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Little Saskatchewan First Nation (LSFN)

Lake Manitoba and Lake St. Martin Outlet Channels Project

Environmental Impact Statement – Comments for the Detailed Technical Review of the EIS (Sufficiency Review)

May 25, 2020

NOTES:

- *For greater clarity, all "Comments" provided require substantive responses.*
- *In addition, absence of comments or requested revision does not imply acceptance by LSFN of sections of the EIS. LSFN reserves the right to review and comment on all aspects of the EIS during the detailed technical review process and subsequent Information Request phase of the EA.*
- *References to numbered items (e.g., LSFN-01, 02) are to the numbered items in the table.*

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
1. Project Description					
LSFN-01	LSFN	2. Project Justification and Alternatives Considered, 2.1 Purpose of the Project	1.0 Introduction and Overview 1.1 General	The introduction and overview does not identify the relationship between the proposed project and the existing flood management structures at the Portage Diversion and Fairford Water Control Structure, both which were utilized to divert flood waters in 2011 from the Assiniboine River into Lake Manitoba, and further into Lake St. Martin, resulting in severely elevated flood water levels in both lakes. The EIS Guidelines state that the EIS should include a description of "[t]he interaction of the project with Manitoba's integrated water control and flood mitigation network". The connection between the project and existing flood management practices and infrastructure is an important part of the project rationale. Without the pre-existing structures, and the policy expectation on the part of Manitoba that the diversion of flood waters from the Assiniboine River into Lake Manitoba and Lake St. Martin will be required in future, the project may not have been considered to be feasible or desirable. While subsection 2.3.1.2 provides some limited overview, no detailed description has been provided in respect to the distribution of costs and benefits amongst potentially affected communities of the operation of the provincial water control structures since 1961.	**Please provide a supplemental filing identifying the historical context, factors and contemporary policy considerations and decisions in respect to Manitoba's existing integrated water control and flood mitigation system since 1950, and providing a broad, expanded consideration of project alternatives and justification in view of the constitutional imperative of the Crown to take into consideration, and balance, the potential impacts and benefits of a project on the respective rights, interest and well-being of Indigenous Nations against any benefits that may accrue to the larger Canadian society. The supplemental filing should also describe, as required by the EISG under Section 2.1, the predicted environmental, economic and social costs and benefits of the Project, as well as the distribution of costs and benefits (impact equity) amongst potentially affected communities, including LSFN.**
2. Purpose of the Project, Alternative Means for Carrying out the Project					
LSFN-02	LSFN	2.1 Purpose of the Project	2.3.2 Need for the Project 2.3.2.2 Environmental	[Project Benefits for Indigenous people] The conformity review of the EIS identified the need to, "Provide information on predicted environmental and social costs and benefits of the Project among potentially affected communities." (p.4).	**Please provide a supplemental filing, providing detailed information on the Project benefits and costs specific to LSFN and commit to working with LSFN to identify any barriers to accessing those benefits.**

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			and Social Costs and Benefits Annex 1 (TABLE) - IAAC to MI - Detailed conformity gaps - October 22 2019	While section 2.3.2 does include a discussion of benefits, greater details on the benefits and costs to LSFN and other Indigenous groups is required. Employment opportunities and indirect benefits from hiring for all communities is discussed in section 2.3.2.2, however, the ability for Indigenous groups to take advantage of and access these benefits is not discussed.	
LSFN-03	LSFN	2.1 Purpose of the Project	2.3.2 Need for the Project 2.3.2.2 Environmental and Social Costs and Benefits	This alternatives assessment has not examined, in any meaningful fashion, alternative means to address the problem of Winnipeg flooding from overflows of the Assiniboine River, i.e., alternatives to using the Portland Diversion and the Fairford water channel system to divert flood waters in the Assiniboine away from Winnipeg into Lake Ontario and Lake St. Martin. Serious options for addressing climate change related flood events, such as major restoration of wetlands lost to agriculture over the decades, or water retention upstream from the Portland Diversion, have been simply dismissed as too costly and not examined with any rigour. For example, if cost is the primary rationale for eliminating consideration of alternative options, a much more detailed and realistic appraisal of the true costs of the Project – including but not limited to considerations of externalized costs to Indigenous rights-based activities, commercial fishing, and long-term maintenance of the channels and outlets – is required. This information is essential to understanding whether or not this project will be, in fact, a cost-effective option. This section, when considering alternative means, overlooks the undisputed historical fact that Indigenous communities on Lake Manitoba and Lake St. Martin have been forced to absorb significant long-term impacts of Manitoba's flood management system. Given the historical context, and the potential of the	**1. Please provide a supplementary analysis detailed costing of the Project, including externalized costs related to:** • **protection of, and/or compensation for, Indigenous treaty lands and rights-based activities;** • **protection of, and/or compensation for, impacts on commercial fishing, and** • **long-term maintenance of the channels and outlets in face of expected climate change effects** **2. As requested in LSFN-01, please provide a supplementary analysis detailed costing of the Project a supplementary memo identifying the historical factors and contemporary policy considerations and decisions, related to Manitoba's existing integrated water control and flood mitigation network, that supports the project rationale.**

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				project to cause severe impacts on LSFN's treaty rights, a much more robust analysis and discussion of both the historical context of flooding in Lake Manitoba and Lake St. Martin, the severe consequences of the current flood management system since 1961 on Indigenous and non-Indigenous communities along Lake Manitoba and Lake St. Martin, and alternative means to large-scale, ecosystem-transforming water diversion project, is required for the project to meet the test of justification.	
LSFN-04	LSFN	2. Project Justification and Alternatives Considered, 2.1 Purpose of the Project	2.3.1.2 Historic Flood Mitigation Initiatives and Infrastructure, *"Operation Return Home" and Negotiation of Comprehensive Settlement Agreements*	The negotiation of Comprehensive Settlement Agreement is briefly described in this section, in respect to the severe damages suffered by LSFN and other First Nations on Lake St. Martin as a result of the provincial management of the FRWCS: > The comprehensive settlement agreements will include fair compensation for the First Nations, including additional land, and resolve all litigation between the parties. ***The settlement agreements are also expected to include a flood easement granted to Manitoba to allow for some inundation of reserve land in the course of operating flood control infrastructure in the public interest***. Of note, completion of the Lake Manitoba and Lake St. Martin Outlet Channels Project is expected to reduce future flood levels and ***may*** allow for the easements on reserve land to be reduced in the future. (p. 2.8, emphasis added) For LSFN, one of the key objectives of the Project should be that it **guarantees** the reduction of levels of flood easements on Lake St. Martin in order to prevent any future inundation of reserve land. This statement suggests, yet fails to provide adequate description, a strategy on the part of Manitoba to operate the Project in a manner that would continue, as a matter of normal operation, to have the potential to permit water levels on Lake St. Martin that	**The Agency must require the Proponent to make a supplemental filing that:** • **clarifies whether the operation of the Project could require flood easement levels exceeding average historic water levels on Lake St. Martin (approximately 800 ft),** • **provides a detailed description of proposed scenarios, if applicable, where the Project would require flood easement levels exceeding historic flood water levels on Lake St. Martin (approximately 803 ft),** • **provides alternatives to managing the project in this manner in order to avoid environmental and social impacts, and** • **specifies the proposed maximum flood easement levels on Lake St. Martin being requested by Manitoba Infrastructure in association with the operation of the Project.** **This is critical information currently missing from the EIS. This information is requested because it directly speaks to the potential severity of effects that may result from the operation of the Project on a myriad of VCs, not limited to**

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				would result in the inundation of LSFN's reserve lands. The EIS must discuss the project objectives in a manner that weighs the Crown's legal duty to protect the rights of Indigenous Peoples in consideration of other factors that may be in the public interest. The EIS does not adequately address this.	**fish and fish habitat, wildlife, vegetable and LSFN rights, lands, health and socio-economic conditions.**
LSFN-05	LSFN	2.2 Alternative means of carrying out the project	2.4.2 Alternative Means of Carrying Out the Project	This section of the EIS has entirely omitted any reference to alternative means to <u>the operation</u> of the project, and instead has treated the Operating Guidelines (Appendix D3) as though they are outside of the scope of project. Yet, a critical component of the Project is the proposed Operating Guidelines which set out the rules for managing level of water flow between lake basins. The rules set out under Operating Guidelines will have a major influence over the potential flood levels on Lake St. Martin, and those water levels effects on LSFN. Currently, the proposed Operational Guidelines appear to allow for future inundation of reserve lands the belong to First Nations on Lake St. Martin, which would result in ongoing unacceptable adverse effects on each Nation's treaty rights, treaty lands, health, socio-economic well-being.	**1. Please provide a supplementary submission that identifies alternative means to operating the Project (i.e., alternative Operating Guidelines) that would place <u>a priority</u> on managing the project in such a manner that would ensure water levels on Lake St. Martin do not exceed 800 feet.** **2. Please provide a supplementary submission that identifies alternative means to operating the Project (i.e., alternative Operating Guidelines) that would give LSFN (together with other First Nations located on Lake St. Martin) co-management role in the operation of the Project.**
LSFN-06	LSFN	2.2 Alternative means of carrying out the project	2.4.2.2 Lake St. Martin Outlet Channel Routing; 11.12.3.2 Mitigation for Cumulative Effects on Change	Section 2.4.2.2 identifies that stage 2 of selection of alternative means for the routing of the Lake St. Martin component of the project were identified in 2014 (see p.2-19). Section 11.12.3.2 states that, "The upgrade of the Lake St. Martin access road and the development of Project-specific quarries are proposed in order to service the Project and will be developed by Manitoba Infrastructure or in conjunction with a collaborative third party" (p. 11.82).	**3. Please describe how the Project could proceed without the Lake St. Martin All-Season Access Road** **4. Please describe the decision process and rationale for seeking separate environmental assessment approvals for both Projects given that conceptual plans for the permanent infrastructure were already identified by**

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			in Access to Lands and Resources Currently Used for Traditional Purposes Lake St. Martin Access Road Environmental Assessment Report – Section 1.3 Need and Rationale for the Project	The Lake St. Martin Access Road Environmental Assessment, however, identifies only the servicing of the Emergency Outlet Channel as the purpose of the Project in section 1.3. LSFN is concerned that the assessment of effects from both projects may be underestimated if assessed separately.	**2014 well before the assessment of the Lake St, Martin Access Road EA.** **5. Please describe any concerns raised by Indigenous Groups related to Project splitting and how those concerns have or will be addressed**
LSFN-07	LSFN	2.2 Alternative means of carrying out the project	2.4 Alternative Means of Carrying Out the Project 2.4.2.8 Consideration of Environmental Effects of Alternative Means of Carrying Out the Project	[Indigenous engagement in Alternatives assessment] The final EIS Guidelines require that, "The Proponent will identify whether and how Indigenous groups have been engaged in project design and in the analysis and identification of preferred means of carrying out the project from the alternative means" (EIS Guidelines, p. 15). Limited details have been provided on how or why indigenous groups were or were not adequately engaged in routing technical workshops or other aspects of alternatives assessment. Section 2.4.2.8 notes that, "The social environment aspects [of the alternatives assessment] considered feedback from the early rounds of engagement with non-Indigenous and Indigenous communities"(p.2-23), but does not describe how it was considered or what weighting was assigned.	**Please provide information on what specific steps were taken to include Indigenous communities in Alternatives Assessment and how engagement with LSFN and other Indigenous communities has informed Manitoba's selection of the Project Location and Design.**

