SHARED VALUE SOLUTIONS

LAKE MANITOBA AND LAKE ST. MARTIN OUTLET CHANNELS PROJECT EIS REVIEW

Prepared for: Brokenhead Ojibway Nation

Date: May 23, 2020

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PROSPERITY.
STEWARDSHIP.
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Bev Smith

Lands and Resources Manager
Brokenhead Ojibway Nation

May 23, 2020

Dear Bev,

It is our pleasure to provide you with a technical review report on the Environmental Impact Statement (EIS) for the Lake Manitoba and Lake St. Martin Outlet Channels Project. This review was completed by Levi Snook, Elizabeth Philip, Rachel Speiran and Alison Fraser of Shared Value Solutions.

We look forward to continuing to serve you in consultation and lands and resources protection matters. Please do not hesitate to get in touch with us if you have any questions or concerns with the enclosed report.

With best regards,

Alison Fraser, BSc, MSc, QP_{RA}

Senior Risk Assessment Specialist, Shared Value Solutions

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1.0 INTRODUCTION

Brokenhead Ojibway Nation (BON) retained Shared Value Solutions (SVS) to complete a technical review of the Environment Impact Statement (EIS) for the Lake Manitoba and Lake St. Martin Outlet Channels Project (the Project).

Manitoba Infrastructure ("MI" or "the Proponent") is proposing to build a permanent flood control management system for Lake Manitoba and Lake St. Martin to reduce flooding in the Lake St. Martin Region of Manitoba (*insert reference to EIS*). On March 9th, 2020, the Proponent submitted their EIS to the Impact Assessment Agency of Canada (IAAC) and to Manitoba Sustainable Development (MSD) pursuant to the requirements of the federal and provincial impact assessment processes. The EIS provides technical information on the potential environmental effects of the Project and proposed measures to prevent or mitigate those effects.

This report details the findings of our review with a focus on impacts to the inherent rights and interests of BON.

1.1 BROKENHEAD OJIBWAY NATION

BON is an Anishinaabe (Saulteaux/Ojibway) First Nation located approximately 80 km northeast of Winnipeg, Manitoba. BON (formally Brokenhead River Band) is originally from Sault St. Marie, Ontario. However, in the late 1600s many families moved to Manitoba. The First Nation was established at the mouth of the Brokenhead River and Lake Winnipeg, in Manitoba at least four generations before the signing of Treaty #1 (personal communication, April 28, 2020).

Treaty #1 negotiations were held at the Lower Fort Garry on August 3, 1871. For the purposes of treaty land entitlement during the period of Treaty #1 Reserve surveys, the Treaty Commissioners recognized the Brokenhead River Band as a separate entity. In 1872, the Fort Garry Band, who originally was set to have a Reserve adjacent to the Pembina Bands on the Roseau River, arrived at Brokenhead River area and indicated to the government of the time that they wished to have a Reserve surveyed on the Brokenhead River. Between 1872 and 1877, the Brokenhead River Band and the Fort Garry Band were amalgamated and formed the Brokenhead Reserve. During the late 1800s and early 1900s, the Brokenhead Reserve and the St. Peter's Band had close family ties. When the land surrender of the St. Peter's Reserve in 1912 occurred, many individuals and families chose to settle in Brokenhead instead of moving further north to the new Reserve along the Fisher River. Even today, many of the families in Brokenhead trace roots back to all three Bands (Brokenhead Ojibway Nation, 2015).

As of 2018, BON has a registered population of 2,084 people, including an on-reserve population of 799. BON has three separate areas of reserve land, including Brokenhead 4 (the location of the community), Birch Landing and Na-Sha-Ke-Penais.

BON is a signatory to the Framework Agreement on First Nations Land Management and has jurisdiction over their reserve lands and resources under their own Land Code (ratified by the community in 2014). The First Nation is operational under the First Nations Land Management Act

(FNLMA) and have regained sovereignty over land management within their community by opting out of certain land management provisions of the Indian Act.

1.2 REVIEW OBJECTIVES

The objective of this review was to identify technical issues and concerns that could potentially impact BON's rights and interests in the project area. The focus of our review was on potential environmental effects identified by the Proponent and the sufficiency of proposed mitigation and accommodation measures. More specifically, the objectives of our review were to:

- Provide a plain language description of the scope and nature of the Project
- Identify technical issues and environmental concerns in the EIS, and provide recommendations to protect BON's rights and interests related to Project impacts
- Assess the inclusion of BON Traditional Knowledge and Land Use and Occupancy (TKLUO) information in the EIS
- Identify opportunities for BON community members to participate in monitoring and mitigation efforts for the Project
- Identify significant issues that may require continued dialogue between the Proponent and BON

1.3 REVIEW METHODOLOGY AND APPROACH

To inform this review, SVS completed remote interviews with BON community members to understand their concerns as they relate to the Project, and to identify community-specific rights, values and interests. The results of these interviews formed the basis of this review and, more specifically, were used to scope our assessment approach.

As such, we have categorized our review findings according to the following environmental components:

- Surface Water (Section 3.1)
- Groundwater (Section 3.2)
- Fisheries and Aquatic Ecology (Section 3.3)
- Indigenous Socio-economics and Community Well-being (Section 3.4)
- Wildlife and Vegetation (Section 3.5)

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- Rachel Speiran, MA, Technical Consultant, Cultural and Socio-economics
- Rachel White, M.Sc., Technical consultant, Wildlife and Vegetation

1.4 REVIEW SCOPE

We completed a review of the EIS document and relevant technical support documents (TSDs). The EIS was divided into five volumes as follows:

- Vol. 1 Chapters 1-5 – Project Description, Justification, Engagement and EA Approach
- Vol. 2 Chapter 6 – Physical Environment
- Vol. 3 Chapters 7 and 8 – Biophysical Effects Assessment
- Vol. 4 Chapters 9 and 10 – Socio-economic Affects Assessment
- Vol. 5 Chapters 11-16 – Conclusions and Other Assessments

TSDs that were reviewed to support our assessment included:

- Lake Manitoba Outlet Channel Fisheries and Aquatic Habitat
- Lake Manitoba Outlet Channel Heritage Resources
- Lake Manitoba Outlet Channel Vegetation
- Lake Manitoba Outlet Channel Wildlife
- Lake St. Martin Outlet Channel Heritage Resources
- Lake St. Martin Outlet Channel Vegetation
- Lake St. Martin Outlet Channel Wildlife

1.4.1 SPATIAL SCOPE AND FOCUS

The review considered the Local and Regional Assessment Areas as defined in the EIS. Where TKLUO indicated BON land use downstream of the Project, these areas were also considered.

1.4.2 ANALYSIS: PRIORITY ISSUES

As noted above, our review considers technical issues and significant environmental concerns in the EIS that could potentially adversely affect surface and groundwater, fisheries and aquatic ecology,

wildlife and vegetation, and Indigenous socio-economics and community well-being. We have also assessed the adequacy of MI's incorporation of BON traditional knowledge and land use information.

1.4.3 RECOMMENDATIONS

Through the review process, we have identified numerous issues and concerns to BON. In addition, we have provided recommendations to address these concerns using professional judgment, industry best practices, and other relevant research. The recommendations provided in this report aim to address technical and scientific deficiencies in the EIS and protect BON's rights and interests. Where absolute protection of BON's rights and interests is not possible, recommendations have been provided to accommodate BON throughout the lifespan of the Project.

2.0 PROJECT DESCRIPTION AND REGULATORY PROCESS

2.1 PROJECT DESCRIPTION

In response to widespread flooding in much of southern Manitoba, MI is proposing to build a permanent flood control management system for Lake Manitoba and Lake St. Martin. Two new diversion channels, the Lake Manitoba Outlet Channel (LMOC) and the Lake St. Martin Outlet Channel (LSMOC), would connect Lake Manitoba to Lake St. Martin and Lake St. Martin to Lake Winnipeg, respectively (Manitoba Infrastructure, 2020).

The LMOC would extend from north of the community of Ashern and connect Watchorn Bay in Lake Manitoba to Birch Bay in Lake St. Martin. The area through which the channel would transect is primarily private agricultural land that will be purchased for the Project. The proposed channel is 24 km long with the bottom width varying between 8 and 13 m. The depth of the channel varies between 6 m and 12 m. It is important to note that, because the bottom of the channel will be lower than water levels in both Lake Manitoba and Lake St. Martin, there will be water in the channel on both sides of the Water Control Structure (WCS), open or closed, at all times. The WCS is required to control water flow through the LMOC and will be designed as part of a permanent bridge where Iverson Road intersects the channel. The WCS will include three 9 m wide sluice bays (to direct water flow), upstream and downstream stop logs (to adjust the amount of water allowed to flow), and vertical lift gates (to open and close the channel). In addition to the bridge at Iverson Road, three additional bridges are planned to cross the LMOC at locations where existing roads meet the channel. Provincial Road (PR) 239 will be realigned to reduce the number of bridges crossing the channel. Similarly, several municipal roads will be reconstructed, realigned, or extended to allow for agricultural activities and rural residential access (Manitoba Infrastructure, 2020).

The LSMOC would connect the northeastern-most extent of Lake St. Martin to Sturgeon Bay at the south end of Lake Winnipeg. This area is entirely semi-remote Provincial Crown land, the majority of which is wetland. Once completed, the channel would connect to an existing, but non-functioning, portion of the Emergency Outlet Channel (EOC). The EOC was a temporary solution to reduce

flooding in southern Manitoba constructed by MI in 2011 and 2012. The LSMOC has a proposed length of 24 km and bottom width of about 44 m. When the gates are closed, water depth in the channel will vary between 1 and 2.5 m. This water is expected to come from groundwater, local surface water runoff, and discharge from Lake St. Martin, when needed. The WCS for the LSMOC will also act as a bridge to maintain connectivity between both sides of the channel. It will only include two 9 m sluice bays, but otherwise will be constructed similar to the LMOC WCS. In addition to the WCS bridge, some have expressed interest in constructing an alternative means of crossing the LSMOC to maintain access to harvesting areas. Though plans have not been finalized and are subject to further discussion, proposed crossing methods have included a path or bridge that can be traversed by foot, snowmobile, or ATV (Manitoba Infrastructure, 2020).

