Creek Flood Mitigation Project is located approximately 12 km southwest of SR1 and is composed of 3,922 m of discontinuous hard structures on the east and west banks of Elbow River within and upstream of Bragg Creek. This project is being completed by Rocky View County and is currently undergoing regulatory review and approval. The Bragg Creek Flood Mitigation Project timeline is as follows (Rocky View County 2019):

- Land Acquisition Ongoing, May 2019
- AEP Water Act Application, July 2017 to June 2019 (subject to completion of land acquisition and First Nations consultation)

- DFO Application for Authorization, July 2017 to July 2019
- Preparation of Tender Specifications, May 2019 (subject to receipt of all regulatory approvals. In September 2018, 12 contracting companies prequalified to submit a tender bid)
- Tendering Process and Award of Construction Contract, July 2019
- Construction of Flood Mitigation Works, August 2019
- Reclamation and Site Clean-Up, Summer 2021

The Government of Alberta is in discussions with the Tsuut'ina Nation to evaluate what, if any, additional flood protection is required at Redwood Meadows.

b. The Bragg Creek Flood Mitigation Project is designed to constrain flood flows in Elbow River but does not affect the volume or duration of the flood waters downstream. Rocky View County (2017) states, "The engineering assessment indicates that there would be no additional damage at Redwood Meadows during a 100-year flood event as a result of building the Bragg Creek flood structure. Changes in water levels, velocities, and flood extent at Redwood Meadows as a result of the Bragg Creek structures would be negligible."

   The backwater effects of Elbow River because of the Project will not reach Redwood Meadows or other areas of the Tsuut'ina Nation Reserve. Based on Rocky View County's statement above there will be no changes in water levels, velocities and flood extent downstream of Bragg Creek at Redwood Meadows (upstream of the Project). Therefore, the Bragg Creek flood mitigation will have no effect on SR1.

REFERENCES

Rocky View County. 2017. Bragg Creek Flood Mitigation Project Frequently Asked Questions No. 2 (March 2017). Question 11. Available at: https://www.rockyview.ca/Portals/0/Files/BuildingPlanning/Planning/UnderReview/BraggCreekFlood/Frequently-Asked-Questions-2017-03.pdf

Rocky View County. 2019. Bragg Creek Flood Mitigation. Available at: https://www.rockyview.ca/BuildingPlanning/PlansUnderReview/BraggCreekFloodMitigation.aspx

Question 179

Volume 3B, Section 17.2.2.1, Page 17.2
Volume 3B, Section 17.2.2.2, Table 17-2, Page 17.4
Volume 3B, Section 17.3.1.5, Table 17-6 Page 17.11

Alberta Transportation states *The 2013 flood was of similar magnitude to a 1:200 year flood and resulted in extensive flood damages. This included approximately $2 billion in insured losses private property, uninsured costs to private property, disaster relief and management costs, as well as costs to repair and restore damaged public infrastructure*.

a. Indicate whether the damages in Table 17-2 were estimated using the modified RAPID model. If the modified RAPID model is used to estimate the damages, has the output of the modified RAPID model been compared to actual damage estimates for flood costs like that in 2013? Explain why or why not.

b. Explain when the modified RAPID model is likely to be accurate versus inaccurate and the level of uncertainty. Explain whether the version of RAPID used for Table 17-2 considers all post 2013 mitigation measures implemented and, if not, what measures are not considered.

c. Provide an estimate of flood-damage-cost reductions due to post 2013 mitigation by each of the following categories:

i. New protection for provincial, city and utilities or re-siting of infrastructure;

ii. Commercial building owners purchasing supplemental generators and flood protection; and,

iii. Residential sump pumps, generators and other measures.

iv. Explain how the direct, indirect and intangible costs are calculated and the data used.

d. Explain how damages on the Elbow River are $1910.1 million for a 1:200 flood (design flood) when on page 17.2 damages for the 2013 flood were 2 billion for both the Bow and Elbow rivers, considering that:

- **Bow damages are greater than Elbow damages,**
- **private mitigation efforts have improved the flood readiness of residential and commercial buildings in Calgary, and**
- **municipal and provincial governments have improved flood readiness of infrastructure.**

Response 179

a. Damages listed in Volume 3B, Section 17, Table 17-2 were estimated using the Rapid Flood Damage Assessment Model (RFDAM) (also called the "provincial flood damage assessment tool", or PFDAT) developed for the Province of Alberta by IBI Group. There is no source of "actual" flood damages and after a flood, many estimates are provided with a variety of underlying assumptions and sources.

   Estimates provided by the insurance industry relate to insurable damage claims and do not provide detail on the type of damage, specific location, or depth. In 2013, overland flood insurance was not available to homeowners. Payments by insurers were inconsistent and arbitrary. Insurance coverage is extremely variable by provider offerings and customer selections.

   Examination of several flood restoration projects in Calgary after the 2013 flood revealed that the actual expenditures could not be directly attributed to flood loss. Rarely does a property owner restore a building to the same pre-flood specifications. Improvements and correcting pre-existing deficiencies or code compliance on older buildings can account for a large portion of the restoration costs and should not be considered flood damage. Pricing for restoration work after a flood can also vary greatly depending on contractor and material availability.

   RFDAM specific to local building types is the best method of controlling for all the variables and considering lack of available data upon which to base an "actual" post-flood damage estimate.

b. RFDAM provides an estimate of flood damage potential for 12 return periods and allows for the computation of average annual damage. It is predicated on myriad of qualified assumptions, and no uncertainty factor is applied to the values. Table 17-2 provides damage estimates with no adjustments (unmitigated) for existing or proposed mitigation measures.

   The benefits of SR1 and the MC1 Option are based on a different baseline scenario that included all existing and approved mitigation measures within the City of Calgary. The baseline damages were estimated with all current mitigation measures in effect and functioning. The benefits were the difference between the baseline damages and the upstream storage damages. The difference between scenarios is a result of modelling the flood surfaces for each. The RFDAM is not adjusted.

   The resulting estimate is a reflection of "potential", not "actual" damages. It is likely to be less accurate if a high degree of action is taken prior to a flood, such as moving all belongings out of a house. Additionally, the inclusion of potential groundwater damages has likely made the benefits (flood reduction) conservative because many buildings that are

protected from overland flooding are subject to basement flooding in the mitigated scenario.

c. As indicated in the response to b, flood estimates were generated for an unmitigated scenario, an existing baseline scenario, and then for each of the future mitigation options. The mitigation measures included in the baseline is detailed in Appendix IR23-1, Attachment 2 (see the response to IR23). This baseline case was used to determine the benefits of both options.