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LSFN-08	LSFN	2.2 Alternative means of carrying out the project	2.4.2.5 Provincial Road 239 Realignment	[Consideration of the loss of Opportunity to exercise treaty rights over LSFN harvesting areas located off-reserve (i.e., on "Crown lands") in alternatives assessment] Section 2.4.2.5 discusses the factors considered in the routing of the Provincial Road 239 Realignment which includes consideration to, "minimize socio-economic effects by avoiding residences and livestock operations, reducing the loss of agricultural land" (p.2.21). LSFN is concerned that routing was weighted towards minimizing use of private property rather than the loss of crown lands for indigenous peoples.	**Please describe what weighting was assigned to avoiding private property in the routing decisions for the Provincial Road 239 Realignment.** **Please describe what concerns have been raised to-date concerning the Provincial Road 239 alignment and how they have been addressed?**
3. Project Description					
LSFN-09	LSFN	3.2.1.Site preparation and construction; 7.1.12. Human environment	3.4.2.7 Temporary Construction Camps and Staging Areas	The EIS Guidelines require the Proponent to describe the "location of and proximity of any permanent, seasonal or temporary residences or camps" and "a description of construction camp (location, capacity, wastewater treatment)". The EIS states that temporary work camps will be used during Project construction and that their locations have not yet been determined, i.e., Although the exact location for temporary construction camps and staging areas are not known at this time, MI has developed a process for proposal and review of locations prior to their establishment. As stated in the Project Environmental Requirements (Appendix 3F), designated areas, including temporary work camps, equipment servicing areas, parking areas, and staging areas, shall be identified by the Contractor." This represents a key information gap in the EIS.	**Please provide a supplemental filing that identifies appropriate locations for temporary work camps, describes how LSFN has been consulted in choosing these locations and assesses potential effects to LSFN health and socio-economic well-being, taking into consideration mitigations to avoid or minimize effects on LSFN members.**

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				Construction camps, located in proximity to Indigenous communities, potential new impact pathways on vulnerable members of Indigenous communities.	
LSFN-10	LSFN	3.2.2.Operation - criteria used to determine the start, stop, and nature of operations;	3.5 PROJECT ACTIVITIES 3.5.3 Operation and Maintenance 3.5.3.1 Operation Criteria	Subsection **3.5.3.1 Operation Criteria** is insufficient to describe operation criteria (or Operating Guidelines), as it excludes any reference or description of the proposed Operational Guidelines that are set out under Appendix D3. Further, the potential water levels resulting from these Operating Guidelines are only described in an ancillary reference document, i.e., Technical memorandum prepared by Manitoba Infrastructure (Hydrologic Operations Section), dated June 14, 2019 ("Impacts of Operations Memo") provides MI's evaluation of the expected impacts of the Project on water levels on Lake Manitoba and Lake St. Martin. Although a key objective of the Project, specifically the Lake St. Martin Outlet Channel's (LSMOC) component, is to maintain water levels in Lake St. Martin around 797-800 ft., **the proposed Operating Guidelines for the proposed two channels appears to give priority, at all times, to maintaining water levels of Lake Manitoba at or below 811.5 ft, at the expense of Lake St. Martin.** (See pp. 2-3 of the *Impacts of Operations Memo*). The proposed Operating Guidelines require the Lake Manitoba Outlet Channel to "be opened to maximum capacity when Lake Manitoba is above the top of the regulation range (812.5 ft)"and **no provision exists** for the Lake Manitoba OC and Fairford WCS to be closed until Lake Manitoba water levels are reduced to 811.5 ft. *Therefore, it appears possible there could be a risk that, during a high flood year, that inflows from Lake Manitoba could exceed the outflow capacity of the new LSMOC, resulting in extensive flooding on Lake St. Martin.*	**Please provide:** **1. Supplementary submission related to how the proposed Operating Guidelines of the Project would be implemented in future flood scenarios greater than 2011, in particular in respect to balancing inflows and outflows for Lake St. Martin, in the event that water levels in Lake St. Martin exceed 800 feet.** **2. Supplementary submission in respect to the results of modelling scenarios, conducted by a third-party hydraulic engineer, that considers flooding effects on Lake St. Martin resulting from the application of the proposed operating guidelines for the Project for flood events that exceed the magnitude of the floods of 2011 and 2014. These scenarios should consider different potential causes of flooding (spring freshet, heavy sustained rainfall, etc.)** **3. Please clarify whether or not the design of the LMLSM Outlet Channels Project is intended to result in future certainty that flood water levels on Lake St. Martin will be maintained below 800 ft, and if not, please provide a rationale for this design limitation.** **4. Please provide a supplementary submission to consider alternatives to the proposed Operating Guidelines, with consideration given to alternative Operating Guidelines that would require at all times inflows into Lake St. Martin from Lake Manitoba to not exceed outflows through the**

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				Moreover, subsection 2.3.1.2 of the EIS indicates that Manitoba is seeking flood easements in relation to Comprehensive Settlement Agreements with First Nations that are situated on Lake St. Martin that would "***allow for some inundation of reserve land in the course of operating flood control infrastructure in the public interest***" In other words, it is proposed that the Project would continue, "in the public interest", to cause the inundation of reserve lands of First Nations in the future. However, no information is provided in either the Impacts of Operations Memo or the EIS that considers alternatives to the proposed Operating Guidelines, or design options that would ensure that that outflows from the LSMOC would match inflows into Lake St. Martin should a flood event of a greater magnitude than the floods of 2011 and 2014 occur at some point in the future.	**proposed LSM Outlet Channel, and to give priority to ensuring that water levels on Lake St. Martin not be permitted to exceed 800 ft.**
6.4 Groundwater and Surface Water					
LSFN-11	LSFN	Part 2, Section 7.1.4 Groundwater and Surface Water	Section 6.4.2.2 Groundwater Overview: Regional Groundwater Flow Overview-LSMOC	EIS Guidelines require a description of "temporal changes in groundwater flow (e.g. seasonal and long-term changes in water levels)" (PDF pp. 28). EIS Section 6 PDF pp. 161: "Seasonal piezometric variation in the area is not measured yet, but according to similarities with LMOC hydrogeological context, it could be of the same range (typical seasonal piezometric head variation in the aquifer in the area of the LMOC is 2.5 m to 3 m per year)."	**Please provide supplementary data (or an estimate with confidence levels) for the seasonal piezometric variation in the LSMOC area, and taking into consideration this data, provide additional a supplementary memo characterizing how the LSMOC is expected to affect groundwater flow and groundwater /surface water interactions.**

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				Understanding the seasonal variation in water levels is crucial for understanding how the project (e.g. dewatering) will affect groundwater flow and groundwater and surface water interactions.	
LSFN-12	LSFN	Part 2, Section 7.2.2. Changes to groundwater, surface water, and fluvial morphology	Section 6.4.7.7 Changes in Regional and/or Local Surface Water Quality, PDF pp. 217 – 221	EIS Guidelines require the EIS to, "carry out modelling as required to present and substantiate anticipated changes to groundwater and surface water quality and quantity in all project phases and in all operational scenarios; changes to total suspended solids (TSS), total dissolved solids, turbidity, oxygen level, water temperature, pH, dissolved oxygen, water quality including metals, methyl mercury, nutrients, algae blooms, dissolved/total organic carbon, biochemical oxygen demand (BOD)/carbonaceous biochemical oxygen demand (CBOD), pesticides, aquatic indicators, sediment quality" (PDF pp. 36). The EIS does not sufficiently substantiate the conclusion that, "it is not expected that the operation of the LMOC and LSMOC will alter the surface water quality in the LAA beyond the range of variability already observed in these waterways" and that "the changes in surface water quality that occurred in relation to very high flows during the operation of the EOC are not expected to occur with the operation of the Project" (PDF pp. 220). This statement appears to be primarily supported by the assertion that the "release of peat, soils and other organic materials to the system may be related to the changes in TSS, phosphorus, nitrogen and methylmercury observed in the EOC studies" (PDF pp. 219), yet this assertion not supported by any cited literature or data.	**Please provide supplemental evidence (e.g. reference to a scientific study or data) to support the statement that the "release of peat, soils and other organic materials to the system may be related to the changes in TSS, phosphorus, nitrogen and methylmercury observed in the EOC studies".**

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LSFN-13	LSFN	Part 2, Section 7.2.2. Changes to groundwater, surface water, and fluvial morphology	Section 6.4.7.7 Changes in Regional and/or Local Surface Water Quality, PDF pp. 217 – 221	EIS Guidelines require the proponent to "carry out modelling as required to present and substantiate anticipated changes to groundwater and surface water quality and quantity in all project phases and in all operational scenarios; changes to total suspended solids (TSS), total dissolved solids, turbidity, oxygen level, water temperature, pH, dissolved oxygen, water quality including metals, methyl mercury, nutrients, algae blooms, dissolved/total organic carbon, biochemical oxygen demand (BOD)/carbonaceous biochemical oxygen demand (CBOD), pesticides, aquatic indicators, sediment quality" (PDF pp. 36). A number of statements in the EIS support the potential for Lake Manitoba and the LMOC to influence downstream water quality in the receiving environment of Lake St. Martin. For example, the EIS states that "geospatial mapping and principal components analysis revealed that the south basin of [Lake Manitoba] was more turbid, nutrient rich, and more dilute in comparison to the north basin" (PDF pp. 327 - 328). Furthermore, that "[w]ith the LMOC receiving agricultural runoff, there will be the potential for oxygen depletion in the water column due to bacterial decomposition of organic material depositing on the bottom of the channel" (PDF pp. 220). However, the EIS lacks a comprehensive evidence-based analysis to assess the potential for nutrient fluxes, contaminant transport from Lake Manitoba and the LMOC and the influence of Lake Manitoba and the LMOC on other downstream (i.e., inter-basin water movement) water quality parameters. Therefore, without supplementary data and analysis, it is not possible to evaluate the impacts of the project on surface water quality.	**Please conduct and provide a supplementary analysis of potential fluxes of nutrients, contaminants and any other matter that represents impaired water quality from Lake Manitoba and the LMOC to downstream water systems (including Lake St. Martin and Lake Winnipeg), and the potential changes to water quality in the downstream systems identified through this analysis (e.g. changes to levels of fluoride, TSS, TDS, *E. coli*, glyphosate, phosphorus, nitrogen, mercury, or methylmercury).** **Please provide a numerical estimate of the fluxes identified above, along with the level of uncertainty for these estimates.**
LSFN-14	LSFN	Part 2, Section 7.2.2. Changes to groundwater, surface water, and fluvial morphology	Section 6.4.7.7 Changes in Regional and/or Local Surface Water Quality	EIS Guidelines state that the EIS must include a description of "changes to water quality and quantity and sediment quality and quantity during all phases of the Project associated with project-related […] erosion and sedimentation" (PDF pp. 36).	**Please provide a supplementary, science-based assessment of the potential rates sediment transport over the project duration (e.g., for the next 30 years, taking into consideration climate change modelling) into both Lake St. Martin and Lake Winnipeg; and for the estimated**

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				The EIS states that, "[t]he outlet channels will be designed to be non-erodible for normal operating conditions (KGS Group 2016b,2017) and are not expected to contribute additional sediment or debris to Lake St. Martin, Dauphin River or Sturgeon Bay" (PDF pp. 212). However, one of the referenced documents (KGS Group 2017) states the following regarding the "non-erodible" channel design: "It is possible, however, that the design flow may at some point in the future be exceeded. If that occurs, there may be some potential for erosion of the side slopes and base of the channels. […] On the other hand, there is greater potential for channel side slopes to be vulnerable to erosion in areas where vegetation growth is inhibited, particularly during intense rainstorms when runoff occurs on the channel side slopes. This vulnerability may occur if revegetation after construction is slow to take effect or during periods immediately after long periods of operation. Extended operation (many months) would cause the upper surfaces of the channel, its pre-existing vegetation, and its root system to die, as described in Section 10.2. This could increase the potential for erosion of those surfaces to occur. Furthermore, the eroded material could potentially deposit within the submerged portion of the channel, and could affect the hydraulic performance of the channel in subsequent years. It is expected that eventually natural vegetation will be established on these surfaces, which will provide erosion protection, but **that could take years to occur to a reliable extent**" (emphasis added). For the chosen Option 4 for the LSMOC, KGS Group writes that "if future flood events cause flows that exceed the selected design magnitude, erosion of the surface of the channel could occur. It is estimated that approximately 160 ha of channel surface area that could be so affected. Also similar to Option 1, the upper, unsubmerged portions of the channel side slopes could be	**time period for natural vegetation to become established on the surface of the channels sufficient to provide for erosion protection.** **Based on the supplemental findings, please provide an assessment of the potential adverse environmental effects of the project due to sediment transport from the outlet channels on water quality in Lake St. Martin and Lake Winnipeg.**

