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Memo

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DATE: March 31, 2021

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Re: Interim Memo - Technical Review of Hydrology and Aquatic Ecosystems Sections of the Environmental Impact Statement for the Springbank Off-Stream Reservoir Project

1.0 INTRODUCTION

The Springbank Off-Stream Reservoir Project (SR1; the Project) is a proposed project to construct a flood control structure on the Elbow River west of Calgary, Alberta. The project is required to receive both federal (Canada) and provincial (Alberta) approval. The Project entered the federal Environmental Assessment (EA) process in 2016 pursuant to the requirements of the then-in-force *Canadian Environmental Assessment Act*, 2012. The EA process is now nearing its conclusion and Stoney Nakoda Nation (SNN) is planning to make several sets of final interventions to Alberta's Natural Resources Conservation Board (NRCB) and to the Impact Assessment Agency of Canada (IAAC; the Agency).

To support its work, SNN has retained PGL and its subconsultant, Boreal Water Resources Ltd. (Boreal), to complete a review of two subjects (hydrology and design; aquatic ecology) contained within the Project's Environmental Impact Assessment (EIA) and provide comments regarding both (a) their scientific/technical sufficiency for effects assessment and (b) their sufficiency as a decision-making tool regarding potential effects to SNN's interests.

Central to our review has been whether the EIA has been scoped, and the right data has been collected, to address concerns about regional and cumulative effects on SNN's interests and the way in which effects to key biophysical disciplines affect the ability to speak to these effects.

NOTE: The current memo is a revised version of a memo originally written on February 25, 2021:

- Sections 4.1.1 to 4.5.5 have been revised and expanded;
- Section 4.1.6 has been deleted;
- A new Section (Section 5.0) has been added to discuss EA methodology and implications for significance determinations and offsetting planning. This section also addresses some of the responses provided by Alberta Transportation ('Appendix J to The Reply Submissions of Alberta Transportation to the Interveners and Hearing Participants who are Opposed to the Springbank Off-Stream Reservoir Project ("SR1")'", dated March 12, 2021; and,
- The original Sections 5.0 and 6.0 have been renumbered to accommodate the addition of a new Section 5.0

This version of the memo supersedes the PGL/Boreal memo dated February 25, 2021.

2.0 SCOPE OF THE REVIEW

The EIA at issue was prepared for and by Alberta Transportation. Entitled "Springbank Off-stream Reservoir Project – Environmental Impact Assessment," the version being reviewed is dated 2018 and, by virtue of being posted on the public record[1], is assumed to be the most recent version of the EIS. The sections that have been reviewed are as follows:

- EIS Volumes 3A & 3B, Section 06 – Hydrology
- EIS Volumes 3A & 3B, Section 08 – Aquatic Ecology

To supplement our review of the Aquatic Ecology material, we have reviewed a PowerPoint presentation on potential habitat offsetting options prepared by the Proponent and presented to SNN in November 2020, as well as documents listed in Section 7.0 – References.

3.0 LIMITATIONS

SNN requested an extension of three months from the NRCB to complete a fulsome review of the EIA in order to prepare its interventions. This extension was denied. As a result, the current review has been significantly constrained by the time available to complete the work. The results below must be considered a 'high level' review and cannot be construed as a complete list of issues that may affect the usefulness of the EIA as a tool for assessing impacts to SNN. This caveat is particularly important given the interconnected nature of the various sections of the full EIA and our inability to review all of them due to time constraints.

4.0 TECHNICAL COMMENTS BY SUBJECT MATTER

Our technical comments are arranged by technical discipline, per the EIA Table of Contents.

Section 4.1 was prepared by Derek McCoy of Boreal Water Resources; Sections 4.2 and 5.0 were prepared by Leslie Beckmann of PGL Environmental Consultants (PGL). Both Sections were reviewed by Matt Hammond, Senior Environmental Consultant at PGL.

