2025-08-27

QUESTION IAAC IR1-01

EIS Guideline Reference	• Part 2, Section 2.2 and 5.1
EIS Reference	• Chapter 2, Section 2.2.3 • Chapter 3, Section 3.3.2, Section 3.4.1, Table 3.2, and Appendix 3-7 • Fisheries and Oceans Canada – Project 6 Technical Review Comments • Transport Canada – Project 6 Technical Review Comments
Category	Alternative Means

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to identify and consider the environmental effects, as per the Canadian Environmental Assessment Act, 2012 (CEAA 2012), of alternative means of carrying out the Project that are technically and economically feasible, including the location and type of any permanent or temporary bridges and culverts.

The EIS describes the preferred location and design of permanent bridge crossings and culverts. However, the EIS does not provide the alternative locations or designs of temporary and permanent bridge crossings and culverts that were considered. Additionally, the EIS does not describe the environmental effects of alternative locations or designs for permanent and temporary bridge crossings and culverts.

The EIS describes how "additional factors will be weighed [during the detailed design phase] to determine the details of the culvert size and design such as the potential impact on fish habitat, and hydraulic and geotechnical investigations. Crossing type and design may change based on this analysis". However, it is unclear what aspects or conclusions of the analysis with respect to fish habitat, and hydraulic and geotechnical investigations would result in a change to the design and/or type of culvert utilized or how the design may change.

The EIS notes that culvert design alternatives will be considered and appropriate designs will be selected using guidance from the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (1996). However, the design criteria within this guidance document is no longer

relevant as Fisheries and Oceans Canada published updated criteria for fish passage, as outlined in the Fish Swimming Performance User Guide (2016) and the Swim Performance Online Tool. Additionally, under the current Navigation Protection Act, navigation safety and access should be considered in the design and maintained throughout the construction and lifecycle of works, including bridges, culverts, and temporary water crossings in and around navigable waterways. It is unclear whether the proponent considered these publications when selecting the designs for bridges, culverts, and temporary stream crossings.

Information regarding the potential environmental effects of alternative bridge and culvert locations and designs is required to assess potential effects to fish and fish habitat and effects to Indigenous peoples as defined in subsection 5(1)(c) of CEAA 2012.

INFORMATION REQUEST

a) Describe the alternative locations and design options for bridges and culverts that were considered prior to final selection, including both permanent and temporary crossings. Include figures showing the alternative bridge and culvert locations considered.
b) Describe the potential environmental effects including to valued components (VCs) of alternative bridge and culvert locations and designs, and provide a rationale for why the final options were chosen. This rationale must include the views and concerns expressed by Indigenous peoples and the ranking system used to select preferred locations/designs.
c) For each alternative bridge and culvert location characterize:

- relationship to fish and fish habitat;
- relationship to migratory birds and their habitat;
- relationship to species at risk and their habitat;
- any hazardous materials or potential contaminants that may be present on the site(s), including their characteristics and approximate volumes;
- relationship to wetlands and other waterbodies;
- terrestrial or riparian habitat loss (area) by vegetation cover type;
- relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
- relationship to sites of cultural and heritage value;
- relationship to species of importance to Indigenous peoples and their habitat;
- potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and

- potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.

d) Describe the specific circumstances under which culvert design and type may change during detailed design (i.e. what aspects or conclusions of the analysis with respect to fish habitat, and hydraulic and geotechnical investigations would result in a change to the design and/or type of culvert utilized). Should a change be required, describe how the type and/or design of the culvert would change.

e) Update proposed permanent and temporary culvert and bridge designs to be consistent with the criteria and information outlined in the Fish Swimming Performance User Guide and the Swim Performance Online Tool.
   - Update applicable sections of the EIS to use the current criteria noted above for assessing and protecting against potential Project effects to fish passage, instead of using the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat.

f) Update proposed culvert and bridge designs to demonstrate that factors to protect navigation safety and access as outlined in the Navigation Protection Act have been considered, and describe how these factors were considered when selecting final or potential culvert and bridge designs. Examples of factors that should be considered in bridge and culvert design selection to maintain accessibility and safe travel past Project works include, but are not limited to:
   - characteristics of the waterway;
   - frequency of navigation;
   - types of vessels transiting through the area including their maneuverability, clearance requirements, and typical speeds;
   - timing of navigation including:
     - time of day and whether travel occurs at night or in low visibility conditions,
     - times of year, if navigation occurs frequently during high or low water conditions, and
     - navigation activities of special importance such as travel for hunting, fishing, recreational tournaments, etc.;
   - type of work; and
   - construction methodology.

g) Update the effects assessment for all VCs, as required, given consideration of any additional potential effects identified above, including the assessment of residual Project effects.

RESPONSE

a) **Alternative Route Locations**

As described in the Large Area Transportation Network Study (LATNS; SNC Lavalin, 2011), the technical process for developing an All-Season Road Network involved the identification of feasible all season route alternatives based on route selection criteria, including:

- The suitability of the terrain, soils and surface geological deposits to accommodate the road and to provide sources of granular materials to build the road
- Protection of the natural environment with its important animal, plant and fishery resources
- Protection of historical sites, artifacts, archaeological resources, the proposed UNESCO World
- Heritage Site, local culture and traditional land uses
- Enhancement of opportunities for social and economic improvements by providing more reliable access to communities, potential development sites and renewable natural resources
- ASR routes that lower transportation costs and are safe, reliable and efficient for the east side communities
- Provision of the most appropriate routes to enhance travel and trade opportunities between the East Side Planning Area and the rest of Manitoba

As a part of the LATNS (SNC Lavalin, 2011), multi-disciplinary planning and engineering work was conducted to identify the preferred all-season route network to service isolated communities located on the east side of Lake Winnipeg. Socio-economic impacts to local communities, environmental and cultural effects, engineering and cost estimates for construction and maintenance were considered when evaluating potential network options to determine the preferred corridor within which the proposed Project 6 alignment would be located. Alternative road corridors were identified and considered as a part of the LATNS. A variety of options for the northern sector of the LATNS (which included what is now referred to as Project 6) were considered, including both east-west and north-south oriented connections. However, after engagement with local residents on travel preferences and after technical route analysis it was concluded that the east-west connection should be given priority for further consideration.

Network options were identified by the study team in consideration of topographic, physiographic, geological, social-economic and natural environmental information, using a context-sensitive transportation engineering approach. Parallel to this technical process, the study team visited most of the communities during the Round 1 engagement process to obtain community feedback and input on the route network options, as well as on the proposed evaluation process. Interim results from the Traditional Ecological Knowledge (TEK) studies were also analyzed and considered in the technical route evaluation. As a result of feedback received from Round 1, some of the earlier options were dropped or modified, and some new ones developed that incorporated the more promising aspects of the earlier options. Four such options in the Northern Sector of the Study Area were taken forward to Round 2. Summaries of comments received in Round 1 and 2 engagements

are found in Tables 5.3 and 5.4 of the Environmental Impact Statement (EIS) for the proposed Project.

A total of four east-west oriented options were identified and compared, with 3 being short-listed for further evaluation using a Multiple Account Evaluation (MAE) framework[1] at a qualitative level. The five evaluation accounts and criteria used in the MAE were:

1. Financial – Construction Cost;
2. Customer Service – Community Travel Time;
3. Social/Community – Direct and indirect impacts (benefits and costs) on social and community values for residents on the east side study area;
4. Natural Environment – Potential impacts on parks, protected areas, caribou and caribou habitat, Boreal Forest and wetlands;
5. Regional and Local Economy – the broader economic context of the project, typically beyond changes in direct road user cost.

In the final evaluation of route options for the broader northern sector route water crossings are identified as a consideration but are simply identified as needing more study and assessment in later phases of project development. Water crossings themselves were therefore not as highly weighted in selection of the alignment route as other factors. Figures of alternative routes in the LATN do not show specific bridge and culvert locations, crossings would be situated where rivers, streams, or low-lying areas (i.e. bogs, fens) would have been traversed by the road corridor. As shown in Appendix IR1-01-1Figure IR1-10-1 shows the final 2 routes compared for the norther sector route and the many restrictions considered as part of the evaluation (Figure 3.1 of the LATNS). Although the Hayes River was considered a constraint for final selection, other water crossings were not evaluated, nor were they shown on the map. Ultimately, the LATNS recommended selection of Option J as the preferred northern sector route corridor.

As identified in Chapter 2 of the Environmental Impact Statement (EIS) for the proposed Project, the preferred route recommended in the LATNS generally followed existing winter roads. In 2012, after further engineering and community feedback, slight revisions were made to what became known as the Project 6 all-season road connecting Bunibonibee Cree Nation, Manto Sipi Cree Nation and God's Lake First Nation. Continued refinements were made to the proposed Project 6 alignment until a preferred route was identified (with exception of an 8km section near Manto Sipi Cree Nation - see the response to IR1-02 for more information on these options). Figure IR1-01-2 in Appendix IR1-01-2 shows and the history of route refinements made since the LATNS recommended this route (Figure 2-1 of the EIS). The chronology and rationale for these route alignment revisions is presented in greater detail in Chapter 2, Table 2.2 of the EIS. In sum, further adjustments to the

[1] Multiple Account Evaluation (MAE) is a process of evaluating major capital investments, taking into account both quantifiable and non-quantifiable criteria or "accounts". It entails the systematic documentation and assessment of the engineering, environmental, financial and other relevant implications of alternative plans and projects in order to determine the advantages and disadvantages they entail. A preferred routing emerges as the one with the least constraints, and the most benefits.

route were based on avoiding reserve lands or to adjust road curvature and did not specifically relate to potential or planned water crossings.

Crossing locations proposed in the Project 6 All-Season Road EIS were selected from within the preferred route corridors identified in the LATNS and the subsequent refinements made since 2012. The crossing locations were based on project information and existing environmental baseline collected for the project EIS, which included engineering considerations, fish and fish habitat, wildlife, soil and vegetation assessments, heritage resources, and Traditional Knowledge studies. Proposed crossing types (i.e. bridge or culvert) was selected based on site conditions such as the water course type (i.e. river, stream or bog) and hydrology of the specific location. Major water crossings such as at the God's River and at Magill Creek will require bridges whereas other locations are likely to only require culverts. As described in Chapter 2, Section 2.2.3.1 of the EIS, bridge locations were subject to review by professional aquatic biologists, and to input from Indigenous Nations obtained at workshops and community meetings. Culvert locations were selected based on and with consideration of riparian conditions, navigability, and particular conditions of each stream that allow fish passage if necessary. Some culvert locations such as those in bogs fens or generally low-lying areas were selected so as to equalize hydraulic conditions adjacent to the road. Similarly, bridge locations were selected based on riparian characteristics, watercourse substrates, hydrology and channel hydraulics, footprint area, preservation of navigability, bridge design standards and specifications, Traditional Knowledge, and Heritage Resource Impact Assessments. A listing of proposed watercourse crossings, including their location, and the proposed crossing structure is provided in Chapter 3, Table 3.2 of the EIS. Figure 3-2 in Chapter 3 of the EIS identifies crossing locations graphically on a map.

Alternative Crossing Designs

The LATNS identified engineering requirements for roadway and crossing designs, and the East Side Road Authority (ESRA) had updated the geometric design criteria (GDC). Bridge widths will range from 9.6 to 12m. Lane widths will be 3.7 m in each direction of travel, with shoulder widths ranging from 0.5 m to 1.3 m. Additionally, a modified Right-of-Way of 100 m (60m cleared) (LATNS; SNC Lavalin, 2011). The design speed will be 90km/h, and the posted speed limit will be 70 km/h. Less than 300 vehicles per day are anticipated to use the all-season road.

Detailed permanent and temporary crossing designs are not yet available, but representative photos of typical bridge structures are shown in Appendix IR1-01-3. Preliminary decisions on crossing type (bridge vs. culvert) have been made, however decisions on design details and subsequent development of crossing designs will occur as part of detailed design activities post licencing. The options for permanent crossing design for individual crossings were identified in Chapter 3, Table 3.2 of the EIS and took into account engineering requirements, presence of species at risk, effects to fish and fish habitat and Indigenous input. As described in the response to IR1-19, selective review(s) of data validity will occur prior to all-season road construction and will focus on key topics where legislative changes (e.g updates to species at risks listings) occur. This review could equally consider final design details.

The need for and design of any temporary crossings, if required, will be identified by the construction contractor requiring pre-approval from MTI prior to construction commencement or before the pre-construction meeting and must follow Environmental Protection Specification 130.15.5 Stream Crossings (Appendix 8-3 of Project 6 All Season Road EIS; Appendix IR1-19-1 of the response to IR1-19) which will form part of the construction contract and is consistent with the Department of Fisheries and Oceans' (DFO) code of practice for temporary stream crossings.

A two-span bridge at Magill Creek is anticipated based on the channel width as per chosen designs for the PR 304 to Berens River All Season Road Project (i.e. Project 1). The proposed P6 road alignment currently crosses God's River at the existing single lane Acrow bridge, requiring replacement or upgrade of the current bridge structure. A clear span bridge is proposed for the God's River crossing at the site of the existing winter road clear span bridge to minimize impacts to fish and fish habitat.

Lake sturgeon (*Acipenser fulvescens*) is listed in Schedule 1, as a species of Special Concern of the Species at Risk Act (SARA) and is the only species potentially present in the Regional Assessment Area (RAA). The God's River crossing site provides moderate velocity run habitat with sand and rocky substrates and the immediate crossing area provides potential foraging habitat for adults. Potential spawning habitat is found at a set of large rapids 4 km downstream of the crossing. However, no effects are anticipated for this species as a clear-span bridge is the anticipated option for the site. This option would not require temporary or permanent instream alteration therefore review by DFO for authorization under the Fisheries Act is not anticipated. If the crossing type changes through detailed design process with input from communities and it is determined that in-water work will be required at this location, DFO will be contacted, and Fisheries Act Authorization will be sought if required.

The results of the effects assessment reported that 28 of the 53 crossings are unnamed streams, not able to support fish, and the other 25 crossing sites were assessed as fish habitat. Of those 25 crossings, seven were designated as important habitat, the remaining eighteen sites were assessed as 'marginal' fish habitat consisting of typically small boreal streams with limited flow and depth with soft substrates, habitat suited to small-bodied fish adapted to low oxygen environments (e.g. Brook Stickleback (*Culaea inconstans*), Northern Pearl Dace (*Margariscus nachtriebi*)). All crossings were classified as Low Risk after applying the site-specific mitigation measures identified in Table 2 of the Aquatic Environment Report Effects Assessment (NSC, 2017).

Additionally, watercourse crossing culverts will be designed and installed to provide fish passage in accordance with the Manitoba Stream Crossing Guidelines and DFO's current swim performance online tools and applicable standards and codes of practice. As part of the maintenance program, culverts will be periodically cleaned out. Procedures and mitigations identified in the Environmental Protection Procedures (#6 - Working within or Near Fish Bearing Waters, #7 - Stream Crossings, #8 - Temporary Stream Diversions, #9 – Fish Passage, #10-Fish Salvage, #11 -Culvert Maintenance and Replacement, #12- Blasting Near a Watercourse, #23 Mussel Salvage, #24-Water Quality Monitoring, #25 Prevention of the Transfer of Invasive Species) and applicable Environmental Protection Specifications listed in Appendices 8-2 and 8-3 of the Project 6 – All

Season Road EIS, as well as Appendix IR1-19-1 of the response to IR1-19, will be implemented through project design, construction planning, construction and operation and maintenance phases.

Information provided through the Indigenous and Public Engagement Program informed the selection of crossing options and will inform detailed designs. East side communities including God's Lake First Nation, Manto Sipi Cree Nation, Bunibonibee Cree Nation, Manitoba Metis Federation (MMF) and interested parties participated in open houses, in-person meetings, Traditional Land Use exercises, and baseline data collection. Six rounds of engagement took place from 2009-2018, where proposed Project components, including crossings were discussed and addressed based on community feedback (See Appendix 5-3 of Project 6 – All Season Road EIS). Comments included concerns regarding flooding at creek crossings and effects to fish spawning. In response, MTI affirmed that culverts will be installed in the creek crossings to allow water flow; culverts will be galvanized steel to prevent rusting to avoid changes in water quality; and traditional Knowledge studies were conducted to identify and avoid important fish spawning areas.

b) As described in Response A above, alternative all-season road corridors were evaluated as part of the LATNS and subsequent refinements. Socio-economic impacts to local communities, environmental and cultural effects, engineering and cost estimates for construction and maintenance were considered when evaluating potential network options to identify the preferred corridor within which the proposed Project 6 alignment is located. The preferred alignment proposed reflects considerable involvement and feedback from local Indigenous Nations (i.e., Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community). Chapter 5 of the proposed Project's EIS outlines the Indigenous and public engagement conducted for the proposed Project.

The proposed route is in close proximity to suitable road construction resources (potential quarry sites) which minimizes the length of access roads to quarries that are required and resulting disturbance to the environment. The proposed alignment is also located on suitable terrain/ground conditions which will facilitate road construction logistics, minimize the quantity of materials needed to construct the road and minimize the duration of road construction, further minimizing environmental disturbance.

Environmental effects of preferred bridge and culvert locations and designs to valued components (VC) are outlined in Chapters 4, 6 and 7 of the Project 6 – All Season Road EIS. The preferred (proposed) alignment was determined through an iterative engineering design process beginning with the route identified from the LATNS study. Subsequent alignment revisions were made as a result of input from local Indigenous Nations and in consideration of key biophysical and socio-economic parameters as described in Appendix IR1-01-4, Table IR1-01-1 (adapted from Table 2.2 in the EIS). The table provides a description of the history and rationale behind the road alignment selection, demonstrating why alternative segments were discarded and how the final alignment was determined in consideration of potential environmental effects to VCs and sensitive receptors.

For example, the 2010 alignment increased the potential for habitat fragmentation and disturbance due to its proximity to Hawkins Lake and Reserve lands and. Concerns with the 2014 alignment were raised about potential disruptions to traditional land use and cultural values due to its proximity to God's Lake First Nation's Reserve. Additionally, the 2015 alignment lacked a 100-metre setback from waterbodies, which increased risks to aquatic and riparian habitats. As a result, while specific alternative crossing locations were not assessed in isolation, their potential environmental and cultural effects were addressed through the broader evaluation of route options and alignment modifications documented in the EIS. Therefore, alternative options were not assessed for potential environmental effects on valued components (VCs) and sensitive receptors, as they were deemed unsuitable through the iterative alignment selection process based on engineering feasibility, environmental considerations, and Indigenous input. As mentioned earlier, Appendix IR1-01-2 provides a visual representation of historical alignments that had been considered.

As described in more detail in Chapter 4 of the EIS, the environmental assessment approach was based on evaluating potential Project effects to identified VCs both with and without the application of mitigation measures. The significance of residual effects (those remaining even after the implementation of mitigation) was then evaluated so as to determine whether significant project effects (those meeting criteria described in Chapter 4, Section 4.5.5 of the EIS) may occur. Overall, and as summarised in Chapter 7, Appendix 7-1, no significant adverse effects are anticipated.

As identified in Chapter 8, Section 8.3.1 of the EIS, the Environmental Management Plan (EMP) will provide a framework to assure proper planning, implementation, verification and adaptability of environmental protection measures. Even though environmental protection procedures presented in the EIS (included as Appendix IR1-19-1 in the response to IR1-19) have proven themselves to be effective on other similar projects on the east side of Lake Winnipeg, final measures developed during final design will be reflective of the existing environment and final design details at the time of construction. These details, captured in the EMP will be provided to federal and provincial regulators, as well as to Indigenous Nations, for review and approval prior to the start of construction. Should environmental conditions, regulatory requirements, Indigenous input, or project design require it, the EMP will include an assessment of incremental changes to demonstrate confidence that proposed measures will remain effective maintaining or improving upon EIS conclusions. Through this process, MTI plans to address uncertainty regarding future conditions, design, and mitigation measures and ensure that federal and provincial regulators as well as Indigenous Nations have opportunities for input and approval of proposed measures prior to the start of work.

c) The selection of crossing locations was based on technical considerations and input received from Indigenous Nations during the initial engagement on the preferred road alignment and LATNS route selection criteria as identified in Response A; thus, alternative sites were not evaluated by MTI. As identified in response A above and in Chapter 2 of the Environmental Impact Statement (EIS) for the proposed Project, the preferred route recommended in the LATNS generally followed existing winter roads. In 2012, after further engineering and community feedback, slight revisions

were made to what became known as the Project 6 all-season road connecting Bunibonibee Cree Nation, Manto Sipi Cree Nation and God's Lake First Nation. Continued refinements were made to the proposed Project 6 alignment until a preferred route was identified (with exception of an 8km section near Manto Sipi Cree Nation - see the response to IR1-02 for more information on these options). Figure IR1-01-2 in Appendix IR1-01-2 shows and the history of route refinements made since the LATNS recommended this route (Figure 2-1 of the EIS). The chronology and rationale for these route alignment revisions is presented in greater detail in Chapter 2, Table 2.2 of the EIS. The watercourses being crossed, God's River and Magill Creek, would be crossed with any of the route alternatives linking the three communities. As such, the same (or similar) fish species, bird species, navigation conditions and other factors would be expected to remain consistent across all alternative locations on the same waterbodies. While there may be site specific exceptions for heritage resources or other locally unique environmental features, the overall conditions and resulting anticipated environmental effects would be expected to be similar for potential alternative crossing locations. Therefore, the crossing assessment is considered applicable to most locations along the watercourses being traversed.

As described in Table IR1-01 above (and visually in Appendix IR1-01-2), multiple alignment options were assessed between 2010 and 2016 to address concerns raised by communities and engineering and environmental considerations. Key issues included proximity to Reserve Lands, risks to aquatic habitat, flooding potential, and impacts on TLEs. Each alignment was progressively adjusted to reduce these effects, such as incorporating setbacks from waterbodies and shifting routes away from sensitive areas. The final alignment, recommended in October 2016, was selected based on the shortest route, access to road-building materials, and reduced environmental disturbance.

Chapter 6, Appendix 6-3 of the EIS identifies interactions between the valued components and key proposed Project activities associated with the preferred alignment, including the bridge and culvert crossings. While the detailed design of the preferred alignment has not yet been completed, bridge and culvert crossings will be designed based on site-specific conditions. Additional considerations could include the prevention or reduction of impacts to fish and fish habitat, species at risk and their habitat, sites of cultural and heritage value, human health receptors such as traplines, residences, camps and First Nations reserve lands, or to Indigenous access and travel routes and land use areas as may be necessary or appropriate for each crossing location.

With regard to concerns on impacts to wetlands or waterbodies and the storage and handling of hazardous materials or other potential contaminants , the Environmental Protection Specifications identify minimum required setbacks from waterbodies, and the selection of wetlands as areas to locate bridge and culvert crossings would not be permitted by MTI. The Environmental Protection Specifications also include measures for materials handling, storage and disposal which would need to be adhered to as part of site development and operation.

While the development and operation of bridge and culvert crossings work sites may result in loss of terrestrial vegetation, vegetation removal itself would need to adhere to clearing restrictions identified in the Environmental Protection Specifications, which is that clearing is not to occur

between April 1 and September 1 of any given year to protect wildlife, migratory birds and their habitat. Bridge and culvert crossings sites would be re-seeded and expected to return to a pre-disturbance condition once work ceases.

d) The Fisheries Act states that fish-bearing waterways must be designed to accommodate fish passage. DFO has classified fish-bearing waterways into five Fish Habitat Types (i.e., A, B, C, D, E). Fish Habitat Types A and B provide direct habitat for indicator species (e.g., Northern Pike, Yellow Perch, and White Sucker), Types C and D provide direct habitat for forage species (e.g., Fathead Minnow, Sticklebacks, Daces), and Type E provides indirect habitat, where it may provide temporary fish habitat in events such as flooding. Since Fish Habitat Types A through D provide direct fish habitat, any waterway crossings (i.e., culverts) installed within these habitat must allow for fish passage.

To achieve fish passage requirements, Manitoba Transportation and Infrastructure currently applies a general approach to determining appropriate design velocities at culvert crossings, per the Manitoba Stream Crossing Guidelines as well as the Fish Swimming Performance User Guide and the Swim Performance Online Tool. This current approach determines an acceptable embedment and velocity based on the fish species, swim distance, and Fish Habitat Type (defined earlier in this response) present at the location in question. Embedment of culvert crossings function to provide connectivity and prevent fish stranding during period of low flow within all Fish Habitat Types (i.e., drought events), while setting a maximum velocity standard within Type A and B Fish Habitat is to continually allow indicator species to successfully migrate between sites for spawning purposes and fulfilling their life stages. Indicator species may have preferred spawning habitat that differs from their foraging habitats. As such, culvert velocities must be designed to accommodate a fish's ability to successfully swim upstream at culvert crossings within Type A and B Fish Habitat.

During the detailed design phase of this proposed Project, culvert crossings will be designed to accommodate fish passage within Fish Habitat Types A through D. To meet fish passage requirements, culvert crossings will be embedded to provide connectivity and prevent stranding. In addition, culvert crossings within Fish Habitat Types A and B will require a set maximum velocity to allow indicator species to fulfill their life stages, including but not limited to migration and spawning. Culverts are recognized by DFO as one of the most used methods for providing access over a watercourse for small to medium-sized crossings. As such, culvert crossings can be modified in various ways to best accommodate for fish passage at a given site through factors of diameter sizing, lengths, embedment, and materials (e.g., corrugated steel, concrete).

To achieve waterway crossing requirements, the lengths and types of culverts (corrugated steel pipe, precast concrete, or box culvert) may be interchanged or modified based on environmental conditions at each crossing location so as to attain appropriate fish passage requirements. Generally, the greater the length of a culvert, the greater the need for a slower velocity to allow for fish to swim upstream. Where a greater embedment is required to allow for connectivity, larger culverts may be required to accommodate for high flows of water.

MTI determines the needs for a structure type (e.g., bridge, box culvert, pipe culvert) based on existing hydrological factors such as flow, head loss, and clearances. Larger crossing structures, such as box culverts, may at times need to be accommodated by widening existing streambed widths, ultimately introducing a certain level of disturbance to a watercourse. Smaller crossing structures, such as pipe culverts, can be sized to accommodate existing streambed widths and velocity needs by upsizing culverts as needed. The type and/or design of a culvert can be modified to provide adequate water velocities that will support fish passage to all indicator species. This may include: i) upsizing to larger pipes to reduce water velocities through the culvert; ii) embedding the pipes to mimic natural streambed substrates; iii) matching existing streambed widths with one large culvert instead of multiple smaller culverts; iv) minimizing culvert lengths to reduce areas of alteration; and/or, v) selection of materials that may affect roughness coefficients.

e) As part of preliminary design and environmental baseline studies, which took place prior to the EIS, qualified professional aquatic biologists reviewed the proposed crossings for the all-season road alignment (NSC, 2017; Appendix C-1 of the EIS). The crossing locations were evaluated based on the criteria defined in Response D and community involvement described in Response A and B of this information request, as well as the recommendations of reviewing aquatic biologists via DFO guidance. As indicated in Response D, culvert crossings will provide fish passage as required by The Fisheries Act. Providing fish passage requires meeting embedment and velocity requirements to promote connectivity and movement. As fish movement is essential to fulfill life stages (i.e., spawning), during detailed design of the culverts, the culvert crossing velocity calculations will consider Fish Habitat Type (indicator or forage direct habitat), length of culvert (i.e., swim distance), and the maximum water velocities recommended to pass at least 50% of fish.