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				exposed to erosion during rainstorms or snowmelt in periods following extended operations when the vegetation cover on those side slopes could be killed. The surface area that could be affected […] is estimated to amount to only 14 ha" (2017). While the proponent appears to utilize the design of "non-erodible" channels to support the claim that the outlet channels "are not expected to contribute additional sediment or debris to Lake St. Martin, Dauphin River or Sturgeon Bay" (PDF pp. 212), referenced material from KGS Group documents clearly identify potential delay effects of multiple years prior to "erosion protection" for the outlet channels to establish.	
LSFN-15	LSFN	Part 2, Section 7.2.2. Changes to groundwater, surface water, and fluvial morphology Part 2, Section 7.4. Mitigation measures	Section 6.4.7.7 Changes in Regional and/or Local Surface Water Quality	The EIS Guidelines state that the EIS must include a description of, "changes to water quality and quantity and sediment quality and quantity during all phases of the Project associated with project-related […] erosion and sedimentation" (PDF pp. 36). The EIS Guidelines further stipulate the EIS should, "describe mitigation measures that are specific to each environmental effect identified" (PDF pp. 43). The EIS does not provide a mitigation plan for the potential erosion of the outlet channels (see comment about "non-erodible" channels) and does not provide a contingency plan for mitigating erosion of the outlet channels in the event that design flows for the channels are exceeded. Provision of sufficient mitigation and contingency plans are necessary to ensure that environmental effects will be minimized in light of potential risk of erosion of the outlet channels.	**Please provide a mitigation plan, developed at minimum at a conceptual level that permits understanding of all key components, for prevention and/or management of erosion of sediment from the outlet channels to avoid or minimize adverse environmental effects.** **Please provide a contingency plan for mitigating sediment transport in the case that design flows for the outlet channels are exceeded.**
LSFN-16	LSFN	Part 2, 7.2.2.Changes to groundwater, surface water, and fluvial morphology	Section 6.4.7.3 Changes in Regional and/or Local Fluvial	EIS Guidelines state that the EIS must include a description of "changes to lake bed and river morphology (including the Dauphin River)" (PDF pp. 37).	**Please provide a supplementary memo that assesses the outlet channels as riverine systems that provide ecological functions, and include the outlet channels in the discussion of project effects on fluvial geomorphology.**

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			Geomorphology and Shoreline Geomorphology	The EIS states that, "[t]he channel design will provide for downstream fish passage, but the channels are hardened to prevent erosion, and they are not designed to mimic a natural riverine system with ecological functions. Therefore, the PDAs of the LMOC and LSMOC are not included in further discussion of effects on regional fluvial geomorphology" (PDF pp. 201). However, in other sections of the EIS, for example under fish and fish habitat, the Proponent proposes that the channels will in fact provide ecological functions that would otherwise be provided by a river, i.e., they would provide for some degree of fish passage. Due to the proposed *de facto* function of the channels as a riverine system that provides fish habitat, it is reasonable to assume that the outlet channels should therefore be included in discussion of effects on fluvial geomorphology. This assessment of outlet channels as riverine systems is crucial to understand the environmental effects of the project in relation to aquatic life, fluvial geomorphology as well as water quality and quantity.	**Alternatively, if the outlet channels are <u>not</u> to be designed to provide any ecological function, either for fish or for terrestrial wildlife, please provide supplemental explanation for this characterization.**
LSFN-17	LSFN	Part 2, Section 7.1.4. Groundwater and Surface Water	Section 6.4.4.2 Changes in Local Groundwater Flows, Levels and Quality	EIS Guidelines require the EIS to include a description of "[l]ocal and regional hydrogeology, including: hydrogeological context (e.g., hydrostratigraphy with aquifers and aquitards, major faults, etc.), including…. groundwater flow patterns and rates; a discussion of the hydrogeologic, hydrologic, geomorphic, climatic and anthropogenic controls on groundwater flow; temporal changes in groundwater flow (e.g. seasonal and long term changes in water levels); a delineation and characterization of groundwater - surface water interactions including temperature and the locations of groundwater discharge to surface water and surface water recharge to groundwater; temperature changes in surface water as a result of groundwater-surface water interactions; changes to surface water quality, including seasonal changes in runoff entering watercourses; …." (PDF pp. 28 – 29).	**Please provide science-based evidence and rationale for the conclusion that there will <u>not</u> be expected any movement of surface water to the aquifer during and following depressurization of the aquifer.** **In the case of any findings of potential effects on groundwater and surface water flow, interactions and/or quality, please provide a mitigation plan for any effects on groundwater and surface water flow, interactions and/or quality.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				The EIS states that "the piezometric head can be **up to 5 m above ground level**" (PDF pp. 167; emphasis added). In reference to depressurization of the aquifer, the EIS states, "[a]t the channel, **the drawdown would be about 14 m**, reducing to a drawdown of 1.5 m to 3.3 m at the 3 km distance from the segments of the channel being depressurized. It will further decrease to an estimated 0.9 m to 2.7 m at 5 km distance" (PDF pp. 167; emphasis added). Nonetheless, the EIS also states that "the carbonate aquifer is under pressure at higher head than ground surface, lake levels and water level in wetlands […] meaning that **the water will flow from the aquifer to the surface if there is a pathway**. Currently, there is a thick till aquiclude (i.e., does not transmit water) protecting the underlying carbonate aquifer. If the till is breached during construction, **then the surface water will not flow into the aquifer**" (PDF pp. 172). The conclusion that surface water will not flow into the aquifer does not align with the proposed plan, during construction, to depressurize the aquifer to piezometric head levels that are substantially lower than the stated head at ground level. Without clarification of construction plans for depressurization and the resulting impacts on groundwater and surface water flow, it is difficult to evaluate impacts of the project on groundwater and surface water interactions, flow and quality.	
LSFN-18	LSFN	Part 2, Section 7.2.2. Changes to groundwater, surface water, and fluvial morphology	Section 6.4.7.5 Changes in Regional and/or Local Sediment and Debris Transport	Section 7.1 of the EIS Guidelines states that, "[t]he EIS will… describe mitigation measures that are specific to each environmental effect identified. Mitigation measures will be written as specific commitments that clearly describe how the proponent intends to implement them and the environmental outcome the mitigation measure is designed to address.	**Please provide a supplementary memo that discusses various options for mitigation measures for the purpose of avoiding or minimizing the alteration of sediment balance in receiving aquatic ecosystems, including discussion of specific strategies that will be used to avoid, minimize or mitigate sediment transport through the outlet channels during construction and operation.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				The EIS states that "[c]learing, excavation and other Project construction activities in the PDA could result in the release and transport of sediment and/or debris to waterways within or adjacent to the PDA" (PDF pp. 211). Aside from a general description of possible construction management practices, however, the EIS does not include any concrete strategies for minimizing, avoiding or mitigating changes to sediment transport from the project. In turn, the EIS fails to provide substantial evidence to support its claim that the project will result in "no net measurable change" in "regional and/or local sediment transport" (PDF pp. 214). *Without knowing having clearly described mitigation measures for addressing adverse effects of sediment transport, it is not possible to evaluate project effects on sediment levels in aquatic water systems, and potential adverse effects on aquatic ecosystems.*	
LSFN-19	LSFN	Part 2, Section 7.2.3.Changes to riparian, wetland and terrestrial environments	Section 6.4.4.3 Changes in Local Groundwater/Surface Water interactions	This section acknowledges the potential for a high degree of uncertainty in the degree of potential adverse effects on wetlands in relation to the LSMOC routing. Yet, very little discussion has been dedicated to discussing how to better estimate these effects, or what specific mitigation measures could be applied to reduce potential for impacts below the severe impacts that were associated with the EOC ("Based on examination of the effects of the EOC, effects on drainage are not expected to occur beyond 500 m from the channel. Unmitigated, this effect would be expected to affect drainage over an area of up to approximately 1,200 ha on either side of the channel." p. 6.165). The EIS states that groundwater models do not apply to the LSMOC portion of the PDA, i.e., , "The LSMOC route will pass through wetland areas… Impacts on wetland hydrology are difficult to determine with typical groundwater or surface water analytical tools or models. It is very challenging to determine the	**1. Please provide a supplementary filing for a science-based analysis to evaluate the potential effects of the LSMOC routing component of the project on the wetland hydrology north of Lake St. Martin.** **2. Please provide a supplementary filing, based on peer-based studies, describing best available mitigation measures that could be deployed to minimize effects of the LSMOC on wetland hydrology.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				watershed boundaries or flow paths for surface water in a wetland, and peat in the wetlands does not have typical groundwater properties that allow effects to be assessed with groundwater models." (p. 6.149) Yet, published studies indicate that standard groundwater modeling software can be used to evaluate changes in a river system on the groundwater system of a wetland (e.g., see Rogiers, Bart, Johan Lermytte, Els DE Bie, and Okke Batelaan. 2011. "Evaluating the Impact of River Restoration on the Local Groundwater and Ecological System: A Case Study in NE Flanders." *Geologica Belgica*, January.). Understanding the influence of the project on wetlands is important for evaluating project effects on groundwater and surface water quality, quantity and interactions. This EIS has currently only provided vague estimations of potential effects (it is expected to be less than effects of the EOC), but provides only high-level descriptions of what mitigation measures ('"groundwater and surface water management plans") would be deployed to reduce the anticipated "impact zone" around the LSMOC to 500m from the 1600m "impact zone" for the EOC. Much more supplementary analysis and research is required to address this deficiency in characterizing potential effects and identifying appropriate mitigation measures.	