4.1 Hydrology

SNN posed several questions for consideration as we completed our review; answers to these questions will help SNN evaluate the significance of Project effects on its interests. We have addressed these questions in sections 4.1.1 through 4.1.3, below. Sections 4.1.4 identifies a number of additional issues that may affect SNN's ability to rely on the Project EIA for decision-making.

4.1.1 Why weren't flood management options on the Bow River considered?

As stated by the proponent, "*[t]he purpose of the Project is to help reduce the effects of future extreme floods on infrastructure, water courses and people in the City of Calgary and downstream*" (Alberta Transportation, 2021). Safeguarding Calgary from floodwaters can be achieved a number of ways, including controls on the Elbow River and/or the Bow River and its tributaries. However, when SNN questioned why options were not considered on the Bow River, the Proponent's response was "*[t]he scope of Project focuses on flood mitigation within the Elbow River watershed*" (IAAC, 2021). This response does not sufficiently answer the question as to why flood mitigation options were not considered on the Bow River system.

While it is possible that this justification exists somewhere within the background materials, Boreal has been unable to find this within the time afforded for this review. We cannot, therefore, answer SNN's question. In order that SNN be able to consider the Project in the context of broader flood protection for the region, we kindly request that the Proponent provide additional clarity to SNN regarding regulation of the Elbow River over alternative sites in the Bow watershed. We would specifically recommend that useful information in this regard would be consideration of comparisons between the current flood control option (SR1) with

[1] Springbank Off-stream Reservoir Project EIA - Volume 1: Project Description (ceaa-acee.gc.ca)

scenarios that explore concomitant flood control in the Bow/ Kananaskis watersheds, or an alternative flood control structure on the Bow River.

4.1.2 Is the Project enough to protect the people of Calgary?

While there is no doubt that the proposed project, if operated as intended, will help to reduce flood magnitudes in downstream reaches, it is unclear what the future extents of inundation will be after this project is commissioned. That is, are there conditions under which the Elbow River could still overtop its banks, leading to flooding in communities up- or downstream of the Project infrastructure. Put most simply, we understand SNN's question to be: *does this project do enough to protect downstream values from future flooding?*

The design flood (equivalent to the 2013 flood) peaked at 1,170 m^3/s. The Project's diversion channel is limited to a capacity of 600 m^3/s, meaning that in an event the size of the design flood, up to 570 m^3/s will still be released downstream. This flow is greater than a 1-in-50 year flood at the diversion structure and it is understood that this residual is to be attenuated by the Glenmore Reservoir. However, this would appear to neglect the addition of unmitigated inflows sourced between the diversion site and Sarcee Bridge.

Through our brief review of the Project materials, we were unable to find any information related to inundation mapping and/or risk assessment for floods of different magnitudes. Based on what we reviewed, we do not feel there is enough information in the EIA to answer SNN's question in the affirmative. We therefore recommend that the Proponent be requested to provide additional information relating to future inundation downstream of the diversion for SNN to review in order that potential effects on their interests can be properly evaluated. Of specific interest would be inundation modelling and any flood hazard/risk assessment that has been completed to date for operational scenarios up to and including the design flood estimate of 1,170m^3/s.

Subsequent to the original memo, a further comment regarding the design flood is as follows:

Per Stantec (2019), 600 m3/s has been selected as the design diversion flow. It is understood that a diversion flow of 480 m3/s meets the design intent, which is to maintain a maximum release of 170 m3/s from the Glenmore Reservoir. The additional 120 m3/s (+25%) is intended to allow for some reduction in capacity as may occur due to blockage from sediment or debris, or malfunction of one of the diversion gates. This logic appears to be reasonable.

However, as per our comments in the February 26, 2021 letter, it remains unclear if the concept provides sufficient mitigation of potential flooding downstream of the Project location (not just below the Glenmore Reservoir). That is, it is unclear if there needs to be additional reservoir storage capacity or diversion flow capacity to adequately protect values between the Project and Glenmore Reservoir.