The estimated average annual damages for the unmitigated scenario is $168 million. The estimated average annual damages for the baseline scenario is $116.6 million. The reduction in damages from the unmitigated scenario to the baseline scenario is $51.4 million. The specific reduction by each of the categories requested is not attainable. However, it is assumed that protection indicated in i) is included in the baseline modelling and the lot-level mitigation identified in ii) and iii) are addressed by the "groundwater adjustments" explanation below. For iv) the direct, indirect and intangible costs are calculated in the same manner for each scenario. To reiterate, the flood damage reductions are a result of the flood surface modelling conducted for each mitigation scenario, not adjustments of the RFDAM model.

GROUNDWATER DAMAGE ADJUSTMENTS

The damage calculations were based on flood water elevations that included groundwater, which is a major source of flooding in Calgary. The groundwater modelling results in high damage estimates for the more frequent floods (1:5, 1:8, and 1:10-year). However, in recognition that many businesses and residents experiencing such flooding would employ mitigation measures, the estimates for these return periods are adjusted. The following is an excerpt from Volume 4, Supporting Documentation, Document 1, Section 5.1.1.2.1:

> "For the Calgary Flood Mitigation Option Assessment study, considerable effort was devoted to groundwater flood damage modelling, resulting in a predicted flood groundwater elevation by return period which was subsequently employed to calculate basement damage in the flood hazard zone as well as the "adjacent-to" areas. A review of the unadjusted values employing this relationship resulted in unrealistically high damage values for the higher frequency events (1:10 year flood and below) when very little overbank flooding actually occurs.
>
> The unadjusted values have a large effect on the average annual damage, adding over $20 million on an annual basis and thereby overstating damage for benefit/cost purposes (see Exhibit 2.1). The high estimated direct damages have a hyperbolic effect on the myriad other calculations tied to these values.

Properties affected by the more frequent floods are likely to have implemented protective or adaptive measures. A recent survey (April 2016) commissioned by the City found that 50% of flood prone households had sump pumps, 27% had a backup generator, and 29% had some form of private flood mitigation measure. The frequent floods are not associated with issues such as widespread power loss that exacerbate groundwater damages due to pump failures, particularly in the commercial core.

In reviewing basement seepage complaints and damage data from the June 2005 flood (a 1:8 year flood) it should be noted that a large percentage of basement flooding was related to soil saturation due to successive and intensive rainfall, along with storm sewer backup, rather than riverine or overland flooding. In addition, research undertaken by the University of Calgary indicated a large decrease in average basement damages as one moved away from the area of inundation (see Exhibit 2.2).

Accordingly, it was considered prudent to adjust the damages for the 5, 8, and 10 year return floods to reflect more reasonable anticipated damage values."

d. The two estimates are from two different methods of calculating damages; both are valid. The $1.910 billion figure refers to the predicted total damage (i.e., insured and uninsured damages to property, infrastructure, indirect and intangible damages) resulting from a 1:200 year flood of Elbow River.

   The $2 billion figure refers to a publicly stated estimate of insured flood damage from the 2013 flood (includes damage caused by Elbow River and Bow River flooding), from Environment and Climate Change Canada (ECCC 2017). In 2013, overland flood insurance was not available to Albertans and the insured losses are not representative of total damages.

REFERENCES

Environment and Climate Change Canada. 2017. Canada's top ten weather stories of 2013. Available at: https://www.ec.gc.ca/meteo-weather/default.asp?lang=En&n=5BA5EAFC-1&offset=2&toc=hide. Accessed: September 2017.

Question 180

Volume 3B, Section 17.2.2.2, Page 17.3

Alberta Transportation states *Flood damage estimates provided in IBI 2017 reflect updated hydrology and hydraulic modelling, which simulated higher averages water levels of both the Bow and Elbow Rivers as compared to previous modelling*.

a. Explain why it is appropriate to use a higher average water level. Explain how much higher than previously are the *higher average water level* damage estimates.

Response 180

a. Additional data related to the 2013 flood has led to changes in the probability/peak flood flow relationship, and hence higher water levels for the flood probabilities. The higher water levels are the result of the modelling, not the input.

   The discussion of higher water levels than previously estimated is provided in Appendix IR23-1 (provided in the response to IR23), Section 2.2. In that appendix, it is explained that more current hydraulic modelling has resulted in predicted water levels that are on average 0.27 m higher for Bow River and 0.38 m higher for Elbow River than water levels predicted by the 2012 modelling, upon which the previous (2015) damages were based and upon which the assessment is based. The impact of this and other factors resulted in an essential doubling of the average annual damage from $84 million to $168 million, with the largest impact (62%) attributable to the increase in peak flood flow.

Question 181

Volume 3B, Section 17.2.2.2, Page 17.7

Alberta Transportation states *Existing mitigation measures would reduce predicted flood damage by an estimated $598 million for the 1:50 year flood. The reduction in flood damages due to existing mitigation is $576 million for the 1:100 year flood and $544 for the flood design, indicating that the effectiveness of some measures decline with increased magnitude of flooding.*

a. Explain what types of measures fail as the intensity of the flood increases.

Response 181

a. The existing mitigation measures have limitations with respect to higher magnitude floods and are most effective for the more frequent, smaller magnitude floods for which they are designed.

   The types of measures that fail as the intensity of the flood increases include lower dykes (less than 1:50 year), flood outfall gates, and temporary barriers.

Question 182

Volume 3B, Section 17.2.2.2, Page 17.5

Alberta Transportation states *Flooding of the Bow River would result in the majority of the total flood damage, ranging from 69% for a 1:50 year flood to 61% for a 1:200 year flood.*

a. Explain how damages are calculated for each basin independently based on the high of the flood and the population of buildings in each basin as described in the modified Rapid model. Thus, the *69%* and *61%* are calculated based on an assessment of water levels in each building in the Bow and Elbow river basins.

Response 182

a. How damages are calculated is described in Appendix IR23-1 (see the response to IR23), Section 2.5**.** The following is the relevant excerpt:

   "2.5 Allocation of Flood Inundation Areas for Damage Estimation

   Along the majority of the Bow and Elbow River reaches in Calgary, overland flooding is caused by the flood water either from the Bow River or the Elbow River respectively. However, along some of the river reaches (e.g., in and around the downtown areas as well as near the Bow and Elbow River confluence), the source of overland flood water can be a mixture of the Bow and Elbow River water, particularly during extreme floods (e.g., 1,000 year flood).

   Application of the flood damage model for evaluating some of the potential flood mitigation measures (e.g., upstream flood detention storage facility along the Elbow River) requires definition of the overland flood inundation areas attributed to one of the rivers (e.g., the Elbow River).

   The existing hydraulic modelling results were obtained using the 1D HEC-RAS model on the basis of simultaneous occurrence of the flood peak flow in both rivers with the same return period. The following limitations of the existing hydraulic modelling results were considered in

estimating the flood inundation areas attributed to one of the rivers where the river flood waters are mixed on the floodplains:

- Approximate definition of the flood inundation extents in large floodplain areas (e.g., downtown) during extreme floods (e.g., 1,000 year flood);
- Approximate estimates of the overland flow directions and the boundaries of mixing of the flood waters from the two rivers; and
- No modelling results for the cases where flood peak flows on the two rivers have different return periods (e.g., the return period of the flood flow in the Bow River may be 75 years when the 100 year flood peak flow occurs in Elbow River).