In addition to the Project components noted above, both channels will require various supporting works and activities during construction and operation. These include rock quarries and borrow material areas, temporary construction camps and staging areas, power supply, temporary access and crossings, explosive storage facilities, and realignment of existing drainage features. Clearing and grubbing of vegetation along a 400 m right of way (ROW) will also be required to allow for construction of the channels (Manitoba Infrastructure, 2020).

During the operations and maintenance phase of the Project, MI will operate the channels by adjusting the vertical lift gates on the WCSs. The volume of water allowed to flow through the channels will depend on monitoring and flood forecasting. Generally, it is expected that there will be two main modes of operation, open gates and closed gates. Open gates operation will be used during flood conditions to reduce water levels on Lake Manitoba by increasing outflows from Lake Manitoba and Lake St. Martin. When flooding is not a concern, the gates will be closed, and only base flows will

be conveyed through the gates to maintain lake levels and river flows (Manitoba Infrastructure, 2020).

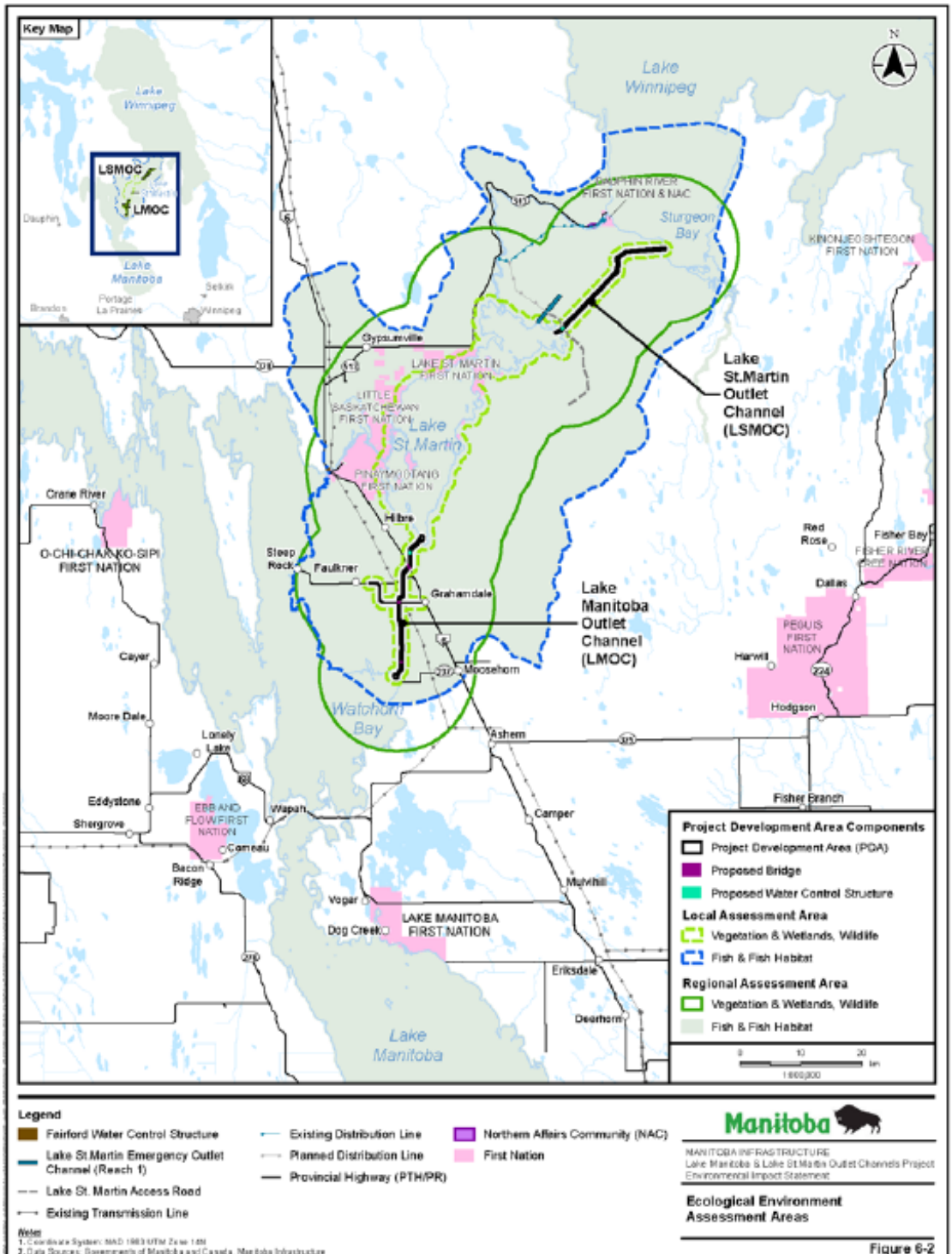

Figure 1. Location of the LMOC and LSMOC, and extent of the Local and Regional Assessment Areas for the EIS (source: EIS Vol 2 , Figure 6-2) (Manitoba Infrastructure, 2020).

2.2 REGULATORY PROCESS

The Project will require approval under both the federal and provincial regulatory requirements.

The proposed Project is a designated project under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and, as such, must undergo a federal environmental assessment. Because the Project was initiated under CEAA 2012, it is not subject to the requirements of the *Impact Assessment Act*, which came into force on August 28th, 2012.

The proposed project is also subject to various regulatory approvals at the provincial level. The Project is designated 'Class 3' development under the Classes of Development Regulation of T*he Environment Act* and therefore will require an Environment Act Licence. Work permits will also be required under *The Crown Lands Act* to allow for construction and camp development on provincial Crown land. To allow for the establishment of quarries and borrow pits, MI will be required to obtain casual quarry permits under Subsection 133(1) of *The Mines and Minerals Act*. If petroleum storage tanks greater than 5,000 L will be stored on Crown land, MI will need to obtain permits under *The Dangerous Goods Handling and Transportation Act*. If controlled burns are required to support clearing and grubbing activities, MI will require burning permits under Section 19(1) of *the Wildfires Act*.

The EIS is intended to meet both the federal and provincial governments' regulatory requirements. Depending on regulatory approval timelines, the Project is scheduled to be fully operational in the spring/summer of 2023 (insert reference to EIS).

3.0 REVIEW FINDINGS

3.1 SURFACE WATER

Based on the Canadian Environmental Agency EIS Guidelines, the surface water assessment, completed for the project, was conducted at both the local and regional level. Surface water was identified as a valued component (VC) in the assessment.

3.1.1 SUMMARY OF EIS CONTENT

Lake Manitoba has a drainage area of approximately 79,800 km^2, as measured at the Fairford River inlet, and a surface area of approximately 4,500 km^2. Lake St. Martin comprises two basins, a larger western basin connected by a narrow channel to a smaller basin to the northeast. The total surface area is 345 km^2. Both LMOC and LSMOC are permanent outlet channels that provide additional capacity to divert water from Lake Manitoba to Lake Winnipeg, via Lake St. Martin, for flood management and regulation (Figure 2). Based on the reference water level of 248.1 m and 244.1 m for Lake Manitoba and Lake St. Martin, respectively, the design capacity for the channels are 212 m^3/s (LMOC) and 326 m^3/s (LSMOC).

Figure 2 Map showing the study area (source: EIS rVolume 6, Figure 6.4B)

With the long-term hydrometric data, a water balance model was run, and flow/level duration curves were generated, with and without the Project, for the lakes, rivers and the channels. Operation rules were subsequently created considering the present control structures (Portage Diversion, Fairford River Water Control Structure, Shellmouth Dam) for safe water management/regulation. Flood inundation maps with and without the project were also created. The assessment considered water quality, ice process, fluvial and shoreline geomorphology, and sediment transport.

3.1.2 EVALUATION AND RECOMMENDATIONS

Comment 1: General Comment. Manitoba Infrastructure conducted a detailed study for the design, operation and maintenance of LMOC and LSMOC. MI will divert water from Lake Manitoba to Lake Winnipeg, via Lake St. Martin, through the two outlet channels. Lake St. Martin is a relatively small lake with a surface area of only 345 km^2. With such limited capacity of the lake, it is unclear if the connecting channels are able to convey the flood flow during a large flood event. This is of high importance given the fact that it is unclear whether MI considered the impact of climate change on water levels and flows.

In Section 6.4.7.2 of the EIS, the change in flow/level with and without this project is discussed. Flow/level duration curves and operating rules have been created specific to this project. Importantly, MI has not provided any comparison studies for projects elsewhere have been undertaken to justify their design criteria.

Recommendation 1a: MI should demonstrate an explicit incorporation of climate change studies based on projected climate scenarios (Representative Concentration Pathways (RCPs) 2.6, RCP 4.5 and 8.5) from the climate models for this project to demonstrate that the channels as designed will operate as planned under all climate change scenarios and not result in uncontrolled flooding and consequent negative effects in the downstream environment. MI should identify the places at risk of

uncontrolled flooding as a consequence of LMOC or LSMOC operational failure, and how those risks will be mitigated and managed.

Recommendation 1b: For a project of this complexity, the proponent should carry out a risk assessment that includes failure of both the channels and overtopping of Lake St. Martin. The inundation maps for these scenarios should be included in the EIS. MI should provide a comparative study to other similar projects to validate that their flow/level duration curve modelling is appropriate for this type of project.

Comment 2: In Section 6.4.7.7. of the EIS, MI states 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". However, BON notes that local hydrology will be impacted by the project and this could impact water quality. For example, fluctuations in water levels, especially in wetland areas, has the potential to increase production of methyl mercury. Nutrient loading into Lake St Martin as a consequence of the LMOC channel construction through manure-contaminated soils is another example.