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
LSFN-20	LSFN	Part 2, Section 7.2.2.Changes to groundwater, surface water, and fluvial morphology Part 2, Section 7.2.3.Changes to riparian, wetland and terrestrial environments	Section 6.4.7.4 Changes in Local Drainage Areas and Local Drainage Patterns	EIS Guidelines require the proponent to provide a description of "[c]hanges to riparian, wetland and terrestrial environments" (PDF pp. 37) and "changes to the hydrological and hydraulic conditions of all affected waterbodies" (PDF pp. 36). The EIS states that "[i]t will be difficult to quantify effects to flows in the Buffalo Creek system before construction is complete" (PDF pp. 225). However, the effects of the project on the Buffalo Creek system is required to understand effects on fish, wildlife and current use, and cannot be deferred until after construction, and therefore represents a substantial gap in the EIS.	**1. Please provide a supplementary memo that provides a model for estimating potential effects of the project on flows within the Buffalo Creek system.** **2. Based on this model, please provide an estimation of the potential effects, including discussion of feasible mitigation options, of the Project on this Buffalo Creek system.**
LSFN-21	LSFN	Part 2, Section 9.2. Monitoring	Section 6.4.4.3 Changes in Local Groundwater/Surface Water interactions	EIS Guidelines require the proponent to "prepare an environmental monitoring program for all phases of the project" (PDF pp. 49). The proponent states that "[i]f groundwater under artesian pressure stops leaking to wetland bottoms, dewatering water can be conveyed to wetlands. If seepage through sand lenses occurs, clay cut-off walls (or other means of reducing groundwater flows) can be built through the sand lenses during construction to stop leakage, if leakage substantially changes water balance of the wetlands" (PDF pp. 176). However, the proponent does not provide a specific strategy for monitoring the water balance of the wetland. Without ensuring that this water balance is maintained it is difficult to evaluate the effects of the project on wetlands.	**Please provide a detailed wetland monitoring strategy to ensure that wetland water balance is maintained during the course of the project.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
7. Assessment of Potential Effects on Aquatic Environment					
LSFN-22	LSFN	3.2.3 Spatial and Temporal Boundaries	Volume 3, Section 7.2.1.5 Boundaries	The EIS Guidelines state that the EIS will describe the need to assess effects in both the north and south basins of Lake Winnipeg, extending at least as far north as to include Limestone Bay and Playgreen Lake. The spatial boundaries for fish and fish habitat do not include the south basin of Lake Winnipeg or Playgreen Lake. The exclusion of these areas represents a substantial gap in the EIS. This gap is particularly concerning given the presence of aquatic species at-risk, including Bigmouth buffalo, silver chub, bigmouth shiner, and chestnut lamprey in the south basin of Lake Winnipeg.	**Please provide an assessment of fish and fish habitat for south basin of Lake Winnipeg and Playgreen Lake, in accordance with the EIS Guidelines for Fish and Fish Habitat.**
LSFN-23	LSFN	7.1.6 Aquatic Invasive Species	Volume 3, Section 7.2.2.1 Methods	The EIS Guidelines require a list of all potential or known federally or provincially listed aquatic invasive species that may interact with the project (fauna or flora), using existing data and literature **as well as surveys to provide <u>current</u> field data (emphasis added).** The EIS guidelines state that existing data in published studies that describe the regional presence, abundance and distribution of aquatic invasive species including mitigation strategies or plans data "must be supplemented by surveys, if required." Methods described in the EIS for aquatic invasive species include desktop review of existing data and literature only. Existing data have not been supported by current field data collection for the Project. Current field data and surveys are critical for understanding the present distribution of aquatic invasive species in the LAA and RAA. This is particularly important given the presence of aquatic invasive species within the LAA, and previously documented in	**Please provide a summary of field survey methods and results for aquatic invasive species, if conducted. Please present all documented occurrences of aquatic invasive species (from both desktop review and field survey results) in a map and table format.** **In consideration of the absence of current field data, please provide:** **1) a detailed description of how the approach to risk estimation has been, or will be modified in relation to assessing potential adverse effects of the project resulting from aquatic invasive species;** **2) a proposed plan to undertake field surveys to collect this information prior to commencement of construction so that this information can be taken into consideration for monitoring and mitigation planning.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				Lake Winnipeg, including spiny water flea, zebra mussel, and rainbow smelt.	
LSFN-24	LSFN	7.2.1 Fish and Fish Habitat	Volume 3, Section 7.2.1.4 Potential Effects, Pathways and Measurable Parameters	The EIS Guidelines require a characterization of fish populations on the basis of species and life stage, including information on the surveys carried out and the source of data available (e.g. location of sampling stations, catch methods, date of catches, species, catch-per-unit effort); The EIS does not meet requirements for describing existing baseline conditions for fish and fish habitat, nor does it provide a sufficient description of the methods used to collect this information. The assessment has largely been based on data collected to monitor the effects of the Lake St Martin Emergency Outlet Channel (EOC), attributed to a series of reports developed by *North/South Consultants Inc.*. After extensive review, we have not been able to locate in any of the referenced reports or referenced chapters provided with the main body of the EIS copies of the data or reports developed by *North/South Consultants Inc*. Furthermore, baseline assessment of the overall fish population is lacking for rivers and lakes in the LAA, with the exception of Lake St Martin. Potential effects of the Project to fish and fish habitat cannot be predicted with confidence in the absence of adequate baseline data and detailed information on the methods used to collect this information.	**1. Please provide a summary of methods, including a map of sampling stations, description of catch methods, and summary of limitations for EOC baseline studies referenced in the EIS.** **2. Please provide plan for characterizing, on the basis of species and life stage, current conditions for fish and fish habitat in rivers and lakes within the LAA that have not yet been characterized in the EIS.**
LSFN-25	LSFN	7.3.1 Fish and Fish Habitat	Volume 3, Section 7.2.1.4 Potential effects, pathways and measurable parameters	The EIS guidelines require a description of the predicted effects on fish and their habitat, including anticipated changes in the composition and characteristics of the populations of various fish species, including shellfish and forage fish.	**Please include a description of the potential effects, pathways and measurable parameters for species including:** • **mapleleaf mussel (*Quadrula quadrula*),**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				The Proponent has based their assessment of potential effects, pathways and measurable parameters on four focal species: lake whitefish, walleye, northern pike, and forage fish. These four species are not sufficient to represent the unique life history, ecology, and habitat requirements for fish and shellfish species in the LAA and RAA. Of particular concern, these focal species fail to capture the unique life history and habitat requirements of at-risk species that occur in the RAA and south basin of Lake Winnipeg, including: the mapleleaf mussel (*Quadrula quadrula*), lake sturgeon (*Acipenser fluvescens*), bigmouth buffalo (*Ictiobus cyprinellus*), silver chub (*Macrhybopsis storeriana*), bigmouth shiner (*Notropis dorsalis*), and chestnut lamprey (*Ichthyomyzon castaneus*). The unique ecology and life history requirements of shellfish, lampreys, large-bodied filter-feeding fish (e.g. Bigmouth buffalo), and other species at risk are not represented by the four focal species, contributing to substantial gaps in the assessment of potential project effects to VCs.	• **lake sturgeon (*Acipenser fluvescens*),** • **bigmouth buffalo (*Ictiobus cyprinellus*),** • **silver chub (*Macrhybopsis storeriana*),** • **bigmouth shiner (*Notropis dorsalis*), and** • **chestnut lamprey (*Ichthyomyzon castaneus*).** **Please summarize how these effects and pathways of effect are considered in the assessment of potential residual effects and determination of significance.**
LSFN-26	LSFN	7.4. Mitigation measures	Volume 3, Section 7.2.4.2 Permanent Alteration or Destruction of Fish Habitat	The EA must consider measures to reduce or control adverse effects of the project, though replacement, restoration, compensation, or other means. The proponent concludes that changes in fish habitat in Fairford and Dauphin rivers, Watchorn Bay, Birch Bay, Lake St. Martin and Sturgeon Bay, will be offset by habitats created in the new LMOC and LSMOC channels, or changed at the inlets and outlets of the channels. These channels do not represent appropriate (i.e., like-for-like) compensation for the loss or alteration of fish habitat associated with the Project. Furthermore, new habitat created within the channels (while gates are open) may contribute to changes in the	**Please revise mitigation measures to provide like-for-like compensation for lost and altered habitat in consideration of Indigenous values and practices associated with fish and fish habitat. In the absence of detailed mitigation measures, identify a collaborative approach for working with LSFN to develop and implement an appropriate fish habitat compensation plan for the loss or alteration of fish and fish habitat.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				structure and composition of fish communities, as has been reported for the Lake St. Martin EOC.	
8.2 Vegetation - Assessment of Potential Effects on Terrestrial Environment					
LSFN-27	LSFN	4.2.2.Community knowledge and Indigenous knowledge	Volume 3, Section 8.2.2.1 Methods	The EIS Guidelines require the proponent to integrate Indigenous knowledge into all aspects of its assessment including both methodology and analysis (e.g. baseline characterization, effects prediction, development of mitigation measures). Identification of plant species and areas of interest for Indigenous groups was conducted by desktop review, and without input from LSFN. Field surveys methods did not integrate Indigenous knowledge and field data were collected without a list of species important to local First Nations. Similarly, effects on areas valued by Indigenous groups are also unknown due to a lack of information. Baseline data on the presence, abundance, and distribution of species and areas of importance to local Indigenous groups are crucial to making an informed decision about Project effects. The lack of baseline data represents a substantial gap with implications in the effects prediction and development of mitigation measures.	**Please describe detailed field studies, including Indigenous engagement and participation, that will be conducted to fill knowledge gaps regarding the presence, abundance, and distribution of plant species, ecological communities, and areas of importance to local Indigenous groups.**
LSFN-28		7.1.7 Riparian, Wetland and Terrestrial Environments	Volume 3, Section 8.2.1.4 Boundaries	The EIS must present baseline information in sufficient detail to enable the identification of how the project could affect the VCs, including riparian, wetland, and terrestrial environments. PDA and LAA spatial boundaries used for baseline field surveys in the vegetation technical report (SG Environmental Services, 2017) do not match spatial boundaries used in the EIS. Of particularly	**Please provide a map of vegetation field survey locations within the LSMOC study area and clarify why PDA and LAA spatial boundaries used in field surveys do not align with those in the EIS.** **Please include a written summary of limitations and information gaps associated with vegetation field surveys**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				high concern, it does not appear that the full length of the LSMOC was included in vegetation field surveys, based on differences in the PDA and LAA boundaries. A map of field survey locations for the LSMOC study area, however, has not been provided in the vegetation report, making it difficult to evaluate the gaps in the characterization of baseline conditions. Field surveys are crucial for characterizing the presence, abundance, and distribution of terrestrial VCs in sufficient detail to identify potential project effects. A lack of baseline data for the LSMOC PDA and LAA represents a substantial gap with implications for subsequent effects predictions and development of mitigation measures.	**for the LSMOC study area and a detailed description of how these knowledge gaps will be filled.**
LSFN-29	LSFN	7.4. Mitigation measures	Volume 3, Section 8.2.4.3 Change in Community Diversity	The EA must consider measures to reduce or control adverse effects of the project, though replacement, restoration, compensation, or other means. Mitigation measures identified in the EIS are insufficient and, in some cases, lack adequate or appropriate detail. For example, revegetation measures under the Revegetation Plan have yet to be developed. Similarly, no details have been provided on wetland offsets, including wetland creation, and wetland enhancement or restoration referred to in the EIS. Furthermore, the EIS states that Manitoba Infrastructure may transfer Crown land to private ownership to compensate for the loss of impacted privately-owned cultivated land. Loss of access to Crown land associated with this compensation measure represents an impact to LSFN rights and interests that has not been acknowledged or accounted for in the assessment of potential Project effects. Without detailed and appropriate mitigation and compensation measures LSFN cannot have confidence that potential impacts to	**Please provide:** **1) supplementary information in respect to proposed revegetation measures and wetland compensation;** **2) a commitment to work collaboratively with LSFN in the development of appropriate mitigation and compensation plans, prior to the commencement of construction. This must include the provision of time and resources to support LSFN's meaningful participation in this technical review process.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				plants and ecosystems in the PDA, LAA, and RAA (and associated rights and interests) will be sufficiently reduced or offset.	
LSFN-30	LSFN	4.3. Study strategy and methodology	Volume 3, Section 8.2.7 Prediction Confidence	All data, models and studies must be documented such that the analyses are transparent and reproducible. The uncertainty, reliability, sensitivity and conservativeness of models used to reach conclusions must be indicated. The EIS identifies prediction confidence as "high" for landscape diversity and "moderate" for community diversity and species diversity, without providing a sufficient summary of the data, models and studies used to reach this conclusion. The EIS fails to acknowledge uncertainty and limitations associated with the methods and analyses applied in this assessment. Understanding the limitations of contributing data, models and studies is critical to making an informed conclusion about the assessment of potential Project effects to wildlife and their habitat.	**Please provide a description of the limitations and uncertainty associated with desktop and field survey methods applied in the assessment of potential Project effects to landscape, community, and species diversity.**
8.3 Wildlife - Assessment of Potential Effects on Terrestrial Environment					
LSFN-31		7.1.7 Riparian, Wetland, and Terrestrial Environments	Volume 3, Section 8.3.1.4 Boundaries	The EIS is required to include a characterization of animal species and their habitats within the designated spatial boundaries of the Project. PDA and LAA spatial boundaries used for baseline field surveys in the wildlife technical report (EcoLogic Environmental Inc, 2017) do not match spatial boundaries used in the EIS. Of particularly high concern, the LSMOC PDA was not included in the PDA for wildlife surveys.	**Please clarify why spatial boundaries used for baseline wildlife field surveys do not match spatial boundaries used in the EIS. Please include a summary of potential limitations and knowledge gaps associated with this discrepancy, particularly for the LSMOC PDA.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				Field surveys are crucial for characterizing the presence, abundance, and distribution of wildlife VCs in sufficient detail to identify potential project effects. Limitations in baseline data collection for the LSMOC PDA represent a substantial gap with implications for subsequent effects predictions and development of mitigation measures.	
LSFN-32		7.1.7 Riparian, Wetland, and Terrestrial Environments	Volume 3, Section 8.3. 8.3.2 Existing Conditions for Wildlife	As noted above, the EIS is required to include a characterization of animal species and their habitats. The Proponent has not provided a sufficient characterization of wildlife habitat, despite having access to detailed information on the distribution of this habitat within the study area. The baseline wildlife report (EcoLogic Environmental, 2017), for example, includes a summary of modeled habitat and core areas for various wildlife VCs, including moose, beaver, marten, otter, lynx, and species at risk, among others. The Proponent, however, has failed to provide a quantitative summary of wildlife habitat within the PDA, LAA, and RAA for each of the wildlife VCs. An insufficient characterization of existing conditions for wildlife has downstream implications for understanding change in habitat, residual project effects, and requirements for mitigation, offsetting or compensation.	**For each wildlife VC, please summarize the total area and percent area of habitat within the PDA, LAA and RAA spatial boundaries.** **Please update subsequent sections of the EIS to carry this information forward in calculating change in habitat and residual project effects.**
LSFN-33		7.2.3.Changes to riparian, wetland and terrestrial environment	Volume 3, Section 8.3.6.2 Change in Habitat	The EIS Guidelines require a description of changes to habitat for wildlife species, including migratory and non-migratory birds, federally listed species at risk, and species important to current use of lands and resources for traditional purposes. While the Proponent has qualitatively described potential pathways of effect contributing to indirect habitat loss in the LAA and RAA, these impacts are not represented in the described area of habitat change for wildlife. The Proponent's characterization of changes to habitat for wildlife species is insufficient to describe the	**Please propose an appropriate approach for quantifying indirect effects to wildlife habitat for each VC (e.g., a percent change in habitat within an appropriate buffer around the Project Footprint).** **Please produce a summary of potential direct and indirect changes in habitat for each wildlife VC, including total area and percent change in area at the PDA, LAA, and RAA scales.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				combination of potential direct and indirect changes to habitat associated with the Project. Understanding change in habitat as a result of both direct and indirect effects is critical for making an informed assessment of potential Project effects to wildlife and their habitat. Without this information, a conclusion cannot be made about the overall change in habitat and residual project effects.	
LSFN-34	LSFN	7.2.3.Changes to riparian, wetland and terrestrial environment	Volume 3, Section 8.3.6.2 Change in Habitat	The EIS Guidelines require a description of changes to habitat for wildlife species, including migratory and non-migratory birds, federally-listed species-at-risk, and species important to current use of lands and resources for traditional purposes. The proponent has described the total area of potential habitat loss associated with the PDA and has qualitatively described pathways of effects contributing to indirect habitat loss in the LAA and RAA. However, total habitat loss or alteration, including direct and indirect effects has not been calculated, resulting in a substantial knowledge gap and underestimation of Project-related effects. Understanding change in habitat as a result of both direct and indirect effects is critical for making an informed assessment of potential Project effects to wildlife and their habitat. Without this information, a conclusion cannot be made about the overall change in habitat and residual project effects.	**Please provide a summary of potential direct and indirect change in wildlife habitat associated with the Project, including a summary of total area and percent change in habitat at the PDA, LAA, and RAA scales. Please include a description of how these values were calculated and summarize results for each wildlife species in a table.**
LSFN-35	LSFN	7.2.3.Changes to riparian, wetland and terrestrial environment	Volume 3, Section 8.3.6.2 Change in Habitat	The EIS Guidelines specifically require a summary of changes to key habitat, movement corridors, and population numbers for species important to current use of lands and resources for traditional purposes. Changes to habitat, movement, and population numbers for culturally important species have not been discretely discussed is	**Please provide a discrete summary of predicted changes to habitat, movement corridors, and population numbers for species of importance to LSFN's current use of lands and resources for traditional purposes.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				the EIS. This is of high concern given previous and ongoing impacts to culturally important species associated with the effects of lake regulation (e.g. page 8.83 of the EIS). A summary of changes to population numbers habitat and movement patters for culturally important wildlife species is important to the accuracy of effects estimations as required under the EIS Guidelines and CEAA Section 5(1)(c).	
LSFN-36	LSFN	7.2.3.Changes to riparian, wetland and terrestrial environment	Volume 3, Section 8.3.6.2 Change in Habitat	The EIS guidelines require a description of changes to the habitat of migratory and non-migratory birds, with a distinction made between the two bird categories. Changes to habitat for non-migratory birds have not been discretely discussed in the EIS, nor have specific mitigations been proposed. It is important to note that impacts and mitigation for habitat specific to migratory birds has been included, therefore the same should be done for non-migratory species, in particular for species important to current use of lands and resources for traditional purposes.	**Please provide a discrete summary of potential changes to the habitat of non-migratory birds, in particular for species important to current use of lands and resources for traditional purposes.** **In addition, please provide proposed mitigation measures.**
LSFN-37	LSFN	7.4. Mitigation measures	Volume 3, Section 8.3.6.2 Change in Habitat	The EIS Guidelines require a description of mitigation measures that are specific to each environmental effect identified, written as specific commitments that clearly describe how the proponent intends to implement them and the environmental outcome the mitigation measure is designed to address. Mitigations outlined in the EIS do not address species-specific effects to wildlife and wildlife habitat, nor do they include sufficient detail to provide confidence in the outcome of mitigation efforts. It is important to note that the EIS identifies plans to develop species-specific mitigation and offset plans for two species at risk (the red-headed woodpecker and eastern whip-	**In the absence of existing detailed mitigation and offset plans, please identify a clear commitment to work collaboratively with LSFN to jointly develop and complete of species-specific mitigation and offset plans, prior to the commencement of construction, providing LSFN with the time and resources necessary for meaningful participation in this technical review process.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				poor-will). **The same should be done for other culturally important species.** Given previous and ongoing impacts to culturally important wildlife found within the PDA, LAA and RAA, any further impact as a result of Project-related effects could have substantial consequences for LSFN's practice of Aboriginal and treaty rights and interests. Species-specific mitigations and offsets are important for addressing these impacts.	
LSFN-38	LSFN	7.1.10, Indigenous Peoples, Current Use of Lands and Resources for Traditional Purposes	8.3.6.2 Change in Habitat; 8.3.6.4 Change in Movement	The EIS Guidelines, under subsection 7.1.10, requires the EIS to provide information sufficient to provide a comprehensive understanding of baseline conditions and potential adverse effects of the project on the VC for wildlife and wildlife habitat, in order to understand effects of changes to this VC on LSFN's current and future ability to exercise its treaty rights to hunt and trap. This information is not adequately provided in Section 8.3 to adequately understand potential effects on wildlife species of importance to LSFN. In subsection 8.3.6.2, *Change in Habitat*, it is acknowledged that the construction of the electricity distribution line ROW to the LSMOC water control structure is expected to increase habitat fragmentation north of Lake St. Martin, "as existing intact wetland and forest patches will be intersected. Removal of tall trees and shrubs along the length of the ROW will reduce habitat for some birds (e.g., owls) and furbearers (e.g., marten)…" However, this subsection does not identify the construction of the channel itself, which will pose a 400m ROW, including a 100m-wide channel, as also contributing to habitat fragmentation. In subsection 8.3.6.4, *Change in Movement*, there is an admission that "creation of linear features on the landscape, particularly forested landscapes, is expected to result in habitat fragmentation	**Please provide a supplemental memo that re-examines the potential project-specific and cumulative adverse effects of the outlet channels, as a linear feature contributing to habitat fragmentation, on species of high cultural importance to LSFN, including, but not limited to the following:** • **elk** • **moose** • **white-tailed deer** • **lynx** • **duck and goose** • **marten, badger, fisher and other furbearers** **This memo should cite peer-reviewed scientific studies that have examined the effects that similar linear structures (i.e., deep channels, seasonally full of fast-moving water, 100m wide, with a 400m vegetation-cleared ROW corridor more than 20km in length with no dedicated animal crossing structures) pose across a range of representative species, including ungulates and discuss any limitations there may be in drawing conclusions about the effects of the outlet channels from the findings of these studies. Of particular concern are increased**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				and thereby altered movement patterns for wildlife." The MSD is cited as stating that elk and marten "may be particularly adversely impacted by construction of the channels". However, the EIS claims that, "For most species, a change in movement will be temporary because animals will resume regular movements once construction has completed." An exception is noted for " a species such as marten". The EIS further claims that the effects of linear disturbance caused by the channels would only occur during construction (for most species) and "when the channels contain water", as "most wildlife will be capable of crossing the outlet channels following constructions and during period of low flow (70-87% of the time). However, no specific evidence is provided to support the *implication* that if most wildlife are *capable* of crossing the channels during period of low flow, that it is reasonable that the outlet channels will have no residual effects on wildlife movement or behaviour. However, the EIS appears to have reached that conclusion in stating that "For most of the year, the water control structures will not be conveying large volumes of water, which will not dramatically increase the potential for the ROWs to present a barrier for wildlife because most wildlife species are capable of crossing static or slow-moving water.". (p. 8.119) In the view of LSFN, EIS has underestimated the habitat fragmentation effects of the Project and should be re-evaluated in order to adequately understand the knock-on effects of wildlife impacts on LSFN "current use" and treaty rights to hunt and trap.	**avoidance effects, habitat fragmentation and correlation between linear features and increased predation of ungulate populations (especially moose).** **In addition, this supplementary analysis should include and be interwoven with LSFN knowledge regarding the expected effects of the project on wildlife species of high cultural importance, through an LSFN Knowledge and Use Study.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
9.2. Land and Resource Use					
LSFN-39	LSFN	7.1.10 Health and Socio-economic Conditions; 7.1.12 Human Environment	9.2 Land and Resource Use; 10.3.3.2 Assessment of Residual Environmental Effects on Indigenous Socio-Economic Conditions	The EIS Guidelines require the Proponent to provide detailed and accurate baseline information on the current use of land in the study area, including commercial fishing (ss. 7.1.12) and Indigenous peoples' commercial activities (ss. 7.1.10). Detailed information regarding Indigenous commercial fishery is absent from the EIS, and the EIS acknowledges this gap in section 10.3.3.2: "Although the overall level of participation in commercial fisheries by Indigenous groups engaged on the ***Project is not known***, potential effects on commercial fisheries were identified as a key concerns by three of the Indigenous groups whose reserves are located within the LAA, these being Lake St. Martin First Nation, Dauphin River First Nation, and Pinaymootang First Nation. Several other Indigenous groups engaged on the Project also identified this concern." (emphasis added) Commercial fishing is an important source of income for LSFN families and community, and therefore, lack of baseline information regarding LSFN's involvement in the fishery is a crucial gap in this section. LSFN is deeply concerned about potential project effects on fish, waterbodies, fishing equipment, and access to fishing grounds that would impact this important resource use. It is imperative that LSFN's participation in both FSC and commercial fishing is clearly described, and potential effects on LSFN's fishing activities resulting from changes to the abundance and distribution of fish caused by the project are described.	**Through collaboration with LSFN, please develop and provide a supplementary memo to:** • **conduct a baseline review of LSFN-involvement in both FSC and commercial fishing activities;** • **assess and describe potential effects on LSFN's fishing activities resulting from changes to the abundance and distribution of fish caused by the project (both construction and operation)**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
9.6 Heritage Resources					
LSFN-40	LSFN	7.10 Indigenous Peoples, Physical and Cultural Heritage	9.6 Heritage Resources	For the assessment of effects on Indigenous peoples' Physical and Cultural Heritage, the EIS requires the Proponent to provide baseline information for "all elements of cultural and historical importance to groups in the area". In addition to physical cultural heritage, this also includes a range of intangible cultural heritage values (e.g., sacred areas, cultural landscapes, language use and transmission). CEAA 2012 "*Technical guidance for Assessing Physical and Cultural Heritage…"* (2014), identifies need to consult with Indigenous groups re: physical and cultural heritage, need to account for baseline conditions, and need to consider intangible as well as tangible cultural heritage. Currently, the EIS relies on limited and preliminary baseline information (IPEP comments, Petch reports, and "available traditional knowledge") and LSFN cultural heritage values are underrepresented. This is also noted in referenced report *Heritage Resources Characterization Study: Lake St. Martin Outlet Channels and Proposed All Season Access Road* (Petch 2017), which states: "The low number of archaeological sites is not reflective of the pre-European and historic periods of the study area, but rather shows that little or no archaeological studies have taken place throughout this area", and "Traditional Knowledge of the First Nations within the study area is minimal since few studies have been conducted." Absent baseline data, a conservative approach must be taken, in keeping with the precautionary principle. Given data limitations, an assessment of potential effects (which noted in section 9.6.1.3 include (1) change in number of heritage resources; and (2) change	**In collaboration with LSFN, please develop project-specific baseline data regarding LSFN heritage resources in the study area. An assessment of project effects on LSFN heritage resources should only be made once adequate information is obtained.** **Please co-develop a pre-construction HRIA and Cultural and Heritage Resources Protection Plan that includes LSFN traditional knowledge and addresses the data gap regarding LSFN cultural heritage values and concerns.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				in or disruption of use in cemeteries) is not possible and a finding of no significant residual adverse effects should not be made. This is especially critical given the permanence of potential project effects. LSFN recognizes that the Proponent acknowledges this as a gap and will undertake a pre-construction HRIA. This must include baseline information that accurately portrays LSFN cultural heritage.	
10.2 Traditional Land and Resource Use					
LSFN-41	LSFN	7.1.10. Indigenous peoples	10.2.2 Existing Conditions for Traditional Land and Resource Use	[Lack of consideration of Historical Context] The EIS has largely ignored the historical context of the proposed project impacts, including the fact that the northern portion of the Project will be built on some of the few areas, with relatively unfragmented intact ecosystems, remaining to hunt, trap and gather within LSFN's traditional territory that have not been taken up by private lands owners. Instead, contrary to the lived experience of LSFN members, the EIS has taken the opposite view in suggesting that pre-existing alienation of treaty lands for private ownership has reduced the potential for adverse effect on Indigenous use. Moreover, the analysis of LSFN CULRTP has largely ignored the historical effects of the operation of the FRWCS since 1961 on LSFN rights, lands and well-being, and how that has contributed to the context within which new project effects must be considered.	**Please provide a supplemental filing developed in collaboration with LSFN to characterize the historical context of LSFN rights-based activities within its territory, including describing trajectories of change for key indicators, for the purpose of assessing the significance and severity of project impacts on LSFN CULRTP in keeping with current Agency policy and guidance.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
LSFN-42	LSFN	4.2.2 Community knowledge and Indigenous knowledge	10.2.5 Determination of Significance	The EIS guidelines state, "the proponent should collaborate with Indigenous groups to ensure, where possible, that the Indigenous knowledge is incorporated into the EIS in a way that appropriate for the Indigenous group. The proponent will integrate Indigenous knowledge into all aspects of its assessment including both methodology (e.g. establishing spatial and temporal boundaries, defining significance criteria) and analysis (e.g. baseline characterization, effects prediction, development of mitigation measures) and will clearly describe this integration." (p. 7, emphasis added). Further, the EISG states, "The assessment of environmental effects on Aboriginal peoples, pursuant to paragraph 5(1)(c) of CEAA 2012, will undergo the same rigour and type of assessment as any other VC (including setting of spatial and temporal boundaries, identification and analysis of effects, identification of mitigation measures, determination of residual effects, identification and a clear explanation of the methodology used for assessing the significance of residual effects and assessment of cumulative effects). The proponent will consider the use of both primary and secondary sources of information regarding baseline information, changes to the environment and the corresponding effect on health, socio- economics, physical and cultural heritage and the current use of lands and resources for traditional purposes. Primary sources of information include traditional land use studies, socio-economic studies, heritage surveys, cultural impact assessments or other relevant studies conducted specifically for the project and its EIS. It is recommended that potentially affected Indigenous groups are a source of this information and that the determination of information requirements includes Indigenous groups." For the determination of significance for CULRTP (cultural and social impact), a collaborative or community-based approach to	**Please provide a supplementary submission, providing a collaborative or community-based approach to the determination of significance of project-specific and cumulative effects on LSFN CULRTP (i.e., once LSFN primary data has been provided)**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				the determination of significance is recommended by a range of EIA practitioners (See, for example, Christensen and Krogman 2012; Joseph et al. 2017; Clark Murray et al. , 2018). This section does not include primary data, or research input from LSFN related to CULRTP, including in reference to its significance determination. This section (10.2) does indicate how LSFN knowledge was considered or incorporated when identifying an appropriate threshold for the purposes of significance determination of CULRTP, and what steps the Proponent has undertaken to identify and incorporate LSFN's views on the significance threshold.	
LSFN-43	LSFN	10.2 Mitigation Measures	10.2.4.5 Change in Access to Traditional Resources and Areas for Current Use	Given the likelihood of significance adverse effects on LSFN CULRTP, it is incumbent upon the Proponent to identify additional project design, project management, mitigation measures to avoid or reduce impacts, and where impacts remain unacceptable after mitigation, to provide compensatory offsetting measures. Currently proposed mitigation measures are highly inadequate. Project design and project management features do not currently meet a reasonable level of imagination, or reflect meaning community engagement, but instead for most part resemble generic industrial construction practices. For example, for addressing, "potential effects on wildlife and wetlands", the EIS proposes only the most minimal design features and mitigation even though the project will result in "permanent bisection of wetlands areas (with no provisions for crossing of the outlet channel from either side of the proposed channel)", i.e., • mitigation measures for disruption of wildlife crossings and corridors include (from Section 8.3.6.4) design for	**Please provide a supplementary memo that examines options for best practices and best available technologies, related to project design, project management, mitigation measures to avoid or reduce impacts of the Project on LSFN's CULRTP. In addition, the memo should explore potential compensatory offsetting measures to address residual impacts on LSFN's CULRTP.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				minimizing the use of rip rap and minimizing the side slopes, to the extent feasible, to facilitate wildlife movement; • development and implementation of Project-specific environmental management plans and monitoring programs to mitigate potential Project-related effects to wildlife; • and monitoring of wildlife movement using the ongoing remote camera survey into post-construction. Similarly, inadequate mitigation measures have been proposed for addressing effects on other subcomponents of the CULRTP VC.	
LSFN-44	LSFN	2.4. Application of the precautionary approach; 7.1.10. Indigenous peoples	10.2.5 Determination of Significance, 10.2.5 Prediction Confidence	The EIS has noted, itself, that it has low confidence in its own conclusions due to the **substantial gaps in** baseline data and effects analysis used for the assessment of the CULRTP VC. "Prediction confidence in the assessment of effects on TLRU is low-to-moderate….As of July 2019, one TK report, one technical report, one consultation report, and one community report comprising the traditional knowledge of twelve potentially-affected Indigenous groups had been incorporated into the assessment of residual effects on TLRU." (Subsection 10.2.6) **Due to extended funding delays by the Proponent, LSFN has yet to commence its Knowledge and Use Study. Therefore, none of the conclusion in this section are relevant to LSFN.** However, instead of applying the precautionary principle (as required under section 2.4 of the EISG) in face of poor or no baseline data, and insufficient effect analysis, and adopting a conservative estimate of effects and likelihood of success of mitigation, the EIS instead has concluded, without any reference	**Please provide a supplementary memo that provides an explanation, in consideration of the range of residual effects of the project on CULRTP (TLRU), and with such a low prediction confidence in the EIS conclusions, of how the Proponent has applied the precautionary principle in reaching its conclusions in regards to the determining the likelihood of significance adverse effects. In this memo, please frame discussion in reference to existing best EA practices, as well as guidance for CEAA 2012 related to significance determination, CULRTP and cumulative effects assessment. Also, please provide an explanation why, contrary to CEAA 2012 guidance, that the Proponent has chosen to make a significance determination on project-residual effects only, rather than take the correct VC-centred approach to significance determination that considers project-specific and cumulative effects combined.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				to community thresholds or standards, or any reference to cumulative effects, that "overall effects on TLRU are considered not significant". It also ignores that the substantial, permanent and irreversible impacts (losses) to the Nation's rights-based activities are proposed in a context that already highly disturbed. Further, the EIS itself concludes that the Project will result in substantial change to CULRTP, including but not limited to the following effects: • the permanent loss of availability of traditional use resources or access to lands currently used for traditional practices, • the disruption of wildlife crossings and corridors, • displacement of animals and birds for harvesting, • permanent bisection of wetlands areas (with no provisions for crossing of the outlet channel from either side of the proposed channel), and • diminished value or importance of cultural sites and areas in the PDA and LA (pp. 10.62-10.63, 10.71) Lastly, the conclusions of the EIS overlook the preliminary and incidental information that LSFN has shared with the Proponent in community meetings (cited in Section 5 of the EIS), that, while very sparse as LSFN has not yet had an opportunity to conduct a study for the purposes of the assessment to date, is indicative of a very high concern on behalf of LSFN members about the potential significance of impacts, together with cumulative effects related to flood water management and agricultural activities, resulting from the Project on LSFN territory (including Lake St. Martin and the surrounding area).	