Consequently, estimation of the flood inundation areas attributed specifically to one of the rivers involved judgement and approximation. Exhibit 2.16 presents the estimated boundary lines separating the flood inundation areas attributed to the Bow River or Elbow River for those areas where mixing of the river flood waters may occur. These boundary lines were used to attribute the flood inundation areas to either one of the rivers for the purpose of flood damage modelling."

Question 183

Volume 3B, Section 17.2.2, Page 17.3

Alberta Transportation states *Due to these adjustments, the magnitude of the potential flood damage estimated in 2017, as reflected in the annual average damages (AAD), has been estimated at double that provided in the previous estimates provided in IBI and Golder (2015*).

a. Explain the how damage estimates have increased by category and the reasoning behind this increase. Include areas such as direct costs public infrastructure, private infrastructure, commercial buildings, and residential buildings. Explain how indirect costs have changed for emergency versus loss of livelihood.

Response 183

a. For an explanation of the increase in damage estimates, see Appendix IR23-1 (in the response to IR23), Section 2.2.9.

The following is the relevant excerpt from that appendix:

"2.2.9 Comparison with Previous Damage Estimates

A variety of factors have contributed to an increase in the estimated damages for the City of Calgary. These are briefly summarized hereinafter.

2.2.9.1 Increase in Peak Discharge and Flood Level

As discussed in the Phase 1 report, the previous City of Calgary damage estimates undertaken in 2014 were based on the 2011 hydrology study and 2012 hydraulic model undertaken by Golder Associates. The most recent damage estimates are based on updated hydrology and hydraulics by Golder Associates in 2015. Hydraulic modelling has resulted in simulated water levels that are on average 0.27 m higher for the Bow River and 0.38 m higher for the Elbow River than those using the 2012 model.

2.2.9.2 Expanded Flood Hazard Area

The areal extent of inundation has increased substantially and particularly within the downtown area for the lower frequency events, greater than 1:200 year. For the 1:100 year event, the largest increases occur in Hillhurst and the Beltline, with lesser increases evident in the area just north of the Deerfoot Meadows commercial development in southeast Calgary. The other area of note is related to a large area of spill at the 1:500 year return period, which covers several hundred acres in the Manchester, Alyth, Bonnybrook, Highfield and Inglewood industrial areas.

The expanded flood hazard area includes more than double the amount of buildings as the 2014 inventory. The estimated total number of residential units in the hazard area is 52,883 along with 1,970 non-residential buildings.

2.2.9.3 Reallocation of Flood Inundation Areas for Damage Estimation

Along some of the river reaches the source of overland floodwater can be a mixture of Bow and Elbow River water, particularly during extreme flood events (e.g., 1,000 year flood). Consequently, judgement and approximation was employed to define the boundary lines separating the flood inundation areas attributed to the Bow River or Elbow River for those areas where mixing of the river floodwaters may occur. These boundary lines were used to attribute the flood inundation areas to either one of the rivers for the purpose of flood damage modelling.

2.2.9.4 Residential Displacement and Commercial Disruption

Indirect damages include other costs incurred due to flood damaged property and infrastructure such as residential displacement, business disruption, traffic delays, habitat restoration, emergency response and waste disposal. For the purposes of this study, these damages were developed from first principles as outlined in Section 4 of the Phase 1 report.

2.2.9.5 Monetization of Intangibles

A methodology was developed for assigning a monetary value to intangible damages such as public health, as detailed in Section 4 of the Phase 1 report. These amounts represent the net present value of annual payments for 100 years derived from secondary research on household willingness to pay to avoid the intangible effects of flooding.

2.2.9.6 Groundwater Damage Estimates

Groundwater accounts for a large portion of flood damages in Calgary, particularly for higher frequency events where there is limited overland inundation. In consideration of the overall characteristics of the alluvial aquifer a simplified relation of maximum groundwater level versus distance from the edge of surface inundation relationship was developed for application throughout the study domain. This relationship was used to estimate or approximate the maximum groundwater table rise within the alluvial aquifer for the various flood return periods.

As it relates to the "adjacent-to" area, the area adjoining the flooded surface area in which basements may be flooded by backed up sanitary sewers, the modelled groundwater profiles were employed to determine basement damages from groundwater beyond the area of surface inundation. A further groundwater profile was modelled for areas with flood barriers in place to account for damages to basements due to groundwater flooding. These relationships are depicted in Exhibit 2.7. Additional relationships were developed to model the effects on maximum groundwater levels by the Springbank Road and potential Bow River reservoir(s). The detailed methodology and results of the groundwater flood modelling conducted in the Phase 2 study are presented in Appendix H.

2.2.9.7 Discussion of Results

The impact of these factors resulted in an essential doubling of the average annual damage from $84 million to $168 million with the largest impact (62%) attributable to the increase in peak discharge."

Question 184

Volume 3B, Section 17.5, Page 17.12

a. Assess confidence intervals for the RAPID model estimates. Provide an explanation of how the confidence intervals were calculated.

Response 184

a. Flood damage estimation and benefit/cost analysis methodologies associated with flood damage reduction studies are well-established in the literature and have been recently formalized by virtue of the Government of Canada's publication: *Canadian Guidelines and Database of Flood Vulnerability Functions,* Public Safety Canada, March 2017, authored by IBI Group.

As stated in IR32, the Rapid Flood Damage Assessment Model (RFDAM) functions include variables for which there is no known probabilities upon which to undertake a sensitivity analysis for establishing confidence intervals. The only variables that can undergo a meaningful sensitivity analysis are the discount rate and timing (see the response to IR22 regarding discount rate).

Question 185

Volume 3A, Section 17.4.3.5 Table 17-25, Page 17.36

a. In Table 17-25:

i. Separate engineering and project management costs or modify label.

ii. Separate labour costs from constructions services or modify label.

iii. Add to the table: Land acquisition costs; Relocation of infrastructure costs; Contingencies; Separate costs according to LAA, Alberta, outside Canada.

b. Add debris barrier costs as a separate line item.

c. Explain why contingency costs for McLean Creek are 25% of all costs and contingency costs for Springbank are 15% excluding land acquisition and relocation costs.

d. Why do Springbank costs no longer include mitigation costs for Bragg Creek and Redwood Meadows?