In Manitoba, velocities are most restricted to Northern Pike (*Esox Lucius*) who are weaker swimmers in comparison with other indicator species (e.g., White Suckers, Walleye). To allow for the most conservative of velocities for the successful passage of Pike, MTI considers swim abilities for Pike of a minimum length of 400 mm (i.e., approximate size of a first-year spawning Pike of 2 to 3 years of age). Regardless of culvert type, these factors would remain and be applied to culvert crossing alternatives.

The Swim performance Online Tool (SPOT) is used by DFO when assessing fish passage at a given crossing site. While SPOT can support users in understanding fish lengths at maturity, velocities, and swim times, it does not provide recommendations on other factors that can influence successful passage such as embedment, roughness coefficients, number of culverts at a crossing site, among others. The Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (1996) document outlines additional culvert design considerations not covered by the SPOT such as embedment, crossing types and materials, installation, maintenance, and decommissioning criteria.

If there are any alterations to water crossings during the detailed design of the proposed Project, MTI will continue adhering to requirements of The Fisheries Act including provision of fish passage. Adherence to the act will be carried out through current MTI approaches (Manitoba Stream

Crossing Guidelines & DFO guidance documents and discussions) as well as the Fish Swimming Performance User Guide and the Swim Performance Online Tool to identify appropriate velocities for which to design culverts for fish passage. As a result, no update to the assessment of potential effects is required as permanent and temporary water crossings will be constructed in accordance with applicable guidance and requirements. The assessment presented in the EIS is representative of anticipated potential effects and outcomes. Once detailed crossing designs are available, they will be included in applications for review by Department of Fisheries and Oceans and subsequent authorization under the Fisheries Act as required.

f) During the Traditional Knowledge studies conducted for the proposed Project, participants were asked about travel routes, in part to understand community use of local waterways. Traditional Knowledge studies reported that the majority of travel routes for communities were associated with major waterways, including God's River, God's Lake, Oxford Lake, Semmens Lake and Edmund Lake. A clear span bridge crossing is proposed for the God's River, located at the site of the existing winter road clear span bridge. A two-span bridge design is assumed based on the channel width as per chosen bridge designs for the PR 304 to Berens River All Season Road Alignment Project which have received Transport Canada approvals. MTI is committed to designing culverts and bridges crossing in potentially navigable waters in accordance with Transport Canada regulations for navigation and approvals being sought for the proposed Project under the Canadian Navigable Waters Act.

Minor water crossings, such as culverts will be galvanized steel to prevent rusting and ensure durability. Each culvert will be sized to fit the watercourse, taking into account expected water flow, environmental conditions, and any specific characteristics relevant to each crossing, if needed. These culverts will also be designed and installed to meet the Manitoba Stream Crossing Guidelines as well as the Fish Swimming Performance User Guide and the Swim Performance Online Tool, ensuring they provide fish passage (see Response D above). If a culvert cannot adequately support navigation through the crossing, alternative options will be explored through community engagement, including the possibility of constructing a portage to facilitate safe passage. Additional consultation can also address specific community needs or preferences, such as providing gravel pathways or adding signage to improve accessibility and safety for users.

g) An update on the effects assessment for all valued components is not necessary, at this time. All potential effects identified and discussed as part of this response were considered in the effects assessment and will be further evaluated as design advances. A re-evaluation of effects will be conducted if the design and/or location of project components changes substantially during detailed design. The re-evaluation would be shared with the Agency and Indigenous Nations for review.

As identified in Chapter 8, Section 8.3.1 of the EIS, the EMP will provide a framework to assure proper planning, implementation, verification and adaptability of environmental protection measures. Even though environmental protection procedures presented in the EIS (also included as Appendix IR1-19-1 in the response to IR1-19) have proven themselves to be effective on other similar projects on the east side of Lake Winnipeg, final measures developed during final design will

be reflective of the existing environment and final design details at the time of construction. These details, captured in the EMP will be provided to federal and provincial regulators, as well as to Indigenous Nations, for review and approval prior to the commencement of clearing or construction. Should environmental conditions, regulatory requirements, Indigenous input, or project design require it, the EMP will include an assessment of incremental changes to demonstrate confidence that proposed measures will remain effective maintaining or improving upon EIS conclusions. Through this process, MTI plans to address uncertainty regarding future conditions, design, and mitigation measures and ensure that federal and provincial regulators as well as Indigenous Nations have opportunities for input and approval of proposed measures prior to the start of work.

APPENDIX IR1-01-1

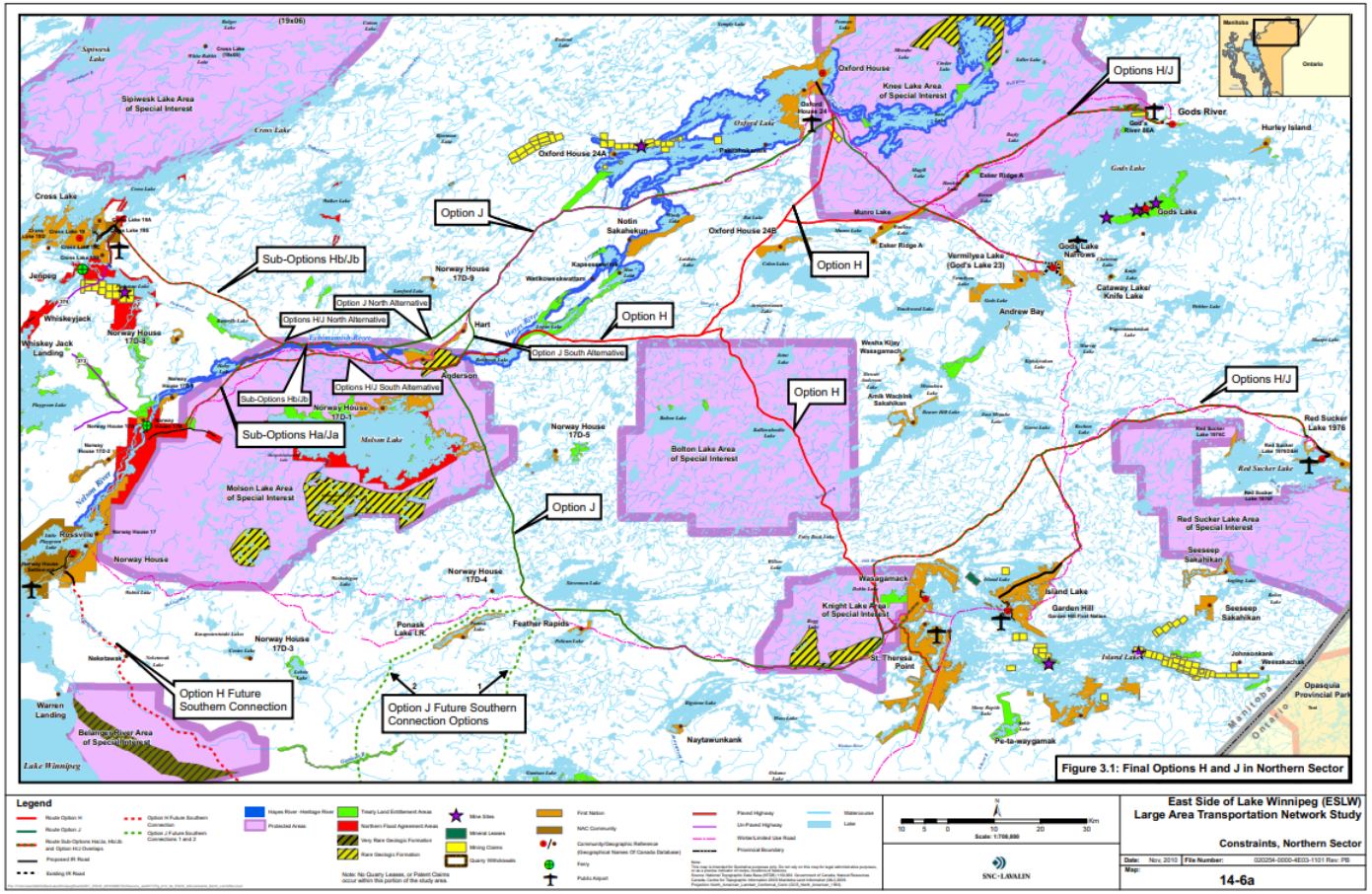


Figure IR1-10-1 Constraints for the northern sector route selection. (Figure 3.1 of the LATNS)

APPENDIX IR1-01-2

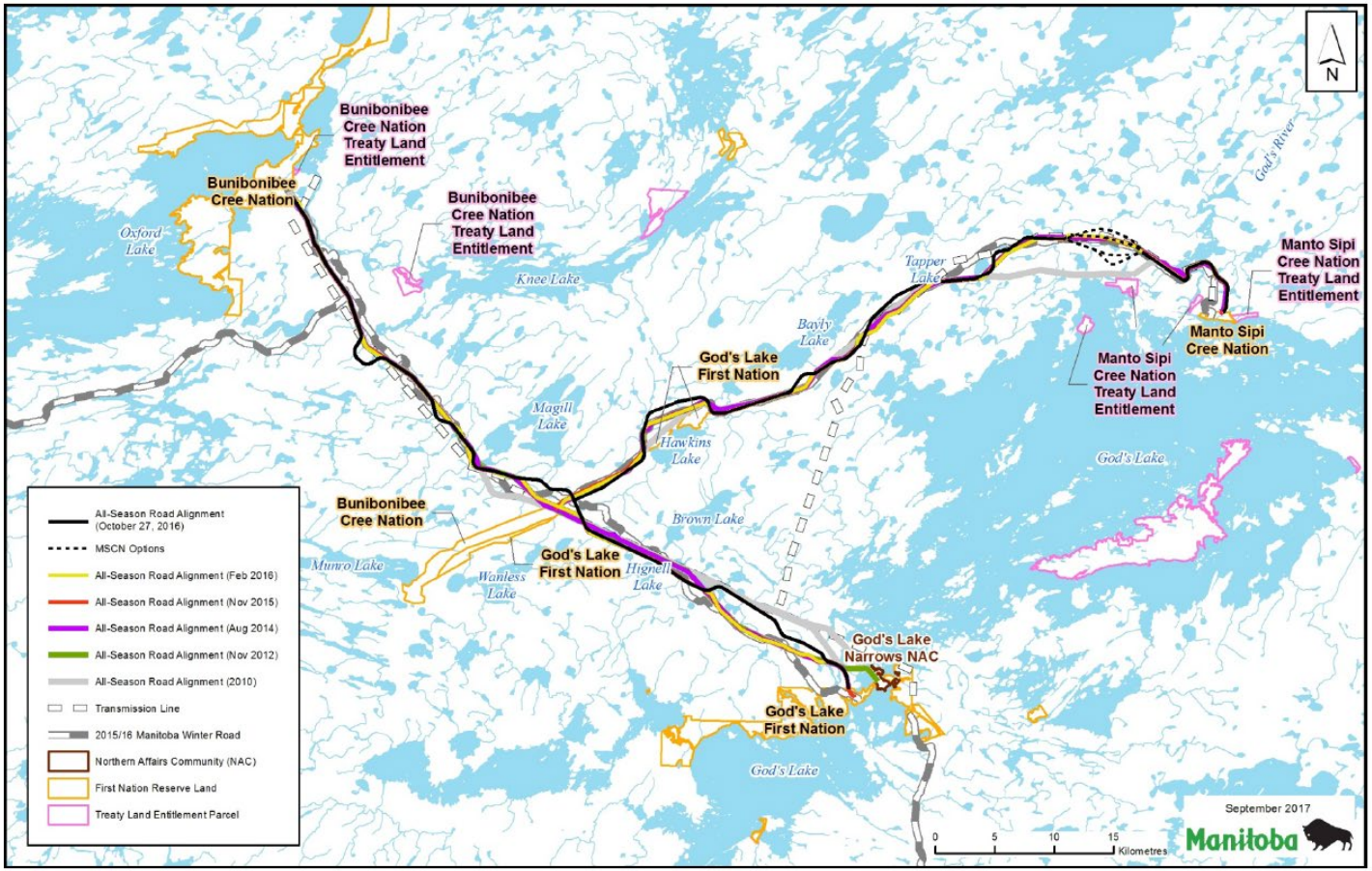


Figure IR1-01-2. History of Project 6 road alignment revisions. (Figure 2-1 of the P6 EIS)

APPENDIX IR1-01-3

Typical clear-span (shown left) and two-span bridge (shown right) which are representative of what may be used for the Project 6 All-Season Road.





APPENDIX IR1-01-4

Table IR1-01-1. Rationale for Refinement of the All-Season Road Alignment Options[2].

	Comments Provided by Communities	Potential Effects to Valued Components (VCs)	Revisions based on Community Input	Revisions based on Engineering and Environmental Considerations
November 2012				
	• Preference expressed to more closely parallel existing winter roads, to move the route further away from Hawkins Lake due to Reserve land and to move away from the west side of Manto Sipi Cree Nation near the TLE parcel.	• Potential effects to Reserve land, TLE parcel, and traditional use areas; potential effects on traditional land use; potential for increased disturbance near sensitive areas.	• Alignment from God's Lake First Nation shifted south and from Manto Sipi Cree Nation shifted north to follow portions of winter road. • Alignment adjustment from Manto Sipi Cree Nation to avoid the TLE parcel. Location chosen by Manto Sipi Cree Nation through Section 35 Consultation process with Manitoba.	• Alignment west out of Manto Sipi Cree Nation discarded as it is too close to the airport and it crosses God's River at widest point. • Alignment near Magill Lake shifted east for easier stream crossing and to avoid flood plain.
Resulting Benefits	• Locating the road to more closely follow the winter road reduces potential for fragmentation and disturbance of the land. Crossing God's River at a narrower point will reduce construction costs. No new or additional effects anticipated from the routing modification.			
August 2014				
	• None indicated.	• Potential for effects on aquatic habitat, fisheries, and water quality from bridge construction	• None indicated.	• Alignment near God's Lake First Nation adjusted to terminate at north edge of Reserve land rather than further east into the Northern Affairs Community.
Resulting Benefits	• This alignment revision eliminates the need for two large span bridges across portions of God's Lake reducing potential effects on aquatic environment and reducing engineering and construction costs. No new or additional effects anticipated from the routing modification.			
November 2015				
	• Preference was expressed to move the route further away from the God's Lake First Nation Reserve land near the intersection.	• Potential effects to Reserve land near intersection; and aquatic environment from low-lying areas.	• Alignment near intersection shifted northeast away from the noted Reserve land.	• Alignment between Bunibonibee Cree Nation and God's Lake First Nation adjusted as Manitoba Hydro did not want the all-season road route so close to their transmission line.Minor adjustment north of Hawkins Lake to avoid a low area.

[2] Adapted from Chapter 2, Table 2.2 in the Environmental Impact Statement

	Comments Provided by Communities	Potential Effects to Valued Components (VCs)	Revisions based on Community Input	Revisions based on Engineering and Environmental Considerations
Resulting benefits	• Adjusting alignment, as requested, reduces potential to affect Reserve land and a Manitoba Hydro transmission line right-of-way (ROW) and moving away from a low area reduces potential effects on aquatic environment. No new or additional effects anticipated from the routing modification.			
February 2016				
	• None indicated.	• Potential safety concerns for road users ; potential effects to aquatic environment from proximity to waterbodies.	• None indicated.	• The alignment at the intersection was adjusted to create a 90-degree intersection. • Other minor adjustments along the alignment to smooth curves (north of Hawkins Lake) and to ensure 100-m setback from waterbodies throughout.
Resulting Benefits	• Smoothing curves and creating a 90-degree intersection at the junction to Manto Sipi Cree Nation improves public safety by, while ensuring the 100-m setback reduces potential effects to aquatic environment. No new or additional effects anticipated from the routing modification.			
October 2016				
	• In response to viewing Option 4, Manto Sipi Cree Nation indicated they wanted more information to select the preferred option for an 8 km section of alignment near their TLE parcel.	• Potential effects to TLE parcel; potential effects to wetland habitat	• MI proposed two other alignments (Options 2 and 3) located further away from the TLE parcel than Option 4 for consideration by Manto Sipi Cree Nation.	• A fly-over in May 2016 with ESRA engineer identified several areas of poor terrain and constructability including Option 1 resulting in alignment changes including the Option 4 as shown
Resulting Benefits	• Reduces potential effects to wetland environment and provides better terrain for road construction. No new or additional effects anticipated from the routing modification.			
June 2017				
	• Manto Sipi Cree Nation indicated they wanted to have a community meeting to discuss options after the flyover. MI supplied a summary of the flyover and evaluation of Options.	• Potential effects to preferred alignment are described in Chapter 6 of the EIS	• Final Option to be selected based on outcomes of community meeting.	• A 2nd fly-over in June 2017 with MI engineer, project manager, Manto Sipi Councillor and consultant evaluated the four alignment options, confirming two most northerly options had poor terrain and constructability resulting in their abandonment and MI recommending Option 3

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

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Fisheries and Oceans Canada and Manitoba Natural Resources. 1996. Manitoba stream crossing guidelines for the protection of fish and fish habitat. Available at: https://www.gov.mb.ca/nrnd/fish-wildlife/pubs/fish_wildlife/fish/sguide.pdf. Accessed December 11, 2024.

North/South Consultants INC. 2017. East Side Road Authority Project 6: All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation. Aquatic Environment Report: Effects Assessment. Prepared for the Manitoba Infrastructure – Remote Road Operations by North/South Consultants Inc.

SNC Lavalin. 2009. Provincial Road 304 to Berens River All-Season Road Environmental Assessment. Available at: https://www.gov.mb.ca/sd/eal/registries/5388pr304_berens/projdesc.pdf

SNC Lavalin. 2011. East Side of Lake Winnipeg (ESLW) Large Area Transportation Network Study. Available at: https://www.gov.mb.ca/mti/hpd/environment/pdf/project6/baseline/final_report.pdf. Accessed November 29, 2024.

2025-08-27

QUESTION IAAC IR1-02

EIS Guideline Reference	• Part 2, Section 2.2
EIS Reference	• Chapter 2, Section 2.2.2 • Chapter 6
Category	Alternative Means

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent identify and consider the environmental effects, as per CEAA 2012, of alternative means of carrying out the Project that are technically and economically feasible, including alternative routes for the all-season road (ASR). Where the proponent has not made final decisions concerning the placement of Project infrastructure, the technologies to be used, or when several options may exist for various Project components, the proponent shall conduct an environmental effects analysis at the same level of detail for each of the various options available (alternative means) within the EIS.

Alignment of an approximately 8 kilometre section of the ASR near the Manto Sipi Cree Nation (MSCN) reserve has not been finalized, with four alignment options being considered by Manitoba Infrastructure (MI) and MSCN. The EIS describes potential adverse environmental effects of the ASR as a whole, but does not provide details regarding the potential environmental effects of each alternative route option for the 8 kilometre section of the alignment near MSCN under consideration.

This information is required to understand the potential effects of each alignment option to VCs included in section 5 of CEAA 2012.

INFORMATION REQUEST

a) Conduct an environmental effects analysis for each of the four alignment options for the 8km section of the ASR near the MSCN reserve.
   - If, at the time of responding to this information request, a preferred alignment has been chosen, provide a rationale for why the final option was chosen, which

describes consideration of potential environmental effects to VCs, the views and concerns expressed by Indigenous peoples, and the ranking system used to select the preferred route.

RESPONSE

a) At the time of writing this response, a preferred alignment option for the 8 kilometre segment of road near Manto Sipi Cree Nation (MSCN) has not been selected. The options are shown below in Figure IR1-02-1, and in Chapter 3, Appendix 3-7 of EIS

As identified in Chapter 2 Section 2.2.2.1 of the Environmental Impact Statement (EIS) Manitoba Transportation and Infrastructure (MTI) has recommended proceeding with Option 3. Option 3 was recommended to the best option because the alignment has a relatively smooth horizontal and vertical alignment (i.e. few curves or elevation changes) and there is an ample supply of building materials along this route. A flyover was conducted in June 2017 with MSCN, their consultant and MTI to review the and discuss the four preliminary options. Although MTI has recommended Option 3, MSCN has been asked to confirm their preferred option. This question will be addressed with MSCN through the ongoing engagement process that will continue to and beyond the August 2026 CEAA, 2012 submission date for regulatory filings for the Project.

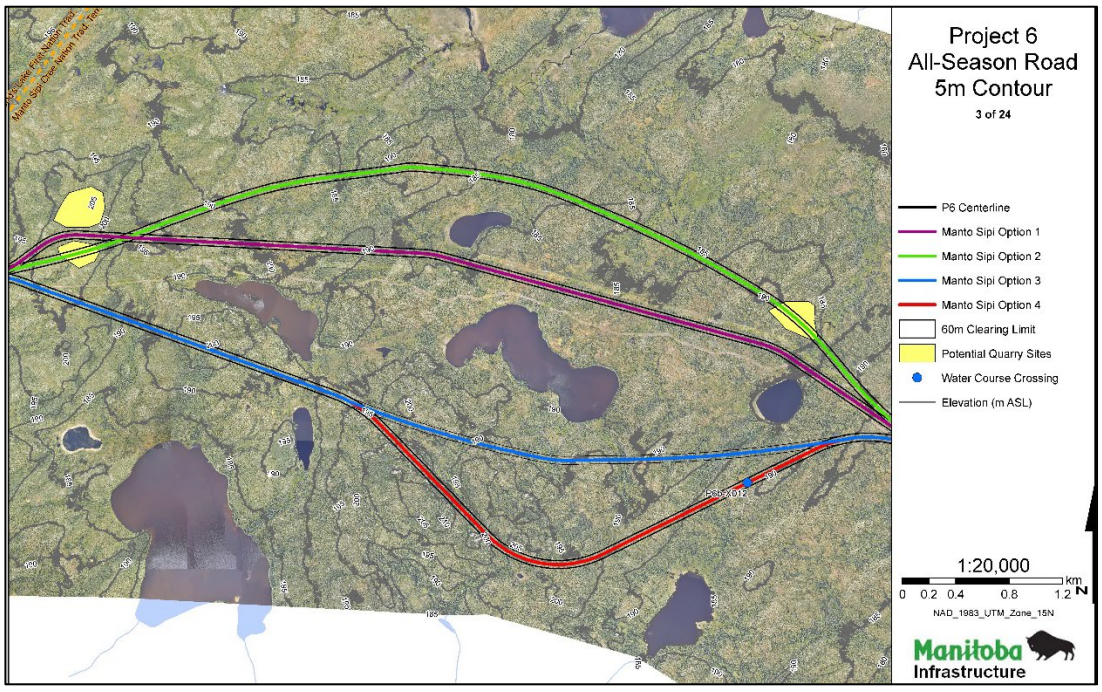


Figure IR1-02-1. Topographic Map showing 4 options of All-Season Road near MSCN.

Regardless of the option that may be selected for final detailed design and construction, it is believed that the assessment presented in the EIS remains applicable. As such, it is not believed that additional analysis is required.

Although Option 1 would most closely follow the existing winter road and transmission line, all 4 options are located within approximately 2.6km of each other and all options are within approximately 2km of the existing linear features on the landscape. Selection of any option would reposition the exact area of direct effects (i.e Project footprint), but all options would have greatly overlapping Local Assessment Areas (LAA) for wildlife (ungulates, 20km wide LAA) and Indigenous Land/Resource Use and Wildlife (other than ungulates) (10km wide LAA). Only the vegetation and heritage resources (2km wide LAA) would cover slightly different areas.

Although detailed design is yet to be complete, all options are in close proximity to the same waterbodies. Exact needs for equalization culverts or small stream crossings may vary between the 4 options, but none would require crossing of a major waterway. Similarly, each option may provide slight variations in types and quantities of land cover that they may intersect, however, these variations are likely to be negligible due to the close proximity of all options.

Similarly, while each option is located in very close proximity to one another, Option 1 mostly closely follows the existing winter road and transmission line alignments. According to research (Langlois et al., 2017) infrastructure projects are less disruptive to the environment when they are located within a pre-existing road network, or right of way, thereby minimizing further fragmentation. Options 2, 3, and 4 may therefore result in slightly greater fragmentation effects to habitat that wildlife, migratory birds and species at risk could use. Fragmentation effects would decrease over time as the winter road naturally revegetates.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

Langlois, L. A., Drohan, P. J., & Brittingham, M. C. 2017. Linear infrastructure drives habitat conversion and forest fragmentation associated with Marcellus shale gas development in a forested landscape. Journal of Environmental Management, 197, 167–176.

2025-08-27

QUESTION IAAC IR1-03

EIS Guideline Reference	• Part 1, Section 3.1 • Part 2, Section 2.2 and 5.1
EIS Reference	• Chapter 2, Section 2.2.4 and 2.2.5 • Chapter 3, Section 3.2.4, 3.3.5, 3.4.2.8, and Appendix 3-7
Category	Alternative Means

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent identify and consider the environmental effects, as per CEAA 2012, of alternative means of carrying out the Project that are technically and economically feasible, including alternative locations of borrow areas, rock quarries, gravel pits, and any permanent or temporary access roads. The scope of the environmental assessment (EA) for the Project is also to include construction camps and laydown areas. Where the proponent has not made final decisions concerning the placement of Project infrastructure, the technologies to be used, or when several options may exist for various Project components, the proponent shall conduct an environmental effects analysis at the same level of detail for each of the various options available (alternative means) within the EIS.

The EIS describes the location of 62 potential quarry locations, noting that only 19 quarries will be required for Project construction, with up to 6 quarries remaining active during operation of the Project for road maintenance. While the EIS lists factors to be considered in the site selection for quarries, borrow areas, permanent and temporary access roads, construction camps, and construction staging areas and describes general effects associated with these Project components, there is no evaluation of the environmental effects associated with each alternative location. Information regarding the location and potential environmental effects of these Project components is required to understand the potential effects of quarries, borrow areas, temporary and permanent access roads, construction camps, and construction staging areas to VCs listed in section 5 of CEAA 2012.

The EIS also describes how certain quarries and/or construction camps nearest to each of the communities of God’s Lake First Nation, Manto Sipi Cree Nation, and Bunibonibee Cree Nation may

be retained during Project operation as maintenance yards, should additional storage for road maintenance equipment be required beyond available storage space at the existing maintenance facility owned by MI's Remote Road Operations, Winter Road Program. Additional information is required regarding the location and environmental effects that may be associated with these potential permanent facilities to assess potential effects to VCs listed in section 5 of CEAA 2012.