Recommendation 2: MI must provide further information regarding how changes in water quality will be monitored during all phases of the Project, and how unexpected changes in water quality will be managed in terms of assessing and minimizing risks to both human health and wildlife. In addition, MI must consider the land use and activity patterns of Indigenous community members when assessing potential health impacts and risks.

3.2 GROUNDWATER

3.2.1 SUMMARY OF EIS CONTENT

The hydrogeological components assessed in the EIS include a thin surficial aquifer, aquitard-aquiclude (principal geological component where the candidate project is embedded) and a confined carbonate bedrock aquifer that extends the regional study area. Domestic and livestock wells are located in the carbonate aquifer in the LMOC LAA.

Groundwater from the upland region of the confined aquifer is near the LMOC. The wells located near this region are under the Groundwater Under Direct Influence (GUDI) of surface water. The GUDI at the proposed LMOC is low due to high artesian pressure maintaining the flow from groundwater to surface water. The thick till aquiclude protects the carbonate aquifer. The EIS includes monitoring of both groundwater quantity and quality, as well as impacts of GUDI and wetland and artisan discharges.

3.2.2 EVALUATION AND RECOMMENDATIONS

Comment 3: In Section 6.4.2, the proponent describes the present condition and the impact of this project during the construction, operation and maintenance phases. The Proponent suggests that the impact on groundwater resources will be minimal with the present alternative chosen. However, there is concern with respect to potential impacts on drinking water quality, especially near the LMOC where soils have been impacted by agriculture, including the addition of manures and fertilizers to the soils.

Recommendation 3: Manitoba Infrastructure should complete a source water protection plan in the RAA, including mapping the well head protection areas based on distance/time of travel (e.g. 100 m radius, 2-year time of travel).

Comment 4: MI has not adequately addressed the potential impacts of the Project on wetlands. For example, MI has not included flow characteristics of different wetland types in the EIS. As a result, it is unclear how the construction of the LSMOC will alter the hydrology of the Buffalo Creek wetland system and consequently affect the fish and wildlife inhabiting that area.

Recommendation 4: The proponent should conduct a detailed study of the flow characteristics of bogs and fens in the RAA. The rate of water flow from the Buffalo creek system in particular should be measured and quantified to assess how the changes in hydrology induced by the construction of the LSMOC will alter wetland hydrology. MI should incorporate this into the aquatic ecology and wildlife assessment as part of their determination of cumulative impacts.

3.3 FISHERIES AND AQUATIC ECOLOGY

3.3.1 SUMMARY OF EIS CONTENT

The EIS indicates that the proposed Project may result in the permanent alteration or destruction of fish habitat, alter fish passage, and/or affect fish health and mortality. During construction, fish habitat may be altered or destroyed due to: excavation of lake bottom habitat at the inlets and outlets of the LMOC and LSMOC; realigning, isolating, or dewatering small lakes and streams along or adjacent to the channels; changing groundwater inflows to lakes and stream adjacent to the channels; increasing sediment transport and deposition.

During operations, changes in the upstream and downstream movement of adult, juvenile, and larval fish between Lake Manitoba, Lake St. Martin, and Lake Winnipeg may occur due to the use of the LMOC and LSMOC when the control structures are open, and water is moving between the lakes. Use of the channels could also affect fish passage by affecting the attraction flows in the Fairford and Dauphin rivers, particularly during the spring and fall spawning periods.

Fish health and mortality have the potential to be affected by activities required for construction and operation of the channels, as most construction activities will occur in or near water and could potentially release deleterious substances to streams and lakes adjacent to or downstream of the LMOC and LSMOC. Such releases may directly affect respiration of fish and gas exchange of fish eggs, or indirectly affect plankton or benthic invertebrates which are food for many fish species. Specific pathways of potential effects on fish health and mortality during construction and operations are: accidental release of grease, fuel, oil, and/or hydraulic fluids from heavy machinery and concrete washout from the water control structures; increased overpressures from blasting in borrow-pits and quarries; introduction of sediment; stranding of fish and fish eggs in the channels after their use; and increased harvest pressure due to the presence of the work-force and improved access.

The EIS provides a range of mitigation measures and states that the Project will mitigate any permanent alteration or destruction of fish habitat caused by building the channels. One primary mitigation is through creating new fish habitat in the LMOC and LSMOC. It is stated that, when complete, the LMOC and LSMOC will provide 172 ha of new fish habitat (72 ha in the LMOC and 100 ha in the LSMOC). A variety of fish species are expected to use the habitat provided by the channels year-round. The EIS states that this may include spawning, rearing, and overwintering for forage fish

and for large-bodied fish such as walleye, suckers, northern pike, and lake whitefish. During operation, flow conditions below the WCS in the LMOC and below the downstream-most drop structure in the LSMOC are expected to be fast (>1 m/sec) and turbulent, and this may provide conditions suitable for spawning, particularly for walleye.

During periods of non-use, both channels are likely to support large numbers of forage fish, as well as young-of-the-year and juveniles of many large-bodied fish species in the LAA. Adult northern pike are also likely to reside in the channels year-round. The EIS concludes that based on the assessment of the proposed effects of the Project on fish and fish habitat, and considering the avoidance and mitigation measures available, the residual effects of the Project on fish and fish habitat are predicted to be not significant.

3.3.2 EVALUATION AND RECOMMENDATIONS

Comment 5: Section 7.2.1.4 – Potential Effects, Pathways and Measurable Parameters - The potential effects to fish and fish habitat in the EIS are discussed in the context of the old version of the Fisheries Act. The EIS discusses effects to the aquatic environment in the narrow definition of Commercial, Recreational and Aboriginal (CRA) fish and fish species. The new 2019 Fisheries Act now includes the protection of all fish and all fish species, not only CRA fish species. In addition, in relation to the use of the outlet channels as migratory routes, the new Act defines migration areas as a component of fish habitat.

Recommendation 5: The EIS needs to reframe the way in which impacts to fish and fish habitat are assessed. The EIS must, by law, now consider all potentially affected species in order to have a fulsome understanding of potential effects to fish and fish habitat. Further, once a more comprehensive assessment is complete on all fish species protected under the current Fisheries Act, the EIS must also revisit the proposed mitigation measures to ensure the protections in place cover all fish species.

Comment 6: Section 7.2.4.2 Permanent Alteration or Destruction of Fish Habitat - The EIS indicates that the Project will mitigate any permanent alteration or destruction of fish habitat caused by building the channels by creating new fish habitat in the LMOC and LSMOC, and that when completed, the LMOC and LSMOC will provide at least 172 ha of new fish habitat (i.e., 72 ha in the LMOC and 100 ha in the LSMOC). However, the EIS does not provide any further detail on how the specific construction will be designed to create adequate fish habitat. The EIS seems to suggest that the mere construction of these concrete channels will be considered valid fish habitat. These flood channels are designed to move water and control flooding conditions, not to provide suitable fish habitat. In addition, when in operation, the temporary alteration of fish habitat in the receiving environment will occur and the EIS does not address how this will be offset.

Recommendation 6: Section 7.2.4.2 Permanent Alteration or Destruction of Fish Habitat -The EIS needs to include descriptions of the proposed offsetting measures in relation to the types of habitats that will be affected. Further, the EIS should include a description of how the proposed offsetting in the channel and beyond would mitigate and replace the loss and altered area of habitat.

Comment 7: Section 7.2.4.2 Permanent Alteration or Destruction of Fish Habitat - The EIS does not characterize sediment erosion and deposition throughout all phases of the Project and makes the claim

that the amount of sediment mobilized from the channels and deposited in receiving environments in Lake Winnipeg is expected to decrease over time. The EIS claims that the amount of fine, erodible substrates diminishes with each successive use of the channels. This appears to be flawed as it is highly likely that sediment transport will continue indefinitely as a natural function of riverine systems. Further, spikes in suspended and deposited sediment are expected during high flood events when the channels are moving high volumes of water.

In addition, BON community members have significant concerns related to further transport of sediments in high volumes into Lake Winnipeg. Due altered currents from dams on the system and other changes to the natural state of waterbodies, sediments have accumulated in the south basin of Lake Winnipeg and into Brokenhead River, altering the natural suspended sediment loads, as well as causing shallower water level conditions in the region. This is also an issue at the mouth of the Brokenhead River where sediments are causing issues for fish movement. Massive sand bars have been noted by community members. There is concern that the proposed Project has the potential to further impact sediment transport in BON's traditional territory.

Recommendation 7: The EIS needs to assess how the mobility of sediments from the project will impact the receiving waters beyond Birch Bay and Sturgeon Bay, but also into the southern basin of Lake Winnipeg and into Brokenhead River. The EIS should consider cumulative effects of the project on Lake Winnipeg. The EIS must consider and identify mitigation measures and assess significance of residual effects.

Comment 8: Section 7.4 – Mitigation Measures - The mitigation measures included in the EIS do not provide adequate detail to assess the level of protection on the aquatic environment. More specifically, the proposed measures are vague and broad in their potential application, as well as assessment of the level of mitigation the activities will have on the aquatic environment or if there will be remaining residual effects. In particular, in relation to the concerns identified by BON community members on the potential erosion of sediment, the EIS only describes high level out-of-water work in their description of mitigation measures.

Recommendation 8: The EIS needs to fulfill the requirements laid out in the EIS guidelines and include mitigation measures with specific commitments that clearly describe how the proponent intends to implement them and the environmental outcome the mitigation measure is designed to address. In addition, the EIS also needs to present an assessment of the effectiveness of the proposed mitigation measures.

Comment 9: Section 7.2.2 – Existing Conditions for Fish and Fish Habitat - Lake Manitoba and Lake Winnipeg are highly productive lakes due to their shallow depths relative to their large surface areas, warm summer water temperatures, and well mixed water columns. Eutrophication, caused primarily by agricultural run-off, has degraded the water quality of both lakes and has resulted in increases in cyanobacteria and green algae concentrations. BON community members have witnessed and experienced the effects of the agricultural industry on the water quality and fish habitat in Lake Winnipeg.