Response 185

a. i. Cost line "professional and engineering services" should read "engineering services".

ii. Labour costs associated with construction services are estimated at $25.7 million.

iii. Noted in Appendix IR17-1 (see the response to IR17), Section 17.4.1.5, capital expenditures used in the assessment of economic impacts do not include land acquisition costs or contingencies. Land acquisition is primarily a purchase of assets that itself generates little employment or value-added to an economy. Contingencies are non-tangible costs, which may or may not be expended. For these reasons, such cost items are not included in standard economic modelling procedures, and these items have not been added to Table 17-25 in Appendix IR17-1.

Infrastructure relocation costs are included in the cost items described in Table 17-25. Total infrastructure relocation costs are estimated at $38.5 million (it is assumed that all of these costs will be provided by Alberta-based construction contractors). This includes costs associated with:

- road crossings (e.g., Highway 22 and Township Road 242 bridge crossings)
- Highway 22 and Springbank Road modifications
- shallow utility relocations (e.g., Fortis, Shaw, and Telus)
- major utility relocations (e.g., TransCanada Pipelines, Plains Midstream, and Veresen)
- general removals (e.g., existing fences)
- demolition (e.g., removal of existing building, removal of driveway asphalt surfaces)

b. The addition of the debris deflector has a net Project cost increase of $9,629,633. Table IR185-1 provides a summary of cost.

Table IR185-1 Construction Cost Increase Associated with the Debris Deflector

Item	Estimated Cost ($2017)
Mobilization	$ 360,000
Construction of Debris Deflector	$ 7,370,633
Contingency	$ 1,159,000
Construction Sub-Total	**$ 8,889,633**
Engineering and Environmental Fees	$ 740,000
Project Total	**$ 9,629,633**

c. The 15% contingency for SR1 is related to the accuracy of the engineering estimate (Class B). The contingency value provided in the cost estimate is for construction costs only and does not include utility relocations or engineering costs. The contingency for the MC1 Option has been updated based on further review of construction staging, temporary works and unit prices. This rationalization resulted in a contingency estimate of 20%. For additional discussion on the costs and contingency estimate for SR1 and MC1 Option see the response to IR35, Appendix IR35-1 (the MC1 Option) and IR35-2 (SR1).

d. Mitigation costs for Bragg Creek and Redwood Meadows were not included in the original cost estimate and have not been included in the current cost estimate for SR1 (see the response to IR35, Appendix IR35-2). However, the benefits of Bragg Creek and Redwood Meadow mitigation were applied to the MC1 Option in the 2019 benefit/cost analysis rather than adding the cost of a separate project to SR1.

Question 186

Volume 3A, Section 17.2.2.5, Table 17-11, Page 17.17

a. Provide a definition for *employment income* and *total income*.

b. Explain why total income is lower than employment income in Table 17-11 for each of the locations identified. The values appear contra intuitive that reported total income is lower than employment income, considering that Statistics Canada defines total income as employment income and other income.

Response 186

a. Employment income refers to persons aged 15 years and older who worked at least 30 hours per week and 49 weeks per year (i.e., full time). Employment income is the sum of wages, salaries, tips, commissions, and net income from self-employment.

Total income refers to persons aged 15 years and older and the income is the sum of regular and recurring monetary receipts from part-time and full-time employment income (e.g., wages, tips, and commissions), income from investment sources (e.g., dividends, guaranteed investment certificates, and mutual funds), income from employer and personal pension sources (e.g., private pensions and payments from annuities and registered retirement income funds), other regular cash income (e.g., child support payments and spousal support payments), and income from government sources (e.g., social assistance, Employment Insurance benefits, Old Age Security benefits, and Canada Pension Plan benefits and disability income).

b. The survey populations associated with the total income and employment income statistics are different. The survey population for total income includes persons 15 years and older who are employed, unemployed, or no longer in the labour force, while the survey population for employment income includes only individuals aged 15 and older who are employed for at least 30 hours per week, and 49 weeks per year. The higher proportion of employed individuals within the survey population for employment income compared to that for total income explains why mean and median employment income exceeds that of total income.

Question 187

Volume 3A, Section 17.2.2.8, Page 17.19

a. Provide a description of the LAA's GDP and share of relevant industries over regional GDP. Calculate the economic effect of developing the project over the LAA regional economy.

Response 187

a. The assessment of economic impacts on gross domestic product (GDP) is restricted to effects for the province in accordance with potential environmental effects, effect pathways, and measurable parameter identified in Volume 3A, Section 17.1.3, Table 17-2. Baseline information presented in Volume 3A, Section 17.2.2.8 is provided in sufficient detail to characterize residual effects on GDP for the province (see Volume 3A, Section 17.4.1.5. However, this has been updated in the response to IR17, Appendix IR17-1 but this response is not affected by the update.

Economic impacts on GDP at the employment and economy LAA are not estimated in the assessment. The following provides supplementary information on the economic effect within the employment and economy LAA.

The LAA's GDP in 2015 is estimated at $103.2 billion (roughly 32% of total provincial GDP). Because the LAA encompasses the City of Calgary, which accounts for 32% of the provincial labour force, its industrial composition is very similar to that of the LAA (identified in Volume 3A, Section 17.2.2.3, Table 17-9). Relative to the province, the percent share of each industry within the LAA (to total LAA industrial composition) is almost identical to that of the province (less than a one percentage point difference) with the following exceptions:

- Agriculture, forestry, fishing, and hunting comprise 3.1% of the industrial composition of the province versus 0.4% of the LAA (2.7% difference).
- Professional, scientific, and technical services comprise 8.3% of the industrial composition of the province versus 12.7% of the LAA (4.4% difference).
- Public administration comprise 6.6% of the industrial composition of the province versus 4.5% of the LAA (2.1% difference).

Volume 3A, Section 17.4 has been updated; it is Appendix IR17-1 (in the response to IR17). In Table 17-18 of that appendix, the contribution of the Project to the Province of Alberta's GDP (inclusive of direct, indirect, and induced effects) is estimated to be $247 million. Using the assumption that 20% of expenditures are outside the employment and economy LAA (see the response to IR171), the GDP contribution from within the LAA is estimated to be $198 million. This is approximately 0.19% of the estimated $103.2 billion of GDP of the LAA. Therefore, the Project is predicted to have a minor effect on the GDP generated by the economy in the LAA.

Question 188

Volume 3A, Section 17.4.1.5, Page 17.27

Alberta Transportation states *The total labour income in Canada associated with project employment is estimated at $119 million*. Net new income created by the Springbank project should only account income of currently unemployed workers that wouldn't be able to earn an income in the region unless they are hired by the Springbank project.

a. Explain if the $119 million represent a measure of workers gross total income or if it is a measure of net new income that wouldn't be created unless the project was developed.

Response 188

a. Economic impacts presented in Volume 3A, Section 17.4 (see the updated section in the response to IR17, Appendix IR17-1) were estimated using national and provincial multipliers taken from the Statistics Canada Interprovincial Input-Output Model (see the updated Section 17.4.1.1 in Appendix IR17-1). This approach estimates total economic impacts, and not just the incremental economic benefits, such as hiring of unemployed persons.