INFORMATION REQUEST

a) Describe the potential locations of temporary construction camps, staging areas, and temporary and permanent access roads.
b) For each potential location for temporary and permanent quarries, borrow areas, temporary construction camps, staging areas, and temporary and permanent access roads, characterize:
    - relationship to fish habitat;
    - relationship to migratory birds and their habitat;
    - relationship to species at risk and their habitat;
    - any hazardous materials or potential contaminants that may be present on the site(s), including their characteristics and approximate volumes;
    - relationship to wetlands and other waterbodies;
    - terrestrial habitat loss (area) by vegetation cover type;
    - relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
    - relationship to sites of cultural and heritage value;
    - relationship to species of importance to Indigenous peoples and their habitat;
    - potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
    - potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.
c) If final locations have been chosen, describe the location of temporary and permanent quarries and borrow areas. Provide a rationale for how the final locations were chosen, including a consideration of potential environmental effects to VCs, the views and concerns expressed by Indigenous peoples, and the ranking system used to select preferred locations.
    - If preferred options have not been chosen, describe how the location of temporary and permanent quarries and borrow areas will be selected.

d) Describe the potential locations of those quarry sites and/or construction camps that may permanently remain on the landscape during Project operation and be converted to maintenance yards. For each location, characterize:
    - infrastructure that will remain on the site(s) permanently;
    - any hazardous materials or potential contaminants that may be present on the site(s), including their characteristics and approximate volumes;

RESPONSE

a) Potential locations for temporary construction camps, staging areas, and temporary or permanent access roads will be identified during the construction phase, and as each construction contract is tendered and awarded. As identified in Chapter 3, Sections 3.3.4, 3.3.5, 3.3.7 of the Environmental Impact Statement (EIS), locations for temporary works such as laydown areas, camps and aggregate production will primarily be proposed by the construction contractor and are subject to approval by Manitoba Transportation and Infrastructure (MTI). Processes for the identification of potential temporary work sites by contractors, site selection requirements, and requirements for approval by MTI (and/or the contract administrator) prior to development of such sites are detailed throughout the Environmental Protection Procedures (EP) and Environmental Protection Specifications (ES). The EP and ES were included as Appendices 8-2 and 8-3 in Chapter 8 of the EIS and have also been included as Appendix IR1-19 in the response to information request IR1-19.

Chapter 2 of the EIS, specifically Section 2.2.4, 2.2.5, and 2.2.6 speaks to temporary works such as access roads, borrow and quarry areas, and camps or staging areas. While a total of 62 potential quarries have been identified in the EIS (see Appendix IR1-03-1), only 19 are anticipated to be needed. The potential locations of temporary construction camps, staging areas, and temporary and permanent access roads will be identified by the contractor in advance of construction. As described in Chapter 3, Section 3.3.4, a maximum of 15 temporary construction laydown areas totalling an estimated 86 ha (0.86 km^2) of cleared area will be established by the Project construction contractors at various locations within 500 m of the proposed all-season road ROW. Similarly, as per Section 3.3.7 of the EIS, temporary construction camp facilities will be established by the construction contractor at strategic locations within 500 m of the proposed road ROW to support crews constructing the proposed Project. It is estimated that up to 6 temporary camp locations totalling approximately 96 ha (0.96 km^2) of cleared area will be established. While it is expected that temporary work sites will be located along the Project alignment and within 1km of the right-of-way, temporary sites such as camps, staging areas and access roads will be proposed by the construction contractor. Proposed sites will need to adhere to MTI's requirements and will undergo review and/or approval prior to establishment to ensure they comply with applicable requirements and approval conditions. Specifically, the selection and review of proposed temporary work sites will include:

- Review of baseline studies to identify and avoid sensitive sites, such as denning areas, beaver lodges, stick nests and protected features or species at risk and their habitat.
- Verifying that necessary setbacks from water, the road, or other features are maintained.
- Review Heritage Resource Impact Assessment for heritage resource potential so as to not interfere with known cultural sites or destroy heritage resources.
- Review of Indigenous traditional land and resource use information so as to not interfere with or impact traditional or cultural activities.

Once locations are identified, MTI will review proposed locations to assure compliance with MTI mitigation measures regarding such as those relating to site selection, designated sites, and contractor submittals as stipulated in the Environmental Protection Specifications (see Chapter 8, Appendix 8-3 of the EIS or Appendix IR1-19-1 in the response to IR1-19) and/or the Environmental Protection Procedures (see Chapter 8, Appendix 8-2 of the EIS or Appendix IR19-1 in the response to IR1-19). If locations achieve compliance, MTI or a designate (i.e. Contract Administrator) will accept the proposed sites and pursue necessary permitting (e.g. provincial Crown Lands permit) for site development. Additional information regarding provincial permits is presented in Chapter 1, Section 1.4 of the Project's EIS.

As Project construction progresses, information regarding temporary work sites including site identification and selection will be shared with Indigenous Nations at design workshops and in progress meetings. This information will also be shared with regulators in regular progress reports.

Additionally, as identified in the response to IR1-19, MTI is committed to conduct a selective review of data validity 1-2 years before all-season road construction begins which could further inform the selection of temporary work sites during the construction phase. The review will focus on key topics where legislative changes (e.g. updates to species at risk listings) occur. This will be done to assure that related predictions made in the environmental assessment remain current, applicable and appropriate relative to detailed engineering design and environmental conditions at that time and may consider additional information on temporary work sites such as quarries, borrow pits, camps or staging areas if known. This reassessment will be documented and shared with regulators and Indigenous Nations as a report.

b) Appendix 6-3 in Chapter 6 of the EIS identifies interactions between each of the valued components (VCs) and key project activities. Appendix 6-3 specifically includes project activities related to the establishment of staging areas and temporary components (i.e., quarry and borrow areas, temporary access and crossings, staging areas, camps) and identifies the VCs anticipated to interact with these activities. Appendices 6-4 and 6-5 in Chapter 6 of the EIS then provide further assessment of potential effects of temporary works to each applicable valued component by summarizing the text in Chapter 6 and presenting it in a tabular form. These appendices present the evaluation of each assessment criteria, the residual effect and the significance determination related to potential effects of temporary works for each applicable valued component, prior to as well as after the application of mitigation measures.

As identified in Response A above, temporary sites such as quarries, borrow, camps, staging areas and access road's locations are not yet confirmed, and many will only be proposed by contractors once construction begins. A number of potential quarry sites have been identified in the EIS, but it is only anticipated that 19 will be required (see Response A and Appendix IR1-03-1). Even though exact locations are not known, MTI has defined requirements for site selection including setbacks from sensitive features and review for heritage resource potential. These requirements are identified in the Environmental Protection Specifications and were included in Chapter 8, Appendix 8-3 of the EIS (also available in Appendix IR1-19-1 in the response to IR1-19). Requirements identified in the Environmental Protection Specifications are intended to prevent or reduce impacts to fish and fish habitat, migratory birds and their habitat, species at risk and their habitat, sites of cultural and heritage value, human health receptors such as traplines, residences, camps and First Nations reserve lands, or to Indigenous access and travel routes and land use areas.

Concerns regarding impacts to wetlands or waterbodies and the storage and handling of hazardous materials or other potential contaminants would also be considered part of the review of proposed temporary work sites. The Environmental Protection Specifications identify minimum required setbacks from waterbodies, and the selection of wetlands as areas to locate temporary works would not be permitted by MTI. The Environmental Protection Specifications also include measures for materials handling, storage and disposal which would need to be adhered to as part of site development and operation.

Additionally, development of temporary sites such as quarries, borrow, camps, staging areas and access roads are subject to provincial permitting under *The Crown Lands Act,* and/or *The Mines and Minerals Act*. These provincial permitting processes include requirements for Indigenous consultation and therefore necessitate discussion with communities on the selection and development of sites for temporary works. Ongoing engagement with communities, including consultation regarding the development of temporary work sites will allow for concerns regarding species of importance to Indigenous peoples and potential impacts to rights to be addressed as part of the permitting process.

While the development and operation of temporary work sites may result in loss of terrestrial vegetation, vegetation removal itself would need to adhere to clearing restrictions identified in the Environmental Protection Specifications, which is that clearing is not to occur between April 1 and September 1 of any given year to protect wildlife, migratory birds and their habitat. Temporary sites will also be decommissioned once work is complete. These areas will be left in a manner that allows for natural re-establishment of vegetation and are therefore expected to return to a pre-disturbance condition once work ceases.

Chapter 7, Appendix 7-1 also provides a summary of potential environmental effects to Valued Components (VCs) associated with Project components, including quarries, temporary construction camps, borrow areas, etc. A summary of these effects is presented as Appendix IR1-03-2 as part of this response.

c) As shown in Appendix IR1-03-1, potential quarry locations have been identified, but final selections have not yet been made. The selection process will consider several factors, as stated in Response A including heritage resource potential and community input, while aiming to minimize haul distances and avoiding sensitive areas, species or features.

Potential quarry sites were chosen for their sparsely vegetated rock outcrops, consisting of small clusters of jack pine and occasional moss and/or shrubs. Due to the rocky and naturally clear nature of these areas, clearing and grubbing activities will be minimal and confined to the site and associated access routes. Applicable legislation and guidelines, including the provincial *Mines and Minerals Act,* Environmental Protection Specifications, and community input, will be adhered to throughout the selection and development process.

d) While the proposed Project would require a permanent source of aggregate for continued maintenance and operation, a permanent camp is not needed, and none is proposed or anticipated. Selection of permanent quarries will occur near the end of the construction phase. It is anticipated that permanent quarries would be selected from those originally developed as temporary aggregate sources as described in part c. The selection of quarries for permanent operation would be based on the long-term availability of aggregate resources, the strategic location of the source (e.g. proximity to community, evenly distributed from other quarries, etc.), and other considerations that may arise from engagement with Indigenous Nations.

It is generally anticipated that quarries required for permanent and ongoing operations and maintenance of the road would be located near one or each of the three communities: God's Lake First Nation, Manto Sipi Cree Nation, and Bunibonibee Cree Nation. Locating permanent quarries nearer to one or each of the communities would facilitate access to aggregates and reduce transit and travel times for operation and maintenance personnel.

Infrastructure remaining on site for permanent and ongoing operations would likely be limited to weigh scales and aggregate crushers. It is not anticipated that hazardous materials such as bulk fuel storage, waste oil or other products would remain on site for the operational phase of the proposed Project. Fuel or oils required for equipment maintenance would likely be transported to site on an as-needed basis only. As such the risk of accidents or malfunctions related to the release of hazardous materials would be almost entirely eliminated.

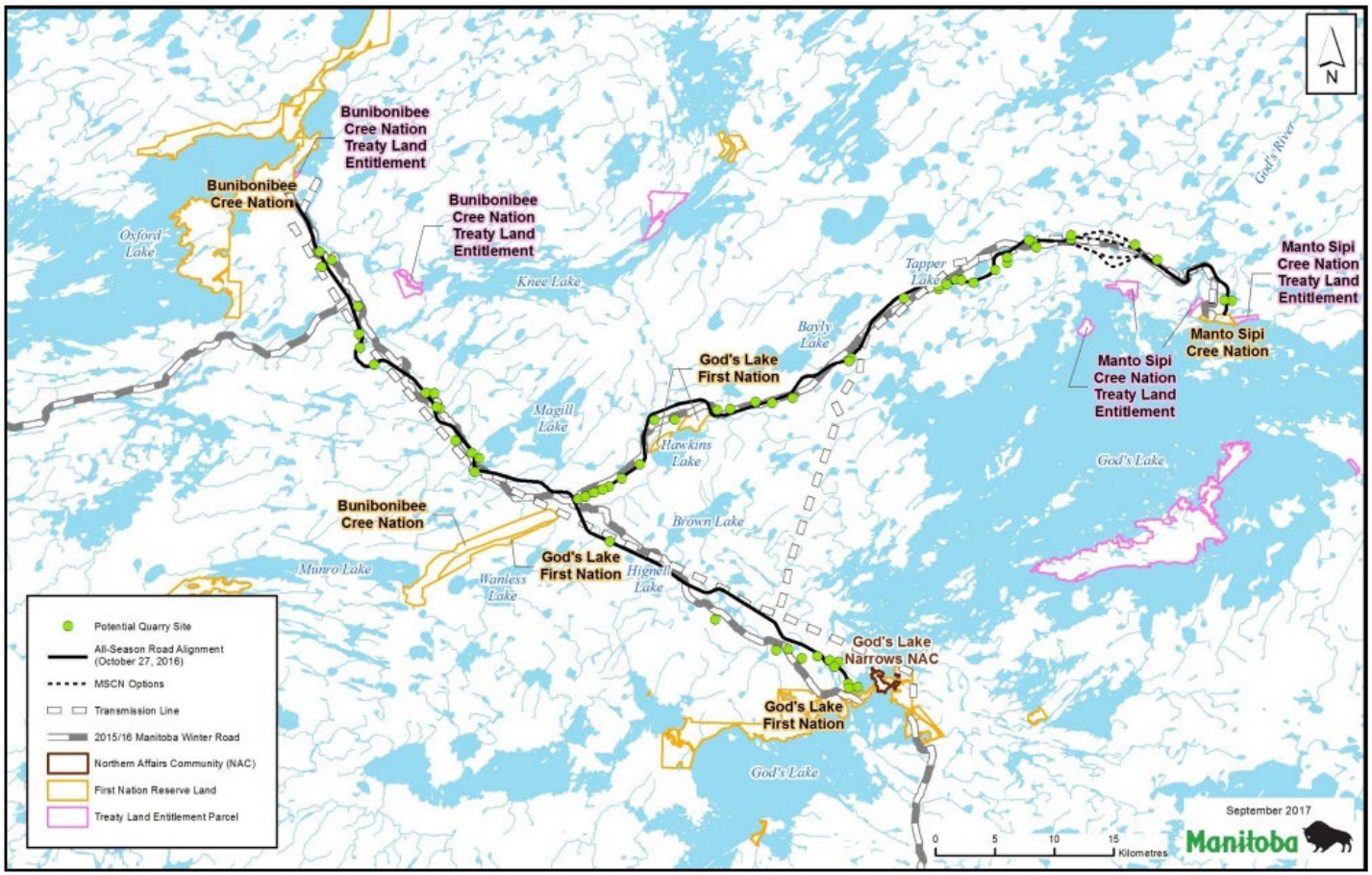
Environmental effects associated with potential permanent quarries, infrastructure, or risks for contamination are presented in Appendix IR1-03-2 of this response. Generally, potential effects associated with permanent quarries would be similar to those experienced during the construction phase, but at a much-reduced magnitude, and frequency. As the assessment considered potential effects related to quarries as being not significant, the reduced magnitude, and frequency of effects associated with permanent quarries are also considered to remain not significant.

As identified in Appendix 8-1 in Chapter 8 of the EIS, an Operation Phase Environmental Management Plan (OEMP) will be developed to describe how environmental protection will be

maintained during the on-going active operation of the Project. Once developed, MTI will share the OEMP with regulators and local Indigenous Nations. As noted in Chapter 8 of the EIS, MTI is committed to considering community input relating to the EMP and will continue to involve the communities and stakeholders by meeting with local liaison committees for God's Lake First Nation, God's Lake Northern Affairs Community, Bunibonibee Cree Nation and Manto Sipi Cree Nation. The liaison committees will facilitate dialogue among the communities and MTI to discuss project updates and solicit community feedback and collaboration on project related items. community feedback and collaboration on project related items.

APPENDIX IR1-03-1

Figure 3-4 of the Project 6 Environmental Impact Statement showing potential construction quarry sites



APPENDIX IR1-03-2

Selection of Appendix 7-1 from the Project 6 Environmental Impact Statement assessment summary table showing the assessment of Project effects related to temporary and permanent quarries, borrow areas, temporary construction camps, staging areas, and temporary and permanent access roads

Valued Component	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Atmospheric Environment – Air Quality	Construction activities (ex: blasting, rock crushing, stockpiling, roadbed construction, hauling) and use of construction vehicle and equipment	Increase in particulates (dust)	• Dust suppression (EP18 1 and ES 130.112) • Construction vehicle speed limits	Increase in particulates (dust)	Short-Term, associated with discrete activities	Emission above baseline but within regulations and guidelines	N/A	Limited to the immediate vicinity of portions of the Project Footprint under active construction	Sporadic during construction phase	Readily reversible	No adverse ecosystem and social effects	Not Significant
					Level I	Level I	N/A	Level I	Level II	Level I	Level I	
	Maintenance activities (ex: blasting, rock crushing, stockpiling, roadbed/surface repair and hauling) and use of maintenance equipment	Increase in particulates (dust)	• Dust suppression (EP18 and ES 130.11) • Vehicle speed limits	Increase in particulates (dust)	Long-Term, life of Project	Emission above baseline but within regulations and guidelines	N/A	Limited to the immediate vicinity of portions of the Project Footprint under active construction	Sporadic during maintenance activities	Readily reversible	Potential reduction in driver visibility resulting in collisions	Not Significant
					Level III	Level I	N/A	Level I	Level II	Level I	Level I	
	Blasting activities and vehicle and equipment use during construction, maintenance and operation	Increase in ambient noise levels	• Apply typical noise suppression techniques (EP4 and ES 130.12) • Forest buffers will be retained, unless clearing is required for safety reasons, around quarries to reduce	Increase in ambient noise levels	Long-Term, life of Project	Levels below guidelines at receptors	N/A	Effect beyond the Project Footprint within the LAA	Regular and frequent	Readily reversible	No adverse ecosystem and social effects	Not Significant
					Level III	Level I	N/A	Level II	Level III	Level I	Level I	

[1] The description of assessment criteria and levels of potential environmental effects were provided in Chapter 4 Table 4.4 of the Environmental Impact Statement, but are also included in Appendix IR1-03-3 of this response.

Valued Component	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
			noise from blasting operations									
Topography and Soils	Development of quarries and borrow pits during construction	Terrain alterations	• Alignment avoids low lying areas requiring extensive fill • Design to minimize requirements for terrain alterations associated with construction, borrow and quarrying activities • Decommission and rehabilitate disturbed areas not required for project operation and maintenance (ep22 and es 130.8.7)	Terrain alterations	Short-Term, associated with discrete activities	Effects considered minor	N/A	Limited to the Project Footprint	Once	Reversible over a long period	No adverse ecosystem and social effects	Not Significant
					Level I	Level I	N/A	Level I	Level I	Level II	Level I	
Surface Water	Development of quarries and borrow pits, access roads, road drainage during construction and construction and maintenance of the all-season road and watercourse crossings	Disruption of surface drainage and flow systems resulting in increased or decreased flows in watercourses	• Bridges and culverts at watercourse crossings and equalization culverts will accommodate 1:50 year flood events • Regular culvert maintenance and cleanouts (ep11 and es 130.15.9) • Adhere to Manitoba Stream Crossing Guidelines for protection of fish and fish habitat, DFO's measures to avoid causing harm to fish and fish habitat including aquatic • Species at risk, EP7 and ES 130.15.5	Disruption of surface drainage and flow systems resulting in increased or decreased flows in watercourses	Long-Term, life of Project	Change in flows likely within range of natural variation	No critical life stage concerns as no anticipated effects on fish	May alter flow in watercourses beyond the Project Footprint within the LAA	Infrequent	Readily reversible	No adverse ecosystem and social effects	Not Significant
					Level III	Level I	Level I	Level II	Level I	Level I	Level I	
	Development of quarries and borrow pits, access roads and associated work areas during construction and construction	Reduced surface water quality as a result of	• Minimize clearing and soil disturbance • Limit vehicle/equipment use to row	Reduced surface water quality as a result of	Medium- Term, >1 year to 10 years	Suspended sediment concentrations within applicable	Effects could occur during a critical life	May alter water quality within the Project Footprint	Sporadic	Readily reversible	No adverse ecosystem and social effects	Not Significant

Valued Component	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
	and maintenance of the all-season road and watercourse crossing	erosion and sedimentation	• Install erosion and sediment control measures (ep16 and es 130.16, ex: silt fencing, erosion control blanket, straw wattle, geotextile) • Maintain natural drainage and re-grade disturbed areas to limit erosion • Conduct clearing during winter months (es 130.17) • Preserve vegetation buffers at watercourses (es 130.15.1) • Suspend construction activities during extreme weather events (ep6) • Energy dissipation controls (ex: ditching, rip-rap, collection ponds) • Decommission and rehabilitate disturbed areas not required for project operation and maintenance (ep22 and es 130.8.7)	erosion and sedimentation		regulations, no anticipated adverse effects beyond defined mixing zones	stage for fish					
					Level II	Level I	Level III	Level I	Level II	Level I	Level I	
Groundwater	Dewatering of local groundwater at construction quarries and borrow pits	Reduced groundwater table	• Quarries will be appropriately located (EP20, ex: locate quarries and borrow pits away from existing wells)	Reduced groundwater table	Short-Term, associated with discrete activities	Potential change <15% of seasonal average	N/A	Localized to areas around quarries and borrow pits within Project Footprint	Sporadic	Readily reversible	No adverse ecosystem and social effects	Not Significant
					Level I	Level I	N/A	Level I	Level II	Level I	Level I	
	Blasting activities resulting in compressive shock waves near blast site	Injury or death of fish	• Adhere to Manitoba Stream Crossing Guidelines for Protection of Fish and Fish Habitat, DFO Guidelines for the Use of Explosives In or	Injury or death of fish	Short-Term, associated with discrete activities	No measurable reduction to fish communities and populations	Critical life stages would be avoided	Localized to blasting areas within Project Footprint	Sporadic	Readily reversible	Moderate ecosystem effect important	Not Significant

Valued Component	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Fish and Fish Habitat			Near Canadian Fisheries Waters, EP12 and ES 130.15.11								to local communities	
					Level I	Level I	Level I	Level I	Level II	Level I	Level II	
	Temporary construction crossings and permanent watercourse crossings	Blockage or reduction in fish passage and disruption of spawning	• Bridges and culverts at watercourse crossings will accommodate 1:50 year flood events • Regular culvert maintenance and cleanouts (ep11 and es 130.15.9) • Adhere to Manitoba Stream Crossing Guidelines for protection of fish and fish habitat, DFO's measures to avoid causing harm to fish and fish habitat including aquatic • Species at risk, EP7, EP9, ES 130.15.5 AND ES 130.15.6	Blockage or reduction in fish passage and disruption of spawning	Long-Term, life of Project	No measurable reduction to fish communities and populations	Critical life stages would be avoided	Localized to crossings within Project Footprint	Infrequent	Readily reversible	Moderate ecosystem effect	Not Significant
					Level III	Level I	Level I	Level I	Level I	Level I	Level II	
Vegetation (Plant Communities, and Wetlands)	Clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps during construction and maintenance	Disturbance to or loss of plant communities (reduced diversity) and fragmentation	• Limit clearing to designated areas within the ROW (EP1 and ES 130.17.1) • Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) • Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7) • Follow clearing and grubbing timelines and restrictions (EP1 and ES 130.17.1)	Disturbance to or loss of plant communities (reduced diversity) and fragmentation	Long-Term, life of Project	May measurably affect common vegetation species or communities	Critical life stages would be avoided	Limited to the Project Footprint	Infrequent	Reversible over a long period	No adverse ecosystem effects	Not Significant
					Level III	Level II	Level I	Level I	Level I	Level II	Level I	

Valued Component	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
			• Re-vegetation will use locally and regionally compatible • Species (native) (ES 130.16.13)									
	Blasting, burning and use of equipment during construction and maintenance and carelessness during operation	Increased risk of wildfires from fires and explosions	• Combustible materials and explosives will be stored and handled in a safe manner (EP2 and ES 130.9) • Burning will only be done under controlled conditions (monitored), according to burning permits and avoid windy and dry conditions (EP1, EP15 and ES 130.20) • Wildfires will be immediately reported to MSD and construction activities stopped until safe to resume (ES 130.20.11) • Reasonable attempts will be made to extinguish wildfires (ES 130.20.12)	Increased risk of wildfires from fires and explosions	Long-Term, life of Project	May measurably affect common vegetation species or communities	Burning would avoid critical life stages	Effect may extend beyond the LAA	Sporadic	Reversible over a long period	No adverse ecosystem and social effects	Not Significant
					Level III	Level II	Level I	Level III	Level II	Level II	Level I	
Mammals (Ungulates)	Clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps during construction and maintenance	Alteration, fragmentation and/or loss of moose and caribou habitat	• Follow clearing and grubbing timelines and restrictions to avoid critical calving times (EP1 and ES 130.17.1) • Use baseline studies to identify location of calving areas and mineral licks to be avoided • Limit clearing to designated areas within the ROW using existing cutlines, routes and	Alteration, fragmentation and/or loss of moose and caribou habitat	Long-Term, life of Project	May measurably affect populations	Critical life stages would be avoided	Limited to the Project Footprint	Sporadic	Reversible over a long period	Moderate ecosystem effect important to local communities	Not Significant

Valued Component	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
			trails where they are present (EP1 and ES 130.17.1) • Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) • Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7) • Bridges and culverts at watercourse crossings will accommodate 1:50 year flood events with regular culvert maintenance and cleanouts (EP11 and ES 130.15.9) to maintain wetland hydrologic regime • Preserve vegetation buffers at watercourses (ES 130.15.1)		Level III	Level II	Level I	Level I	Level II	Level II	Level II	
	Construction, maintenance and operation of the ROW, watercourse crossings, temporary access roads, quarries, borrow pits and work areas	Increased caribou mortality due to increased hunting pressure from the all-season road providing increased access to caribou habitat	• Prohibit hunting by MTI employees and contractors working on the Project (EP14 and ES 130.19.1) • Firearm possession prohibited in construction camps • Decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7) • Restrict access to quarry areas during operation and maintenance phase	Increased caribou mortality due to increased hunting pressure from the all-season road providing increased access to caribou habitat	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Hunted in winter outside of critical life stages	Effects may extend beyond the Project Footprint within the LAA	Seasonally hunted typically in winter	Reversible over a long period	Woodland caribou listed by SARA and ESEA	Not Significant
					Level III	Level I	Level I	Level II	Level II	Level II	Level III	

Valued Component	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
			• Design road with no pullouts or parking areas • MI will liaise with Manitoba Sustainable Development and participate on committees and working groups and share wildlife information obtained through monitoring efforts									
	Construction, maintenance and operation of the ROW, watercourse crossings, temporary access roads, quarries, borrow pits and work areas	Increased moose mortality due to increased hunting pressure from the all-season road providing increased access in spring, summer and fall to moose habitat	• Prohibit hunting by MTI employees and contractors working on the Project (EP14 and ES 130.19.1) • Firearm possession prohibited in construction camps • Decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7) • Restrict access to quarry areas during operation and maintenance phase • Design road without pullouts or parking areas • MI will liaise with Manitoba Sustainable Development and participate on committees and working groups and share • Wildlife information obtained through monitoring efforts	Increased moose mortality due to increased hunting pressure from the all-season road providing increased access in spring, summer and fall to moose habitat	Long-Term, life of Project	May measurably affect populations	Hunters will avoid critical life stages	Effects may extend beyond the Project Footprint within the LAA	Continuous	Reversible over a long period	Moderate ecosystem effect important to local communities	Not Significant
					Level III	Level II	Level I	Level II	Level III	Level II	Level II	

Valued Component	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
	Construction, maintenance and operation of the all-season road, access roads, work areas and watercourse crossings	Increased moose and caribou mortality due to increased access and predation by wolves along the ROW	• Decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7) • No additional mitigation proposed as access during late spring, summer and early fall to areas off the road surface will be no different with the Project as the terrain and habitat beyond the Project Footprint will not change	Increased moose and caribou mortality due to increased access and predation by wolves along the ROW	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Effect could occur during critical life stage	Effects may extend beyond the Project Footprint within the LAA	Sporadic	Reversible over a long period	Moderate ecosystem effect important to local communities	Not Significant
					Level III	Level I	Level III	Level II	Level II	Level II	Level II	
Mammals (Aquatic and Terrestrial Furbearers)	Clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps	Alteration, fragmentation and/or loss of furbearer (ex: beaver, marten) habitat	• Use baseline studies to identify location of denning areas and lodges to be isolated with construction setbacks • Limit clearing to designated areas within the row (ep1 and es 130.17.1) • Restrict equipment and vehicle use outside of cleared areas (es 130.6.1) • If required beaver dams will be removed gradually (es 130.15.10) • Alignment selected so no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (ep6 and 130.15.1) • Decommission and rehabilitate disturbed areas	Alteration, fragmentation and/or loss of furbearer (ex: beaver, marten) habitat	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Critical life stages would be avoided	Limited to the Project Footprint	Infrequent	Reversible over a long period	No adverse ecosystem effects	Not Significant
					Level III	Level I	Level I	Level I	Level I	Level II	Level I	