Of particular concern are fish die offs and poor water quality throughout the southern basin of Lake Winnipeg and Brokenhead River. BON remain concerned that the construction activities of the outlet channels will contribute to the release of nutrient rich soils into the system, and that additional sediment loads will further eutrophication effects in BON's traditional territory, as well as into the larger Lake Winnipeg area. Although the EIS does describe the current state of eutrophic conditions in

Lake Winnipeg, it does not provide an assessment of how the project will potentially contribute to those effects or propose mitigation measures to limit the impacts.

Recommendation 9: The EIS needs to include a fulsome assessment of the potential contributions of the project on eutrophic conditions in the Lake and how the added stressors from the Project may further contribute to impacts on fish and fish habitat. Further, as BON community members have expressed, the EIS needs to consider how these effects will reach and impact the southern basin of Lake Winnipeg. The EIS also needs to provide specific and clear mitigation measures that will limit and eliminate further nutrient loading into Lake Winnipeg.

Comment 10: Section 7.2.2 – Existing Conditions for Fish and Fish Habitat - BON community members are concerned about the opportunity this project presents for the introduction and movement of invasive species throughout the water system. BON community members have stated that the west and east of areas of Lake Manitoba are two completely different ecosystems and that there are concerns that there has not been enough research done to consider how the merging of these two ecosystems will affect the overall aquatic and terrestrial ecosystems. The EIS currently mentions the existing presence of invasive species but does not discuss the potential impacts that the project may have on the exacerbation and proliferation of aquatic invasive species.

Recommendation 10a: The EIS must include a more comprehensive assessment of how the pathways provided by the project can further the ways that invasive aquatic species and disease can proliferate under the new hydrologic conditions of the Project and how the Proponent plans to mitigate those impacts.

Recommendation 10b: The proponent must consider implementing a fish health and invasive species monitoring program as part of the Project. BON community members must be included in aquatic monitoring activities within the south basin of Lake Winnipeg.

Comment 11: Section 7.5.4.1 – Permanent Alteration or Destruction of Fish Habitat. - The EIS claims that none of the potential effects to fish habitat can be eliminated by the mitigation measures that will be employed during construction and operation of the channels but that none of the potentially altered habitat is unique or will limit fish production in Lake Manitoba, Lake St. Martin, Lake Winnipeg or their tributaries. This statement seems to suggest that even though the project will certainly cause effects, that these will occur to a homogenous habitat, so the impacts are therefore permissible. The current version of the Fisheries Act will force the Proponent to consider the impacts to all fish and fish habitat, regardless of the unique nature of the species or habitat.

Recommendation 11: The Proponent will need to address these concerns and gaps in mitigation at the DFO authorization stage of the project. The EIS must then also include a detailed description of how the Proponent will undertake necessary measures to mitigate impacts to all fish and all habitat in the system.

Comment 12: Section 7.2.4.2 Permanent Alteration or Destruction of Fish Habitat - The use of the channels may also affect cues that attract fish native spawning location. The EIS states that the Project is not expected to result in any change in the hydraulics or attraction flows in the Fairford or Dauphin rivers specifically because the channels will only convey the water that would otherwise be flooding upland areas around the lakes and rivers. However, flow in the channels during flood events is likely to

attract fish that would otherwise be attracted to other rivers in the system. BON community members are concerned with how the changing morphology and currents in the river from dams and outlet channels will alter fish spawning. BON community members have noted that the Brokenhead River has become shallower in recent years causing issues with migratory access for various fish species. There is concern that the proposed channels will potentially further impact the accessibility of fish into Brokenhead River, as well as attract fish away from entering the river to spawn.

Recommendation 12: The EIS should consider how the spawning success of other tributaries on Lake Winnipeg, particularly Brokenhead River, will be impacted by the Project and include specific assessment of how sedimentation throughout the system can further reduce availability of spawning habitat in Lake Winnipeg tributaries.

Comment 13: Permanent Alteration or Destruction of Fish Habitat - The EIS states that the impacts of sediment releases on fish health and mortality are expected to be low in magnitude, restricted to the LAA, and have no measurable effect on fish populations as the mitigation measures are well understood, technically feasible, and effective for the streams and lakes near the Project. As indicated, the assessment of mitigation success is relatively vague and non-specific in the EIS. The proponent may feel the mitigation measures are well understood and effective, but there is limited site-specific or construction-specific detail provided to support this statement.

Recommendation 13: As indicated, the EIS should include further detail on the effectiveness of the mitigation measures in relation to sedimentation impacts on the aquatic environment.

Comment 14: Permanent Alteration or Destruction of Fish Habitat - The EIS indicates that sediment loads introduced during construction will be only a small proportion of the annual inputs to Lake St. Martin and Lake Winnipeg and will be highly localized and quickly dispersed by waves and currents in the lakes. Fish species living in Lake Manitoba, Lake St. Martin, and Lake Winnipeg are adapted to living in the naturally turbid conditions. This is precisely the concern raised by BON community members regarding the dispersion of sediments into the larger Lake Winnipeg environment. Stating that the sediments will be dispersed away from the site is not a mitigation measure. Stating that fish are used to the condition is not an assessment of impact. Dispersion only means the water sediments will be removed away from the outlet channel, but as many BON members have stated, these additional sediments could be deposited into the south basin as a result of altered flow conditions, causing continuous impacts on the local aquatic environment.

Recommendation 14: The proponent has not fully considered the impacts of the Project beyond the original natural state of the system. The EIS needs to assess additional impacts associated with changing hydrology and sediment loads on Lake Winnipeg, specifically the impacts to the South Basin of the lake and Brokenhead River.

Comment 15: Section 6.5.3 Mitigation Measures - The EIS Guidelines require that a follow-up program be designed to verify the accuracy of the effects assessment and to determine the effectiveness of the measures to be implemented to mitigate the adverse effects of the Project. Further, the EIS guidelines state that follow-up programs should be used to ensure concerned/affected populations receive

information on the status of project impacts and related mitigation. The EIS currently does not indicate how BON will be engaged in the development and implementation of monitoring and follow-up programs.

Recommendation 15a: Provide detailed monitoring plans and fish rescue plans. If full plans are not yet available, present preliminary plan details that describe methods, principles, and objectives of the plans.

Recommendation 15b: BON must be included in the development and implementation of the monitoring activities and other follow-up programs associated with the Project.

3.4 INDIGENOUS SOCIO-ECONOMICS AND COMMUNITY WELLBEING

3.4.1 SUMMARY OF EIS CONTENT

Topics concerning Indigenous socio-economics and community wellbeing were included in Volume 4 of the EIS: the Socio-economic Assessment. Social and cultural aspects pertaining to Indigenous Peoples specifically were included in Chapter 10 Indigenous Peoples.

Relevant project interactions and effect mechanisms relevant to socio-economics and community wellbeing include:

- Project capital expenditures for construction are estimated at $456 Million overall, of which $55 Million is expected to occur in the local assessment area and $371Million in other parts of Manitoba
- 1860 Person Years (PY) of direct employment is expected to be generated during construction
- The operations phase will only represent approximately $500K in annual expenditures and 1-2 people will be required for employment
- Construction timeframe is expected to be 2.5 to 3 years
- Post-construction phase is anticipated to last 1 to 2 years (i.e., site clean-up, survey, and reclamation)
- The operation and maintenance phase of the Project is expected to be indefinite as there are no plans to terminate operations
- Project components: outlet channels, water control structures, distribution line, bridges and culverts, PR 239 and municipal road, realignments, temporary construction camps and staging areas, and quarries

There were three (3) value components (VCs) identified for Indigenous Peoples:

1. Traditional Land and Resource Use (TLRU)
2. Indigenous Health and Socioeconomic Conditions
3. Aboriginal and Treaty Rights

The EIS identified four (4) potential Project-related effects by considering potential interactions between Project components and Traditional Land and Resource Use (TLRU):

1. **Change in availability of traditional resources for current use**: changes in fish and wildlife species habitat; movement; health/mortality; changes in plant community and diversity; change in wetland function.
2. After mitigation, MI predicts that residual effects will be "… adverse due to a loss in habitat for harvested resources, but low in magnitude as it is anticipated that current land and resource use practices will be able to continue with minor alteration of behaviour by Indigenous peoples" (p.10.58)
3. **Change in access to traditional resources or areas for current use:** loss or alteration of trails or travel ways, restrictions on the ability to navigate to and through current use areas, or limitations on the ability to undertake current use activities in proximity to the Project as a result of new physical barriers, access routes and other project related components including transmission distribution lines that intersect existing trails.
4. After mitigations are applied, MI predicts there to be residual effects on TLRU access, characterized as adverse and moderate in magnitude.
5. **Change to cultural and spiritual sites or areas:** disruption to cultural and spiritual sites, sacred areas, communal gathering spaces, camps, cabins, and other habitation areas, as a result of project construction and operations components and activities.
6. After mitigations are implemented, MI predicts that there will be Project residual effects to cultural and spiritual sites or areas […] including "[c]ultural and spiritual sites or areas identified by participating Indigenous groups within the RAA include[ing] potential burial sites and archaeological features". These effects have been described as "irreversible, adverse effect, as these sites are not capable of being renewed once removed." As well as high in magnitude for both the PDA and LAA (p. 10.66)
7. **Change to the cultural value or importance associated with current use of lands and resources:** changes that affect the spiritual and cultural experiences of the activity or practice, as well as a sense of place and well-being, and the applicability and transmission of Indigenous knowledge, laws, customs, and traditions. Changes to cultural value or importance associated with current use will be considered when an Indigenous group identifies potential effects to experiential values, including spiritual and cultural experiences of activities or practices, sense of place and well-being, transmission of Indigenous knowledge, laws, customs and traditions (p. 10.67).