   The number of unemployed persons qualified to work on the Project likely exceeds the Project's labour demands (at peak 360 direct workers plus 155 contractors) by a large margin. This conclusion is based on:

   - size of the construction workforce in the employment and economy LAA. In 2011, it was 56,575 persons (as stated in Volume 3A, Section 17.2.2.3, Table 17-9).
   - unemployment rate in the LAA. In 2011, its was 6.0% (as stated in Volume 3A, Section 17.2.2.2, Table 17-8). (Note that Volume 3A, Section 17 was prepared before the release of the 2016 Census and so 2011 Census data was used.)

However, it is not appropriate to suggest that the employment benefits of the Project are solely related to the employment of the unemployed. It could also result in new persons being added to the construction labour pool, or existing construction workers being employed for a longer period. Thus, the Project will be creating new demand for labour and would also result in additional labour income compared to baseline conditions.

Question 189

Volume 3A, Section 17.4.1.5, Page 17.28

Alberta Transportation states that the *residual effects on the provincial economy are expected to be positive… but low in magnitude*.

a. Provide an estimate of what a positive but low in magnitude impact would be. Calculate what that impact is in reference to the LAA's GDP.

Response 189

a. Residual effect characterization criteria are defined in Volume 3A, Section 17.1.5, Table 17-5. A positive low magnitude effect is one that changes the value of measurable parameters (i.e., value of provincial spending and related employment, gross domestic product (GDP), and tax revenue; see Table 17-2) in a direction beneficial to employment and economy relative to existing conditions but cannot be distinguished from existing conditions within a normal range of variability. For example, over the 2008 to 2017 period, Alberta's annual GDP (in 2011 dollars) ranged from $276 billion to $350 billion, with a standard deviation of approximately $28 billion. By comparison, the Project's estimated contribution to Alberta's GDP is $248 million.

   The assessment of economic impacts on GDP is restricted to effects at the provincial and federal levels in accordance with potential environmental effects, effect pathways, and measurable parameter identified in Volume 3A, Section 7.1.3, Table 17-2. Baseline information presented in Volume 3A, Section 17.2.2.8 is provided in sufficient detail to characterize residual effects on GDP at the provincial and federal levels.

   Economic impacts on GDP are not estimated at the employment and economy LAA because GDP information is generally tabulated at the provincial and federal levels. However, the GDP impact in the LAA can be roughly estimated as follows:

   1. Based on an estimated 80% of Project expenditures occurring in the LAA, and assuming that GDP effects are proportional to expenditure, then the Project's contribution to the LAA's GDP during construction is estimated at $198 million (80% X $247 million).

2. Assuming that the GDP contribution of the LAA can be estimated based on the proportion of the LAA's population compared to that of Alberta overall, then the LAA's 2016 GDP (in 2011 dollars) is estimated as $106 billion (31.6% x $334 billion).
3. Thus, the Project would add 0.19% to the LAA's GDP, based on the estimated 2016 LAA GDP. Therefore, LAA GDP impacts are assessed as being positive but low in magnitude.

Question 190

Volume 3A, Section 17.4.2.1, Table 17-19, Page 17.29
Volume 3A, Section 17.4.2.2, Page 17.29

Alberta Transportation states that the adjustment factor for labor force in LAA is 82% in Table 17-19. However, in section 17.4.2.2, p.17.29 it is stated that the adjustment factor value is 80%.

a. Confirm the adjustment factor value. Update the sections so that the correct value is referenced throughout the EIA.

Response 190

a. Reference to 82% in Volume 3A, Section 17.4.2.1, Table 17-19 is not correct. The correct adjustment factor is 80%. All other references to the employment and economy LAA adjustment factor (80%) are correct and the assessment of effects is correct.

Question 191

Volume 3A, Section 17.4.2.3, Page 17.30
Volume 3A, Section 17.4.2.5, Page 17.31
Volume 3A, Section 17.4.1.5, Page 17.26

Alberta Transportation states *the Project's workforce is estimated to peak at 360 persons during construction with an additional 155 persons directly employed through contractors retained by the Project*. However, on page 17.26, Alberta transportation states *The Project's direct workforce is estimated to peak at 450 persons during construction.*

a. Confirm the highest numbers of workers to be directly employed under the project at a specific time. Update the sections so that the correct value is referenced.

b. How many jobs would be effectively *net new jobs*? This should be the number of jobs that does not represent workers that left their existing jobs (i.e. if they already worked for another project/employer) to work at the Springbank project.

Response 191

a. The Project's peak workforce (the workforce of the month that the most persons were employed) is estimated at 515 persons, comprising 360 direct construction workers and another 155 persons employed by contractors. The peak workforce figure of 450 persons stated in Volume 3A, Section 17, page 17.26 is incorrect. This change in peak workforce does not alter the conclusions of the assessment of residual effects on regional labour force, presented in Volume 3A, Section 17.4.2 9, and in the updated Section 17.4 (see the response to IR17, Appendix IR17-1).

b. Economic impacts presented in Volume 3A, Section 17 (Section 17.4 to Section 17.6 are updated in the response to IR17, Appendix IR17-1) are estimated using national and provincial multipliers taken from the Statistics Canada Interprovincial Input-Output Model. This approach estimates economic impacts, and not necessarily economic benefits. If, for example, there was full employment within the LAA, then the influx of new capital would not create additional employment, though it could create higher employment income if wages associated with the Project were higher than the LAA average.

   However, the number of unemployed persons is qualified to work on the Project is estimated to exceed the Project's labour demands by a large margin. Thus, the Project will be creating new employment, and would also result in additional labour income compared to existing conditions as those who are unemployed take up Project employment. The economic impact is the total new jobs that will be created in the community. It is anticipated that some of these jobs will go to unemployed persons, while others will go to persons that are currently employed. When currently employed persons pick up Project employment there will be a "knock on" effect, as this will then open their current position within the employment market. To the extent that individuals leave a current position to join the Project, this would create job openings for other persons.

Question 192

Volume 3A, Section 17.4.3.2, Page 17-34

In section 17.4.3.2, Alberta Transportation states that cost estimates of construction and dry operations are accurate to within ±50%.

a. Does this mean that the project cost could be 50% higher than already stated?

b. Explain if this variability would affect the cost/benefit ratio already estimated. If so, calculate how much the variability would affect the cost/benefit ratio.

General
May 2019

Response 192

a. The following statement in Volume 3A, Section 17.4.3.2 is not correct: "Cost estimates are considered Class D (accurate to within +/- 50%)". The correct statement is "Cost estimates (construction and dry operations) are considered Class ~~D~~ B (accurate to within ~~±50~~ 15%)".

b. This factor of 15% has been included in the costs used for the benefit/cost analysis of each project.