Valued Component	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
			not required for project operation and maintenance (ep22 and es 130.8.7) • Bridges and culverts at watercourse crossings will accommodate 1:50 year flood events with regular culvert maintenance and cleanouts (ep11 and es 130.15.9) to maintain wetland hydrologic regime									
Birds / Migratory Birds (Songbirds, Raptors, Waterfowl, Upland)	Clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps	Alteration, fragmentation and/or loss of migratory (ex: raptors, waterfowl, forest birds) and non-migratory (ex: upland game birds) bird habitat	• Alignment selected so no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (EP6 and ES 130.15.1) • Follow clearing and grubbing timelines and restrictions to avoid breeding and nesting times (EP1 and ES 130.17.1) • Limit clearing to designated areas within the ROW (EP1 and ES130.17.1) • Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) • Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7) • Bridges and culverts at watercourse crossings will accommodate 1:50 year	Alteration, fragmentation and/or loss of migratory (ex: raptors, waterfowl, forest birds) and non-migratory (ex: upland game birds) bird habitat	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Critical life stages would be avoided	Limited to the Project Footprint	Infrequent	Reversible over a long period	No adverse ecosystem effects	Not Significant
					Level III	Level I	Level I	Level I	Level I	Level II	Level I	

Valued Component	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
			flood events with regular culvert maintenance and cleanouts (EP11 and ES 130.1.9) to maintain wetland hydrologic regime									
	Construction, maintenance and operation of the ROW, watercourse crossings, temporary access roads, quarries, borrow pits and work areas	Increased mortality of migratory (ex: waterfowl) and non-migratory (ex: upland game birds) birds due to increased hunting pressure from the all-season road providing increased access in spring, summer and fall bird habitat	• Prohibit hunting by MTI employees and contractors working on the Project (EP14 and ES 130.19.1) • Firearm possession prohibited in construction camps • Decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7) • Restrict access to operation phase quarry areas (ES 130.8.8) • Design road with no pullouts or parking areas	Increased mortality of migratory (ex: waterfowl) and non-migratory (ex: upland game birds) birds due to increased hunting pressure from the all-season road providing increased access in spring, summer and fall to bird habitat	Long-Term, life of Project	May measurably affect populations	Hunters will avoid critical life stages	Effects may extend beyond the Project Footprint within the LAA	Continuous	Reversible over a long period	Moderate ecosystem effect	Not Significant
					Level III	Level II	Level I	Level II	Level III	Level II	Level II	
	General construction, maintenance and operation activities	Decreased access to traditional travel routes used for resource use and recreation	• Crossing designs to maintain navigability of navigable watercourses • Provide an approach (ramps) for users (ex: boats, snowmobiles, ATVs) to cross the road and post warning	Decreased access to traditional travel routes used for resource use	Long-Term, life of Project	Indigenous people/ communities in the Indigenous/ Resource Use RAA are able to adapt with relative ease and	N/A	Effects may extend beyond the Project Footprint within the LAA	Infrequent	Readily reversible	No adverse social effects	Not Significant

Valued Component	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Travel Routes			signs showing the road crossings	and recreation		maintain pre-development activities						
					Level III	Level I	N/A	Level II	Level I	Level I	Level I	
Human Health and Safety	Clearing of native vegetation for the all- season road, quarries, borrow pits, access roads, watercourse crossings and associated work areas and camps	Loss of medicinal plant harvest areas used by community members for therapeutic or healing purposes	• Identify and map important medicinal and cultural plants and harvesting areas prior to clearing for Project planning and design (routing and setbacks) • Adjust alignment where possible to avoid the loss of important harvesting areas • Limit clearing to designated areas within the ROW (EP1 and ES 130.17.1) • Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) • Clean construction equipment and vehicles prior to bringing them to site to control spread of invasive species (EP25 and • ES 130.15.1)	Loss of medicinal plant harvest areas used by community members for therapeutic or healing purposes	Long-Term, life of Project	Likely to measurably affect plants important to local communities	Moderate sensitivity	Limited to the Project Footprint	Sporadic	Reversible by locating other harvest areas or in reclaimed areas	No adverse social effects	Not Significant
					Level III	Level II	Level II	Level I	Level II	Level II	Level I	

APPENDIX IR1-03-3

Description of assessment criteria and levels of potential environmental effects (Table 4.4 from Chapter 4 of the Project EIS)

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
Direction of Change (type of effect)	Neutral or Negligible	No measurable change on the VC.
	Negative	Net loss (adverse or undesirable change) on the VC.
	Positive	Net benefit (or desirable change) on the VC.
Duration (period of time the effect occurs)	Short-Term	**Level I** - The potential effect results from short-term events or activities such as the time required to complete a discrete component during construction, maintenance, or rehabilitation activities (i.e., a timeframe of several months up to one year).
	Medium-Term	**Level II** - The potential effect is likely to persist until the completion of construction and rehabilitation activities (i.e., > 1 year to 10 years).
	Long-Term	**Level III** -The potential effect is likely to persist beyond the completion of construction and rehabilitation activities into the operations and maintenance phase of the Project (i.e., a timeframe of greater than 10 years).
Magnitude (degree or intensity of the change)	Negligible or Low	**Level I** - A change that is not likely to have a definable, detectable or measurable potential effect above baseline (i.e., potential effect is within a normal range of variation) or is below established thresholds of acceptable change (e.g., water quality guideline). See **Table 4.5** for VC specific criteria.
	Moderate	**Level II** – A change that will have a potential measurable effect that can be detected with a well-designed monitoring program; but is only marginally beyond standards/guidelines or established thresholds of

[2] **Chapter 6** of the Environmental Impact Statement outlines VC specific definitions for the three level ranking system.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
		acceptable change. See **Table 4.5** for VC specific criteria.
	High	**Level III** – A change that will have potential effects that are easily observed, measured, and described (i.e., readily detectable without a monitoring program) and are well beyond guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
Timing[3]	No Sensitivity	**Level I** – Effect does not occur during critical life stage.
	Moderate Sensitivity	**Level II** – Effect occurs at the start or end of a critical life stage.
	High Sensitivity	**Level III** – Effect occurs during a critical life stage.
Extent (Spatial Boundary)[4]	Project Footprint	**Level I** - The physical space or directly affected area on which Project components or activities are located and/or immediately adjacent area which is within the defined limits of the P6 all-season road ROW (i.e., 100 m) and permanent and temporary facilities (e.g., temporary access routes and quarries) within which potential effects are likely to be measurable.
	LAA	**Level II** - Area within which potential Project effects are measurable and extending beyond the Project Footprint to, but not beyond, the LAA (either a 2 km or 10 km corridor centred on the all-season road alignment depending on the VC (**Figure 4-1**).
	RAA	**Level III** - The maximum anticipated regional extent of potential direct, indirect and cumulative effects that may

[3] In terms of **Timing**, the critical life stages include things such as nesting, breeding, spawning and calving which will vary by VC and will vary annually depending on seasonal conditions. For example, it is clear that winter is outside of bird nesting and breeding period and that spring is fully within this critical time period, whereas early spring and late fall is a transitional period that depending on the seasonal conditions may or may not affect the life stage.

[4] Environmental Impact Statement **Figures 4-1** and **4-2** illustrate the VC specific spatial boundaries of the LAA and RAA, which are discussed in greater detail in **Chapter 6**.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
		extend beyond the LAA. The boundaries of the RAA will vary depending on the VC.
Frequency (how often the effect occurs)	Infrequent	**Level I** - The potential effect occurs once or seldom during the life of the Project (e.g., initial clearing of the ROW).
	Sporadic/Intermittent	**Level II** - The potential effect occurs only occasionally and without any predictable pattern during the life of the Project (e.g., blasting at quarries; site-specific construction equipment noise; potential wildlife-vehicle collisions).
	Regular/Continuous	**Level III** – The potential effect occurs at regular and frequent intervals during the Project phase in which they occur or over the life of the Project (e.g., construction traffic; operations traffic).
Reversibility (the degree of permanence)	Reversible (short-term)	**Level I** – Potential effect is readily reversible over a relatively short period (< than eight years).
	Reversible (long-term)	**Level II** - Potential effect is potentially reversible but over a long period (> than eight years).
	Irreversible	**Level III** - Project-specific potential effects are permanent and irreversible.
Ecological and Social Context (resilience of a VC to adapt to changes as a result of the project)	Low	**Level I** – The VC is not rare or unique and is resilient to imposed change. Social – Indigenous people/communities in the RAA are able to adapt with relative ease and maintain pre-project development activities.
	Moderate	**Level II** – The VC is moderately/seasonally fragile and has some capacity to adapt to imposed change. Social - Indigenous people/communities in the RAA are able to adapt with some adjustments and maintain pre-project development activities but only with a degree of support.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
	High	**Level III** – The VC is a protected/designated species under MESEA, SARA and species listed by COSEWIC and by the MBCDC as very rare (S1) to rare (S2) or fragile with low resistance to imposed change or part of a very fragile ecosystem. Social - affected Indigenous people/ communities in the RAA will not be able to adapt to changes or maintain-pre-project development activities

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-04

EIS Guideline Reference	• Part 2, Section 3.2
EIS Reference	• Chapter 3, Table 3.4 and 3.8 • Chapter 3, Sections 3.4.1.3 and 3.2.3
Category	Project Schedule

CONTEXT AND RATIONALE

The EIS Guidelines require that the EIS provide a schedule, including time of year, frequency, and duration for all Project activities during site preparation, construction, and operation.

The EIS includes a general schedule of the start and completion dates (i.e. year) for the main activities (i.e. planning/design, construction, operation/maintenance, and decommissioning, where applicable) associated with major Project components and notes that the Project will be constructed in segments in order to optimize construction scheduling and resource use. These schedules, however, lack specificity regarding the time of year, frequency, and duration of activities associated with major Project components, and the timing of specific activities associated with each Project phase (e.g. vegetation clearing and water management activities during construction). This EIS also does not describe the anticipated schedule for blasting associated with road and bridge construction.

Information regarding scheduling is required to understand the timing of potential environmental effects to VCs listed in section 5 of CEAA 2012, as the timing of Project activities may affect the severity of potential effects.

INFORMATION REQUEST

a) Update Table 3.8 to describe the schedule of Project activities by:
   - time of year (e.g. month);
   - frequency; and

- duration (e.g. 2 months in Year 1, 24 hours per day).

b) As the ASR will be constructed in segments, include information regarding the timing, frequency, and duration of activities associated with the construction and operation of each segment.

c) Update Table 3.8 to include all activities associated with the construction, operation, and decommissioning (where applicable) of all Project components. Provide additional detail regarding the timing of specific Project activities, including but not limited to those listed in Table 3.4 (e.g. the timing, frequency, and duration of vegetation clearing and water management activities associated with road construction).
    - Describe the timing associated with any restricted activity periods (e.g. migratory bird nesting period) and/or seasonal periods of higher potential for effects to fish and fish habitat, migratory birds, species at risk, and current use activities (e.g. hunting, trapping, fishing, and gathering) that will be adhered to.

d) Should changes to the timing of construction, operation, and maintenance activities be required from the schedule proposed in the EIS and which was considered in the effects analysis, indicate whether there would be additional effects to the environment as listed in section 5 of CEAA 2012, and if so what those effects would be, and what mitigation measures would be implemented to address those effects.

Should changes to the timing of activities be required that may result in additional effects to VCs, or if any Project activities associated with construction, operation, or decommissioning of the Project overlap with restricted activity periods or seasonal periods of higher potential risk to VCs, revise the residual effects assessment, including any change to the conclusions with respect to residual effects levels.

RESPONSE

a) An update to Table 3.8 of the Environmental Impact Statement (EIS) is provided below in Table IR1-04-1.

Table IR1-04-1. Updated estimated construction schedule.

Project Components	Project Phase / Activity	Start Date	Completion Date	Time of Year	Frequency	Duration	Key Restrictions on specific activities (see Appendix IR1-19-1 in the response to IR1-19)
Winter Road Re Routing	Clearing	Year 1	Year 2	September 1-April	As needed	Up to 7 months per year until clearing is complete	**Clearing** ▪ Clearing and grubbing shall be undertaken between September 1 of any year and April 1 of the following year (EPP, 2015), preferably during winter months to facilitate machinery access and to avoid disturbance to nesting birds and other wildlife species. ▪ Merchantable timber shall be removed from the site by April 30 following the clearing activity. **Burning** ▪ Burning is anticipated to occur between November 16 and March 31 in accordance with permit requirements. Fires shall be completely extinguished by March 31 (EPP, 2015). ▪ The burning of debris piles shall not be permitted in the spring or early summer to avoid disturbing small wildlife species. Burning will take place in the fall or winter (EPP, 2015). ▪ Stockpiled material shall be removed by April 30 following the date of issuance (EPP, 2015). **Blasting** ▪ Blasting activities shall be restricted to outside the sensitive breeding and brood rearing months as much as possible, between May to late July (EPP, 2015). ▪ Blasting in watercourses classified as fish habitat is not allowed between April 1 and June 30, or during high stream flow or spawning periods (EPP, 2015). ▪ Where applicable, blasting shall be undertaken during winter months to minimize permafrost degradation (EPP, 2015). ▪ Blasting for maintenance activities will occur infrequently and will be associated with specific requirements (i.e. repair of washout, stockpiling of gravel) ▪ No temporary roadbed borrow operations shall occur within 2 kilometres of known caribou calving areas along access roads from May 7 to July 1 of any given year. **In-water work** ▪ In-water work shall be restricted to low flow periods where possible. Whenever possible, in-water works shall be scheduled during a period when the watercourse is seasonally dry or frozen to the bottom. (EPP,2015)
	Operation	Year 1	Year 18	Winter: December-March	Continuous	4 months per year until all-season road construction begins and becomes operational	
All-Season Road	Planning/Design	Year 1	Year 3	Year-Round[1]	Continuous	12 months per year for duration of planning/design phase	
	Construction	Year 11	Year 18	Year-Round[1]: Clearing from September 1-April; Burning from November 16-March 31; Blasting in winter where possible.	Continuous	12 months per year for duration of construction	
	Operation/Maintenance	Year 18	On-going	Year-Round[1]	As needed	Days to weeks (when or as needed for maintenance) for remainder of Project lifecycle	
Steel Girder Bridges	Planning/Design	Year 1	Year 5	Year-Round[1]	Continuous	12 months per year for duration of planning/design phase	
	Construction	Year 12	To be determined	Year-Round[1]: Blasting outside May – Late July; In-water work between July 15 – September 15 where applicable.	Continuous	Months to years per crossing for duration of construction	
	Operation/Maintenance	Year 18	On-going	Year-Round[1]	As needed	Days to weeks (when or as needed for maintenance) for remainder of Project lifecycle	
Culvert Stream	Planning/Design	Year 1	Year 5	Year-Round[1]	Continuous	12 months per year for duration of planning/design phase	

Project Components	Project Phase / Activity	Start Date	Completion Date	Time of Year	Frequency	Duration	Key Restrictions on specific activities (see Appendix IR1-19-1 in the response to IR1-19)
Crossings / Drainage Equalization Culverts							▪ Activities in fish bearing waters or potentially fish bearing waters will not occur between April 15 and July 15 of any year, or during periods of high stream flow or identified spawning periods. In watercourses determined to contain fall spawning fish species, "In water" construction activities will not occur before July 15 or after September 15 (EPP, 2015). **Decommissioning** ▪ Upon the completion of work, all temporary sites shall be decommissioned. The decommissioning shall include the removal or disposal of all site debris, appropriate sloping and regrading of the area, removal of site access, and the promotion of natural re- establishment of vegetation. (EPP 2015) ▪ The Contractor shall ensure compliance with all contract specifications, environmental legislation, permits and authorizations. (EPP 2015)
	Construction	Year 11	Year 18	Year-Round[1]: In-water work between July 15 – September 15; Blasting outside April 1 – June 30.	Continuous	Weeks to months per crossing for duration of construction	
	Operation/Maintenance	Year 18	On-going	Year-Round[1]	As needed	Days to weeks (when or as needed for maintenance) for remainder of Project lifecycle	
Temporary Access Routes	Planning/Design	Year 1	Year 18	Year-Round[1]	Continuous	12 months per year for duration of planning/design phase	
	Construction	Year 11	Year 18	Year-Round[1]: No borrow operations May 7 – July 1 near caribou calving area.	Continuous	Days to Weeks per access route for duration of construction	
	Operation/Maintenance	Year 13	On-going through to Year 18	Year-Round[1]	As needed	Days to weeks (when or as needed for maintenance) for remainder of Project lifecycle	
	Decommissioning	Year 11	Year 18	Year Round	As needed	Weeks to Months per temporary access route	
Temporary Construction Laydown Areas	Planning/Design	Year 1	Year 18	Year-Round[1]	Continuous	12 months per year for duration of planning/design phase	
	Construction	Year 11	Year 18	Year-Round[1]	Continuous	Months to Years per laydown area	
	Operation/Maintenance	Year 13	On-going through to Year 18	Year-Round[1]: Maintenance activities may occur in winter.	As needed	Months to Years pending needs for applicable maintenance works (e.g. bridge repairs)	
	Decommissioning	Year 11	Year 18	Year Round	As needed	Weeks to Months per temporary access route	
Temporary Construction Camps	Planning/Design	Year 1	Year 18	Year-Round[1]	Continuous	12 months per year for duration of planning/design phase	
	Construction	Year 11	On-going through to Year 18	Year-Round[1]	Continuous	Months to Years per laydown area	
	Operation/Maintenance	Year 13	Year 18	Year-Round[1]: Maintenance	Ongoing / As needed	Months to Years pending needs for applicable maintenance works (e.g. bridge repairs)	

Project Components	Project Phase / Activity	Start Date	Completion Date	Time of Year	Frequency	Duration	Key Restrictions on specific activities (see Appendix IR1-19-1 in the response to IR1-19)
				activities may occur in winter.			
	Decommissioning	Year 11	Year 18	Year Round	As needed	Weeks to Months per temporary access route	
Quarries and Borrow Areas	Planning/Design	Year 1	Year 18	Year-Round[1]	Continuous	12 months per year for duration of planning/design phase	
	Construction	Year 11	On-going through to Year 18	Year-Round[1]: : Blasting outside May – Late July; Avoid borrow operations May 7 – July 1 near caribou calving areas. Aggregate production may be scheduled outside of high-flow seasons.	Continuous	Months to years per quarry or borrow site	
	Operation/Maintenance	Year 12	On-going for those quarries retained for Project maintenance.	Year-Round[1]	As needed	Weeks to months pending the need for aggregate production	
	Decommissioning of construction phase quarries and borrow areas	Year 13	On-going through to Year 18	Year-Round[1]	As needed	Weeks to months per quarry or borrow site	

[1]Year-round activities must abide by the environmental Protection Specifications -130 (Environmental Impact Statement Chapter 8, Appendix 8-3; Appendix IR1-19-1 in the response to IR1-19) and specific restricted activity periods such as those listed. The final schedule is subject to the completion of detailed design pre-construction field assessments and confirmation of construction start dates.

While construction of different Project components will occur year-round, construction will be initiated during the winter months to the extent possible. This is both due to existing environmental conditions requiring that new locations be accessed in frozen conditions, but also to minimize potential effects by avoiding sensitive time periods during initial site disturbance. The Environmental Protection Procedures (EPPs) stipulate seasonal restrictions for a variety of works and will be followed during construction. These restrictions can be found in Chapter 8, Appendix 8-2 Environmental Protection Procedures as well as Appendix IR1-19-1 of the response to IR1-19:

- **EP1 Clearing and Grubbing**
  - EP4.0.1- Clearing and grubbing should be limited to the site and associated access routes.
  - EP4.1.4- The burning of debris piles shall not be permitted in the spring or early summer to avoid disturbing small wildlife species which may have young in the piles or may have prepared nesting sites. The best and preferred option for wildlife is burning in the fall or winter.
  - EP4.1.5- No burning of debris piles shall occur on deep organic soils. Piles shall be a minimum of 15 meters away from standing timber and the high-water mark of any waterbody.
  - EP4.1.8- Ensure safety precautions are taken to keep the fire under control. Burn piles shall be monitored, to ensure that subsequent fire hazards are not present. Upon completion of the burn, burn piles shall be completely extinguished.
- **EP6 Working Within or Near Fish Bearing Waters**
  - EP4.0.3- The Contractor shall not undertake construction activities in fish bearing waters or potentially fish bearing waters between April 1 and July 15 of any year, or during periods of high stream flow or identified spawning periods.
- **EP11 Culvert Maintenance and Replacement**
  - EP4.0.1- Material and debris removal shall be timed to prevent disruption to sensitive fish life stages by adhering to DFO's restricted activity timing windows unless accumulated material is preventing the passage of water and/or fish through the structure. The Contractor shall not undertake construction activities in fish bearing waters or potentially fish bearing waters between April 1 and July 15 of any year, or during periods of high stream flow.

EP4.0.2- Emergency debris removal using hand tools or machinery (e.g. backhoe) may be carried out at any time of year. Emergencies include situations where carrying out the activities immediately is in the interest of preventing damage to property or the environment or is in the interest of public health or safety. DFO is to be notified immediately. Site accessibility will be dependent on time of year as well as specific site conditions (i.e. soil conditions), as sites with soft

soil are inaccessible to heavy equipment. Construction work over soft soils, floodplains, and peatlands will be conducted under frozen conditions to minimize rutting and erosion.

The construction phases will include winter clearing, beginning at Bunibonibee Cree Nation and extending south and eastwards. Right-of-way clearing will be conducted in segments, with clearing being completed during the winter months to facilitate clearing machinery access and minimize environmental effects (e.g., disturbance to breeding birds and other wildlife). Clearing will be followed by roadworks with a coarse base topped with finer materials, also progressing outward from communities. This would provide solid ground for machinery to continue to travel on as construction continues over the rest of the year.

Construction work over soft floodplains will be conducted under frozen conditions during winter months to minimize rutting and erosion. Roadworks will continue until water crossings are encountered. Small water crossings (i.e. culvert installations) will be constructed with consideration for fish-bearing streams and activity timing window restrictions. Large crossings, such as those requiring bridges, will also adhere to activity timing window restrictions. Timing windows for in-water work are as follows: Spring spawning fish (northern pike (*Esox Lucius)*, walleye (*Sander vitreus)*, yellow perch (*Perca flavescens)*) from April 15 to June 30; summer spawning fish (lake sturgeon (*Acipenser fulvescens)*) from May 15 to July 15, and fall spawning fish (brook trout, lake whitefish) from September 1 to May 15. No in-water work shall occur in fish bearing streams from April 15th to July 15th in Northern Manitoba (DFO, 2013). Construction is expected to last 7 years, starting in Year 11 and finishing in Year 18.

Operation activities (i.e. use of road) will be continuous, with road traffic expected throughout the year. The frequency of maintenance is dependent on the type of activity, budget availability, and logistical considerations (i.e. contractor's ability to access site). Maintenance activities such as grading and snow clearing will occur annually or multiple times per year, typically lasting only a few days at a time. Road maintenance (dragging of the road to smooth out gravel) will occur monthly during the late spring, summer and early fall as required. Culverts will be inspected and maintained (removal of debris where necessary) throughout the open water season. Mowing activities will occur throughout the growing season as required. Bridge will be inspected in accordance with requirements and necessary maintenance undertaken as required.

Blasting of rock will occur at quarries, the frequency of blasts will ultimately be at the discretion of the contractor based on construction timelines, aggregate requirements, physical conditions of the geography, and availability of supplies provided timing restrictions placed on them by MTI and/or regulators are complied with. Activities will be restricted to occur outside the sensitive breeding and brood rearing months for birds and other wildlife (i.e. May to late July) to the extent possible.

b) As stated in Chapter 3, Section 3.2.3 of the Environmental Impact Statement (EIS) road construction will be done in segments proceeding sequentially, beginning at Bunibonibee Cree Nation and extending south and eastwards, to optimize construction scheduling and resource use, with the advancement or completion of one segment initiating the construction of the next. Should

a change to construction progression be required, it will be accounted for and considered as part of the review of data validity process as described in the response to IR1-19. The length of road construction segments (i.e. contracts) will be determined through detailed design.

While the EIS originally identified that clearing and construction would likely begin in 2030, clearing of the All-Season Road (ASR) alignment is now intended to start in the winter following regulatory approvals to accommodate rerouting of winter road traffic in accordance with the request of God's Lake FN and Manto Sipi CN. Once a segment of the alignment is cleared to an initial width of 20m, winter road traffic would be re-routed to the new alignment, allowing the former winter road corridor to begin re-naturalizing. Better aligning the existing winter road with the P6 ASR will improve road safety and address requests from local communities. When construction of the all-season road begins, the remaining width of the alignment (i.e. the right-of-way) will be cleared and the all-season road will be constructed.

Right-of-way clearing will be performed in segments, during the winter months to facilitate machinery access and minimize environmental impact. The right-of-way vegetation will be cleared to a width of 60 meters on the inside of curves to improve road user sightlines. To protect nesting birds and other wildlife, clearing and grubbing activities will not occur from April 1st to August 31st, and cleared brush material shall be disposed of or removed by April 30 following clearing activities.

Once clearing is complete, roadbed construction will proceed to provide solid ground for machinery to continue to travel on as construction continues over the rest of the year. The timeline for completing each segment will depend on its length and construction complexity, such as the inclusion of water crossings. However, most segments are expected to be completed within 1 to 2 years. Temporary work sites such as rock quarries and borrow areas will be cleared and developed in winter but will operate (i.e. processing and stockpiling of rock fill and granular materials) year-round during construction.

c) Chapter 3, Table 3.4 of the EIS includes the activities associated with the construction, operation, and decommissioning of proposed Project components. Specific details have been updated in Table IR1-04 above. As previously mentioned, the standard operation and maintenance lifecycle will be for snow clearing in winter which will see snow pushed into adjacent ditch areas as required. Road maintenance (dragging of the road to smooth out gravel) will occur monthly during the late spring, summer and early fall as required. Culverts will be inspected and maintained (removal of debris where necessary) throughout the open water season. Mowing activities will occur throughout the growing season as required. Bridges will be inspected in accordance with requirements and necessary maintenance undertaken as required.

Frequency and duration of activities will be dependent on the allocation of government funding for the project on an annual basis. Estimates for the completion of various components of the project can be found in Chapter 3, Table 3.8 of the EIS and in Table IR1-04 above. Construction activities such as clearing are primarily initiated during winter months due to regulatory restrictions (e.g. clearing in winter to avoid impacts to migratory birds) or logistics (e.g. access to work sites over frozen terrain), however, once the area is cleared progression of construction activities could occur

at any time of year as long as there is access to the site. If construction activities are required outside of frozen conditions applicable regulatory requirements will be followed.