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				Given such a range of residual effects, and with such a low prediction confidence, the correct methodological approach would be to apply a conservative estimation and find a likelihood of significance adverse effects.	
LSFN-45	LSFN	5. Engagement with Indigenous Groups and Concerns Raised; 6. Impacts to Potential or Established Aboriginal or Treaty Rights	10.2.3 Project Interactions with TLRU	The assessment of effects on LSFN's CULRTP in the EIS is entirely deficient due to lack of any nation-specific baseline information or effects analysis.	**Provide a supplementary submission, in collaboration with LSFN, to adequately characterize historical baseline conditions (see issue #2 below), current baseline conditions, and potential adverse effects of the project on CULRTP, for each affected Indigenous group. Alternatively, the Agency should enter into a collaborative process with LSFN to assess impacts on LSFN CULRTP within the context of the EA process, in keeping with new Agency policy and guidance for Rights Impact Assessment ("RIA"). If neither of these requirements are adopted, this will leave this assessment with an inadequate information base for the Ministers to make critical decisions in relation to impacts on LSFN's CULRTP.**
LSFN-46	LSFN	5. Engagement with Indigenous Groups and Concerns Raised; 6. Impacts to Potential or Established Aboriginal or Treaty Rights	10.2.4.4 Change in Availability of Traditional Resources for Current Use	The conclusions in this section regarding residual effects are unsupported by any baseline information or credible project-TRLU/rights interaction analysis.	**Provide a supplementary baseline and project-TRLU interaction and impact study developed in collaboration with LSFN.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
10.3 Indigenous Health and Socio-Economic Conditions					
LSFN-47	LSFN	7.1.10 Health and Socio-economic Conditions; 7.1.12 Human Environment	10.3.1.6 Significance Definition	Re: Effects on LSFN health conditions, Social determinants of health The EIS Guidelines (7.1.10) states baseline information is required for health conditions, including the state of physical, mental and social well-being. EIS section 7.1.12 requires that baseline information reflects the broad range of matters that affect communities in the study area "in a way that recognizes interrelationships, system functions and vulnerabilities" New IAAC technical guidance New technical guidance (*Tailored Impact Statement Guidelines Template for Designated Projects Subject to the Impact Assessment Act and the Nuclear Safety and Control Act)* states that "Baseline information is required on existing human health conditions and must include the current state of physical, mental and social well-being and incorporate a social determinants of health approach to move beyond biophysical health considerations." (Section 8, Baseline Conditions – Human Health) The EIS current characterization of potential significant effects on Indigenous health conditions (human health) focuses primarily on physical determinants (air, water, soil, noise) and does not adequately consider the full scope of determinants of health and well-being in Indigenous communities including social determinants (such as health care systems, cultural continuity, food insecurity, employment, etc.). Social determinants are especially critical for this EA in view of the significant socio-economic impacts experienced by LSFN (and neighbouring First Nations) over the past decade, and the well-documented health disparities between Indigenous and non-	**Provide a supplementary health effects analysis, based on current community-based baseline data, using a population health/social determinants of health model to guide health impact assessment. Specific expectations for a population health assessment using social determinants of health would include:** **• Access to health and social services in home community** **• Satisfaction with health and social services (broken down)** **• Crime and policing data** **• Access to child care and early childhood development programs** **• Social and protection facilities and services (access to and pressures on)** **• Physical and mental health conditions by age and sex, race** **• Self-reported health status** **• Sexually transmitted infection rates** **• Teen pregnancy rates** **• Lifestyle and health practices, perceptions and behaviours** **• Diet, including per cent country food (e.g., estimated amount of current consumption and per cent of total meat intake from hunted animals)** **• Individual and community health determinants as identified by Aboriginal groups** **• Health care facilities and services available** **• Wait times and need to travel for health care services** **• Traditional medicinal practices in community and their use**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				Indigenous populations in Manitoba (Manitoba's First Nations population has double the premature mortality rate compared to all other Manitobans. Life expectancy for First Nations people is about eight years less than all other Manitobans (males 68 versus 76 years; females 73 versus 81 years) (Martens et al, 2002)). For more information on social determinants see: Reading, C.L. & Wien, F. 2009. *Health Inequalities and Social Determinants of Aboriginal Peoples' Health*. Prince George, BC: National Collaborating Centre for Aboriginal Health.	**• Family cohesion measures (e.g. per cent single parent families; divorce and separation rates)** **• Amount of time spent with immediate and extended family** **• Self-reporting well-being and quality of life data (via annual or bi-annual censuses), including mental and physical health status**
LSFN-48	LSFN	7.1.10 Indigenous peoples, Health and Socio-economic Conditions	10.3.2 Existing Conditions for Indigenous Health and Indigenous Socio-Economic Conditions	The section does not provide disaggregated baseline socio-economic and health information for each "individual Indigenous group" affected by the Project, as required in the EIS Guidelines. Baseline information used by the EIS is inadequate to assess effects on LSFN socioeconomic conditions. Indigenous communities experience distinct socio-economic and health circumstances, and by lumping together distinct Indigenous populations in the RAA, these differences are not reflected. Robust and accurate assessment requires that effects on distinct Indigenous communities are profiled and assessed separately.	**Through collaboration with LSFN, and based on current community-based baseline data (within past 2 years), please provide a supplemental baseline socio-economic conditions study for LSFN.**
LSFN-49	LSFN	7.1.12 Human Environment	10.3.3.1 Change in Indigenous Health Conditions	EIS Guidelines section 7.1.12 requires that baseline information reflects the broad range of matters that affect communities in the study area "in a way that recognizes interrelationships, system functions and vulnerabilities". EIS section 9.3 states that temporary construction camps will be used to house the construction workforce to mitigate potential impacts on Infrastructure and Services as temporary accommodations are limited in the RAA. The EIS does not	**Please provide supplemental memo, describing:** • **plan to engage with LSFN in process of determining of preferred locations of temporary work camps in the study area.** • **plan to work with LSFN to develop appropriate mitigations and post-construction monitoring to avoid and respond to impacts (e.g., siting, cultural competency, and maximize community benefits**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				acknowledge or assess the potential health impacts of temporary work camps LSFN is concerned that the use of work camps and a large transient workforce (up to 575 at peak times) has the potential to effect LSFN members' health and well-being, particularly vulnerable populations. There is a substantial and growing body of research that shows how influxes of temporary workers and a transient workforce in remote areas near Indigenous communities introduces socio-economic and health impacts that disproportionately affect vulnerable populations (particularly women and girls). See: Gibson, G., K. Yung, L. Chisholm, and H. Quinn with Lake Babine Nation and Nak'azdli Whut'en. 2017. *Indigenous Communities and Industrial Camps: Promoting healthy communities in settings of industrial change*. Victoria, B.C.: The Firelight Group.	**of work camps (e.g., employment and contracting opportunities, cultural competency)**
LSFN-50	LSFN	7.4 Mitigation Measures	10.3.3.2 Assessment of Residual Environmental Effects on Indigenous Socio-Economic Conditions	The EIS Guidelines and CEAA 2012 state that mitigations should be "specific, achievable, measurable and verifiable". More robust mitigations are required if predictions in the EIS of positive socio-economic effects for Indigenous communities, including, LSFN, will actually be realized. Current mitigations will not ensure positive Project effects for LSFN and other Indigenous communities (e.g., employment and training opportunities, and opportunities for Indigenous-owned businesses/contractors). The EIS states that "13% of direct employment (90 persons, 268 PYs) would be satisfied locally by current LAA residents". However, there is no indication that this is a binding target for the project	**Please provide a supplementary memo, developed in collaboration with LSFN, to develop appropriate mitigations and/or follow-up programs to ensure project effects include concrete social and economic benefits to address the substantial continuing impacts that have resulted from provincial floodwater management practices.** **At a minimum, this should include a requirement for Manitoba Infrastructure and LSFN to develop an economic benefit plan that includes binding Indigenous employment targets (for Project construction phase and post-construction monitoring), as well as some form of preferential contractor status for Indigenous-owned businesses in LAA to be included in "Manitoba**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				proponent, and "current LAA residents" provides no assurance that "local employment" would draw from LSFN membership. This is especially important considering the regional socio-economic disparities between Indigenous and non-Indigenous populations, and the ongoing recovery of LSFN families and community from evacuations and other effects associated with the 2011 and 2014 flood events (acknowledged in the EIS on p. 10.101).	**Infrastructure's purchasing and contracting policies" (p10.101).**
10.4 Aboriginal and Treaty Rights					
LSFN-51	LSFN	6. IMPACTS TO POTENTIAL OR ESTABLISHED ABORIGINAL OR TREATY RIGHTS	10.4 Aboriginal and Treaty Rights	This section is entirely inadequate due to substantial information gaps that should be readily apparent to the Agency, including but not limited to: • lack of historical context for LSFN; • lack of baseline information for LSFN regarding current conditions, including trajectories of change in respect to key indicators; • absence of project-rights interaction data for LSFN; • lack of information on desired future use by LSFN; • lack of information regarding LSFN thresholds, including sufficiency of resources, reasonable access and opportunity for meaningful exercise of rights by LSFN; • lack of information on potential effects on LSFN's preferred locations, timing and means of exercise of rights; • lack of consideration of effects of reasonably foreseeable projects and activities, in combination with the effects of the project on LSFN rights;	**The Agency should require the Proponent to develop a supplementary submission, in collaboration with LSFN, to adequately characterize historical baseline conditions, current baseline conditions, and potential adverse effects of the project on LSFN CULRTP. Alternatively, the Agency should enter into a collaborative process with LSFN to assess impacts on LSFN CULRTP and rights within the context of the EA process, in keeping with new Agency policy and guidance for Rights Impact Assessment ("RIA").**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				• lack of analysis of potential effectiveness of proposed mitigations, including LSFN perspectives on same; • lack of analysis of net residual project-specific and cumulative effects on LSFN rights, after mitigation; and • lack of consideration of LSFN views of severity of potential impacts of the project on LSFN rights, after mitigation.	
11.0 Cumulative Effects					
LSFN-52	LSFN	7.6.3.Cumulative effects assessment	Chapter 11.0 (e.g., Section 11.6.3.3 Residual Cumulative Effects on Change in Community Diversity)	The Proponent must assess the cumulative effects on each VC selected by comparing the future scenario with the project and without the project. Effects of past activities (activities that have been carried out) will be used to contextualize the current state of the VC. The Proponent repeatedly fails to provide an adequate assessment of cumulative effects both with the project and without the project, in consideration of direct and indirect effects from previous and future impacts. For terrestrial communities, for example, the Proponent has provided a quantitative summary of area change from existing conditions associated with direct impacts of the Project that fails to provide adequate context regarding the total cumulative area of disturbance and the percent change that this represents from an undisturbed historical baseline (e.g., pre-WWII). Furthermore, it is unclear how future projects will quantitatively contribute to further area and percent change for land cover categories in the RAA, relative to the undisturbed baseline. Understanding the current degree of landscape disturbance relative to an undisturbed baseline is crucial for evaluating	**Please provide the total estimate of area and % disturbance from cumulative existing and foreseeable future development, compared to the undisturbed historical baseline conditions within the RAA. Please clarify how both direct and indirect effects have been calculated in this assessment.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				whether thresholds will be or have already been crossed. Both direct and indirect impacts must be represented in this calculation to adequately characterize cumulative effects from the Project and foreseeable future development.	
LSFN-53	LSFN	Part 2, 7.6.3. Cumulative effects assessment	11.4.2.1 Identification of Projects Likely to Interact Cumulatively on Surface Water	EIS guidelines require the proponent to complete the following assessment: "identify the sources of potential cumulative effects. Specify other projects or activities that have been or that are likely to be carried out that could cause effects on each selected VC within the boundaries defined, and whose effects would act in combination with the residual effects of the project. Water management systems and natural and/or controlled flood events, including flooding that occurred in the Interlakes Region in 2011, should be considered as projects or activities that are sources of potential cumulative effects. This assessment may consider the results of any relevant study conducted by a committee established under section 73 or 74 of CEAA 2012" (PDF pp. 47). The proponent states that "the residual effects of the Project on surface water could potentially interact with two of the identified future physical activities: the rehabilitation of PTH 6 and the upgrade of the Lake St. Martin access road," but that "there were no other potential interactions identified that might act cumulatively with the residual effects of the Project on surface water" (PDF pp. 39). The proponent therefore has excluded any detailed inclusion and assessment of project effects in the context of cumulative effects from historical flood management infrastructure. The proponent clearly describes the detrimental effects of historical flood management infrastructure and policies. For	**Please provide a supplementary filing describing interactions of the project with historic flood management infrastructure (e.g. existing water control structures, policies to control lake levels, construction and operation of the emergency outlet channel) and conduct and provide the results of a comprehensive cumulative effects assessment of the outlet channels impacts on surface water in this context.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				example, the proponent states in Appendix 6J Development of Operating Rules for Lake Manitoba And Lake St. Martin Outlet Channels with Recommended Revisions (Manitoba Infrastructure 2019a) that "[a]ttempts to maintain Lake Manitoba within a narrow range from 1961-2003 increased the frequency and severity of flood and drought periods on Lake St. Martin" (PDF pp. 413). In Section 6.3.4.2 Change in Terrain Conditions the proponent further states that the emergency outlet channel "has been confirmed to affect local drainage conditions" (PDF pp. 121). In Section 6.4.7.5 Changes in Regional and/or Local Sediment and Debris Transport the proponent notes that "the operation of the EOC" resulted in "the passage of very high flows through the Buffalo Lakes and Buffalo Creek system," which "was unprecedented for this system and resulted in the erosion and transport of sediment and various large and small organic or woody debris (soil, peat, grasses, shrubs, trees) from these areas to Dauphin River and Sturgeon Bay" (PDF pp. 212). Without understanding how the proposed outlet channels will interact with the existing cumulative effects from historical flood management infrastructure and policies it is impossible to sufficiently evaluate the impacts of the proposed outlet channels on surface water.	
LSFN-54	LSFN	7.6.3 Cumulative Effects	Ch. 11	The EIS Guidelines state that cumulative effects must be considered if "the implementation of the project may cause direct residual adverse effects on the VC, taking into account the application of technically and economically feasible mitigation measures." A cumulative effects section for Heritage Resources VC appears to be have been omitted from the EIS without clear justification or acknowledgement. Given the gaps in baseline information mentioned in earlier comment, and recognizing that the project is	**Please provide a rationale the omission of cumulative effects assessment for Heritage Resources VC, or alternatively, provide a description of cumulative effects on heritage resources VC in the study area**.