Question 193

Volume 3A, Section 17.4.3.2, Page 17-34
Volume 3A, Section 17.4.3.5, Page 17.37
Volume 3A, Section 17.4.2.5, Page 17.31

Alberta Transportation states *Project spending can benefit and adversely affect regional businesses... ...Adverse effects relate to increased demand for labour, goods, and services, which can increase operational costs (and therefore decrease revenues) through wage inflation and employee turnover. Increased competition for labour can also decrease the capacity of local businesses through labour shortages. Project spending can also adversely affect the affordability of accommodations through the in-migration of workers to the LAA in search of Project employment.*

At the same time however, page 17.37 states *Adverse effects of Project spending relate to increased operational costs due to wage inflation and employee turnover. Increased competition for labour, leading to wage inflation, could also decrease the capacity of local businesses through labour shortages.*

Alberta Transportation goes on to state on page 17.31 that *As the estimated available supply of skilled labour in these occupations exceeds the project demand, direct employment with the Project is not expected to contribute to labour shortages in the LAA*.

These statements contradict each other.

a. Clarify what is the actual risk of labour shortages, wage inflation and other potential adverse effects. Update the sections so that the information is consistent.

Response 193

a. Quoted text from Volume 3A, Section 17.4.3.3 (reference above is incorrectly given to Section 17.4.3.2) is referring to "Project Mechanisms": this section is only describing how an effect may occur and is not providing a conclusion on predicted Project effects.

   In reference to the updated Volume 3A, Section 17.4 (see the response to IR17, Appendiux 17-1), Section 17.4.3.5, first paragraph, is setting up the discussion of potential for Project-spending related wage inflation. However, as presented in on page 17.37, first paragraph, the potential for wage inflation is considered negligible because, even though estimated average wages of the Project workforce ($74,600) exceeds the provincial average for construction workers ($66,661), the Project workforce requirements only represent a small fraction of the total and available workforce. A similar conclusion is made in the third paragraph on page 17.37 regarding indirect and induced labour.

   The discussion in the second paragraph of page 17.4.2.5 (page 17.31) regarding potential effects on labour force is consistent with the discussion in Section 17.4.3.5, which is that because the Project's labour requirements comprise only a small proportion of the available labour force in the LAA, the Project will not contribute to labour shortages. For a similar reason (the Project's labour requirements comprise only a small proportion of the available labour force), the Project is not expected to contribute to wage inflation.

   Quoted text from Volume 3A, Section 17.4.2.5 relates to changes in the regional labour force. The quoted text aligns with the description of residual effects in Volume 3A, Section 17.4.3.5 (Change in Regional Economy).

Question 194

Volume 3A, Section 12.4.2.1, Page 12.28

Alberta Transportation states *There are five companies that hold dispositions for active pipelines that intersect the PDA. These pipelines would be retrofitted and/or re-routed prior to construction.*

a. Provide an estimate of the cost/loss of revenue associated to the relocation of these pipelines. Explain if this cost will be absorbed by the company in charge of the pipeline and if this cost has been included in the cost-benefit analysis for the Springbank project.

Response 194

a. An Alberta Transportation Type B estimate for the Project was prepared as part of the Preliminary Engineering phase. The cost estimate for relocation/modification of the five pipelines is $12.5 million, based on the available information provided by the pipeline owners. Where information was not yet provided, estimates were based on available industry pricing.

   The costs for the relocation/modification of pipelines will be paid by the Government of Alberta. The cost of pipeline relocation/modification is included in the benefit/cost analysis for the Project (see Volume 4, Supporting Documentation, Document 1).

   The Government of Alberta does not compensate pipeline or utility owners for loss of revenue associated with re-locations.

Question 195

Volume 3A, Section 12.4.2.1, Page 12.32
Volume 3A.Section 17.4.3.5, Table 17-25, Page 17-36

Alberta Transportation states *As part of construction, Highway 22 would be raised in its existing location and moved a maximum of 42 m west. Springbank Road would remain in its existing location. An overpass would be constructed at the intersection of Highway 22 and Springbank Road. Range Road 40 and Township Road 250 would be upgraded for use as a detour route in the event of a flood. Two new bridges are proposed on Highway 22 and on Township Road 242 over the diversion channel...*

a. State the cost of making changes to existing infrastructure and building new infrastructure as described on page 12.32. Explain if these costs have already been included in the cost-benefit analysis. If not, update the cost-benefit analysis to include these costs.

b. Identify these costs in the list of project cost estimates located in Volume3A.Sec.17.4.3.5 Table 17-25 p. 17-36.

Response 195

a. The cost of Highway 22 and Springbank Road modifications is estimated at $12.2 million. These costs were included in the benefit/cost analysis.

b. Appendix IR17-1 (in the response to IR17), Sec. 17.4.3.5, Table 17-25 provides a breakdown of Project costs that are estimated to be procured in the LAA (i.e., 80% of total Project costs) and that table provides information on Project costs aggregated by major cost category, not by sub-components. The cost for new roadway infrastructure and changes to existing

roadway infrastructure is embodied in the information provided in that table, including the following cost items: "concrete and aggregate", "construction services", and "professional and engineering services". For the economic analysis undertaken in Appendix IR17-1, contingency costs are excluded, so the cost basis used is $280 million.

Question 196

Volume 3A, Section 12.4.2.2, Page 12.34

Alberta Transportation states *Alberta Transportation is in consultation with operators of utilities in the PDA to discuss retrofitting and relocation of utilities. Alberta Transportation will develop crossing agreements with operators of utilities in the PDA. Alberta Transportation will continue to consult with utility operators in the PDA and LAA regarding rerouting and realignment of utilities on a case by case basis*.

a. Calculate the cost of retrofitting and relocating utilities.

b. Explain if these costs have been included in the cost-benefit analysis of the project. If these costs have not been calculated and/or not included in the cost-benefit analysis, re-calculate the cost-benefit analysis to reflect these costs. How has the cost-benefit analysis changed?

Response 196

a. An Alberta Transportation Type B estimate for the Project was prepared as part of Preliminary Engineering. The provision for retrofitting and relocating utilities (pipelines, power lines, telephone and internet) is $15.7 million, based on the available information provided by the utility owners. Where information was not yet provided, estimates were based on available industry pricing. Note that IR194 requested the cost to for the relocation/modification of the pipelines alone. The cost for relocation of the pipelines is $12.5 million. The balance of $3.2 million represents the estimate for the remaining utilities (power lines, telephone and internet).

b. The costs for utility relocation/modification are included in the benefit/cost analysis for the project. The costs for the relocation/modification of utilities will be paid by the Government of Alberta. The Government of Alberta does not compensate utility owners for loss of revenue associated with re-locations.