The EIS considered multiple VCs when assessing Project effects to **Indigenous health and socio-economic conditions** including:

- Health VC (informed by groundwater; surface water; atmospheric VCs)
- Traditional Land and Resource Use (informed by aquatics, wetland/vegetation, wildlife and habitat VCs)
- Economy VC
- Infrastructure and Services VC

(Figure 10.3-1 Valued Components Related to Indigenous Health and Indigenous Socio-economic Conditions)

Numerous Indigenous groups have indicated that the removal of Crown Lands from their traditional territories for use in the Project would infringe upon their **Aboriginal and Treaty rights.**

In 2018, the EIS Guidelines identified the 22 groups to be most affected by the Project. These 22 communities listed by CEA Agency were part of the 31 communities identified and contacted by Manitoba Infrastructure:

1. Manitoba Metis Federation
2. Dauphin River First Nation
3. Lake St. Martin First Nation
4. Little Saskatchewan First Nation
5. Pinaymootang First Nation
6. O-Chi-Chak-Koo-Sipi First Nation
7. Ebb and Flow First Nation
8. Lake Manitoba First Nation
9. Skownan First Nation
10. Peguis First Nation
11. Sandy Bay First Nation
12. Fisher River Cree Nation
13. Kinonjeoshtegon First Nation
14. Bloodvein First Nation
15. Norway House Cree Nation
16. Berens River First Nation
17. Hollow Water First Nation
18. Brokenhead Ojibway Nation
19. Sagkeeng First Nation
20. Black River First Nation
21. Poplar River First Nation
22. Misipawistik Cree Nation

3.4.2 EVALUATION AND RECOMMEDANTIONS

Comment 16: Table 10.2-2 Potential Effects, Effect Pathways and Measurable Parameters for TLRU is lacking a description of an indirect effect associated with the inter-dependent nature of the effects listed – community and cultural health and well-being. The cumulative effects to land, resources and culturally valuable sites within the region and within the immediate project area have impacted and continue to impact Indigenous population health and wellbeing. The ability to practice rights bearing activities and teachings across generations is a critical component to BON community members' health and wellbeing. This Project represents additional pressures that collectively increase the cumulative effect this is having on the overall health and wellbeing of the Nation.

Recommendation 16: Include assessment of Indigenous health and wellbeing as a value component that intersects all potential effects and project interaction pathways.

Comment 17: In Section 10.2.2 Existing Conditions for Traditional Land and Resource Use, although the high level TLRU overviews of each Indigenous group is helpful; what would be useful is a map of amalgamated high level inputs from each Indigenous group engaged regarding their TK and TLRU related to the Project.

Recommendation 17: BON requests a regional assessment area (RAA0 map of depicting the information each Indigenous group has provided to illustrate the culturally and ecologically important areas in and around all project components and planned activities. Having a spatially mapped overview of all collective TK and TLRU would help inform how TK and TLRU data would be factored into the Project's environmental protection plans and site-specific mitigation, management and monitoring measures.

Comment 18: Section 10.2.4 Assessment of Residual Environmental Effects on TLRU provides a good description of how each TLRU value component will potentially be affected through various project pathways and interactions. References to various Indigenous groups' input is integrated into this description. Missing from this section is BON's input on TK and TLRU, in addition to an analysis of effects on Indigenous People's socio-economic and cultural health and wellbeing as they directly relate to impacts on the bio-physical environment and TLRU.

Recommendation 18a: Provide supplementary filing providing analysis and discussion of effects on Indigenous People's socio-economic and cultural health and wellbeing as they directly relate to impacts on the bio-physical environment and TLRU.

Recommendation 18b: Provide opportunity and process for collecting and incorporating BON TK and TLRU data into the EIS and associated site-specific environmental mitigations, monitoring and management plans.

Recommendation 18c: Establish an Indigenous environmental and cultural monitoring advisory committee whose mandate is to formally provide oversight and guidance into how TK and TLRU

information is implemented into the Project's monitoring and follow up programs during construction, post-construction/reclamation; and operation and maintenance phases of the Project, as well as under accident and malfunction emergency situations such as a breach or as a result of damage.

Comment 19: Section 10.2.4 Assessment of Residual Environmental Effects on TLRU – Mitigations – listed a series of mitigations for each potential effect. There is reference to the development of environmental management plans; and construction schedule notifications for Indigenous peoples to know when not to be near the project area, and for a chance to harvest plants before construction, as well as other mitigations drawn from the wildlife, aquatics and terrestrial sections of the ESA. Given the issues identified within BON's review of the EIS, as well as the issues identified by various government agencies in their information request package to MI (April 23, 2020), BON asserts that there is not enough detail within the EIS to fully understand the scope and magnitude of the impacts.

Recommendation 19: BON requests more details to be provided for site specific environmental protection plans. As mentioned above, BON requests that an Indigenous environmental and cultural monitoring advisory group be established whereby TK and TLRU inputs from Indigenous groups with interests in the project have a process to verify that culturally important sites and species are protected through oversight and 'boots on the ground' monitoring.

Comment 20: In section 10.2.4.6 Change to Cultural and Spiritual Sites or Areas, one of the mitigations listed is described: "Detailed recording and mapping of spiritual or cultural sites will be developed in partnership with Indigenous groups, leading to a decision made about the relative importance of the site and potential mitigations strategies" (p. 10.65). It is unclear, how this process will take place; what capacity will be provided for Indigenous groups to participate in the development of cultural site protection measures, and what accommodation measures will be provided should culturally or spiritually important sites not be able to be avoided or decreased in magnitude. What is also unclear, is what role Indigenous groups with interests in the project, including BON, will have in environmental and cultural monitoring and follow up programs to verify the accuracy of impact prediction; verify whether mitigations are working; and provide input into adaptive management plans as required.

Recommendation 20: BON requests that a clear, detailed plan be shared with Indigenous groups as to how MI will provide capacity and an inclusive process for Indigenous groups to advise on cultural and environmental protection measures needed; and ensure that these measures are applied in a transparent way.

Comment 21: In Section 10.2.7 Follow-Up and Monitoring, MI states that "Follow-up and monitoring programs for TLRU have not been identified at this point. However, anticipated effects of the Project and efficacy of proposed mitigation will be discussed with Indigenous groups as part of Manitoba Infrastructure's ongoing engagement" (p. 10.72). The same conclusion has been made for the Indigenous socio-economic and health VC. This decision is dismissive of interests conveyed by multiple Indigenous groups, to be directly involved in environmental and cultural protection and monitoring plans through an established committee or working group, as well as through 'boots on

the ground' Indigenous representation in monitoring activities during construction, post-construction reclamation and operations phases.

Recommendation 21: BON requests that a follow up and monitoring program for TLRU and Indigenous socio-economics and health be established in consultation with the Indigenous groups with interests in this Project.

Comment 22: In Table 10.3-2 VCs and Residual Effects Relevant for Indigenous Health Conditions, descriptions of effect pathways from health and TLRU are described as they may affect Indigenous health. What is not captured – and what several Indigenous groups have communicated – is the combined and cumulative effect on Indigenous peoples' health and wellbeing as a result of severing ties to the land and water that fuel and maintain Indigenous community and cultural identity. As the EIS states further on in the chapter, "The goal of the Project, decreasing the extent of effects from flooding, is expected to have a positive effect on mental health of the area's inhabitants" It is not, therefore, simply a matter of quantitative amounts of land and resources removed from access that affect dietary health – it is also a more holistic and interconnected impact that causes long term mental and spiritual health issues.

Recommendation 22: BON requests that the combined and cumulative effects of this Project be assessed, discussed and monitored with direct involvement of Indigenous groups with interests in, and that will be further affected, by this Project throughout its lifecycle. Adaptive management measures will be required to adjust mitigations and accommodations through established follow up programs that have an Indigenous advisory and monitoring role.

Comment 23: Although Table 10.3-3 VCs and Residual Effects Relevant for Indigenous Socio-economic Conditions refers to potential effect pathways from the construction workforce, the focus is exclusively on the impact of pressures on services and infrastructure. A key effect pathway that has been omitted in both tables 10.3-2 and 10-3 is the potential adverse effect of the construction workforce on the health and wellbeing of surrounding Indigenous communities.

Recommendation 23: BON requests that supplementary filings include an assessment and appropriate socio-economic management plans to address the socio-cultural risks of construction workforce: this includes potential adverse social risks and impacts of temporary and/or transient workforces as workers inhabit local communities.

Comment 24: Within the Mitigation sub-section of Section 10.3.3.1 Change in Indigenous Health Conditions, there are only two references to how Indigenous groups will be engaged about the Project's mitigation plans: one relates to gaining an understanding of trails; and the other relates to a general intention to continue engaging with "… Indigenous groups regarding mitigations to changes to cultural value or importance associated with current use" (p. 10.91). Given the issues and information gaps identified through this EIS technical review, as well as similar issues and information gaps identified by various governmental agencies associated with baseline information and lack of details within the proposed environmental management and protection plans, more information is needed and there needs to be a formal mechanism for Indigenous involvement in the environmental and cultural protection and monitoring programs associated with the Project.

Recommendation 24: BON requests that more information be provided about mitigation, management and monitoring plans. Additionally, BON asserts that more formalized plans and processes are required to directly involve Indigenous groups within the LAA and RAA in developing and implementing site specific environmental and cultural mitigation, management and monitoring plans for the Project's construction, post-construction and operations phases (i.e. Indigenous environmental and cultural monitoring committee and monitors – capacity provided by MI to support the committee's activities and Indigenous monitoring program)

Comment 25: In Section 10.3.3.2 Assessment of Residual Environmental Effects on Indigenous Socio-Economic Conditions concerning the Infrastructure and Services effect assessment, MI states that "It is expected that the majority of the Project's workforce will be from outside of the RAA and will require accommodations while on site. These workers will stay in construction camps established for the Project or at hotels and motels found in the communities located in the LAA" [….] "Because of the limited availability of such accommodations, it is anticipated that most workers will be housed at one or more temporary construction camps" (p.10.96). These statements reflect a lack of commitment to hiring locally and this contradicts the baseline findings that demonstrate and available regional labour force. Furthermore, the fact that there will be worker camps and outsiders staying in Indigenous run accommodations presents potential adverse socio-cultural effects that have not been identified nor addressed through social impact mitigations or management plans.