4.1.3 Has the Project considered the effects of climate change on flood frequencies and volumes?

Further to the above point, in the time available for reviewing the EIA documentation, Boreal was unable to identify any information related to future effects that climate change may have on the frequency or magnitude of peak flows in the Elbow River basin. It is well-documented that climate change is expected to result in increased intensity and duration of storm events, which would translate into more severe flooding conditions in the Elbow River. Specifically, it is understood that the past is no longer a predictor of the future where flood return periods are concerned: in terms of flow magnitude, the "new normal" 100year flood will be larger than the historical record suggests; in frequency terms, the historical 100 year flood will occur more frequently than every 100 years.

The Water Survey of Canada (WSC) station used for determining the design flood for this Project was station no. 05BJ004: Elbow River at Bragg Creek, AB. The annual maxima flow series (the largest flows occurring in each year) for this station exhibits a distinct upward trend with time, even when the 2013 event is excluded. This observation, coupled with the potential for future increases in storm intensity, suggests

that the diversion will be activated more frequently than the EIA suggests. This also raises the possibility of the occurrence of floods that are larger than the design flood within the anticipated project life.

Given the above, we cannot answer SNN's question in the affirmative. The Proponent is requested to clarify how climate change was considered in the development of this project or rationalize why it was excluded from consideration.

4.1.4 Additional Issues

The following subsections address additional issues identified during our review.

4.1.4.1 Larger-scale Hydrological Effects

The EIS sections reviewed are largely limited to discussions of effects to sediment transport and channel aggradation/degradation. There is no consideration given to large but localized effects associated with the installation and operation of the temporary diversion works (cofferdam, right-bank diversion channel, etc.) or permanent structures. Without proper mitigations, these Project elements could result in excessive bed scour, bank erosion or slope failure, along with consequent effects to environmental values as excess sediments are transported downstream.

Further, there is no consideration given to what design floods might be adopted for the construction period to protect against flooding of the active work areas and associated environmental effects. The Proponent should define this risk somewhere in the Project materials and mitigations should be proposed. This presents a much greater risk than turbidity increases, which appears to be the focus of the EIA mitigations.

Taken together, these issues suggest that potential downstream effects have not been fully considered and that further work is required to assess potential effects of Project infrastructure on river shape, depth, and velocity downstream of the project infrastructure, with consequent effects on downstream aquatic ecology. Once this work is done, it may be possible to develop detailed mitigations that could address these concerns.

4.1.4.2 Infrastructure Damage

The service spillway concept includes two 24 m wide Obermeyer gates separated by a central pier. It is noted that, in practice, the gates will only be raised when the river flow exceeds 160 m^3/s, of which there have been twelve occurrences since 1934. This would mean that the Obermeyer gates are in the lowered position for most of their design life and where they will be exposed to erosion from bedload material passing over the structure. From personal experience (D. McCoy), such erosion can destroy the fasteners between Obermeyer panels and remove protective coatings, thereby accelerating corrosion. As well, leaving the spillway in a lowered position exposes the panels and the rubber bladder to anchor ice, which can further accelerate deterioration and may hinder use until ice thaws at the start of the freshet.

Based on the current design concept, there would be maintenance requirements for at least the following components: radial gate trunions and hoists; hydraulic power units (HPUs); Obermeyer blowers; air bladder and restraining straps; panel fasteners and hinges; sluice gate actuator and hoisting mechanism; water level sensors; heat tracing (as required); reservoir outlet controls; back-up generators; power and control systems.

SNN should be entitled to review the proposed operation and maintenance plans such that they can be provided some comfort that a facility designed to operate once every few years (or once a decade even) can be considered reliable.

It would be useful if the Proponent could provide additional information regarding how it will ensure that the Obermeyer gates are operationally-ready and in good repair given their infrequent use along with extended periods of being exposed to flow, bedload and ice build-up: this material has not been presented in the reviewed sections of the EIS.