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				likely interacting with existing cumulative effects on Heritage Resources (particularly in the LMOC LAA which is dominated by private land), this omission represents a serious gap.	
LSFN-55		Cumulative Effects, 7.6.3	Cumulative effects, 11.12 Traditional Land and Resources Use, Table 11.12-1 Interactions with the Potential to Contribute to Cumulative Effects on Traditional Land and Resource Use	The CEA undertaken for CULRTP is inadequate. Among key limitations, the "project and activity inclusion list" is deficient, and should include numerous other projects and activities that fall within LSFN territory, including but not limited to: • Construction and operation of the Fairford WCS and Portage Diversion (see EISG, s. 7.6.3), • Construction and operation of the Lake St. Martin EOC(see EISG, s. 7.6.3), • Construction and operation of the Bipole 1 and 2 transmission lines, • Construction and operation of roads and other transportation corridors within LSFN traditional territory, • Forestry activities, • Agricultural activities, including livestock feedlot operations adjacent to existing and proposed project waterways, • Peat mining activities (reasonably foreseeable), • Commercial fishing activities on Lake St. Martin and Lake Manitoba, • Recent clearing activities of the Province in advance of the Outlet Channel ROW areas for the LMLSMOC Project Further, complex interactions between CULTRP and cumulative effects from the project on wildlife, fish and vegetation need to be	**Cumulative effects analysis in regards to CULRTP must be revised to take into consideration interactions between the project's residual effects on CULRTP and cumulative effects of the broad range of past, present and reasonably foreseeable projects within LSFN traditional territory that have been excluded from consideration in the EIS.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				reconsidered.	
LSFN-56		Cumulative Effects, 7.6.3	Cumulative effects, 11.12 Traditional Land and Resources Use	The Proponent states they have already included flood impacts in the baseline environment (p.11.9), however, the cumulative effects assessment in the EIS still fails to recognize how the 2011 flood has made LSFN Traditional Land Use, Culture, and Aboriginal or Treaty rights critically vulnerable to any change. (IAAC Annex 1, p.24).	**LSFN supports the preliminary information request for the assessment of cumulative effects associated with adverse effects from the 2011 flood that have yet to be addressed, including, but not limited to, effects on lake levels and to Indigenous commercial and subsistence fisheries.**
12.0 Follow-Up and Monitoring Programs					
LSFN-57	LSFN	9.0 Follow-Up and Monitoring Programs	12.12.2 Heritage Resources (Follow-Up and Monitoring Program)	The EIS states that "the proponent will engage Indigenous groups in the preparation and execution of follow-up and monitoring programs as appropriate." The HRIA described in section 12.12.2 suggests a methodology based on predictive modelling and provides no assurance that LSFN (or other Indigenous groups) will be engaged in the HRIA to address the data gap for LSFN cultural heritage in the EIS.	**Please provide, at a conceptual level, a pre-construction HRIA and Cultural and Heritage Resources Protection Plan that includes LSFN traditional knowledge and addresses the data gap regarding LSFN cultural heritage values and concerns.**
LSFN-58	LSFN	9. Follow-up and monitoring programs	Volume 5, Chapter 12, Sections 12.5 – 12.7	The EIS Guidelines state that the preliminary follow up and monitoring programs will include specific details, such as the parameters to be measured, the planned implementation timetable for follow up studies, monitoring methods, and reporting mechanisms.	**Please provide a description of the follow up and monitoring programs that meet the specific requirements described under sections 9.1 and 9.2 of the EIS Guidelines.**