Question 197

Volume 3A, Section 12.4.2.2, Page 12.35

Alberta Transportation states *Signs directing traffic to detours will be installed during construction of road realignments and modifications.*

a. Calculate the costs associated with traffic detours during construction, road realignments and modifications.

b. Explain if these costs have been included in the cost-benefit analysis of the project. If these costs have not been calculated and/or not included in the cost-benefit analysis re-calculate the cost-benefit analysis to reflect these costs. How has the cost-benefit analysis changed?

Response 197

a. The cost of traffic accommodation is embodied in the unit costing estimate or as part of the contingency for the Project. The detailed breakdown cost of traffic detours during construction, road realignments, and modifications will be developed by the construction contractor as part of construction planning.

b. Appendix IR17-1 (see the response to IR17) replaces Volume 3A, Section 14 to Section 17.6. In Table 17-25 of that appendix, is a listing of Project costs that are estimated to be procured in the LAA, and information is aggregated by major cost category, not by sub-components. The cost of traffic accommodation (including traffic detours, land closures, etc.) is embodied in the information provided in Table 17-25, including the following cost items: "construction services" and "engineering services". The updated Table 17-25 is based on the current cost estimate ($312.2 million, exclusive of land cost).

Question 198

Volume 3A, Section 16.4.2.1, Page 16.16

Alberta Transportation states *Project construction would involve the movement of materials and use of equipment and construction vehicles along or across public roads. The addition of this equipment to the local roadways for Project construction, employee commuter traffic, and traffic delivering materials to the site would increase demands on road infrastructure and might cause traffic disruptions.*

a. Calculate the cost associated with increased use of infrastructure and traffic disruptions related to project construction (i.e. quicker wear down of roads by machinery, additional vehicles, etc.).

b. Explain if these costs have been included in the cost-benefit analysis of the project. If these costs have not been calculated and/or not included in the cost-benefit analysis, re-calculate the cost-benefit analysis to reflect these costs. How has the cost-benefit analysis changed?

Response 198

a-b. Costs associated with wearing down of infrastructure due to use of main provincial highways (i.e. Highway 22) are not explicitly calculated in preliminary construction costs estimates due to the inherent uncertainty with knowing the extent of damage (if any).

In general, the incremental increase in traffic related to construction will result in small to inconsequential levels of damage. As a result, costs of increased traffic and highway use are not included in the benefit/cost analysis. Rather than calculating costs, and to assure that damages (if any) are documented, Alberta Transportation records by video and visually inspects the condition of roads prior to construction and after construction and then assesses any physical damages. Should any damage be recorded as a result of construction-generated traffic for the Project, the contractor will be liable for repair as stipulated in Alberta Transportation (2017). Therefore, the province will not be liable for any costs associated with increased use of infrastructure.

REFERENCES

Alberta Transportation.2017. Section 01552, Existing and Temporary Roads. Available at: https://www.transportation.alberta.ca/Content/docType125/Production/Section01552.pdf

Question 199

Volume 3B, Section 12.2.3.3, Page 12.10

Alberta Transportation states Ecological and socioeconomic context—residual effects occur in an area that have been disturbed by human development.

a. Explain the nature of these residual effects. If this addressed in another section of the EIA indicate where this information can be found.

Response 199

a. The statement in Volume 3B, Section 12.2.3.3, Page 12.10 is not correct. The sentence on the socioeconomic context of residual Project effects on change in parks and protected areas and unique sites and special features during flood and post-flood operations should be revised as follows: "Ecological and socioeconomic context—residual effects occur in an area that ~~have been disturbed by human development~~ is resilient and can accommodate measurable changes in land use patterns". This is the definition for land use and management residual effects used in Volume 3A, Section 12.4.2.3. The revision does not affect the conclusions of the assessment in Volume 3B, Section 12.

Question 200

Volume 3A, Section 14.3.2.3, Page 14.69
Volume 3A, Section 14.3.2.3, Page 14.70
Volume 3A, Section 14.3.2.3, Page 14.71
Volume 3A, Section 14.3.2.3, Page 14.72

a. Estimate the loss of value (i.e. wellbeing) associated the identified negative residual effects on current traditional land use (hunting, fishing, trapping, plant harvesting) and recreational activities (camping) such as:

- **Lower availability of traditional resources such as water, soils, birds, roots, herbs and medicines;**
- **Reduction or loss of habitat including wetlands, and fish habitat;**
- **Hinder the movement of traditionally harvested areas due to blockage of natural corridors with physical barriers and sensory disturbance;**
- **Increased mortality of traditionally harvested wildlife; and**
- **Reduced water quality.**

b. Incorporate this loss on value (i.e. wellbeing) in the cost-benefit analysis of the project. How has the cost-benefit analysis changed?

Response 200

a. The degree to which the Project may adversely affect current traditional land use and recreational activities is assessed qualitatively and is presented in Volume 3A, Sections 12.5 and Section 14.4. The residual effects characterization for traditional land and resource use (TLRU) and land use and management is informed by the results of linked biophysical valued component assessments, and the characterization also relies on the results of Alberta

Transportation's Indigenous engagement process, a review of relevant publicly available literature, and past project experience.

As noted in Volume 3A, Section 14.2.4, Indigenous groups indicated that TLRU activities may occur within the Project area, including hunting, trapping, fishing, and plant gathering. The Project is located predominantly on private lands that has been used for ranching and agriculture since the late 1800s and, although some land owners may permit access to Indigenous groups for TLRU activities, opportunities for TLRU activities are more limited compared to unoccupied Crown land. The assessment acknowledges and considers the change in access for those activities that may currently be undertaken on private lands, ,

Since filing of the EIA, Alberta Transportation has created a draft post-construction land use document for the Project (Appendix IR2-1). This document provides the draft principles of future land use for the PDA, which was developed through the engagement process and includes feedback received by First Nations and stakeholders. The principles apply to the land use area (LUA) outlined in yellow in Figure 1 of Appendix IR2-1. The primary use of all lands within the PDA, including the LUA, is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses include traditional activities (the exercise of treaty rights such as hunting) and will be allowed to occur within the land use area (LUA) identified in Figure 1 of Appendix IR2-1.

The qualitative approach to determine the significance of the Project's effects on those topics listed in bullets in a. of the query was undertaken in accordance with the AEP's final Terms of Reference (issued on February 5, 2015), the Canadian Environmental Assessment Agency's (CEA Agency's) Guidelines for an Environmental Impact Statement (issued on August 10, 2016), and the CEA Agency's *Annex 2: A) Early Technical Issues and B) Advice to the Proponent* (issued December 19, 2017). The approach followed standard assessment methods appropriate for the scope and nature of the Project.

b. The TLRU assessment relied on information obtained through the Indigenous engagement process for the Project, including Project-specific traditional use studies (TUS). As noted in Volume 3A, Section 14.2.4, Indigenous groups indicated that TLRU activities may occur within the Project area, including hunting, trapping, fishing, and plant gathering.