Related to the previous comment, the Project relies on equipment that requires careful "control logic" design, operational knowledge and training and regular maintenance to ensure that it is functional when it is called upon. There is limited consideration given to passive control features other than the emergency spillway and the off-stream storage dam spillway. Incorporation of passive control features would eliminate many of the issues around equipment reliability and maintenance.

Further, all equipment currently presented in Stantec (2019) has a default failsafe mode that releases water down the Elbow River, not directing it towards the reservoir. This appears to be counterintuitive to the purpose of the Project. Would it not be more logical to incorporate failsafe modes that continue to mitigate downstream flooding?

As an example of potential passive features, it would appear that a simple overflow weir could replace the diversion inlet structure and associated mechanical and electrical components. Maximum flow to the reservoir would then be controlled by a combination of the sluice gate(s), off-stream storage dam spillway, and diversion channel design. Redundancy in the event of a sluice gate malfunction could be provided by an optimized emergency spillway.

While it is possible that passive control features have been considered and ruled out, we have not been able to find such information to date.

4.2 Aquatic Ecology

Aquatic ecology is the study of the biological communities inhabiting water. It includes the study of fish, fish habitats, and the biotic communities on which fish depend for survival.

As with the Hydrology review, SNN posed a number of questions for consideration during our technical review. These are addressed in sections 4.2.1 and 4.2.2; additional concerns are noted in Sections 4.2.3.

4.2.1 Are the fish and fish protection mitigations adequate?

The mitigations provided are identified for construction in sufficient detail that short term construction effects may be adequately managed. Of greater concern are two issues:

- Reliance on as-yet undeveloped management plans (see section 4.2.2) for fish protection during and following a flood; and
- Insufficient investigation and carry-forward of hydrological effects (see section 4.1.6 of the current memo), with consequential effects on fish and fish habitat.

Further, a salvage plan for fish trapped within the reservoir and stranded during release was not initially identified as needed and, if it has subsequently been proposed, has not been developed in sufficient detail to determine if it is sufficient to prevent significant fish mortality.

4.2.2 Is the fish habitat offsetting plan sufficient?

The EIA notes that Project construction will result in the permanent alteration of fish habitat. It further notes that "with mitigation, dry operations is [sic] unlikely to result in permanent alterations to fish habitat that could affect fish, including fish that support CRA fisheries, or their distribution or abundance in Elbow River." The Application, however, does not provide sufficient detail regarding the mitigations to support this statement.

Further, it is understood that the Project will require a permit pursuant to the federal Fisheries Act and that, to that end, Fisheries and Oceans Canada (DFO) is now beginning engagements with SNN and other nations regarding offsetting of altered habitat.

The deferral of detailed offsetting to the post-approval period severely constrains the ability of the EIS to make meaningful conclusions regarding residual impacts to fish: without understanding what the detailed mitigations will be (DFO generally requires conceptual engineering designs to evaluate the adequacy of offsetting), it is not possible to conclude that dry operations are "unlikely to result in permanent alterations to fish habitat."

Finally, we note that in initial discussions, the Proponent has proposed to develop offsetting for habitat losses in the Elbow River in the Bow River watershed. While this nominally 'offsets' losses, habitat in the Bow is not of benefit to fish being impacted within the Elbow River and the suggestion that substituting harvesting in the Bow for the lost ability to harvest in the Elbow fails to understand the importance of place in the exercise of traditional practices.

4.2.3 Species assessed

It is understood that it is not possible to study every species and it is therefore standard practice in EA to select species for study that are representative of the broader range of species. In general, the desire is to study species that reflect a broad range of ecological niches and human uses; a rationale is provided for species selection and omission.

We note that Table 8-4 (Vol 3A, Section 8) identifies five fish species – Burbot, Northern Pike, Trout, Sucker, and Mountain Whitefish – as used by SNN for traditional purposes. We further note that of these, only trout and mountain whitefish (Table 8-6, Vol 3A, Section 8) were selected as indicators of aquatic ecology and habitat quality/quantity. We finally note that no rationale was provided for the selection of indicator species.