Recommendation 25: BON supports MI's stated intention of collaborating with First Peoples Development Inc. to "explore opportunities for working with Indigenous groups on Manitoba Infrastructure projects" and requests that MI commit to: hiring for this specific project's workforce from within the region; establishing Indigenous hiring targets; providing programs to encourage and access employment opportunities to local Indigenous groups with the RAA. Additionally, BON requests that MI develop a social management and monitoring plan to mitigate potential adverse socio-cultural effects related to worker-Indigenous community member social dynamics and to establish socio-economic indicators of success in terms of regional Indigenous capacity building and employment targets.

Comment 26: In Section 10.3.3.2 Assessment of Residual Environmental Effects on Indigenous Socio-Economic Conditions, there is acknowledgement of residual effects that will be experienced as a result of impacts to commercial fisheries and/or agricultural activities that Indigenous groups in the LAA practice. However, there is no indication of compensation that will be granted as accommodation measures to address Indigenous rights infringements.

Recommendation 26: MI, as a Crown agent with a direct Duty to Consult and Accommodate affected Indigenous groups, needs to hold dialogues with affected Indigenous communities to discuss accommodation measures that are proportionate to consultation levels and magnitude of impacts to socio-economic values.

Comment 27: In Section 10.4.3 Assessment of Effects on Aboriginal and Treaty Rights10.4, MI has determined that "Residual effects on Aboriginal and Treaty rights are anticipated as a result of the disposition or conversion of Crown Land and changes to TLRU (changes in the sites, resources, and access relied upon to practice activities such as hunting and fishing). Minimal disruption to the ability to exercise rights is anticipated and the seriousness of effects is categorized as minor." And MI concludes this section by stating "As identified throughout the Application, Manitoba Infrastructure's

engagement is ongoing, and Indigenous groups may provide additional information about the potential effects of the Project on Aboriginal and Treaty rights." (p.10.119). Given that BON has an outstanding Treaty Land Entitlement (TLE) claim (which amounts to over 14,000 acres or over 5,500 ha in both Crown Land selections and land for purchase or acquisitions, the Nation is concerned that risk to their rights holding community members may be greater in magnitude than what the EIS has indicated. Additionally, it is unclear, what processes are in place for Indigenous groups to provide community specific TK and/or TLRU information that pertain to their rights. BON is also concerned that the EIS contains many information gaps that have been identified by other subject area specialists and government agencies. These information gaps combined with a need for more details in proposed environmental protection and management plans create uncertainty around the extent to which BON's Aboriginal and Treaty rights will be impacted.

Recommendation 27: BON requests that MI provide clarity around how and when TK and TLRU can be received and incorporated into the effects assessment and mitigation, monitoring and management plans. BON seeks clarification from MI, as agent of the Crown, as to how identified residual effects to Aboriginal rights and title will be accommodated in a formalized manner.

Comment 28: In Section 9.4.4.3 Regional Economy, the EIS describes the results of the economic impact analysis, whereby 1860 Person Years of direct employment is expected to be generated during construction. The term "person years" is one used by economists for the purposes of economic impact modelling. However, descriptions of employment that will be generated for each project phase is needed in laypersons terms to understand what these numbers mean.

Recommendations 28: BON requests clarification about employment and workforce requirements for the 2-3 year construction phase as well as the 1-2 year post-construction and reclamation phase of the Project. Specifically, a detailed description is requested of number of full time and/or part time actual jobs that will be created; in each year of construction; and what type of positions and associated skills will be required.

4.0 REFERENCES

Andradóttir, H. (2017). Impact of Wind on Stormwater Pond Particulate Removal. *Journal of Environmental Engineering*, Vol 143 Issue 8.

Manitoba Infrastructure, 2020. Lake Manitoba and Lake St. Martin Outlet Channels Project Environmental Impact Statement

APPENDIX A: COMMENT TRACKING TABLE

Table 1: Comment Tracking Table

COMMENT #	ISSUE	QUESTION/RECOMMENDATION
Surface Water		
1	General Comment. Manitoba Infrastructure conducted a detailed study for the design, operation and maintenance of LMOC and LSMOC. MI will divert water from Lake Manitoba to Lake Winnipeg, via Lake St. Martin, through the two outlet channels. Lake St. Martin is a relatively small lake with a surface area of only 345 km2. With such limited capacity of the lake, it is unclear if the connecting channels are able to convey the flood flow during a large flood event. This is of high importance given the fact that it is unclear whether MI considered the impact of climate change on water levels and flows.	MI should demonstrate an explicit incorporation of climate change studies based on projected climate scenarios (Representative Concentration Pathways (RCPs) 2.6, RCP 4.5 and 8.5) from the climate models for this project to demonstrate that the channels as designed will operate as planned under all climate change scenarios and not result in uncontrolled flooding and consequent negative effects in the downstream environment. MI should identify the places at risk of uncontrolled flooding as a consequence of LMOC or LSMOC operational failure, and how those risks will be mitigated and managed. For a project of this complexity, the proponent should carry out a risk assessment that includes failure of both the channels and overtopping of Lake St. Martin. The inundation maps for these scenarios should be included in the EIS. MI should provide a comparative study to other similar projects to validate that their flow/level duration curve modelling is appropriate for this type of project.
2	In Section 6.4.7.7. of the EIS, MI states 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". However, BON notes that local hydrology will be impacted by the project and this could impact water quality. For example, fluctuations in water levels, especially in wetland areas, has the potential to increase production of methyl mercury. Nutrient loading into Lake St Martin as a consequence of the LMOC channel construction through manure-contaminated soils is another example.	MI must provide further information regarding how changes in water quality will be monitored during all phases of the Project, and how unexpected changes in water quality will be managed in terms of assessing and minimizing risks to both human health and wildlife. In addition, MI must consider the land use and activity patterns of Indigenous community members when assessing potential health impacts and risks.
Groundwater		

COMMENT #	ISSUE	QUESTION/RECOMMENDATION
3	In Section 6.4.2, the proponent describes the present condition and the impact of this project during the construction, operation and maintenance phases. The Proponent suggests that the impact on groundwater resources will be minimal with the present alternative chosen. However, there is concern with respect to potential impacts on drinking water quality, especially near the LMOC where soils have been impacted by agriculture, including the addition of manures and fertilizers to the soils.	Manitoba Infrastructure should complete a source water protection plan in the RAA, including mapping the well head protection areas based on distance/time of travel (e.g. 100 m radius, 2-year time of travel).
4	MI has not adequately addressed the potential impacts of the Project on wetlands. For example, MI has not included flow characteristics of different wetland types in the EIS. As a result, it is unclear how the construction of the LSMOC will alter the hydrology of the Buffalo Creek wetland system and consequently affect the fish and wildlife inhabiting that area.	The proponent should conduct a detailed study of the flow characteristics of bogs and fens in the RAA. The rate of water flow from the Buffalo creek system in particular should be measured and quantified to assess how the changes in hydrology induced by the construction of the LSMOC will alter wetland hydrology. MI should incorporate this into the aquatic ecology and wildlife assessment as part of their determination of cumulative impacts.
Fish and Fish Habitat		
5	Section 7.2.1.4 – Potential Effects, Pathways and Measurable Parameters - The potential effects to fish and fish habitat in the EIS are discussed in the context of the old version of the Fisheries Act. The EIS discusses effects to the aquatic environment in the narrow definition of Commercial, Recreational and Aboriginal (CRA) fish and fish species. The new 2019 Fisheries Act now includes the protection of all fish and all fish species, not only CRA fish species. In addition, in relation to the use of the outlet channels as migratory routes, the new Act defines migration areas as a component of fish habitat.	The EIS needs to reframe the way in which impacts to fish and fish habitat are assessed. The EIS must, by law, now consider all potentially affected species in order to have a fulsome understanding of potential effects to fish and fish habitat. Further, once a more comprehensive assessment is complete on all fish species protected under the current Fisheries Act, the EIS must also revisit the proposed mitigation measures to ensure the protections in place cover all fish species.
6	Section 7.2.4.2 Permanent Alteration or Destruction of Fish Habitat - The EIS indicates that the Project will mitigate any permanent alteration or destruction of fish habitat caused by building the channels by creating new fish habitat in the LMOC and LSMOC, and that when completed, the LMOC and LSMOC will provide at least 172 ha of new fish habitat (i.e., 72 ha in the LMOC and 100 ha in the LSMOC). However, the EIS does not provide any further detail on how the specific construction will be designed to create adequate fish habitat. The EIS seems to suggest that the mere construction of these concrete channels will be considered valid fish habitat. These flood channels are designed to move water and control flooding conditions, not to provide suitable	Section 7.2.4.2 Permanent Alteration or Destruction of Fish Habitat -The EIS needs to include descriptions of the proposed offsetting measures in relation to the types of habitats that will be affected. Further, the EIS should include a description of how the proposed offsetting in the channel and beyond would mitigate and replace the loss and altered area of habitat.