In addition, road clearing, bridge, and culvert maintenance activities are planned to occur during fall and winter, to the extent feasible, to minimize impacts on wildlife. These activities will take place during daytime hours to avoid times when beavers and marten are more active, and to reduce potential effects on marten during natal or maternal denning periods, as well as to avoid nesting periods for other species. Additionally, the timing is chosen to avoid parturition times for boreal woodland caribou, herptile breeding periods and movements, and the hatchling emergence periods and movements of common snapping turtles. Additional summary of construction timing constraints pertaining to environmental sensitivities are outlined in Chapter 8, Appendix 8-2 Environmental Protection Procedures in the EIS (also included as Appendix IR1-19-1 in the response to IR1-19).

d) As shown in Table IR1-04-1 provided above in Response A, the timing of proposed Project activities has changed since the submission of the Project EIS. Specifically, the timing of proposed alignment clearing works has shifted somewhat in response to community requests. God's Lake FN and Manto Sipi CN have requested that MTI better align sections of the current winter road with the proposed Project 6 all-season road (ASR) alignment. These existing winter road sections currently pose safety risks to users due to dangerous turns, undesired hummocks, and have constructability challenges related to the existing terrain. While the EIS identified that clearing and construction would likely start in 2030 (at the earliest), clearing of the P6 ASR alignment, to a width of 20m so as to accommodate rerouting of winter road traffic, is now intended to start in the winter following regulatory approvals to better address safety issues and community requests, as presented in Table IR1-04 above.

As presented in Figure IR1-04-1, Appendix IR1-04-1 (from Figure 3-1 in Chapter 3 of the EIS), the proposed all-season road generally follows the current path of the existing winter road but deviates to avoid lower and wetter areas transected by the winter road. While details provided in Chapter 3 of the EIS remain correct in that the all-season road will be constructed in segments, and will replace the winter road as it becomes operational, it is anticipated that initial clearing activities will primarily focus on clearing the all-season road alignment to a width of 20m of in areas where the proposed alignment deviates from the existing winter road to accommodate rerouting of winter road traffic to the new alignment. As clearing of all-season road alignment segments are completed it would temporarily serve as the new winter road corridor until the construction of the permanent all-season road is completed. The estimated timeframe to complete the remaining construction, including clearing of the remainder of the alignment right-of-way to necessary width, is estimated to be 8 years. Where active construction of a segment of the all-season road is occurring during a winter road season, winter road traffic will be maintained and accommodated during construction activities through construction sequencing and phasing or by implementing temporary shooflies within the road right-of-way. Sections of the current winter road not located on the all-season road alignment would be permitted to re-naturalize as described in Chapter 3.2.5 of the EIS but potentially earlier in time than noted in the EIS.

If other changes to the proposed schedule are needed, works will still need to be conducted in adherence to the criteria and activity restrictions mentioned above. This would include adherence to clearing restrictions, avoidance of fish spawning periods, and other sensitive environmental factors. If the project adheres to these restrictions, no additional adverse effects would be anticipated as the fundamental pathways of environmental effects will remain unchanged from those presented in the EIS.

APPENDIX IR1-04-1

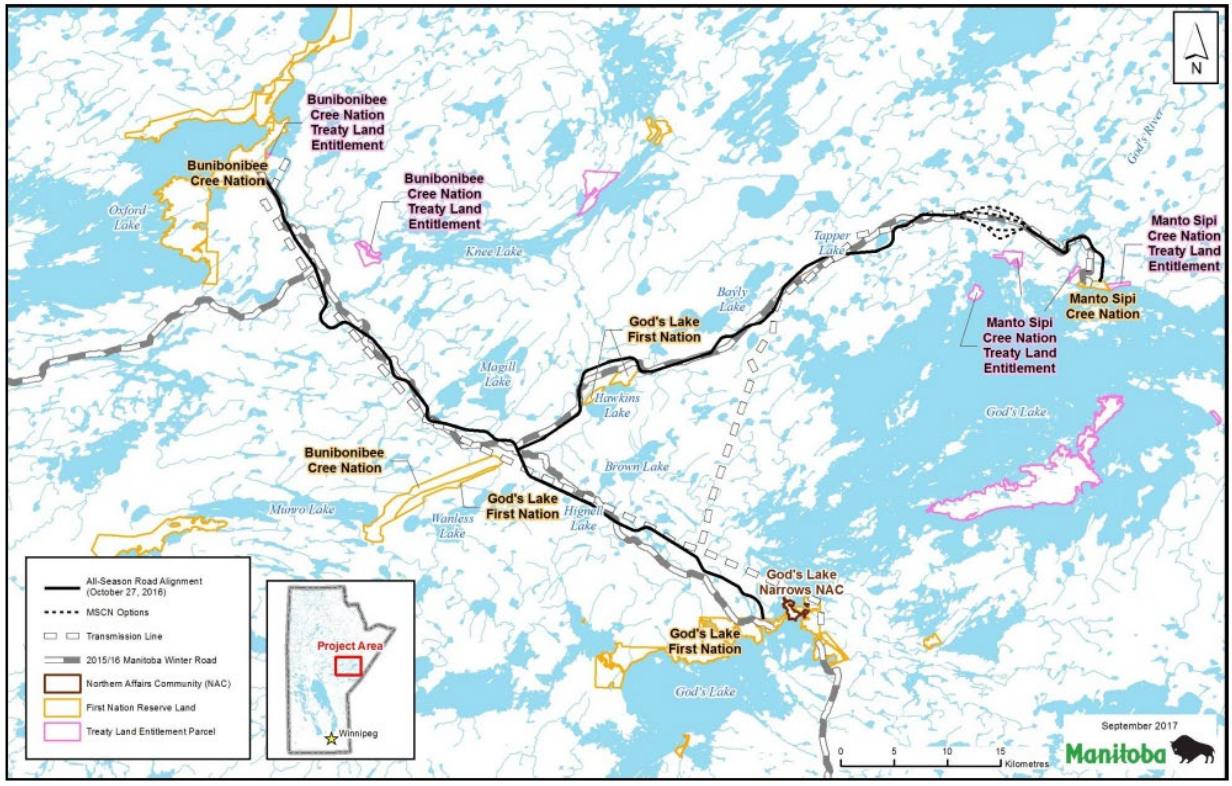


Figure IR1-04-1. Proposed Project all-season road alignment on the east side of Lake Winnipeg (Figure 3-1) of the Project 6 Environmental Impact Statement

REFERENCES

East Side Road Authority. 2015. Environmental Protection Procedures. Available at : https://content.gov.mb.ca/mit/hpd/pdf/project_p7a/appendices/env_policy_protection_specs.pdf

Fisheries and Oceans Canada. 2013. Manitoba timing windows for the protection of fish and fish habitat. Available at: https://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/mb-eng.html

Government of Canada, P. S. and P. C.1998. Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters. Publications.gc.ca. Available at : https://publications.gc.ca/collections/Collection/Fs97-6-2107E.pdf

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-05

EIS Guideline Reference	• Part 2, Section 6.4 and 7
EIS Reference	• Chapter 6 (Inclusive) • Chapter 6, Section 6.4.1.1.1 and Appendix 6-4 • Chapter 7, Appendix 7-1 • Chapter 8, Appendix 8.2 and 8.3 • Appendix A to D
Category	Mitigation Measures

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent, in the EIS, consider measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project. These measures must be specific, achievable, measurable and verifiable; described in a manner that avoids ambiguity in intent, interpretation, and implementation; and written as specific commitments that clearly describe how the proponent intends to implement them and the environmental outcome the mitigation measure is designed to address. The EIS Guidelines also require that the proponent summarize all key mitigation measures and commitments made to mitigate any significant adverse effects of the project on VCs (i.e. those measures that are essential to ensure that the Project will not result in significant adverse environmental effects).

The EIS describes the proponent's proposed mitigation measures to address potential adverse environmental effects of the Project. However, some mitigation measures described are ambiguous, not specific or verifiable, or absent. For example, mitigation measures proposed to limit adverse environmental effects associated with increases in fugitive dust during construction, operation, and maintenance activities include "implementing dust suppression measures and restricting vehicle speed limits", as per MI's Environmental Protection Procedures (EP) 18 and Environmental Protection Specifications (ES) 130.11. However, no specific details are provided regarding how vehicle speed limits will be enforced, what speed limits will be, and how speed limits would limit fugitive dust emissions. The procedures described in EP18 are limited to dust suppression on roadways and do not provide details of how mitigation measures will be implemented, such as when dust suppressants will be applied. As another example, EP130.11

states, “all work shall be conducted by methods that minimize the raising of dust from construction operations” and “all stock piles or spoil piles shall be maintained as to minimize wind erosion”. However, no specific details are provided regarding how these mitigations will be implemented, such as how work will be conducted to minimize the raising of dust (i.e. what methods will be used) or which methods will be implemented to ensure that stockpiles are maintained so as to minimize wind erosion. For specific Project activities, such as blasting, there are no specific mitigation measures described to limit fugitive emissions.

The deficiencies described above also apply to other sections of the EIS related to mitigation measures proposed to address potential Project effects:

- to other aspects of the atmospheric environment (e.g. noise, vehicle emissions);
- from spills and hazardous materials;
- from soil loss and erosion;
- to groundwater quality and availability;
- from vegetation clearing (e.g. buffers between the right-of-way (ROW) and any Project developments);
- to wildlife, including migratory birds and species of importance to Indigenous peoples (e.g. sensory disturbance, vehicle collisions, habitat loss or alteration, disease, etc.);
- to species at risk; and
- with respect to Indigenous peoples (e.g. land and resource use, human health and safety, noise, country foods, etc.).

Specific details of the mitigation measures that the proponent is proposing to implement to address potential adverse environmental effects of the Project are required to understand the nature and severity of potential residual adverse environmental effects to VCs listed under section 5 of CEAA 2012 and to assess the appropriateness of the mitigation measures proposed.

INFORMATION REQUEST

a) Review and revise all mitigation measures and commitments described in Chapter 6, Chapter 7, Chapter 8, Appendix 6-4, Appendix 7-1, Appendix 8-2, Appendix 8-3, Appendices A to D, and in any other applicable sections of the EIS to remove ambiguity and to confirm that proposed mitigation measures and commitments are detailed, specific, achievable, measurable, and verifiable.
b) Provide a detailed summary table listing all mitigation commitments in language that is detailed, specific, achievable, measurable, and verifiable.

RESPONSE

a) A preferred alignment has been chosen for the proposed all-season road and was developed with the input received during Rounds 1, 2 & 3 of engagement activities between 2009 and 2016. Round 1 & 2 of engagement activities focused on selection of the all-season road corridors, while Round 3 focused on refining the preferred alignment to the selection of the corridors. While the preferred alignment has been chosen, the project is in the planning phase and has not advanced to functional or detailed design phases as funding from the province has not been received for the proposed all-season road.

The mitigation measures and commitments summarized in Chapter 6, Chapter 7, Chapter 8, Appendix 6-4, Appendix 7-1, Appendix 8-2, Appendix 8-3, Appendices A to D, and in any other applicable sections of the Environmental Impact Statement (EIS) are generalized to a road construction project. The reasoning for the generalization of the provided mitigation measures and commitments is because there has been no functional or detailed design completed for the proposed all-season road. However, to illustrate mitigation measures and commitments that would be implemented during the construction and operation phases of the project, they have been based on typical roadway geometric design criteria. As the project advances and receives funding, the mitigation measures and commitments provided in the EIS may be amended to ensure they are more detailed, specific, achievable, measurable, and verifiable. It should be noted however, that the proposed mitigation measures, and specifically the Environmental Protection Procedures and Environmental Protection Specifications included in Appendix 8-2 and 8-3 in Chapter 8 of the EIS have been used for the construction of a similar all-season road (Project 1 all-season road from PR304 to Berens River First Nation) in eastern Manitoba and have proven effective. Furthermore, the Environmental Protection Procedures and Environmental Protection Specifications were also included in the EIS for the Project 4 all-season road connecting Berens River First Nation to Poplar River First Nation, which received federal approval in 2017.

b) As described in Response A of this response, the mitigation measures and commitments summarized in Chapter 6, Chapter 7, Chapter 8, Appendix 6-4, Appendix 7-1, Appendix 8-2, Appendix 8-3, Appendices A to D, and in any other applicable sections of the EIS may be amended to ensure they are detailed, specific, achievable, measurable, and verifiable once functional and detailed design phases are completed.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-06

EIS Guideline Reference	• Part 2, Section 6.2.1
EIS Reference	• Chapter 6, Section 6.1.1.3, 6.2.1.2, 6.4.1.2, and 6.5.1.2 • Appendix A • CEAA Annex 2: Early Technical Issues, August 27, 2018
Category	Atmospheric Environment

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent describe the predicted changes to the environment as a result of the proposed Project in relation to each phase (i.e. construction, operation, decommissioning, and abandonment), including potential changes to the atmospheric environment. The assessment of potential changes to the atmospheric environment must include an estimate of the direct greenhouse gas (GHG) emissions associated with all phases of the Project, and a comparison and assessment of estimated direct GHG emissions to the regional, provincial, and federal emissions targets.

While the EIS describes the current federal emissions target and compares Project emissions to this target, a similar comparison is not included for provincial and regional emissions targets.

The EIS describes how the GHG emissions during Project operation will be less than current baseline GHG emissions associated with use of the winter road and other alternate travel routes. However, the assessment of GHG emissions during Project operation may not have accounted for the potential increase in vehicular traffic volume during operation of the all-season road, as baseline traffic levels, estimated in 2017 for the winter road, were assumed to remain the same during operation of the Project. With access to a more reliable and safe all-season road, local vehicular traffic may increase, in both volume and duration throughout the year. Additionally, with greater ease in travelling between communities that would be connected by the Project, vehicular traffic may increase as a result of use by community members and transportation of goods between communities by truck versus by air. It is also unclear whether the assessment of GHG emissions during Project operation accounted for GHG emissions associated with maintenance

activities (e.g. grading, plowing, mowing, bridge maintenance, culvert cleanouts/steaming, quarry operation for road resurfacing or repair, etc.).

The EIS also describes how natural revegetation of the segments of the existing winter road corridors that will not be used for the ASR would act to reverse the effects of Project related GHG emissions over a long period, presumably by acting as a carbon sink. However, carbon dynamics of boreal ecosystems, such as the ecosystem in which the Project is to be located, are complex and a non-static characteristic of these ecosystems (Bhatti et al. 2003). For instance, boreal forest ecosystems can act as either a net source or a net sink of carbon as a result of natural and anthropogenic changes over time, including changes to forest age-class structure, disturbance regime, and natural resource use. Considering potential ecosystem effects resulting from global climate change (e.g. altered temperature, precipitation, and disturbance regimes), carbon dynamics in boreal forest ecosystems may become even more unpredictable. As such, concluding that revegetation of the winter road corridor will result in a reversal of Project-related GHG emissions does not appear to be supported.

With respect to residual effects of GHGs associated with the Project, the EIS states: “with implementation of the mitigation measures indicated in Section 6.4.1.2 the level of adversity for greenhouse gas emissions (ex: SOx, NOx, diesel particulates) to the atmosphere from construction activities is unchanged”. It should be noted that SOx, NOx, and diesel particulates are not greenhouse gases and should not be considered in the GHG assessment for the Project.

A revised assessment of GHG emissions for the Project, including a more accurate estimate of emissions associated with increased road traffic for the life of the Project and information on anticipated carbon dynamics, is required to understand and assess potential transboundary effects of the Project and its contribution to global atmospheric carbon reserves.

Information Request

a) Provide the current provincial and regional emissions targets for GHGs. Compare estimated GHG emissions during all phases of the Project to these targets.
b) Revise the operational GHG emissions estimate to include emissions associated with Project maintenance activities (e.g. grading, plowing, mowing, bridge maintenance, culvert cleanouts/steaming, etc.), potential increases in local vehicular traffic, both in volume and duration, and increases in traffic volume associated with transportation of goods to communities by truck versus by air.
c) Revise the assessment and conclusions with respect to potential effects from GHGs during all phases of the Project, including but not limited to the conclusions noted in Chapter 6, Section 6.2.1.2.2 in consideration of the uncertainty in sequestration potential of natural revegetation of winter road corridors.

d) Revise the assessment of potential residual Project effects to consider effects from GHGs (e.g. CH4, CO2, N2O), as opposed to SOx, NOx, and diesel particulates and to account for revisions to the GHG assessment and emissions estimates noted in the above questions.

RESPONSE

a) The provincial goal for reducing greenhouse gas emissions from January 1, 2023, to December 31, 2027, is set at 5.6 megatonnes of CO_2 equivalent (Government of Manitoba, 2017). This target is relative to the total emissions that were projected for this period based on Environment and Climate Change Canada's 2022 Reference Case (Government of Manitoba, 2017) which was a projection forecast estimating the total amount of greenhouse gas emissions that would have occurred if no additional GHG reduction measures had taken place. The 5.6 megatonne reduction is a cumulative target to be achieved over these five years: 2023-2027.

Manitoba's GHGs emissions in 2023 were approximately 21300 kilotons (kt)of CO2 equivalent. The emissions are distributed across various sectors: 8360 kt from transportation, 5800 kt from agriculture, 4070 kt from stationary combustion, 1400 kt from waste, 886 kt from industrial processes and product use, and 840 kt from fugitive sources.

The Greenhouse Gas Follow-Up Assessment found in Appendix A of the Technical Report submission accompanying the EIS provided a GHG Assessment based on comparing the estimated annual GHG emissions for the Baseline Scenario (without the Project) to the Project Scenario (with the Project). The baseline scenario was estimated to be 19,851 tonnes CO_2 equivalent GHG emissions during the 8 year construction period (i.e. years 1-8) and 74,442 tonnes CO_2 equivalent GHG emissions was estimated for a 30 year period (i.e. years 9-38), for a total of 94,294 tonnes CO_2 equivalent GHG emissions during this period. The project scenario was estimated to be 138,000 tonnes CO_2 equivalent GHG emissions during the eight-year construction period (i.e. years 1-8) and 71,069 tonnes CO_2 equivalent GHG emissions was estimated for a thirty-year period (i.e. years 9-38) for a total of 209,369 tonnes CO_2 equivalent. The difference between the baseline and project scenarios (i.e. amount of increase in GHGs with the Project scenario) by 115,075 tonnes CO_2 equivalent.

Using the available data, total GHG emissions for Project 6 (209,369 tonnes CO_2e) over a 38-year period represent approximately 0.98% of Manitoba's total GHG emissions in 2023 (21,300,000 tonnes CO_2e), if released in a single year. When emissions are broken down by phase, the construction phase is expected to emit 138,300 tonnes CO_2e over 8 years, or approximately 17,288 tonnes CO_2e per year, which corresponds to ~0.081% of Manitoba's annual emissions. The operation phase is estimated to emit 71,069 tonnes CO_2e over 30 years, or about 2,369 tonnes CO_2e per year, representing ~0.011% of the province's annual emissions. Table IR1-06-1 summarizes this information below.

At this time, there are no publicly available GHG emissions inventories or targets specific to the Hayes River Upland Ecoregion. Given the region's low population density and limited industrial

activity, overall GHG emissions are expected to be low. In the absence of regional data, Project-related emissions are compared to provincial total emissions, which provide the most reliable estimates currently available.

Table IR1-06-1. Comparison of Project emissions to provincial totals (2023).

Project Phase	Emissions	Years	Average Annual Emissions	Project's contribution to MB 2023 Emissions %
Construction	138,300	8	17,288	0.081%
Operation	71,069	30	2,369	0.011%
Total	209,369	38	5,510	0.98%

b) At this time, updates to anticipated vehicular traffic are not required. As the Project provides no permanent link to the remainder of Manitoba's provincial highway network, access to the Regional Assessment Area, and the proposed road itself, would still be limited to travel by winter road (when operational) or by air. This includes transport of goods.

While traffic between Manto Sipi Cree Nation, God's Lake First Nation, God's Lake Narrows Northern Affairs Community, and Bunibonibee Cree Nation may increase in duration as the road would be accessible year-round, the extend to which inter-community travel occurs is not known but is anticipated to minor.

Similarly, emissions directly resulting from road maintenance operations are anticipated to be very minor. Regular maintenance of rural gravel roads is typically limited to occasionally adding gravel (likely once every ten years), occasional surface grading and occasional culvert cleanup or possible culvert replacements (although culvert replacement is not anticipated to be required for 20 years or more after construction). Due to the limited and infrequent nature of maintenance, annual emissions related to these activities are anticipated be very low or negligible compared to those related to normal roadway use.

c) The uncertainty in sequestration potential of natural revegetation of winter road corridors Greenhouse Gas Emissions (GHG) estimate of Seasonal Road Construction was provided by Dillon Consulting in the Greenhouse Gas Follow-Up Assessment – East Side Lake Winnipeg in August 2017.

It is predicted that once the clearing required to construct the proposed All-Season Road was completed, 15% of the land cleared along the All-Season Road would naturally regenerate back to a functional forest habitat. For carbon sequestration to return to the initial state prior to clearing, it

will occur over a multi-decadal period and that the carbon sequestered is assumed to be linearly distributed over time. The annual carbon sequestration rate being calculated as tonnes CO_{2e}/year-ha of forest.

Throughout the entire area that would require clearing for the proposed All-Season Road, only 27% of the area cleared would be covered with the newly constructed All-Season Road. This percentage was calculated based on width of the road, which is proposed at 10 m with an approximate additional 3 m side slope on either side. It was estimated the net annual GHG emissions would be reduced by 27% due to the coverage of the All-Season Road under the Baseline Scenario. Net GHG emissions would differ from Baseline Scenario of 415.9 tonnes CO_2e/year to Project Scenario of 305 tonnes CO_2e/year, equating in the 27% reduction.

While the Dillon (2017) analysis provided a reasonable estimate to support the EIS, it is recognized that boreal carbon dynamics are complex and influenced by multiple natural and anthropogenic factors. Carbon dynamics in boreal forests are highly variable due to interactions between vegetation growth, organic matter decomposition, soil processes, and disturbances such as fire, insects, and permafrost thaw. These systems can act as either carbon sources or sinks depending on the timing, severity, and frequency of natural disturbances and the capacity of ecosystems to recover and sequester carbon over time (Bhatti et al., 2003). These factors can introduce uncertainty into long-term predictions of forest regrowth and carbon sequestration. For instance, revegetated areas may experience delays in regrowth, reduction in the sequestration rate, or future disturbance events that affect the carbon sink dynamics.

As such, natural revegetation of the winter road segments may contribute to long-term carbon sequestration, but the timing, rate, and extent are uncertain. The Project is likely to remain a net source of GHGs over the first several years post-construction.

To reduce this uncertainty, as described in response to IR1-19, Manitoba Transportation and Infrastructure (MTI) will conduct selective review(s) of data validity 1-2 years before construction of the all-season road begins. This process will verify that key predictions made in the Environmental Impact Statement (EIS) remain accurate and that proposed mitigations and monitoring remain appropriate and applicable. This process may include a desktop exercise incorporating detailed design, newly collected data available to MTI (if any), and may be followed by field studies if required.

d) The potential residual Project effects to consider from GHGs (e.g. CH4, CO2, N2O was provided by Dillon Consulting in the Greenhouse Gas Follow-Up Assessment – East Side Lake Winnipeg in August 2017 (Appendix A of the EIS)) and considered in the EIS. Table 4.1 in the Greenhouse Gas Follow-Up Assessment presents a summary of the Baseline Scenario and Project Scenario GHG emissions for Project 6, speciated into GHG emission estimates such as CO_2, CH_4, and N_2O, as well as in CO_2e during a 10-year operation period. Table 4.2 presents similar data for a 30-year operation

period. As a result, a revised assessment is not required. Copies of both Tables 4.1 and 4.2 from Appendix A of the EIS have been included as Appendix IR1-06-1 in this response.

As noted in the response to B , the proposed Project is anticipated to experience traffic levels of <300 vehicles per day, and this value is not anticipated to require update. Increases in inter-community travel are anticipated to be low. Similarly, maintenance operations are anticipated to be minimal and mostly comprised of occasional grading with operations such as culvert replacement occurring at low frequency and well into the future after construction. Maintenance operations are therefore also anticipated to result in very minor emissions.