The failure to include burbot as an indicator species, without providing a rationale for doing so, is of concern. Burbot are outliers in terms of their needs compared to the species selected for study: they are winter (January/February) spawners where trout and whitefish are spring and fall spawners respectively; and, they prefer to spawn in deep pools where trout and whitefish prefer riffles and runs respectively.

This suggests that the assessment may not adequately identify effects on this species and/or may not have identified sufficient mitigation during construction or appropriate habitat offsetting to prevent adverse effects to this species and the fisheries relying on them.

5.0 RELIABILITY OF THE EFFECTS ASSESSMENT FOR DECISION-MAKING

In its response ("March 12, 2021 Response") [2] to the previous iteration of the current memo, Alberta Transportation (AT) has made the following statements

RE PGL/Boreal Memo Section 4.2.1:	*Alberta Transportation is developing an Offset Measures Plan that meets the objectives of the federal Policy for Applying Measures to Offset Adverse Effects on Fish and Fish Habitat under the Fisheries Act published in December 2019. The Offsetting Plan will include measurable success criteria to evaluate the effectiveness of the offsetting commitments. These success criteria will be monitored on a schedule that has been agreed upon with DFO (p.6)*
RE PGL/Boreal Memo Section 4.1.1:	*The Government of Alberta (GoA) is pursuing flood mitigation projects on both the Bow River and the Elbow River. The SR1 Project is the selected project for the Elbow River currently undergoing regulatory review. The Project underwent a rigorous selection process as detailed and described in the EIA Volume 1, Section 2.2.1 (Exhibit 20). Alberta Transportation chose SR1 as the preferred option for environmental, technical, economic and timing reasons (p.1).*

Impact Assessment (IA) as a discipline is a predictive decision-making tool used to identify and evaluate the potential effects of a project. Since its first use in the United States in the 1970s, a deep body of accepted best practice has been developed.

Decision-makers should be able to find a credible analysis of those specific effects of concern to them and their constituents in an EA. SNN is a decision-maker on behalf of its respective Nations members. SNN has articulated concerns regarding a number of issues; relevant to the current memo are those related to fish habitat

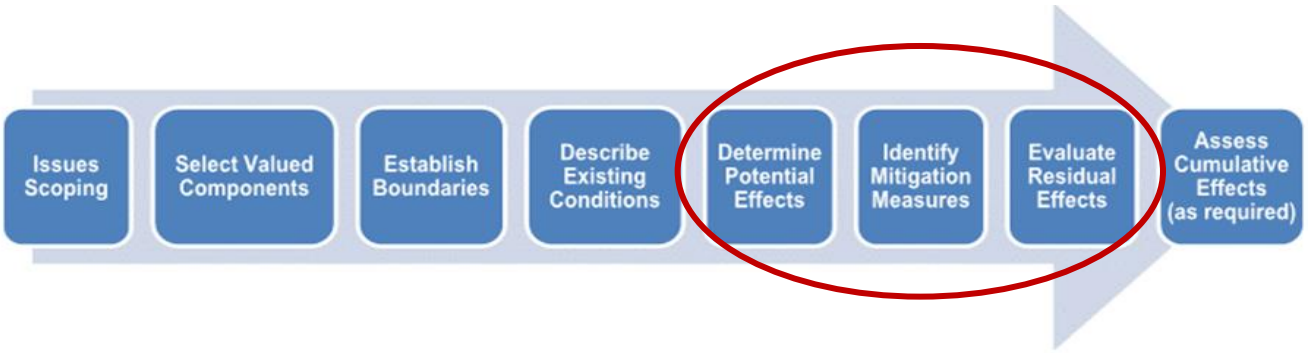
[2] Appendix L to The Reply Submissions of Alberta Transportation to the Interveners and Hearing Participants who are Opposed to the Springbank Off-Stream Reservoir Project ("SR1"): AT response to PGL Environmental Consultants Memo, March 12, 2021

and the cumulative effects of flood protection. These concerns have not yet been satisfactorily addressed, such that it is not yet possible to say whether or not the project is good for SNN's members.