COMMENT #	ISSUE	QUESTION/RECOMMENDATION
	fish habitat. In addition, when in operation, the temporary alteration of fish habitat in the receiving environment will occur and the EIS does not address how this will be offset.	
7	Section 7.2.4.2 Permanent Alteration or Destruction of Fish Habitat - The EIS does not characterize sediment erosion and deposition throughout all phases of the Project and makes the claim that the amount of sediment mobilized from the channels and deposited in receiving environments in Lake Winnipeg is expected to decrease over time. The EIS claims that the amount of fine, erodible substrates diminishes with each successive use of the channels. This appears to be flawed as it is highly likely that sediment transport will continue indefinitely as a natural function of riverine systems. Further, spikes in suspended and deposited sediment are expected during high flood events when the channels are moving high volumes of water. In addition, BON community members have significant concerns related to further transport of sediments in high volumes into Lake Winnipeg. Due altered currents from dams on the system and other changes to the natural state of waterbodies, sediments have accumulated in the south basin of Lake Winnipeg and into Brokenhead River, altering the natural suspended sediment loads, as well as causing shallower water level conditions in the region. This is also an issue at the mouth of the Brokenhead River where sediments are causing issues for fish movement. Massive sand bars have been noted by community members. There is concern that the proposed Project has the potential to further impact sediment transport in BON's traditional territory.	The EIS needs to assess how the mobility of sediments from the project will impact the receiving waters beyond Birch Bay and Sturgeon Bay, but also into the southern basin of Lake Winnipeg and into Brokenhead River. The EIS should consider cumulative effects of the project on Lake Winnipeg. The EIS must consider and identify mitigation measures and assess significance of residual effects.
8	Section 7.4 – Mitigation Measures - The mitigation measures included in the EIS do not provide adequate detail to assess the level of protection on the aquatic environment. More specifically, the proposed measures are vague and broad in their potential application, as well as assessment of the level of mitigation the activities will have on the aquatic environment or if there will be remaining residual effects. In particular, in relation to the concerns identified by BON community members on the potential erosion of sediment, the EIS only	The EIS needs to fulfill the requirements laid out in the EIS guidelines and include mitigation measures with specific commitments that clearly describe how the proponent intends to implement them and the environmental outcome the mitigation measure is designed to address. In addition, the EIS also needs to present an assessment of the effectiveness of the proposed mitigation measures.

COMMENT #	ISSUE	QUESTION/RECOMMENDATION
	describes high level out-of-water work in their description of mitigation measures.	
9	Section 7.2.2 – Existing Conditions for Fish and Fish Habitat - Lake Manitoba and Lake Winnipeg are highly productive lakes due to their shallow depths relative to their large surface areas, warm summer water temperatures, and well mixed water columns. Eutrophication, caused primarily by agricultural run-off, has degraded the water quality of both lakes and has resulted in increases in cyanobacteria and green algae concentrations. BON community members have witnessed and experienced the effects of the agricultural industry on the water quality and fish habitat in Lake Winnipeg. Of particular concern are fish die offs and poor water quality throughout the southern basin of Lake Winnipeg and Brokenhead River. BON remain concerned that the construction activities of the outlet channels will contribute to the release of nutrient rich soils into the system, and that additional sediment loads will further eutrophication effects in BON's traditional territory, as well as into the larger Lake Winnipeg area. Although the EIS does describe the current state of eutrophic conditions in Lake Winnipeg, it does not provide an assessment of how the project will potentially contribute to those effects or propose mitigation measures to limit the impacts.	The EIS needs to include a fulsome assessment of the potential contributions of the project on eutrophic conditions in the Lake and how the added stressors from the Project may further contribute to impacts on fish and fish habitat. Further, as BON community members have expressed, the EIS needs to consider how these effects will reach and impact the southern basin of Lake Winnipeg. The EIS also needs to provide specific and clear mitigation measures that will limit and eliminate further nutrient loading into Lake Winnipeg.
10	Section 7.2.2 – Existing Conditions for Fish and Fish Habitat - BON community members are concerned about the opportunity this project presents for the introduction and movement of invasive species throughout the water system. BON community members have stated that the west and east of areas of Lake Manitoba are two completely different ecosystems and that there are concerns that there has not been enough research done to consider how the merging of these two ecosystems will affect the overall aquatic and terrestrial ecosystems. The EIS currently mentions the existing presence of invasive species but does not discuss the potential impacts that the project may have on the exacerbation and proliferation of aquatic invasive species.	The EIS must include a more comprehensive assessment of how the pathways provided by the project can further the ways that invasive aquatic species and disease can proliferate under the new hydrologic conditions of the Project and how the Proponent plans to mitigate those impacts. The proponent must consider implementing a fish health and invasive species monitoring program as part of the Project. BON community members must be included in aquatic monitoring activities within the south basin of Lake Winnipeg.
11	Section 7.5.4.1 – Permanent Alteration or Destruction of Fish Habitat. - The EIS claims that none of the potential effects to fish habitat can be eliminated by the mitigation measures that will be employed during construction and operation of the channels but that none of the potentially altered	The Proponent will need to address these concerns and gaps in mitigation at the DFO authorization stage of the project. The EIS must then also include a detailed description of how the Proponent will undertake necessary measures to mitigate impacts to all fish and all habitat in the system.

COMMENT #	ISSUE	QUESTION/RECOMMENDATION
	habitat is unique or will limit fish production in Lake Manitoba, Lake St. Martin, Lake Winnipeg or their tributaries. This statement seems to suggest that even though the project will certainly cause effects, that these will occur to a homogenous habitat, so the impacts are therefore permissible. The current version of the Fisheries Act will force the Proponent to consider the impacts to all fish and fish habitat, regardless of the unique nature of the species or habitat.	
12	Section 7.2.4.2 Permanent Alteration or Destruction of Fish Habitat - The use of the channels may also affect cues that attract fish native spawning location. The EIS states that the Project is not expected to result in any change in the hydraulics or attraction flows in the Fairford or Dauphin rivers specifically because the channels will only convey the water that would otherwise be flooding upland areas around the lakes and rivers. However, flow in the channels during flood events is likely to attract fish that would otherwise be attracted to other rivers in the system. BON community members are concerned with how the changing morphology and currents in the river from dams and outlet channels will alter fish spawning. BON community members have noted that the Brokenhead River has become shallower in recent years causing issues with migratory access for various fish species. There is concern that the proposed channels will potentially further impact the accessibility of fish into Brokenhead River, as well as attract fish away from entering the river to spawn.	The EIS should consider how the spawning success of other tributaries on Lake Winnipeg, particularly Brokenhead River, will be impacted by the Project and include specific assessment of how sedimentation throughout the system can further reduce availability of spawning habitat in Lake Winnipeg tributaries.
13	Permanent Alteration or Destruction of Fish Habitat - The EIS states that the impacts of sediment releases on fish health and mortality are expected to be low in magnitude, restricted to the LAA, and have no measurable effect on fish populations as the mitigation measures are well understood, technically feasible, and effective for the streams and lakes near the Project. As indicated, the assessment of mitigation success is relatively vague and non-specific in the EIS. The proponent may feel the mitigation measures are well understood and effective, but there is limited site-specific or construction-specific detail provided to support this statement.	As indicated, the EIS should include further detail on the effectiveness of the mitigation measures in relation to sedimentation impacts on the aquatic environment.
14	Permanent Alteration or Destruction of Fish Habitat - The EIS indicates that sediment loads introduced during construction will be only a small proportion of the annual inputs to Lake St. Martin and Lake Winnipeg and will be highly localized and quickly dispersed by waves and currents in the lakes. Fish species living in Lake Manitoba, Lake St. Martin, and Lake Winnipeg are adapted to living in the naturally turbid conditions. This is precisely the concern raised	The proponent has not fully considered the impacts of the Project beyond the original natural state of the system. The EIS needs to assess additional impacts associated with changing hydrology and sediment loads on Lake Winnipeg, specifically the impacts to the South Basin of the lake and Brokenhead River.

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	by BON community members regarding the dispersion of sediments into the larger Lake Winnipeg environment. Stating that the sediments will be dispersed away from the site is not a mitigation measure. Stating that fish are used to the condition is not an assessment of impact. Dispersion only means the water sediments will be removed away from the outlet channel, but as many BON members have stated, these additional sediments could be deposited into the south basin as a result of altered flow conditions, causing continuous impacts on the local aquatic environment.	
15	Section 6.5.3 Mitigation Measures - The EIS Guidelines require that a follow-up program be designed to verify the accuracy of the effects assessment and to determine the effectiveness of the measures to be implemented to mitigate the adverse effects of the Project. Further, the EIS guidelines state that follow-up programs should be used to ensure concerned/affected populations receive information on the status of project impacts and related mitigation. The EIS currently does not indicate how BON will be engaged in the development and implementation of monitoring and follow-up programs.	Provide detailed monitoring plans and fish rescue plans. If full plans are not yet available, present preliminary plan details that describe methods, principles, and objectives of the plans. BON must be included in the development and implementation of the monitoring activities and other follow-up programs associated with the Project.
Indigenous Socio-Economics and Community Wellbeing		
16	Table 10.2-2 Potential Effects, Effect Pathways and Measurable Parameters for TLRU is lacking a description of an indirect effect associated with the inter-dependent nature of the effects listed – community and cultural health and well-being. The cumulative effects to land, resources and culturally valuable sites within the region and within the immediate project area have impacted and continue to impact Indigenous population health and wellbeing. The ability to practice rights bearing activities and teachings across generations is a critical component to BON community members' health and wellbeing. This Project represents additional pressures that collectively increase the cumulative effect this is having on the overall health and wellbeing of the Nation.	Include assessment of Indigenous health and wellbeing as a value component that intersects all potential effects and project interaction pathways.
17	In Section 10.2.2 Existing Conditions for Traditional Land and Resource Use, although the high level TLRU overviews of each Indigenous group is helpful; what would be useful is a map of amalgamated high level inputs from each Indigenous group engaged regarding their TK and TLRU related to the Project.	BON requests a regional assessment area (RAA0 map of depicting the information each Indigenous group has provided to illustrate the culturally and ecologically important areas in and around all project components and planned activities. Having a spatially mapped overview of all collective TK and TLRU would help inform how TK and TLRU data would be factored into the Project's environmental protection plans and site-specific mitigation, management and monitoring measures.