APPENDIX IR1-06-1

COPIES OF TABLE 4.1 AND 4.2 FROM APPENDIX A OF THE PROJECT 6 ENVIRONMENTAL IMPACT STATEMENT

Table 4.1 – GHG Emission Estimate by Project – 10 Years of Operation – Speciated (tonnes CO_2, tonnes CH_4, tonnes N_2O)

Project	Scenario	Year Range	CO_2 (tonnes)	CH_4 (tonnes)	N_2O (tonnes)	CO_2e (tonnes)
P1	Baseline – During ASR Construction Period	Year 1 – Year 8	6,649	548	1	20,789
	Baseline – During ASR Operational Period	Year 9 – Year 18	8,311	685	2	25,986
	Baseline – Total	**Year 1 – Year 18**	**14,960**	**1,233**	**3**	**46,775**
	Project – During ASR Construction Period	Year 1 – Year 8	154,710	506	7	169,589
	Project – During ASR Operational Period	Year 9 – Year 18	11,808	502	2	24,915
	Project – Total	**Year 1 – Year 18**	**166,518**	**1,009**	**9**	**194,504**
P2	Baseline – During ASR Construction Period	Year 1 – Year 8	37,069	442	1	48,433
	Baseline – During ASR Operational Period	Year 9 – Year 18	46,336	552	1	60,542
	Baseline – Total	**Year 1 – Year 18**	**83,405**	**993**	**2**	**108,975**
	Project – During ASR Construction Period	Year 1 – Year 8	224,632	424	9	237,790
	Project – During ASR Operational Period	Year 9 – Year 18	51,553	405	2	62,212
	Project – Total	**Year 1 – Year 18**	**276,185**	**830**	**10**	**300,003**
P3a	Baseline – During ASR Construction Period	Year 1 – Year 5	27,416	5	0	27,682
	Baseline – During ASR Operational Period	Year 6 – Year 15	45,693	8	1	46,136
	Baseline – Total	**Year 1 – Year 15**	**73,109**	**13**	**1**	**73,818**
	Project – During ASR Construction Period	Year 1 – Year 5	53,292	11	2	54,005
	Project – During ASR Operational Period	Year 6 – Year 15	53,231	7	1	53,826
	Project – Total	**Year 1 – Year 15**	**106,523**	**17**	**3**	**107,830**
P3b	Baseline – During ASR Construction Period	Year 1 – Year 7	34,161	35	1	35,243
	Baseline – During ASR Operational Period	Year 8 – Year 17	48,802	50	1	50,347
	Baseline – Total	**Year 1 – Year 17**	**82,963**	**86**	**2**	**85,590**
	Project – During ASR Construction Period	Year 1 – Year 7	106,961	50	4	109,305

Project	Scenario	Year Range	CO_2 (tonnes)	CH_4 (tonnes)	N_2O (tonnes)	CO_2e (tonnes)
	Project – During ASR Operational Period	Year 8 – Year 17	53,585	38	2	55,076
	Project – Total	**Year 1 – Year 17**	**160,546**	**88**	**5**	**164,381**
P3c	Baseline – During ASR Construction Period	Year 1 – Year 7	3,828	279	0	10,905
	Baseline – During ASR Operational Period	Year 8 – Year 17	5,469	398	1	15,579
	Baseline – Total	**Year 1 – Year 17**	**9,297**	**677**	**1**	**26,485**
	Project – During ASR Construction Period	Year 1 – Year 7	100,871	260	4	108,628
	Project – During ASR Operational Period	Year 8 – Year 17	6,430	292	1	13,904
	Project – Total	**Year 1 – Year 17**	**107,301**	**552**	**5**	**122,532**
P4	Baseline – During ASR Construction Period	Year 1 – Year 8	3,861	260	0	10,479
	Baseline – During ASR Operational Period	Year 9 – Year 18	4,827	326	0	13,099
	Baseline – Total	**Year 1 – Year 18**	**8,688**	**586**	**1**	**23,579**
	Project – During ASR Construction Period	Year 1 – Year 8	86,523	245	4	93,762
	Project – During ASR Operational Period	Year 9 – Year 18	6,167	239	1	12,318
	Project – Total	**Year 1 – Year 18**	**92,690**	**484**	**4**	**106,079**
P5	Baseline – During ASR Construction Period	Year 1 – Year 8	17,277	189	1	22,384
	Baseline – During ASR Operational Period	Year 9 – Year 18	21,596	237	2	27,980
	Baseline – Total	**Year 1 – Year 18**	**38,873**	**426**	**3**	**50,364**
	Project – During ASR Construction Period	Year 1 – Year 8	114,956	187	5	121,174
	Project – During ASR Operational Period	Year 9 – Year 18	21,993	174	2	26,810
	Project – Total	**Year 1 – Year 18**	**136,950**	**361**	**7**	**147,983**
P6	Baseline – During ASR Construction Period	Year 1 – Year 8	15,625	159	1	19,851
	Baseline – During ASR Operational Period	Year 9 – Year 18	19,532	199	1	24,814
	Baseline – Total	**Year 1 – Year 18**	**35,157**	**358**	**2**	**44,665**

Project	Scenario	Year Range	CO_2 (tonnes)	CH_4 (tonnes)	N_2O (tonnes)	CO_2e (tonnes)
P7	Project – During ASR Construction Period	Year 1 – Year 8	132,381	170	6	138,300
	Project – During ASR Operational Period	Year 9 – Year 18	19,750	146	1	23,690
	Project – Total	**Year 1 – Year 18**	**152,130**	**316**	**7**	**161,990**
	Baseline – During ASR Construction Period	Year 1 – Year 8	7,113	238	0	13,203
	Baseline – During ASR Operational Period	Year 9 – Year 18	8,891	298	1	16,504
	Baseline – Total	**Year 1 – Year 18**	**16,005**	**536**	**1**	**29,707**
	Project – During ASR Construction Period	Year 1 – Year 8	97,556	227	4	104,438
	Project – During ASR Operational Period	Year 9 – Year 18	6,061	218	1	11,688
	Project – Total	**Year 1 – Year 18**	**103,616**	**445**	**5**	**116,126**
P7a	Baseline – During ASR Construction Period	Year 1 – Year 5	4,661	40	0	5,692
	Baseline – During ASR Operational Period	Year 6 – Year 15	9,323	79	0	11,385
	Baseline – Total	**Year 1 – Year 15**	**13,984**	**119**	**0**	**17,077**
	Project – During ASR Construction Period	Year 1 – Year 5	40,383	43	2	41,921
	Project – During ASR Operational Period	Year 6 – Year 15	7,102	58	0	8,692
	Project – Total	**Year 1 – Year 15**	**47,485**	**101**	**2**	**50,613**

Table 4.2 – GHG Emission Estimate by Project – 30 Years of Operation – Speciated (tonnes CO_2, tonnes CH_4, tonnes N_2O)

Project	Scenario	Year Range	CO_2 (tonnes)	CH_4 (tonnes)	N_2O (tonnes)	CO_2e (tonnes)
P1	Baseline – During ASR Construction Period	Year 1 – Year 8	6,649	548	1	20,789
	Baseline – During ASR Operational Period	Year 9 – Year 38	24,934	2,054	6	77,959
	Baseline – Total	**Year 1 – Year 38**	**31,583**	**2,602**	**7**	**98,748**
	Project – During ASR Construction Period	Year 1 – Year 8	154,710	506	7	169,589
	Project – During ASR Operational Period	Year 9 – Year 38	35,424	1,507	6	74,746
	Project – Total	**Year 1 – Year 38**	**190,134**	**2,013**	**13**	**244,335**
P2	Baseline – During ASR Construction Period	Year 1 – Year 8	37,069	442	1	48,433
	Baseline – During ASR Operational Period	Year 9 – Year 38	139,008	1,656	4	181,625
	Baseline – Total	**Year 1 – Year 38**	**176,076**	**2,097**	**5**	**230,058**
	Project – During ASR Construction Period	Year 1 – Year 8	224,632	424	9	237,790
	Project – During ASR Operational Period	Year 9 – Year 38	154,660	1,216	5	186,637
	Project – Total	**Year 1 – Year 38**	**379,292**	**1,640**	**14**	**424,427**
P3a	Baseline – During ASR Construction Period	Year 1 – Year 5	27,416	5	0	27,682
	Baseline – During ASR Operational Period	Year 6 – Year 35	137,079	24	2	138,409
	Baseline – Total	**Year 1 – Year 35**	**164,495**	**29**	**3**	**166,090**
	Project – During ASR Construction Period	Year 1 – Year 5	53,292	11	2	54,005
	Project – During ASR Operational Period	Year 6 – Year 35	159,692	20	4	161,477
	Project – Total	**Year 1 – Year 35**	**212,984**	**30**	**6**	**215,481**
P3b	Baseline – During ASR Construction Period	Year 1 – Year 7	34,161	35	1	35,243
	Baseline – During ASR Operational Period	Year 8 – Year 37	146,406	151	3	151,041
	Baseline – Total	**Year 1 – Year 37**	**180,567**	**186**	**4**	**186,283**
	Project – During ASR Construction Period	Year 1 – Year 7	106,961	50	4	109,305

Project	Scenario	Year Range	CO_2 (tonnes)	CH_4 (tonnes)	N_2O (tonnes)	CO_2e (tonnes)
	Project – During ASR Operational Period	Year 8 – Year 37	160,756	113	6	165,227
	Project – Total	**Year 1 – Year 37**	**267,717**	**163**	**9**	**274,532**
P3c	Baseline – During ASR Construction Period	Year 1 – Year 7	3,828	279	0	10,905
	Baseline – During ASR Operational Period	Year 8 – Year 37	16,407	1,194	2	46,737
	Baseline – Total	**Year 1 – Year 37**	**20,235**	**1,473**	**2**	**57,643**
	Project – During ASR Construction Period	Year 1 – Year 7	100,871	260	4	108,628
	Project – During ASR Operational Period	Year 8 – Year 37	19,289	876	2	41,713
	Project – Total	**Year 1 – Year 37**	**120,160**	**1,136**	**6**	**150,340**
P4	Baseline – During ASR Construction Period	Year 1 – Year 8	3,861	260	0	10,479
	Baseline – During ASR Operational Period	Year 9 – Year 38	14,480	977	1	39,298
	Baseline – Total	**Year 1 – Year 38**	**18,341**	**1,237**	**2**	**49,777**
	Project – During ASR Construction Period	Year 1 – Year 8	86,523	245	4	93,762
	Project – During ASR Operational Period	Year 9 – Year 38	18,501	717	2	36,953
	Project – Total	**Year 1 – Year 38**	**105,024**	**962**	**6**	**130,715**
P5	Baseline – During ASR Construction Period	Year 1 – Year 8	17,277	189	1	22,384
	Baseline – During ASR Operational Period	Year 9 – Year 38	64,789	711	5	83,939
	Baseline – Total	**Year 1 – Year 38**	**82,066**	**900**	**6**	**106,323**
	Project – During ASR Construction Period	Year 1 – Year 8	114,956	187	5	121,174
	Project – During ASR Operational Period	Year 9 – Year 38	65,980	522	5	80,429
	Project – Total	**Year 1 – Year 38**	**180,936**	**709**	**10**	**201,602**
P6	Baseline – During ASR Construction Period	Year 1 – Year 8	15,625	159	1	19,851
	Baseline – During ASR Operational Period	Year 9 – Year 38	58,596	597	3	74,442
	Baseline – Total	**Year 1 – Year 38**	**74,221**	**757**	**4**	**94,294**

Project	Scenario	Year Range	CO_2 (tonnes)	CH_4 (tonnes)	N_2O (tonnes)	CO_2e (tonnes)
	Project – During ASR Construction Period	Year 1 – Year 8	132,381	170	6	138,300
	Project – During ASR Operational Period	Year 9 – Year 38	59,249	438	3	71,069
	Project – Total	**Year 1 – Year 38**	**191,630**	**608**	**9**	**209,369**
P7	Baseline – During ASR Construction Period	Year 1 – Year 8	7,113	238	0	13,203
	Baseline – During ASR Operational Period	Year 9 – Year 38	26,674	893	2	49,512
	Baseline – Total	**Year 1 – Year 38**	**33,788**	**1,131**	**2**	**62,716**
	Project – During ASR Construction Period	Year 1 – Year 8	97,556	227	4	104,438
	Project – During ASR Operational Period	Year 9 – Year 38	18,182	655	2	35,064
	Project – Total	**Year 1 – Year 38**	**115,737**	**881**	**6**	**139,502**
P7a	Baseline – During ASR Construction Period	Year 1 – Year 5	4,661	40	0	5,692
	Baseline – During ASR Operational Period	Year 6 – Year 35	27,968	238	1	34,155
	Baseline – Total	**Year 1 – Year 35**	**32,630**	**278**	**1**	**39,847**
	Project – During ASR Construction Period	Year 1 – Year 5	40,383	43	2	41,921
	Project – During ASR Operational Period	Year 6 – Year 35	21,306	175	1	26,076
	Project – Total	**Year 1 – Year 35**	**61,689**	**218**	**3**	**67,997**

Manitoba Infrastructure Remote Road Operations
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DILLON CONSULTING

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QUESTION IAAC IR1-07

EIS Guideline Reference	• Part 2, Section 6.1.5 and 6.6.2
EIS Reference	• Chapter 6, Section 6.1.5.1.1 • Appendix C-1, Section 4.1.1.2
Category	Hydrology

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent delineate drainage basins of waterbodies and watercourses, including intermittent streams, areas at risk of flooding, and boundaries of the watershed and subwatersheds in which the Project is located. These features must be overlaid by key Project components to understand the relationship of the Project to them. The EIS Guidelines also require the proponent to provide details of planning, design, and construction strategies intended to minimize the potential environmental effects of the environment on the Project.

The EIS briefly describes the overall drainage of surface waters in the region of the Project and describes the methodology that was employed to assess the upstream drainage area of waterbodies/watercourses crossed by the ASR. However, the EIS does not delineate the boundaries of drainage basins, watersheds, or subwatersheds of waterbodies and watercourses in the region or that may be affected by the Project, and does not present the results of the drainage analysis described. The EIS also does not include a description of the areas at risk of flooding.

This information is required to understand the relationship of the Project to local and regional hydrology, which may influence the extent and severity of Project effects through potential accidents and malfunctions, effects of the environment on the Project (e.g. flooding), and effects to fish and fish habitat, the health and socioeconomic conditions of Indigenous peoples, and current use of lands and resources by Indigenous peoples.

INFORMATION REQUEST

a) Provide a description of flow pathways for all waterbodies and watercourses that may be affected by the Project. Include figures, at appropriate scales, showing the boundaries and connecting flow pathways for drainage basins, watersheds, and subwatersheds affected by the Project, including waterbodies and watercourses where crossings will be required, and overlay these features with key Project components.

b) Describe and present in a figure the specific areas of the Project footprint that are at risk of flooding.

RESPONSE

a) The proposed Project 6 All-Season Road will have 53 watercourse crossings located in a number of drainage basins, as shown on Figure IR1-07-1. Small tributaries generally drain towards or into larger waterbodies but as described in the response to IR1-08 and in Section 6.1.5.1.1 in Chapter 6 of the Environmental Impact Statement (EIS) surface water in the area ultimately drains towards Hudson Bay in the north-east via the Hayes River Drainage Basin.

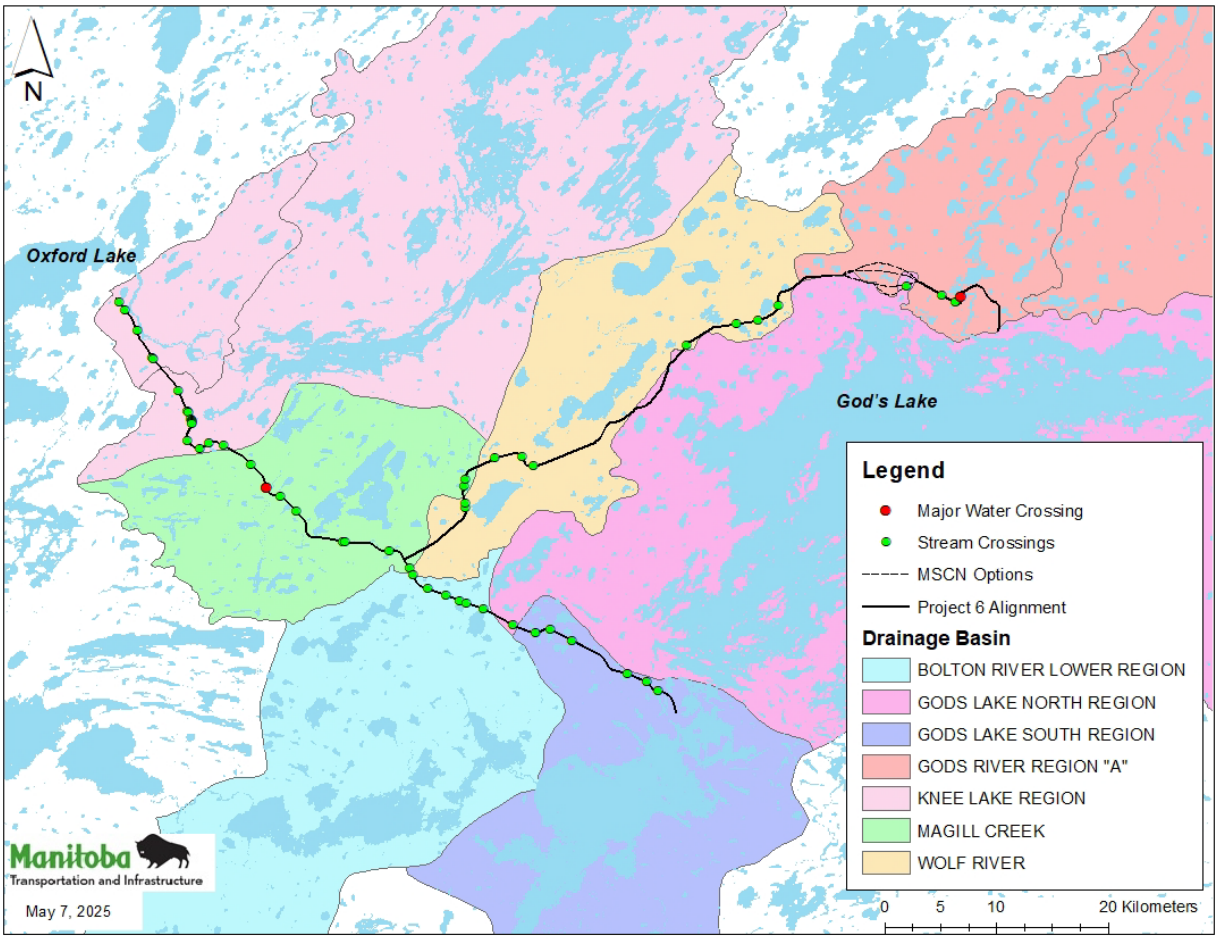


Figure IR1-07-1. Drainage basins intersected by the Project 6 alignment.

Figures showing localized flow pathways for each stream crossing location based on digital elevation models are provided in Figures IR1-07-2 to IR1-07-8 where areas coloured in white and red is indicative of higher elevations and green and yellow are lower with blue being water.

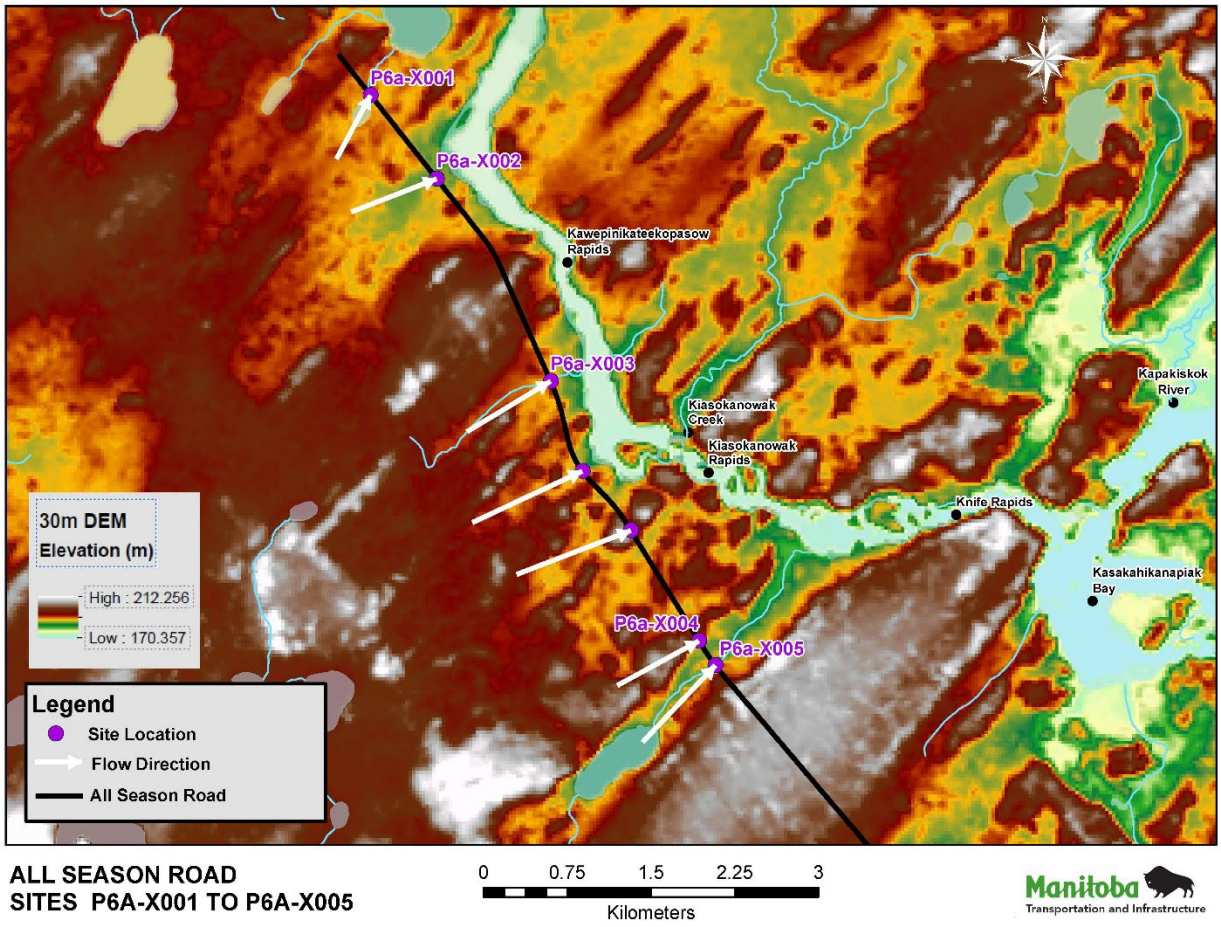


Figure IR1-07-2. Localised flow direction for Project 6 crossing locations P6a-X001 to P6a-X005 based on digital elevation model.

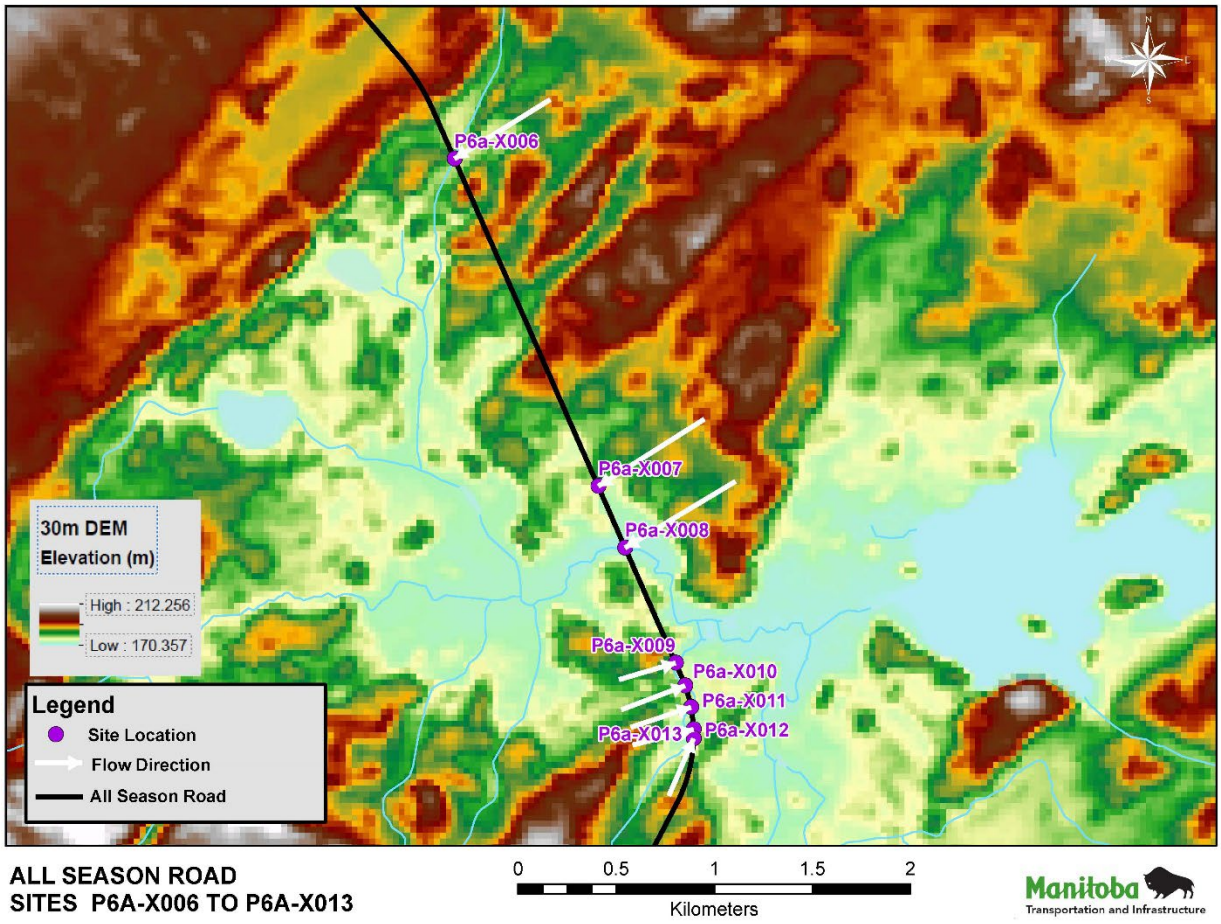


Figure IR1-07-3. Localised flow direction for Project 6 crossing locations P6a-X006 to P6a-X013 based on digital elevation model.

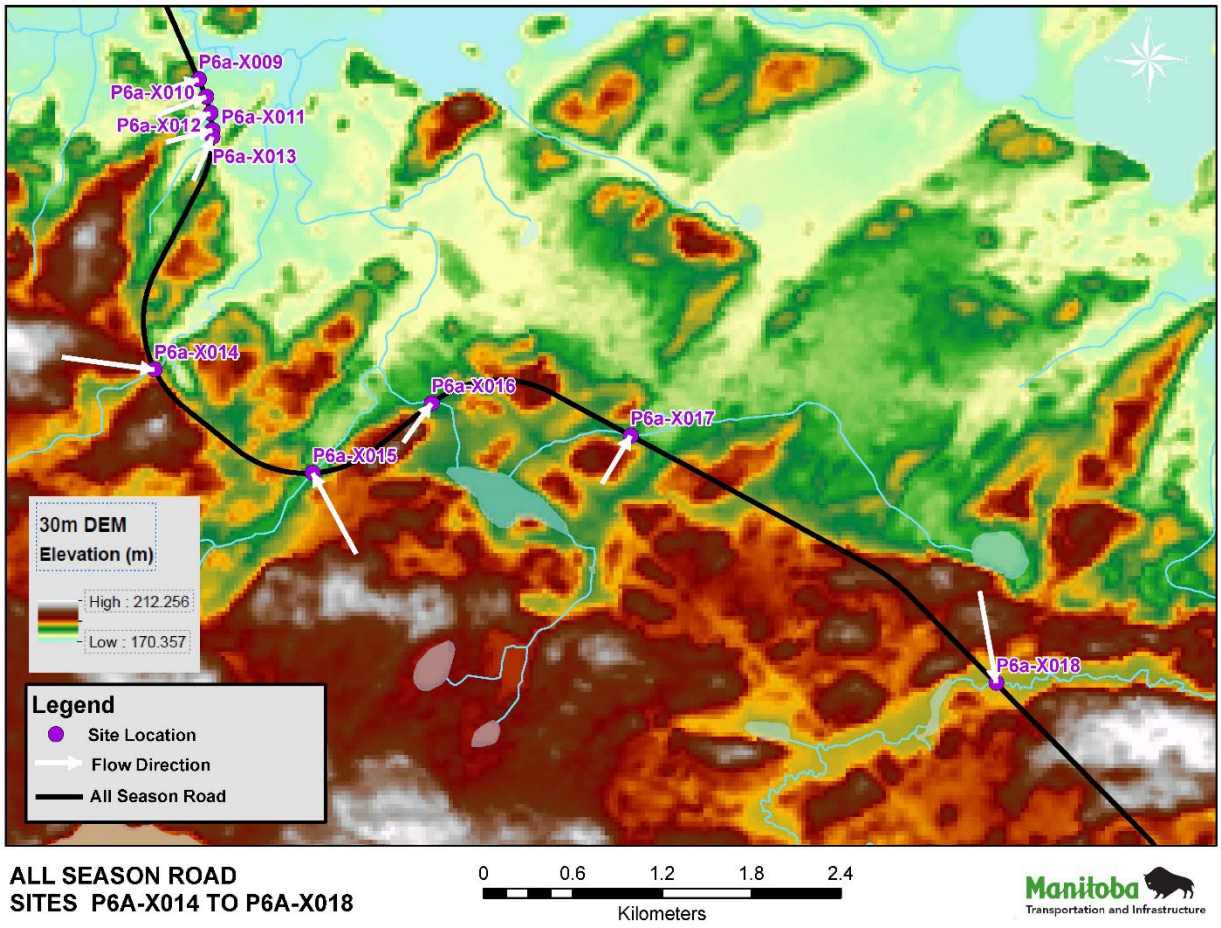


Figure IR1-07-4. Localised flow direction for Project 6 crossing locations P6a-X014 to P6a-X018 based on digital elevation model.