AT's quotations referenced above suggest that fulsome answers to these concerns are not yet available. A brief recap of Impact Assessment methodology will demonstrate why this is so.

5.1.1 Impact Assessment Methodology

IA Methodology can easily be summarized by the following graphic[3]



Critical to the current discussion are the circled steps, which require:

- the identification of possible effects,
- the identification of mitigation measures, and,
- based on the application of the mitigation measures, a determination of the remaining or 'residual' effects.

It is these residual effects that are then evaluated for a) contribution to cumulative effects and b) whether decision-makers deem the benefits outweigh the adverse effects.

5.1.2 SR1 error regarding mitigation

Key to being able to identify residual effects is an understanding of the efficacy of mitigations; understanding efficacy is generally achieved by assessing specific details of the proposed mitigation.

In the case of an application to alter or destroy fish habitat, Fisheries and Oceans Canada (DFO) requires both **mitigation** to reduce adverse effects and, where residual effects cannot be avoided, **offsetting** such that there is no net loss of habitat. In order to evaluate mitigation and offsetting, DFO requires[4]:

Information required to evaluate mitigation	Information required to evaluate offsetting
• Details which describe the best available measures and standards to be applied; • Details which describe how the measures and standards will be applied to avoid the death of fish or to mitigate the extent of their death or, to avoid or mitigate the harmful alteration, disruption or destruction of fish habitat; • Analysis of the effectiveness of the measures and standards proposed, including the expected outcomes (i.e., qualitative characterization and quantitative metrics to avoid the death of fish or to mitigate the extent of their death or to avoid or mitigate the harmful alteration, disruption or destruction of fish habitat);	a) the geographic coordinates of the location where offsetting measures will be implemented; b) a small-scale site plan identifying the general location and boundaries of the location where the measures will be implemented; c) a detailed description of the measures and how those measures will meet their objectives; d) a detailed description of the monitoring measures that will be implemented to assess the effectiveness of the measures referred to in paragraph (c); e) a detailed description of the contingency measures and associated monitoring measures that will be implemented if the measures referred to in paragraph (c) do not meet their objectives; f) a detailed description of any adverse effects on fish and fish habitat that could result from the implementation of the plan; g) a detailed description of the measures and standards that will be implemented to avoid or mitigate the adverse effects and how those measures will meet their objectives; h) the timeline for the implementation of the plan; i) an estimate of the cost of implementing each element of the plan; and

[3] EAO, 2013. Guideline for the Selection of Valued Components and Assessment of Potential Effects, September 9, 2013.

[4] Applicant's Guide Supporting the "Authorizations Concerning Fish and Fish Habitat Protection Regulations" (dfo-mpo.gc.ca)

Information required to evaluate mitigation	Information required to evaluate offsetting
• Identification of when the expected outcomes will be achieved; • Identification of all methods used to assess the effectiveness of the identified measures and standards; and • Indication of the reference of any standard used.	j) if the implementation of the plan requires access to lands, water sources or water bodies that are not owned by the applicant, a description of the steps that are proposed to be taken to obtain the authorization required for the applicant, the Department of Fisheries and Oceans and anyone authorized to act on the Department's behalf to access the lands, water sources or water bodies in question. This information is not required if the applicant is Her Majesty in right of Canada, Her Majesty in right of a province or the government of a territory."

It is our view that if the proponent understands the habitat impact and understands that offsetting is already required, it is reasonable to require that the offsetting be sufficiently advanced prior to project approval so that it's efficacy can be evaluated by decision-makers. It is further our contention that if the Minister of Fisheries and Oceans requires the above information, this level of detail should be presented in the Application itself. Given that the flood of record, to which the project is designed and occurred in 2013 – eight years ago – it seems that there has been ample time to do this work.