Reference IR#	Expert Dept. or group	EIS Guideline Reference	EIS Reference	Context and Rationale	The Proponent is Required to …
				Follow up and monitoring programs for aquatic and terrestrial VCs have yet to be developed in sufficient detail and do not currently meet specific requirements outlined in the EIS Guidelines. Without this information, LSFN cannot have confidence that information gaps and Indigenous concerns will be adequately addressed in subsequent studies and monitoring activities.	
LSFN-59	LSFN	9. Follow-up and monitoring programs	Volume 5, Chapter 12, Sections 12.5 – 12.7	The EIS Guidelines state that follow up and monitoring programs should include the participation of Indigenous groups, during the development and implementation of the program; Follow up and monitoring programs for aquatic and terrestrial VCs, as currently presented in Chapter 12, lack a meaningful role for LSFN and other Indigenous groups. LSFN has substantial concerns that Indigenous groups will not be involved in the development and implementation of the follow up and monitoring programs. This involvement is crucial for addressing Indigenous concerns about the project and promoting the respectful integration of Indigenous knowledge or perspectives.	**Please describe how LSFN will be involved in the development and implementation of follow-up and monitoring programs. This should include time and resources to support LSFN's participation, including LSFN technical representatives, in the co-development of appropriate follow up and monitoring programs.**
13. Project Sustainability					
LSFN-60	LSFN	3.2 Factors to be Considered [Sustainability as discussed on p. 5]	13.0 Project Sustainability 13.2 Regulatory Context	[Federal Sustainability Criteria] Section 13.2 notes that although not required, the Proponent, "applied the principles and guidelines of sustainable development through the planning, design and environmental assessment of the Project. This included consideration of the Impact Assessment Agency of Canada's 2019 Interim Framework: Implementation of the Sustainability Guidance" (p.13.3). More detail is required to understand how the federal framework was implemented and considered, especially how the framework applies to engagement with Indigenous groups.	**1. Please describe what steps were undertaken to understand LSFN's definition and criteria for sustainability.** **2. Please describe what steps were taken to understand LSFN's definition of well-being in the present and for future generations.** **3. Please describe the methods used to assess effects on future LSFN members, including any support provided**