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18	Section 10.2.4 Assessment of Residual Environmental Effects on TLRU provides a good description of how each TLRU value component will potentially be affected through various project pathways and interactions. References to various Indigenous groups' input is integrated into this description. Missing from this section is BON's input on TK and TLRU, in addition to an analysis of effects on Indigenous People's socio-economic and cultural health and wellbeing as they directly relate to impacts on the bio-physical environment and TLRU.	Provide supplementary filing providing analysis and discussion of effects on Indigenous People's socio-economic and cultural health and wellbeing as they directly relate to impacts on the bio-physical environment and TLRU. Provide opportunity and process for collecting and incorporating BON TK and TLRU data into the EIS and associated site-specific environmental mitigations, monitoring and management plans. Establish an Indigenous environmental and cultural monitoring advisory committee whose mandate is to formally provide oversight and guidance into how TK and TLRU information is implemented into the Project's monitoring and follow up programs during construction, post-construction/reclamation; and operation and maintenance phases of the Project, as well as under accident and malfunction emergency situations such as a breach or as a result of damage.
19	Section 10.2.4 Assessment of Residual Environmental Effects on TLRU – Mitigations – listed a series of mitigations for each potential effect. There is reference to the development of environmental management plans; and construction schedule notifications for Indigenous peoples to know when not to be near the project area, and for a chance to harvest plants before construction, as well as other mitigations drawn from the wildlife, aquatics and terrestrial sections of the ESA. Given the issues identified within BON's review of the EIS, as well as the issues identified by various government agencies in their information request package to MI (April 23, 2020), BON asserts that there is not enough detail within the EIS to fully understand the scope and magnitude of the impacts	BON requests more details to be provided for site specific environmental protection plans. As mentioned above, BON requests that an Indigenous environmental and cultural monitoring advisory group be established whereby TK and TLRU inputs from Indigenous groups with interests in the project have a process to verify that culturally important sites and species are protected through oversight and 'boots on the ground' monitoring.
20	In section 10.2.4.6 Change to Cultural and Spiritual Sites or Areas, one of the mitigations listed is described: "Detailed recording and mapping of spiritual or cultural sites will be developed in partnership with Indigenous groups, leading to a decision made about the relative importance of the site and potential mitigations strategies" (p. 10.65). It is unclear, how this process will take place; what capacity will be provided for Indigenous groups to participate in the development of cultural site protection measures, and what accommodation measures will be provided should culturally or spiritually important sites not be able to be avoided or decreased in magnitude. What is also unclear, is what role Indigenous groups with interests in the project, including BON, will have in environmental and cultural monitoring and follow up programs to verify the accuracy of impact prediction; verify	BON requests that a clear, detailed plan be shared with Indigenous groups as to how MI will provide capacity and an inclusive process for Indigenous groups to advise on cultural and environmental protection measures needed; and ensure that these measures are applied in a transparent way.

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	whether mitigations are working; and provide input into adaptive management plans as required.	
21	In Section 10.2.7 Follow-Up and Monitoring, MI states that "Follow-up and monitoring programs for TLRU have not been identified at this point. However, anticipated effects of the Project and efficacy of proposed mitigation will be discussed with Indigenous groups as part of Manitoba Infrastructure's ongoing engagement" (p. 10.72). The same conclusion has been made for the Indigenous socio-economic and health VC. This decision is dismissive of interests conveyed by multiple Indigenous groups, to be directly involved in environmental and cultural protection and monitoring plans through an established committee or working group, as well as through 'boots on the ground' Indigenous representation in monitoring activities during construction, post-construction reclamation and operations phases.	BON requests that a follow up and monitoring program for TLRU and Indigenous socio-economics and health be established in consultation with the Indigenous groups with interests in this Project.
22	In Table 10.3-2 VCs and Residual Effects Relevant for Indigenous Health Conditions, descriptions of effect pathways from health and TLRU are described as they may affect Indigenous health. What is not captured – and what several Indigenous groups have communicated – is the combined and cumulative effect on Indigenous peoples' health and wellbeing as a result of severing ties to the land and water that fuel and maintain Indigenous community and cultural identity. As the EIS states further on in the chapter, "The goal of the Project, decreasing the extent of effects from flooding, is expected to have a positive effect on mental health of the area's inhabitants" It is not, therefore, simply a matter of quantitative amounts of land and resources removed from access that affect dietary health – it is also a more holistic and interconnected impact that causes long term mental and spiritual health issues.	BON requests that the combined and cumulative effects of this Project be assessed, discussed and monitored with direct involvement of Indigenous groups with interests in, and that will be further affected, by this Project throughout its lifecycle. Adaptive management measures will be required to adjust mitigations and accommodations through established follow up programs that have an Indigenous advisory and monitoring role.
23	Although Table 10.3-3 VCs and Residual Effects Relevant for Indigenous Socio-economic Conditions refers to potential effect pathways from the construction workforce, the focus is exclusively on the impact of pressures on services and infrastructure. A key effect pathway that has been omitted in both tables 10.3-2 and 10-3 is the potential adverse effect of the construction workforce on the health and wellbeing of surrounding Indigenous communities.	BON requests that supplementary filings include an assessment and appropriate socio-economic management plans to address the socio-cultural risks of construction workforce: this includes potential adverse social risks and impacts of temporary and/or transient workforces as workers inhabit local communities.
24	Within the Mitigation sub-section of Section 10.3.3.1 Change in Indigenous Health Conditions, there are only two references to how Indigenous groups will be engaged about the Project's mitigation plans: one relates to gaining an understanding of trails; and the	BON requests that more information be provided about mitigation, management and monitoring plans. Additionally, BON asserts that more formalized plans and processes are required to directly involve Indigenous groups within the LAA and RAA in developing and implementing site specific environmental and cultural

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	other relates to a general intention to continue engaging with "… Indigenous groups regarding mitigations to changes to cultural value or importance associated with current use" (p. 10.91). Given the issues and information gaps identified through this EIS technical review, as well as similar issues and information gaps identified by various governmental agencies associated with baseline information and lack of details within the proposed environmental management and protection plans, more information is needed and there needs to be a formal mechanism for Indigenous involvement in the environmental and cultural protection and monitoring programs associated with the Project.	mitigation, management and monitoring plans for the Project's construction, post-construction and operations phases (i.e. Indigenous environmental and cultural monitoring committee and monitors – capacity provided by MI to support the committee's activities and Indigenous monitoring program)
25	In Section 10.3.3.2 Assessment of Residual Environmental Effects on Indigenous Socio-Economic Conditions concerning the Infrastructure and Services effect assessment, MI states that "It is expected that the majority of the Project's workforce will be from outside of the RAA and will require accommodations while on site. These workers will stay in construction camps established for the Project or at hotels and motels found in the communities located in the LAA" [….] "Because of the limited availability of such accommodations, it is anticipated that most workers will be housed at one or more temporary construction camps" (p.10.96). These statements reflect a lack of commitment to hiring locally and this contradicts the baseline findings that demonstrate and available regional labour force. Furthermore, the fact that there will be worker camps and outsiders staying in Indigenous run accommodations presents potential adverse socio-cultural effects that have not been identified nor addressed through social impact mitigations or management plans.	BON supports MI's stated intention of collaborating with First Peoples Development Inc. to "explore opportunities for working with Indigenous groups on Manitoba Infrastructure projects" and requests that MI commit to: hiring for this specific project's workforce from within the region; establishing Indigenous hiring targets; providing programs to encourage and access employment opportunities to local Indigenous groups with the RAA. Additionally, BON requests that MI develop a social management and monitoring plan to mitigate potential adverse socio-cultural effects related to worker-Indigenous community member social dynamics and to establish socio-economic indicators of success in terms of regional Indigenous capacity building and employment targets.
26	In Section 10.3.3.2 Assessment of Residual Environmental Effects on Indigenous Socio-Economic Conditions, there is acknowledgement of residual effects that will be experienced as a result of impacts to commercial fisheries and/or agricultural activities that Indigenous groups in the LAA practice. However, there is no indication of compensation that will be granted as accommodation measures to address Indigenous rights infringements.	MI, as a Crown agent with a direct Duty to Consult and Accommodate affected Indigenous groups, needs to hold dialogues with affected Indigenous communities to discuss accommodation measures that are proportionate to consultation levels and magnitude of impacts to socio-economic values.
27	In Section 10.4.3 Assessment of Effects on Aboriginal and Treaty Rights10.4, MI has determined that "Residual effects on Aboriginal and Treaty rights are anticipated as a result of the disposition or conversion of Crown Land and changes to TLRU	BON requests that MI provide clarity around how and when TK and TLRU can be received and incorporated into the effects assessment and mitigation, monitoring and management plans. BON seeks clarification from MI, as agent of the Crown, as to how identified residual effects to

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	(changes in the sites, resources, and access relied upon to practice activities such as hunting and fishing). Minimal disruption to the ability to exercise rights is anticipated and the seriousness of effects is categorized as minor." And MI concludes this section by stating "As identified throughout the Application, Manitoba Infrastructure's engagement is ongoing, and Indigenous groups may provide additional information about the potential effects of the Project on Aboriginal and Treaty rights." (p.10.119). Given that BON has an outstanding Treaty Land Entitlement (TLE) claim (which amounts to over 14,000 acres or over 5,500 ha in both Crown Land selections and land for purchase or acquisitions, the Nation is concerned that risk to their rights holding community members may be greater in magnitude than what the EIS has indicated. Additionally, it is unclear, what processes are in place for Indigenous groups to provide community specific TK and/or TLRU information that pertain to their rights. BON is also concerned that the EIS contains many information gaps that have been identified by other subject area specialists and government agencies. These information gaps combined with a need for more details in proposed environmental protection and management plans create uncertainty around the extent to which BON's Aboriginal and Treaty rights will be impacted.	Aboriginal rights and title will be accommodated in a formalized manner.
28	In Section 9.4.4.3 Regional Economy, the EIS describes the results of the economic impact analysis, whereby 1860 Person Years of direct employment is expected to be generated during construction. The term "person years" is one used by economists for the purposes of economic impact modelling. However, descriptions of employment that will be generated for each project phase is needed in laypersons terms to understand what these numbers mean.	BON requests clarification about employment and workforce requirements for the 2-3 year construction phase as well as the 1-2 year post-construction and reclamation phase of the Project. Specifically, a detailed description is requested of number of full time and/or part time actual jobs that will be created; in each year of construction; and what type of positions and associated skills will be required.