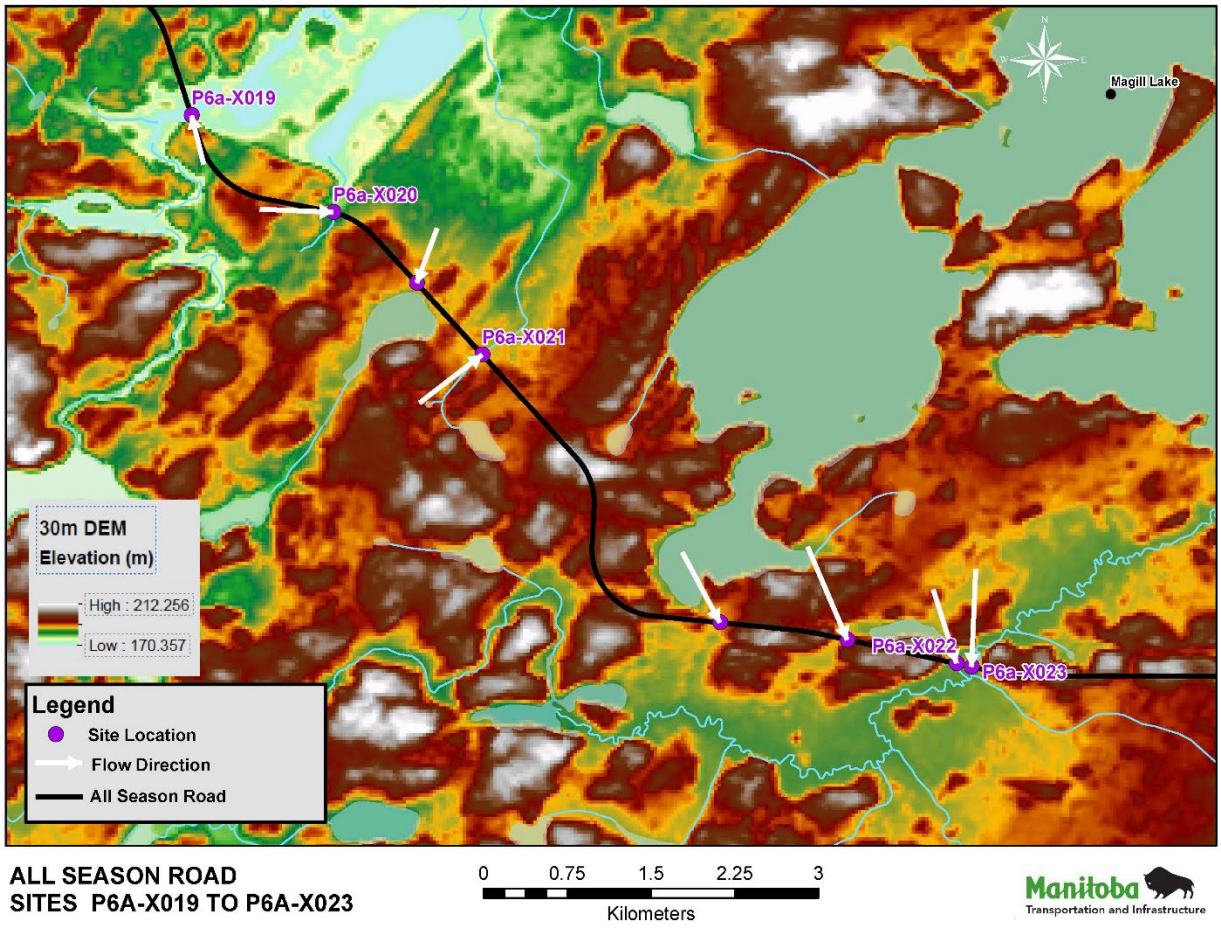


Figure IR1-07-5. Localised flow direction for Project 6 crossing locations P6a-X019 to P6a-X023 based on digital elevation model.

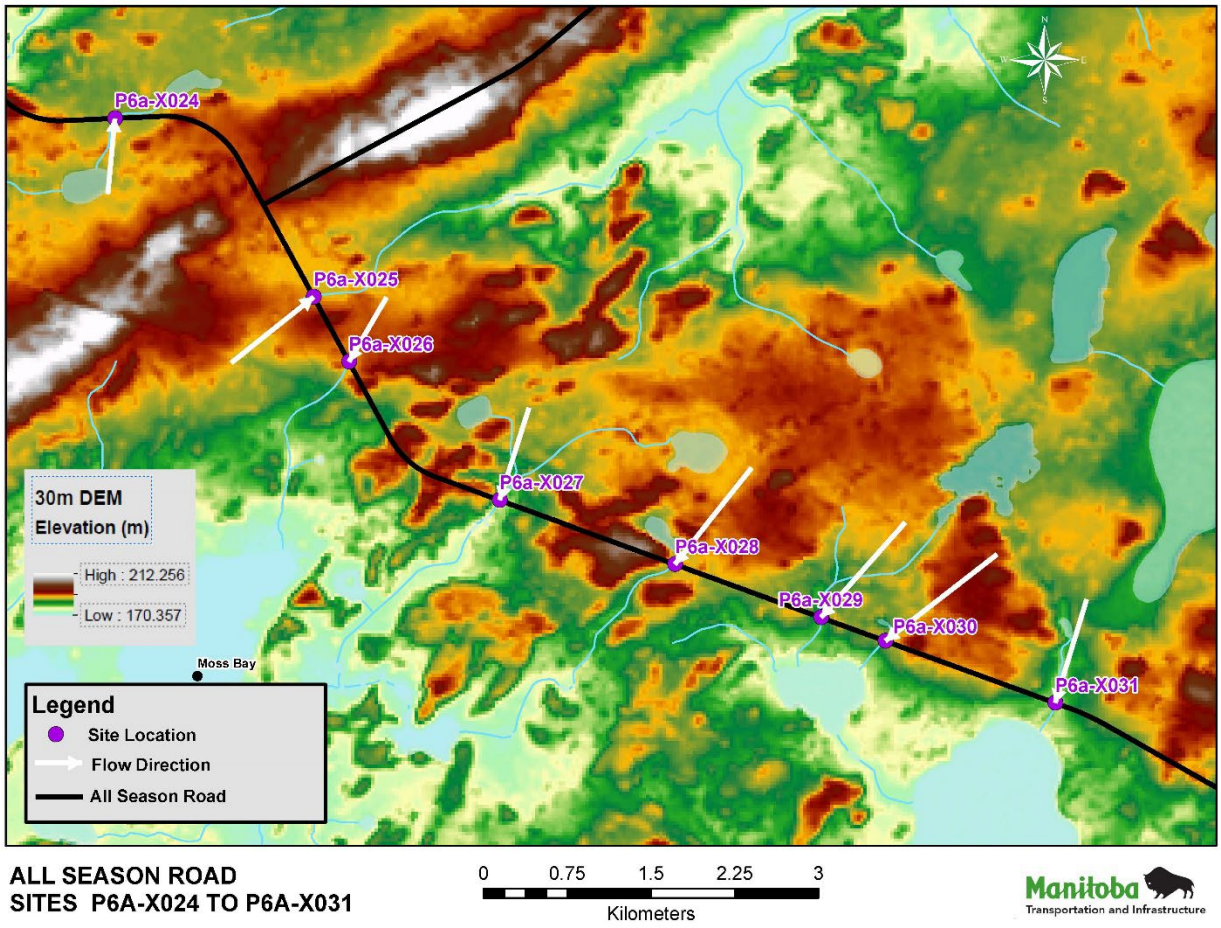


Figure IR1-07-6. Localised flow direction for Project 6 crossing locations P6a-X024 to P6a-X031 based on digital elevation model.

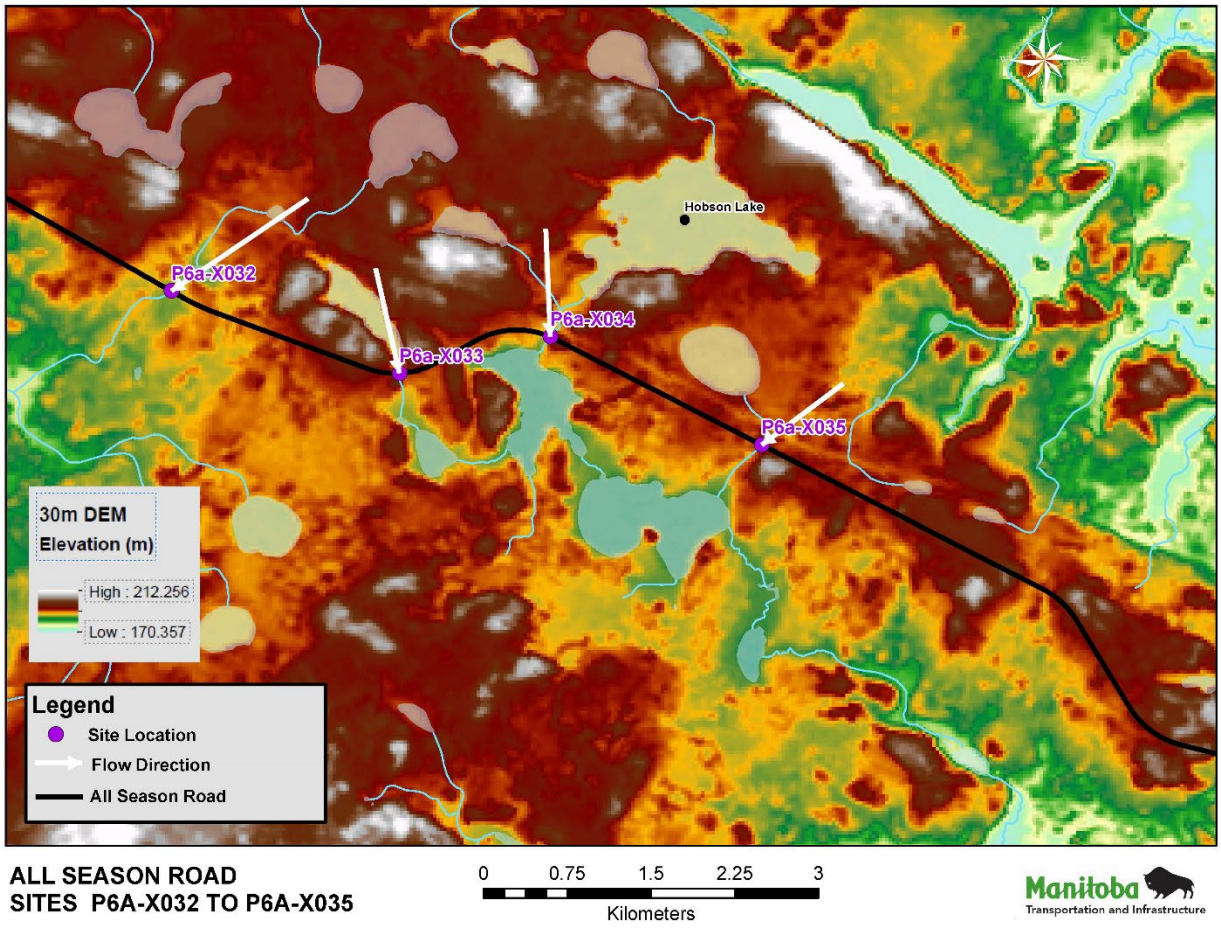


Figure IR1-07-7. Localised flow direction for Project 6 crossing locations P6a-X032 to P6a-X035 based on digital elevation model.

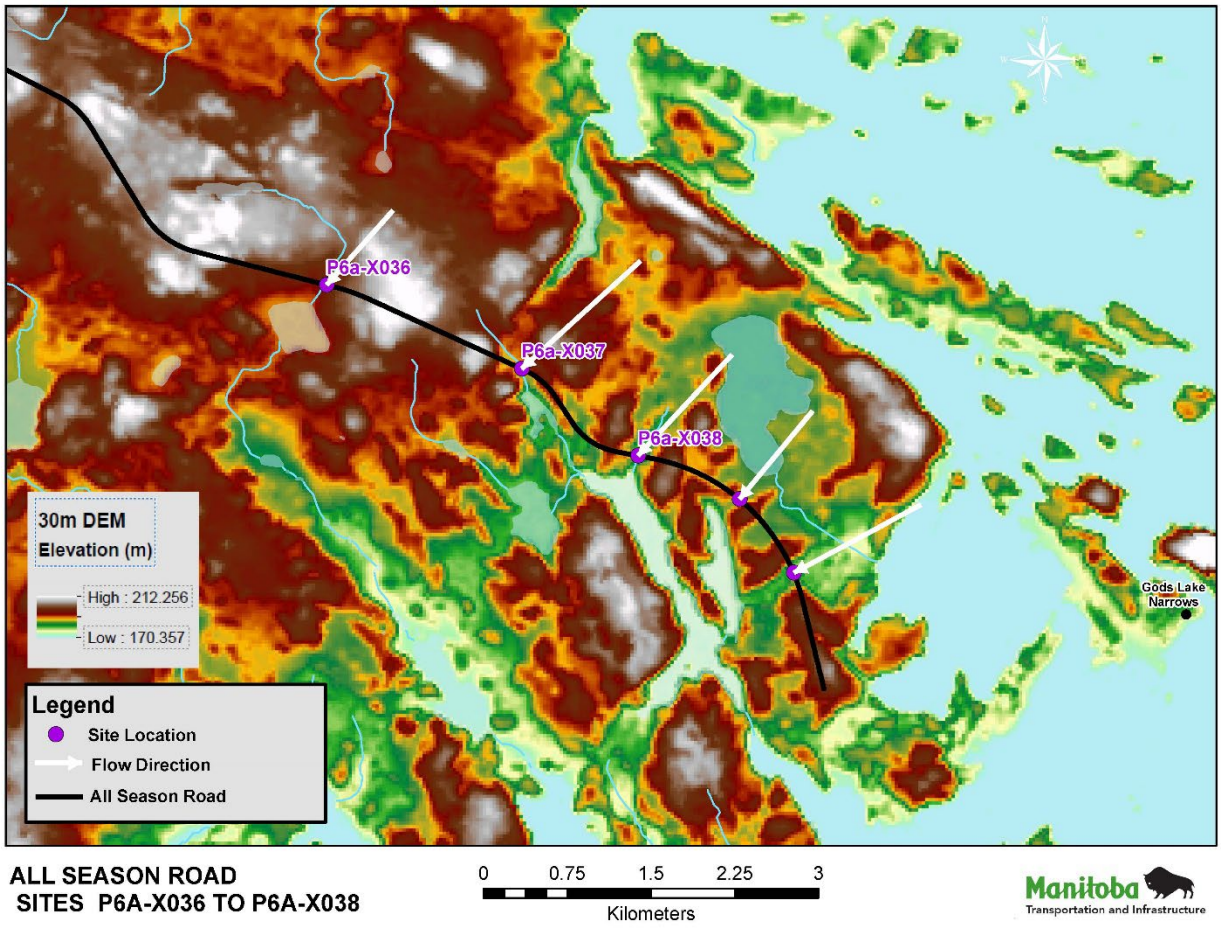


Figure IR1-07-8. Localised flow direction for Project 6 crossing locations P6a-X036 to P6a-X038 based on digital elevation model.

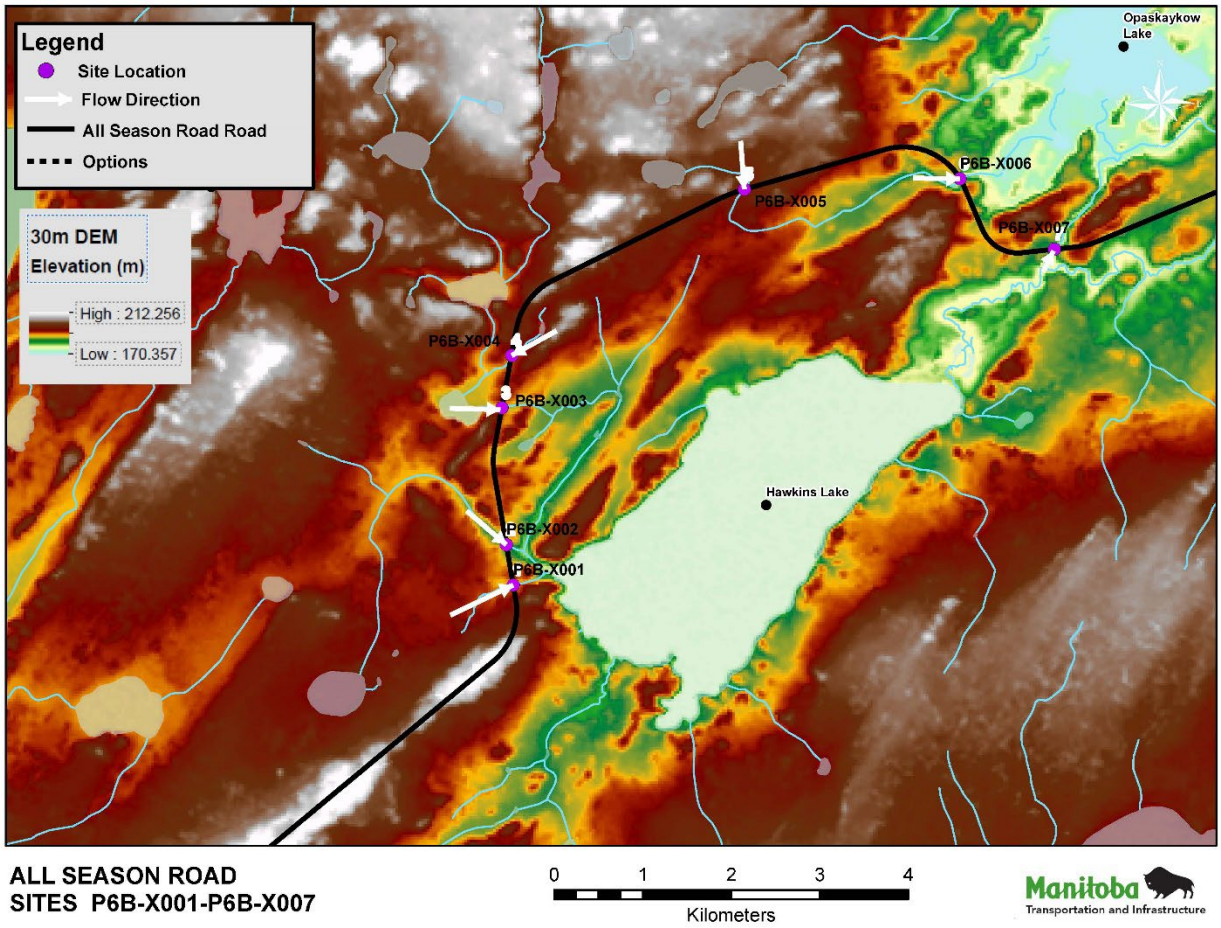


Figure IR1-07-9. Localised flow direction for Project 6 crossing locations P6b-X001 to P6b-X007 based on digital elevation model.

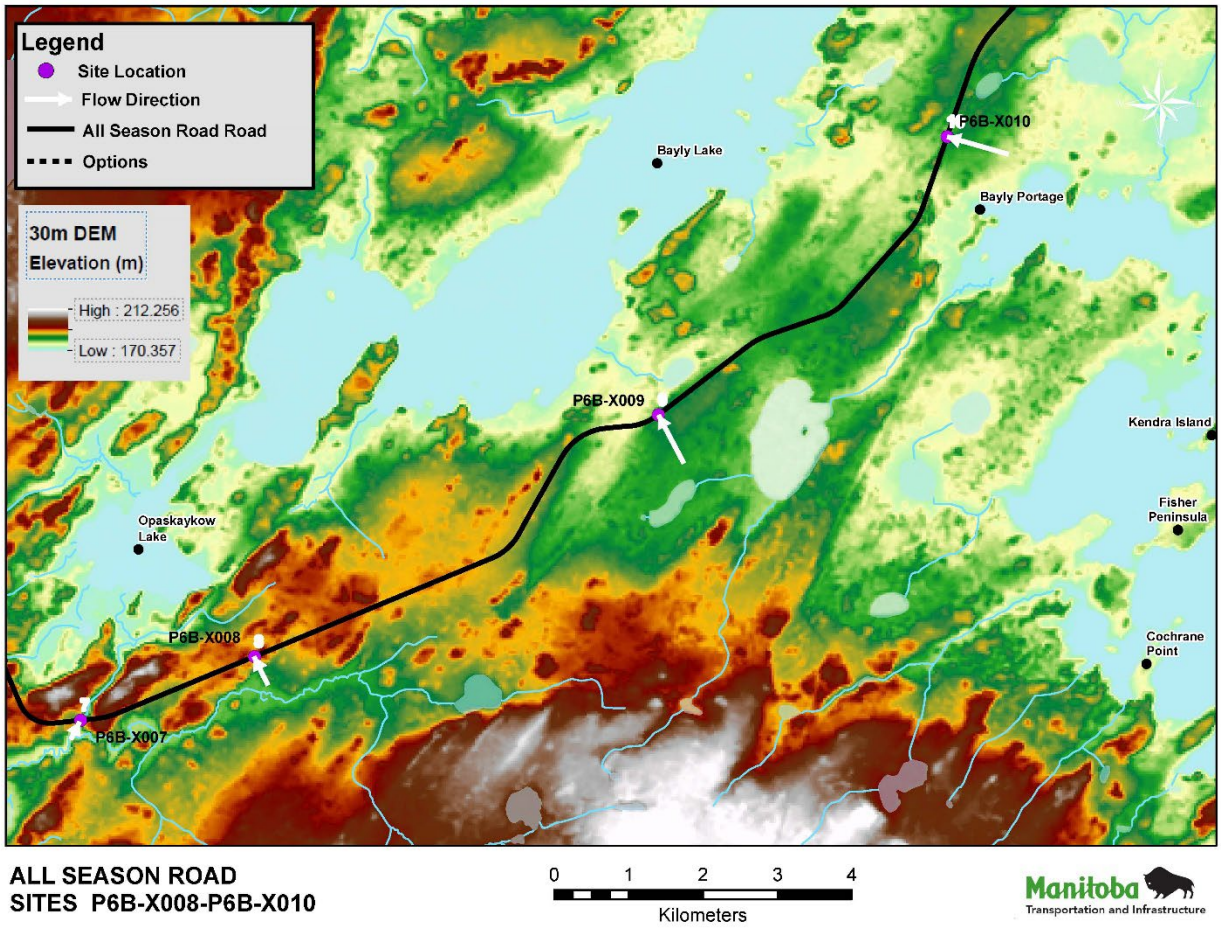


Figure IR1-07-10. Localised flow direction for Project 6 crossing locations P6b-X008 to P6b-X010 based on digital elevation model.

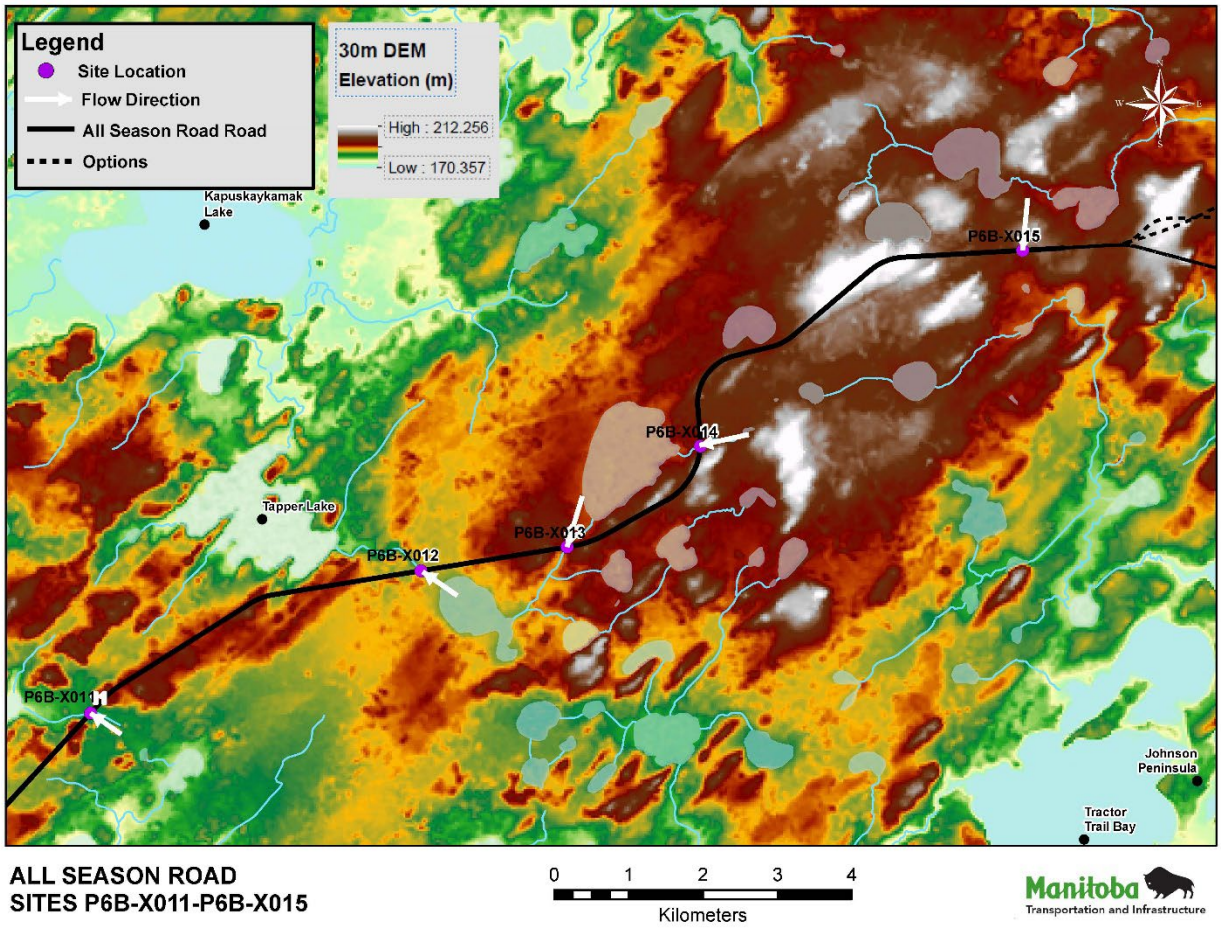


Figure IR1-07-11. Localised flow direction for Project 6 crossing locations P6b-X011 to P6b-X015 based on digital elevation model.