In the absence of the information, it is not possible to make a determination whether SNN's specific concern – whether fish and fish habitat in the Elbow River – is functionally unharmed. This piece of information is critical to addressing the overlying issue: whether Indigenous and Treaty rights that rely on the continuing health of this biophysical component of the environment are affected.

5.1.3 SR1 error regarding cumulative effects

Compounding the above, the Application does not speak to issues that represent a concern for SNN with respect to cumulative effects. Specifically, SNN is concerned – with apparent good cause given the AT quotation regarding expected work on the Bow River, that the works on the Elbow River are not, in themselves, sufficient to protect Calgary from another flood equivalent to the 2013 flood-of-record.

This insufficiency represents a common – and avoidable – error in impact assessment related to overly narrow scoping. It may be rectified in one of two ways: either by (a) assessing both the Elbow and Bow works together (since this is understood to be the plan for full protection of the City of Calgary) or by (b) including future works on the Bow river as one of the projects to be considered assessing the combined – or cumulative – effects of the SR1 project with the future Bow project.

Nor is either option unreasonable:

- The former – a single assessment of large scale integrated infrastructure project – is considered to be more robust and more efficient and has been done in other places around the world.[5]

- Failing that, the latter – consideration of Bow River works in the cumulative assessment of the SR1 project – is a requirement: a cumulative effects assessment must consider the effects of the project under assessment in conjunction with "all reasonably foreseeable projects." Given AT's statement that "the Government of Alberta (GoA) is pursuing flood mitigation projects on both the Bow River and the Elbow River" suggests that works are more than "reasonably foreseeable," they are expected.

In the absence of either inclusion of Bow River works in the cumulative effects assessment or a comprehensive assessment of both Elbow and Bow River works, the Assessment contains insufficient information for us to be able to provide a confident opinion that the SR1 project, in concert with other works, will not cause significant cumulative effects on fish and fish habitat.

Specifically, we cannot say:

- If the promised offsetting (some of which is proposed to be built on the Bow River) will meet the biophysical needs of fish populations on the Elbow River;
- if future Bow River work will result in the destruction of the habitat constructed to offset Elbow River impacts; or,

[5] Cristiano Vilardo & Emilio Lèbre La Rovere (2018) Multi-project environmental impact assessment: insights from offshore oil and gas development in Brazil, Impact Assessment and Project Appraisal, 36:4, 358-370, DOI: 10.1080/14615517.2018.1475615

- how much additional fish habitat will be affected by the Bow River works

The absence of information on these combined effects to the biophysical underpinnings on which exercise of a number of Indigenous and Treaty rights are based means that the EIS does not serve SNN well as a tool for making decisions about impact to their rights.

6.0 CONCLUSIONS

The reviewers were asked to consider whether the information provided in the hydrology and aquatic ecology sections are technically robust and sufficient as a basis on which SNN – or regulators acting in SNN's interests – can make a determination of the effects of the Project on SNN's rights.

To the extent that there are significant technical questions outstanding regarding the biophysical information used to assess environmental effects, we are of the view that the potential residual adverse effects of the project on hydrology and aquatic ecology are likely to have been underestimated.

These shortcomings may lead to an underestimation of impact to SNN's rights and, as such, should not be considered a reliable basis on which to make regulatory decisions. If provided, we are of the view that the additional information requested above will improve the reliability of the EIS.

7.0 REFERENCES

Alberta Transportation, 2018. Springbank Off-stream Reservoir Project, Environmental Impact Assessment, Volume 1: Project Description. Prepared by Stantec, March 2018.

Stantec, 2019. Alberta Transportation Springbank Off-Stream Reservoir Project, Response to NRCB and AEP Supplemental Information Request 1, July 28, 2018. Appendix IR14-2 Springbank Off-Stream Reservoir Project – Conceptual Design Update. May 2019.

Impact Assessment Agency of Canada (IAAC), 2021. Springbank Off-stream Reservoir Project, Draft Environmental Assessment Report. 176 p.