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					for Indigenous Knowledge studies to inform the baseline of this effects analysis.
14. Accidents and Malfunctions					
LSFN-61	LSFN	7.6.1.Effects of potential accidents or malfunctions	Section 14 Accidents and Malfunctions Section 14.2.6 Summary of Residual Effects	[Site Specific Sensitivities] The final EIS guidelines require that site specific sensitivities are taken into account. The proponent has not provided details as to how sensitive sites, particularly in relation to traditional land and resource use, were identified or how they were assessed in the context of accidents and malfunctions. Further details on the assessment of sensitive sites is required in order to confirm the accuracy of the Proponent's assertion that, "A breach of the dikes would result in lesser effects to VCs relative to an unmitigated flood (i.e., in the absence of the Project), including inundation of surrounding areas, as well as any residences (particularly around Lake St. Martin, since the excavated channel would contain a portion of the water)." (p. 14-9).	**1. Please list all sensitive sites identified in the accidents and malfunctions assessment and describe how these locations were considered in developing worst-case scenarios.** **2. Please describe how LSFN and other Indigenous groups were engaged to identify and assess (Traditional Land a resource use) sensitive sites for effects from accidents and malfunctions and how traditional knowledge was considered in assessing those sites.** **3. Please describe all future opportunities for LSFN to collaborate on the identification and protection of sensitive sites from accidents and malfunctions.**
LSFN-62	LSFN	7.6.1.Effects of potential accidents or malfunctions	Section 14 Accidents and Malfunctions Section 14.4.4 Incident Response and Mitigation [Fire]	[Response Capability] Section 14 does not include consideration of the current response capability of LSFN to accidents and malfunctions nor does it describe the potential costs required to expand LSFN emergency preparedness in response to increased risks associated with the Project. Section 14.4.4 does note that, "Local emergency response teams will also be contacted, and their assistance sought, if necessary, to reduce the severity and extent of damage."(p.14.20) but does not describe what steps the Proponent will take in advance to ensure the preparedness of those local emergency	**Please commit to working with LSFN to develop an estimation of the adequacy of current LSFN emergency response capacity to deal with failure modes that may occur as a result of the Project including flooding and fire.**

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				response teams. The consideration of emergency response preparedness for LSFN and other Indigenous communities needs to be incorporated into the Accidents and Malfunctions section of the EIS, especially for flooding and fire scenarios. The ability to manage different failure modes is a critical element of any Accident and Malfunction analysis and must be included.	
15. Effect of the Environment on the Project					
LSFN-63	LSFN	7.6.2.Effects of the environment on the project	15.0 Effect of the Environment on the Project 15.1.2 Effects on VCs 15.2 Significance Thresholds for Effects of The Environment on The Project 15.8 Summary of the Effects of the Environment on the Project IAAC IR-59	[Significance thresholds] Section 15.1.2 recognizes that effects on the Project can have subsequent effects on other VCs, notably when a breaching or overtopping occurs(flooding). LSFN is concerned that damage to infrastructure resulting in harm to the receiving environment (especially for VCs of concern for Indigenous groups) has not been included as a threshold for significance in section 15.2. Section 15.8 includes recognition of potential subsequent environmental effects. Section 15.8 states that, "With Project design and the implementation of response measures, potential residual effects of the environment on the Project are limited to climate change and damage to infrastructure because of wildfires, and tornadoes. Potential residual effects could extend beyond the PDA but would be low and are rated not significant. An outlet channel breach has the potential to be significant in the unlikely event of damage to Project infrastructure during a high magnitude flooding event…While this can result in socio-economic effects and potential public safety hazards, potential effects on the biophysical environment would be limited" (p.15.16). **Even limited environmental effects could have catastrophic effects for LSFN given the Nation's current vulnerability.**	**Please include harm to the receiving environment as an additional threshold for effect of the environment on the Project and provide a detailed discussion of how environmental damage to infrastructure could adversely affect VCs of concern to LSFN and other Indigenous groups in the event of flooding.**

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				The Proponent argues that flooding effects would be worse without the Project, however, this assumes that floodwaters would necessarily need to be diverted from the Assiniboine River and Lake Ontario into Lake St. Martin to address flooding concerns elsewhere in the province. LSFN is concerned that the Project could have site specific effects for highly valued areas in the event of a breach or overtopping due to damage to infrastructure.	