   Volume 3A, Section 14.2.4, Table 14-3 summarizes traditionally used species that occur within the Project area and that are generally harvested by Indigenous groups, but no information about the frequency of harvests, quantity of harvests, or consumption of traditional or country foods was provided by Indigenous groups. Consequently, it is not possible to reliably estimate consumption rates of traditional or country foods harvested by Indigenous groups from the TLRU RAA. Without consumption rates, it is not possible to provide a financial estimate for inclusion within the benefit/cost analysis of the Project.

However, the potential adverse effects to the wellbeing of Indigenous peoples associated with topics noted in bullets in a. of the query is evaluated in Volume 3B, Section 14.4. As stated in Section 14.4, the effects of the Project on TLRU will not result in the long-term loss of availability of traditional use resources or access to lands currently relied on for traditional use practices or the permanent loss of traditional use sites and areas in the RAA.

In addition, based on the draft post-construction land use plan (see the response to IR2, Appendix 2-1), the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to exercise TLRU.

Question 201

Volume 1, Section 7.3, Page 7.7

Alberta transportation states *Alberta Transportation will encourage companies owned by Indigenous groups to bid on construction contracts for the Project. Members of Indigenous groups may be hired as monitors during construction.*

a. Identify and discuss specific economic opportunities potentially available to Aboriginal communities and groups, other local residents and businesses regarding employment, training needs, and other economic development opportunities arising from the Project.

Response 201

a. Alberta Transportation is committed to Indigenous participation in the Project, including training, employment, and contracting opportunities. Alberta Transportation also commits to discussing business opportunities with local businesses as part of the competitive bid process.

Question 202

Volume 1, Section 7.5, Page 7.69

Alberta transportation states *Engagement with Indigenous groups will continue as the Project progresses. Alberta Transportation is committed to providing project information to Indigenous groups as the design becomes internally reviewed and approved.*

a. Elaborate on strategies to be followed to engage Indigenous groups as the Project progresses.

b. Are there any proactive initiatives (e.g. training) to help Aboriginal and local companies be more successful in the competition for contracts related to the project?

General
May 2019

Response 202

a. Engagement with Indigenous groups has been ongoing since 2014 and will continue as the Project progresses. Ongoing engagement activities will include further face-to-face meetings, phone calls, emails and mail outs, and ongoing support for the completion of any further TUS. In addition, Alberta Transportation has committed to providing a written response to the results of the TUS received to date from each Indigenous group during the regulatory phase of the Project.

   The engagement process is an iterative process and strategies to ongoing information sharing will reflect the interests of the Indigenous groups brought forward. Alberta Transportation will continue to document this information and, through its engagement process, will continue to seek to understand and address these concerns.

b. Alberta Transportation is preparing an "Indigenous Participation Plan" for the Project. The goal of this Plan is to create training, employment, and contracting opportunities with interested Indigenous groups potentially affected by the Project. Alberta Transportation aims to obtain Indigenous comment and feedback on the draft Plan, the final draft of which will identify how that feedback has been incorporated, as appropriate.

General
May 2019

3.4 TRANSPORTATION

Question 203

Volume 1, Section 3.2.7, Page 3.18

Alberta Transportation states *All permanent access roads for the Project will be gated with swing gates and vehicle access will be limited to AEP operations and maintenance*.

a. Will the public have access to any parts of the permanent access roads? If so, describe the scenarios where the public may be using parts of these roads. In addition to the swing gates will any signage be in place to indicate that the road is restricted to the public? If so, indicate what signs will be in place, where and how many.

b. Can anyone move the swing gates or are there locks in place to ensure that only AEP staff can move these gates to obtain access? Explain.

c. How will Alberta Transportation ensure that the gates remain closed after AEP maintenance and operations come and go from the site? Explain.

d. Will there be any way to monitor if the public uses the restricted roads despite having the swing gates in place?

Response 203

a. The public will not have access to the access roads within the PDA.

   During construction, signs will be installed indicating that restricted roads are not open to the public. Signage will also indicate that all visitors are to report to the site office. Unauthorized individuals will be asked to leave the site. These signs will be in place at all access points to the Project site.

   When construction is complete, the public will not have access to the permanent roads as indicated in Volume 1, Section 3.2.7, Page 3.18), "All permanent access roads for the Project will be gated with lockable swing gates and vehicle access will be limited to AEP operations and maintenance."

b. In accordance with AEP standard practice, any swing gate restricting access to an area is installed with a suitable locking device. Only AEP operators or those authorized by AEP staff will have the ability to open locks.

c. When construction is complete, the Project will be turned over to AEP for operation and maintenance. Compliance with remaining mitigation measures and on-going operations and maintenance commitments (including ensuring required gates remain closed and locked) will be the responsibility of AEP. Standard practice for any Government of Alberta employee, whether Alberta Transportation or AEP, is to close and lock any gates upon entry and/or exit to any restricted area. This practice will continue upon construction completion and for the life of the Project.

d. A combination of signage and locking swing gates will be installed to identify restricted access areas. No monitoring of public use of restricted roads is planned.

Question 204

Volume 3A, Section 16.4.2.2, Page 16.16

Alberta Transportation states *A project specific traffic accommodation strategy will be developed for the Project*.

a. Why was the traffic accommodation strategy not completed prior to the EIA being submitted considering the fact that the access routes for the Project had already been determined? When will the traffic accommodation strategy be ready? How will this strategy be communicated to AEP so it can be reviewed? If the traffic accommodation strategy has already been developed provide the strategy and the methodology behind how it was developed.

Response 204

a. A traffic accommodation strategy (TAS) has not yet been developed.

The Contractor prepares a TAS in accordance with Alberta Transportation (2010), which describes methods for accommodating traffic throughout the work zones.

The TAS consists of drawings detailing the configuration of temporary construction signs, other traffic control devices in the work area(s), and written confirmation of the methods or procedures being used by the Contractor to address specific traffic safety related issues or situations at the work zone.

When localized detours are required, the Contractor's TAS will include detailed drawings of proposed traffic accommodation measures, signed and stamped by a professional engineer registered in the Province of Alberta.

The Contractor will submit the TAS to the Consultant a minimum of 14 days prior to the pre-construction meeting for the Project. The Consultant will review the TAS and communicate any concerns to the Contractor within 7 days of the pre-construction meeting. Any issues or concerns regarding the Contractor's proposed TAS will be addressed to the mutual satisfaction of the Contractor and the Consultant prior to the commencement of the work.

A copy of the TAS will be provided to AEP, as information. Any comments received from AEP will be taken under consideration by Alberta Transportation.

REFERENCES

Alberta Transportation. 2010. Specifications for Bridge Construction. Appendix A. Section 7, Specification 7.1, Traffic Accommodation and Temporary Signing. Available at: http://www.transportation.alberta.ca/Content/docType246/Production/10bcsApxA.pdf

General
May 2019