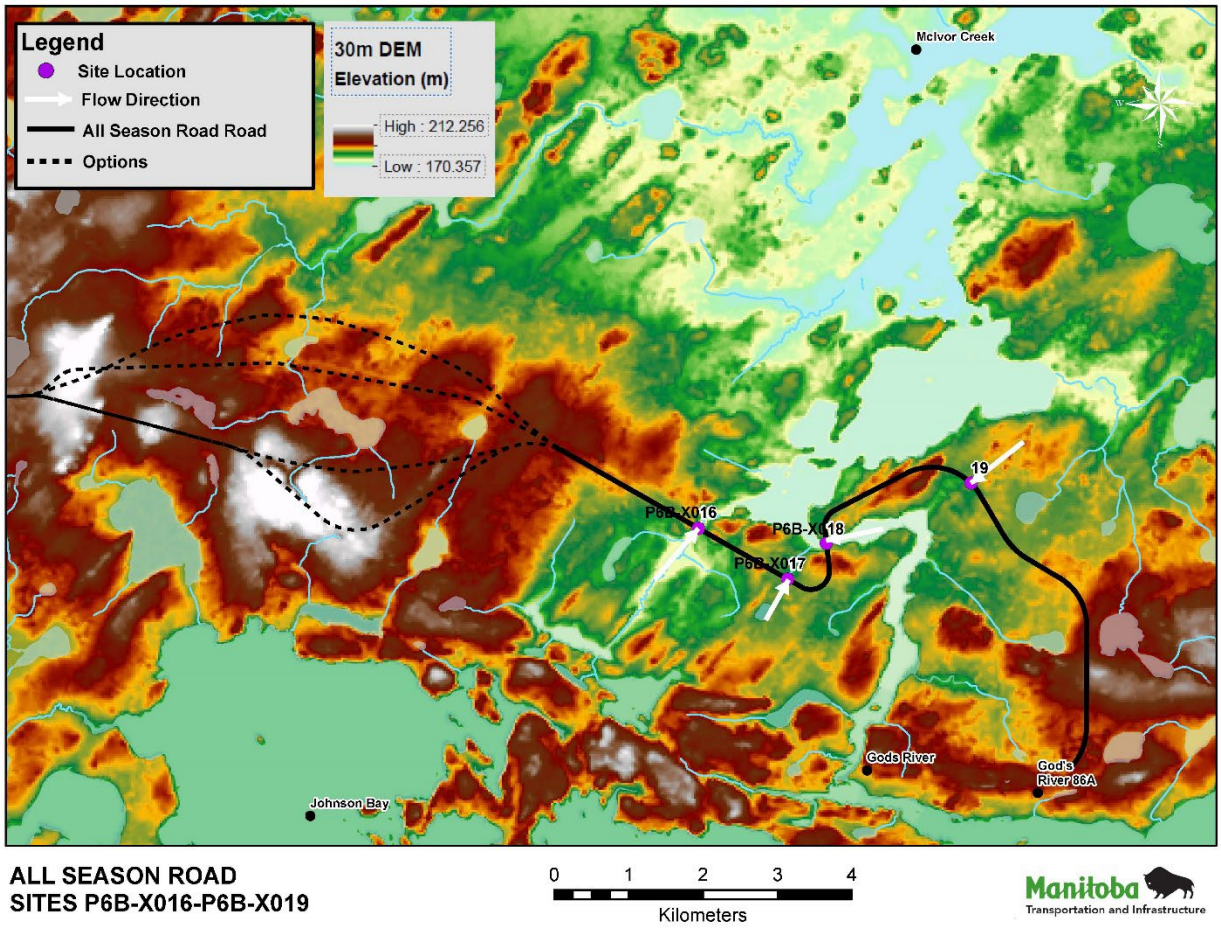


Figure IR1-07-12. Localised flow direction for Project 6 crossing locations P6b-X016 to P6b-X019 based on digital elevation model.

b) As described in Section 3.3.2 in Chapter 3 of the Project's EIS, hydraulic and geotechnical investigations will be conducted to finalize crossing locations and to determine hydraulic and foundation conditions. The results of hydraulic analyses will be used to determine the size of crossings so that each location meets a 1 in 50 year flood scenario design. Given this design criteria, the Project footprint is not anticipated to be at risk of flooding and is not expected to impede or impact local and regional drainage and a figure has not been included.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-08

EIS Guideline Reference	• Part 2, Section 6.1.5 and 6.1.6
EIS Reference	• Chapter 6, Section 6.1.5.1.3 and 6.1.5.1.6 • Appendix C-1, Appendix 4 and 5
Category	Surface Water

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent describe hydrological regimes, including monthly, seasonal, and annual water flow (discharge) data for waterbodies and watercourses with which the Project may interact. For each waterbody and watercourse potentially affected by the Project, the proponent is also required to describe the total surface area, bathymetry, maximum and mean depths, water level fluctuations, type of substrate (sediments), fish populations, and fish habitat present. The EIS Guidelines also note that certain intermittent streams or wetlands may constitute fish habitat or contribute indirectly to fish habitat and that the absence of fish at the time of the survey does not irrefutably indicate an absence of fish habitat.

The EIS notes that no active hydrometric data collection stations operated by the Water Survey of Canada are present on the watercourses and waterbodies intersected by the proposed ASR. As such, data from three Water Survey of Canada hydrometric stations present in the regional watershed were used. These stations are located on Back Lake adjacent to Bunibonibee Cree Nation, God's River near Shamatawa, and on the Hayes River. A figure showing the location of these stations relative to the Project is not provided, nor is a description of how data from the three hydrometric stations listed above relate to or may act as a proxy for understanding the hydrological regimes of the waterbodies and watercourses that may be affected by the Project.

The EIS describes the characteristics of fish-bearing watercourses and waterbodies where crossings will be required for the proposed Project, including channel width and depth, flow, bank stability, and streambed substrates. However, this information is not provided for non-fish-bearing watercourses and waterbodies which may contribute indirectly to fish habitat.

This information is required to support the proponent's baseline description of fish and fish habitat in the area of the Project and conclusions regarding the extent and nature of potential Project effects to current use of lands and resources by Indigenous peoples.

Information Request

a) Provide a figure depicting the location of the referenced hydrometric stations.
b) Provide a rationale for how hydrometric data for Back Lake, Hayes River, and God's River apply to and/or acts as a proxy for all of the waterbodies/watercourses that may be affected by the Project.
c) Describe the characteristics (e.g. channel width and depth, flow, bank stability, and type of substrates) for non-fish-bearing watercourses and waterbodies which may contribute indirectly to fish habitat and that may potentially be affected by the Project.

Response

a) A map of real-time hydrometric stations is available on the Government of Canada website (GOC 2024). A new figure depicting hydrometric stations is presented in Appendix IR1-08-1, as Figure IR1-08-1.

b) As described in Chapter 6, Section 6.1.5.1.1 of the Environmental Impact Statement (EIS), surface water in the area generally drains towards Hudson Bay in the north-east via the Hayes River Drainage Basin. Oxford Lake, where Bunibonibee Cree Nation is situated is part of the Hayes River system and drains via the Hayes River. God's Lake, where Manto Sipi Cree Nation and God's Lake First Nation are situated, drains north-east via the God's River. Hydrometric stations along the Hayes and God's rivers therefore are representative of the broader flows throughout the region as these two rivers receive water from the extensive bogs and fens, as well as the many creeks, rivers and lakes throughout the region.

Many of the crossings for the proposed road are in small watersheds with drainage areas of less than 5 sq.mi, so the Rational Method will be used to calculate the design flow to size these culvert crossings as is normal practice in Manitoba. In such a case, peak flow is often dominated by rainstorms instead of snowmelt runoff, so a rainfall Intensity-Duration-Frequency (IDF) value will be applied in rainfall-runoff modeling for design flow calculation.

For crossings in medium- and large-sized watersheds, flood-discharge and flood-level frequency curves at nearby stations will be established, which can be used as an index to calculate the design flow or level at the stream crossings for this Project, in terms of hydro-meteorological and geophysical similarities. A list of nearby index stations with established flood-discharge and flood-level frequency curves is provided below:

- Hayes River Below Trout Falls (04AA004); period of flow record: 1974 - present
- Gods River Below Allen Rapids (04AC005); period of flow record: 1933 – 1994
- Island Lake River Near Island Lake (04AC007); period of flow record: 1933 – 1994
- Gods Lake (04AC006, 04AC004, 04AC001); period of water level record: 1933 – 1994
- Oxford Lake At Oxford House (04AA002); period of water level record: 1957 – 1990
- Back Lake Near Oxford House (04AA003); period of water level record: 1970 – present

c) The proposed Project is located primarily within the God's Lake Ecodistrict (#365) in the Hayes River Upland Ecoregion of the Boreal Shield Ecozone, with part of the alignment to Manto Sipi Cree Nation, east of Tapper Lake, falling within the Knee Lake Ecodistrict (#360) (Smith et al. 1998). This region is characterized by boreal forests, bogs, and fens, with many small, isolated lakes, ponds, and creeks that often lack stream channels. Soils in the God's Lake Ecodistrict range from well-drained mineral soils, such as eluviated eutric brunisols and grey luvisols, to poorly drained peat-filled bogs and fens. Within the Project footprint and surrounding areas, wetlands are primarily bog and fen complexes. Smaller streams in these wetlands are generally shallow and drain local areas into larger water bodies.

The 28 waterbodies classified as non-fish bearing habitat were deemed as such due to the absence of a channel (i.e. undefined channel width and or banks as seen in wetlands) or clear connection to fish-bearing waters (NSC, 2017), in addition to their isolation, they typically have shallow depths, low pH, and low dissolved oxygen, which generally freeze solid in winter and do not support fish populations. See Table IR1-08-1 for a list of non-fish bearing waterbodies, their type and flow regimes.

Table IR1-08-1. Non-fish bearing waterbody

Site	Waterbody Name	Waterbody Type	Flow Regime
P6a-X001	Unnamed Tributary of Hayes River	Stream	Ephemeral
P6a-X003	Unnamed Tributary of Hayes River	Stream	Ephemeral
P6a-X004	Unnamed Tributary of Hayes River	Wetland	Ephemeral
P6a-X006	Unnamed Tributary of Michikanes Lake	Stream	Ephemeral
P6a-X009	Unnamed Tributary of Michikanes Lake	Wetland	Ephemeral
P6a-X010	Unnamed Tributary of Michikanes Lake	Wetland	Ephemeral
P6a-X011	Unnamed Tributary of Michikanes Lake	Wetland	Ephemeral
P6a-X012	Unnamed Tributary of Michikanes Lake	Wetland	Ephemeral
P6a-X013	Unnamed Tributary of Michikanes Lake	Wetland	Ephemeral
P6a-X014	Unnamed Tributary of Michikanes Lake	Wetland	Perennial
P6a-X015	Unnamed Tributary of Michikanes Lake	Wetland	Ephemeral
P6a-X016	Unnamed Tributary of Michikanes Lake	Wetland	Ephemeral
P6a-X017	Unnamed Tributary of Michikanes Lake	Stream	Ephemeral

Site	Waterbody Name	Waterbody Type	Flow Regime
P6a-X021	Unnamed Tributary of Magill Creek	Stream	Ephemeral
P6a-X024	Unnamed Tributary of Laird Lake	Stream	Ephemeral
P6a-X025	Unnamed Tributary of Hawkins Lake	Wetland	Wetland
P6a-X026	Unnamed Tributary of Wanless Lake	Wetland	Wetland
P6a-X030	Unnamed Tributary of Hignell Lake	Creek	Ephemeral
P6a-X035	Unnamed Tributary of an Unnamed Lake	Stream	Ephemeral
P6a-X036	Unnamed Tributary of an Unnamed Lake	Stream	Ephemeral
P6b-X001	Unnamed Tributary of Hawkins Lake	Stream	Ephemeral
P6b-X004	Unnamed Tributary of Hawkins Lake	Stream	Ephemeral
P6b-X005	Unnamed Tributary of Opaskaykow Lake	Wetland	Perennial
P6b-X008	Unnamed Tributary of Bayley Lake	Wetland	Ephemeral
P6b-X010	Unnamed Tributary of Tapper Lake	Wetland	Ephemeral
P6b-X011	Unnamed Tributary of Tapper Lake	Wetland	Ephemeral
P6b-X012	Unnamed Tributary of God’s Lake	Wetland	Ephemeral
P6b-X014	Unnamed Tributary of God’s River	Stream	Ephemeral

As described in Chapter 6, Section 6.1.6 of the EIS highly vegetated areas and beaver dams limit connectivity to major fish-bearing habitats. Beaver dams act to store water and slowly release it throughout the year, ensuring prolonged water availability, especially in times of drought (Hood & Bayley, 2008 ; Brazier et al., 2020). Most of the waterbodies are wetlands, followed by streams and one creek. The water flow is mostly ephemeral, meaning that it is a direct response from a precipitation event, except for two crossing locations (P6a-X014 and P6b-X005) that have a perennial water flow (NSC, 2017). Non-fish bearing waterbodies are characterized by having unsuitable habitat conditions that typically including low pH and dissolved oxygen levels, and generally shallow water prone to ice formation. Although P6a-X013 is located in a heavily vegetated area, during high water events (i.e spring runoff) may allow for occasional connectivity to Michikanes Lake, which consists of flat-water habitat, containing instream vegetation, fine sediments and organic substrates. Similarly, on site P6a-X015 there are portions of the tributary that contain small perennial pools and channels, but at the time of the study there was no clear connection to the main fish bearing waterbody, Michikanes Lake (NSC,2017). These locations are highlighted in Appendix IR1-08-1, as Figure IR1-08-2. Furthermore, there is no Traditional Knowledge record indicating that any of these waterbodies were identified by the communities as areas used for fish harvesting or as fish habitat.

Although field work conducted at the pre-construction stage and documented in the North South Consulting Existing Environment Report (NSC, 2017) did not include channel depth, bank stability or other details for non-fish bearing waterbodies, further assessment of these locations will be conducted as detailed engineering design advances. As described in the response to IR1-01, Manitoba Transportation and Infrastructure (MTI) will adhere to requirements of the Fisheries Act that will be carried out through current MTI practices such as use of Manitoba Stream Crossing Guidelines, as well as the Fish Swimming Performance User Guide and the Swim Performance Online Tool if applicable and other DFO guidance documents as applicable. In addition, MTI is committed to designing culverts and bridges crossing in potentially navigable waters in accordance with Transport Canada regulations for navigation and approvals being sought for the project under the Canadian Navigable Waters Act. Therefore, each crossing will be designed with consideration existing environmental conditions, fish (if present) and navigability.

APPENDIX IR1-08-1

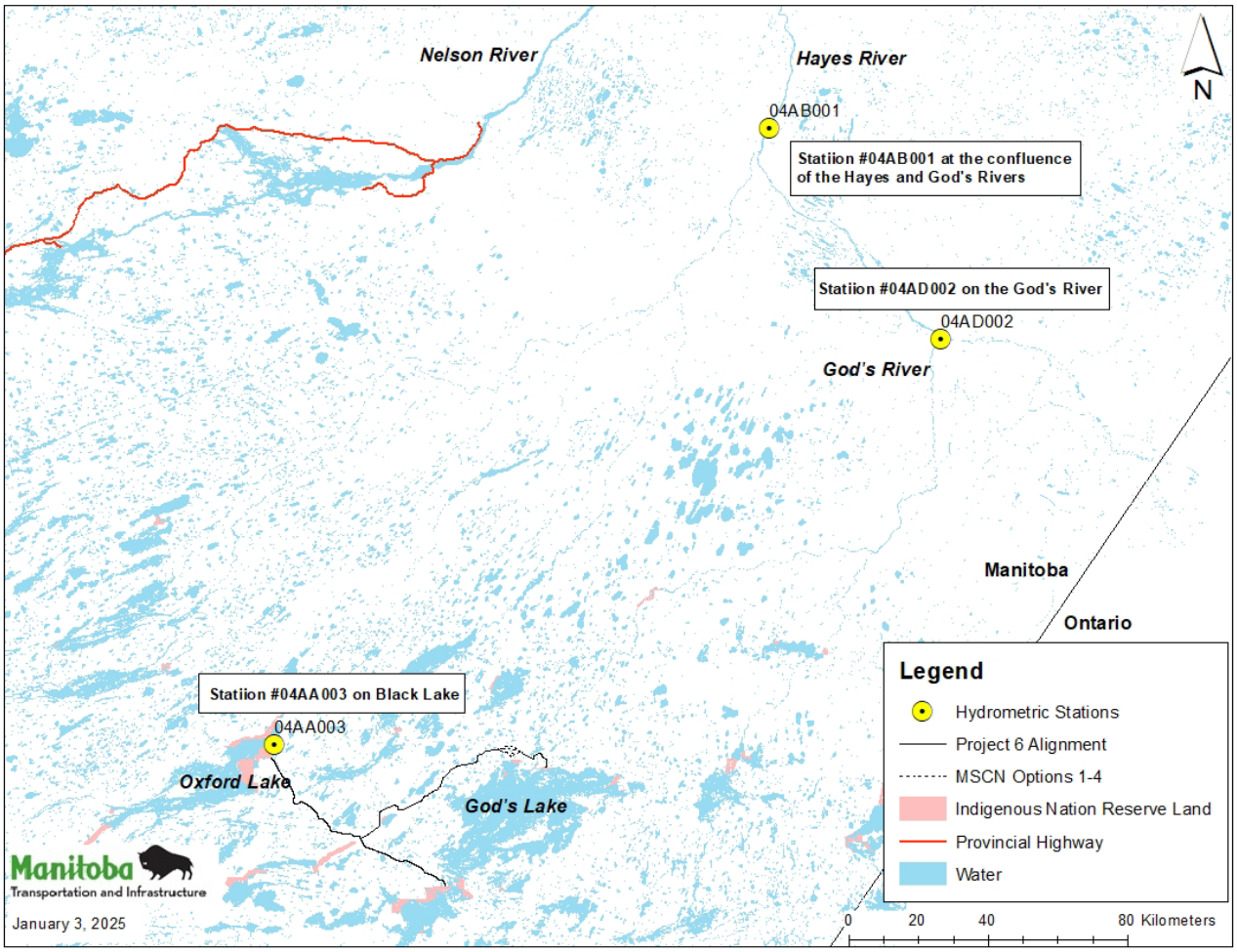


Figure IR1-08-1. Hydrometric stations located on Back Lake, God's River and the Hayes River.

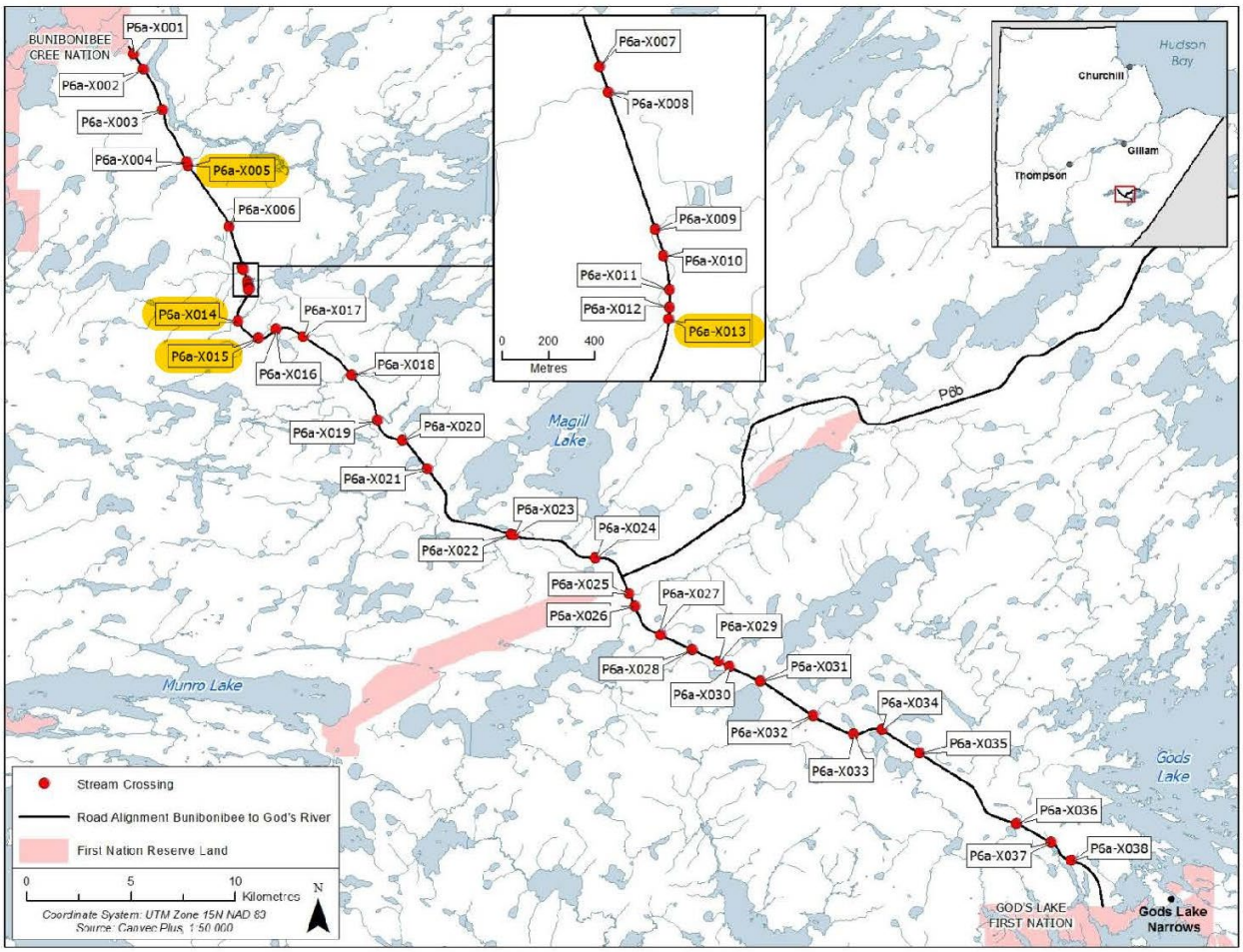


Figure IR1-08-2. Project 6- Study area and watercourse crossing locations (NSC, 2017).

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Smith R.E., Veldhuis, H., Mills, G.F., Eilers, R.G., Fraser, W.R., and G.W. Lelyk. 1998. Terrestrial ecozones, ecoregions, and ecodistricts of Manitoba, An Ecological Stratification of Manitoba's Natural Landscapes. Technical Bulletin 1998-9E. Land Resource Unit, Brandon Research Centre, Research Branch, Agriculture and Agri-Food Canada. Winnipeg, Manitoba.

2025-08-27

QUESTION IAAC IR1-09

EIS Guideline Reference	• Part 2, Section 6.1.2 and 8.0
EIS Reference	• Chapter 6, Section 6.1.2.1, 6.2.2, 6.2.4.1.4, and 6.4.2 • Environment and Climate Change Canada – Project 6 Technical Review Comments
Category	Geology/Geochemistry

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent describe the geochemical characterization of materials such as overburden and potential construction material to predict metal leaching and acid rock drainage potential; baseline concentrations of contaminants of concern within the local, regional, and downstream receiving environments; and geochemical characterization of leaching potential, including but not limited to, contaminants of concern from overburden and potential construction material. The EIS Guidelines also require that the proponent present a preliminary follow-up and monitoring program for all phases of the Project to verify the accuracy of the effects assessment and to determine the effectiveness of mitigation measures.

The EIS identifies the potential for sulphide mineralization and/or pyritic lithologies to be present at potential quarry sites and borrow areas, which could result in metal leaching and/or acid rock drainage. However, baseline concentrations of contaminants of concern and data characterizing the geochemical leaching potential within the Project footprint, Local Assessment Area (LAA), and Regional Assessment Area (RAA) were not collected as, according to the EIS, it is beyond the scope of the EA. The EIS goes on to state that "given the nature of the all-season road, there is little to no likelihood of significant adverse effects due to acid rock generation resulting from the Project". However, no rationale is provided regarding why a characterization of acid rock drainage potential is outside of the scope of the EA and what characteristics of the Project would prevent significant adverse effects as a result of acid rock drainage. It is also unclear how MI concluded that there is little to no likelihood of significant adverse effects due to acid rock drainage, given that no baseline data were collected or presented to support this assertion.

The EIS indicates that, as the Project would result in little to no change to geology or geochemistry, no specific measures to mitigate potential environmental effects of acid rock drainage have been proposed. To mitigate for acid rock drainage, the proponent commits to assess materials at potential quarry sites for the presence of sulphide mineralization and/or pyritic lithologies prior to commencing excavation activities; areas with acid rock drainage potential will be avoided. The proponent has proposed to evaluate the potential for acid rock drainage using visual inspection and/or laboratory testing of bedrock samples. However, no information is provided regarding the methods of laboratory testing of samples and visual inspection to detect the presence of sulphide is not an appropriate characterization method to classify rock as potentially acid generating or non-potentially acid generating for several reasons, such as:

- rock material with as little as 0.1 wt% sulphide can generate acid in the absence of neutralizing rock, and
- visual inspection of the rock surface is not necessarily indicative of materials below the surface, which would be exposed during excavation.

This information is required to understand and assess potential adverse environmental effects to surface water quality, and thus potential adverse effects to fish and fish habitat, migratory birds, the current use of lands and resources by Indigenous peoples, and the health of Indigenous peoples.

INFORMATION REQUEST

a) Given uncertainty in the potential for acid generation from rock materials proposed for use in the Project, describe potential adverse environmental effects that may result to any receptors and VCs as a result of Project components and activities that may expose potentially acid generating rock, including a description of the pathway of effects in the event that acid rock drainage is generated.
b) Describe in detail the follow-up and monitoring program that will be implemented to monitor for the generation of acid rock drainage and any adverse environmental effects that may result.
c) In the event that monitoring indicates that acid rock drainage is being generated, describe mitigation measures that will be implemented to limit or eliminate potential adverse environmental effects to receptors and VCs. This should include measures to prevent or limit the generation of acid rock drainage and associated measures to mitigate potential adverse environmental effects should acid rock drainage be generated.
d) As opposed to the visual inspection methodology proposed in the EIS to assess for the presence of potentially acid generating materials, conduct a complete characterization of

all potential quarries, borrow pits, and sites where blasting is to occur using static (acid/base accounting) and kinetic (metal leaching determination) laboratory tests to determine whether the rock is potentially acid generating. Provide this data and an analysis of the data collected to inform the assessment of potential adverse environmental effects of the Project or provide a detailed description of how and when this work will be completed and how data from these tests will be used to inform quarry, borrow pit, and blasting site selection.

RESPONSE

Bedrock in the regional assessment area (RAA) has a potential for acid rock drainage/metal leaching (ARD/ML) due to occurrences of sulphides based on the desktop assessment; however, there are no records of lithologies within the Project Footprint or LAA that are known to contain sulphide-bearing minerals and/or high metal content (Environmental Impact Statement (EIS) Section 6.1.2; Figures 6-4 and 6-6). Mining and mineral exploration is prevalent in northeastern Manitoba within and beyond the RAA, including north of God's Lake. In the last decade, there were seven major diamond exploration projects underway in the area north of Gods Lake, as well as six gold exploration projects, five for lead/zinc, and one for base metals (Mining Watch Canada, 2001). ARD/ML is not commonly associated with diamond mines and the kimberlite deposits that contain diamonds, with tailings and effluent pH values that are generally neutral (between 7 and 8) (Rollo, 2006). However, metals mining including gold, lead, zinc, and other base metals (copper and nickel) are often associated with sulphate mineralization and have the potential for ARD/ML to occur. Therefore, sources of construction materials in this area will also have potential for ARD/ML. Processes for identifying, testing, and mitigating ARD/ML are well known and there are established protocols for addressing potential issues.

a) **Potential adverse environmental effects**

Due to the nature of the proposed all-season road, there is little to no likelihood of significant adverse effects to valued components (VCs) due to acid rock generation resulting from the proposed Project. Any rock present within the proposed project area identified to have acid rock drainage potential, while anticipated to be small quantities within the RAA, would be avoided and/or have mitigation measures implemented to prevent significant adverse effects. The approach described in the following sections, for the Follow-up and Monitoring Program and Mitigation Measures, to identify, avoid and mitigate ARD/ML is anticipated to effectively address this issue.

Exposing and physically disturbing sulphide-bearing rocks can cause ARD to develop as fresh surfaces are exposed to air and water, and then runoff can mobilize metals, including heavy metals, such as iron, arsenic, manganese, and copper from the surrounding soils and bedrock, releasing

them into the environment. This can negatively impact the environment, human health and infrastructure. Rocks and soil that contain naturally occurring metal sulphides (primarily iron sulphide) react with oxygen and water to produce sulphuric acid or Acid Rock Drainage (ARD) over time. ARD is leachate drainage with a pH less than 4.5. The acidic drainage can dissolve metals in the sulphides and cause metal leaching (ML) by releasing metals to groundwater and/or surface water.

ARD occurs naturally within some environments as part of the rock weathering process but is exacerbated by large-scale earth disturbances characteristic of mining and other large construction activities, usually within rocks containing an abundance of sulphide minerals. Areas where the earth has been disturbed (e.g. construction sites or highway construction) have potential to create acid rock drainage. After being exposed to air and water, oxidation of metal sulphides (often pyrite, which is iron sulphide) within the surrounding rock and overburden generates acidity and lowers the pH of water runoff. The predominant metal ion is not always iron, and can be zinc, copper, or nickel. The most commonly mined ore of copper, chalcopyrite, is itself a copper-iron-sulphide and occurs with a range of other sulphides, all of which can lead to ARD if disturbed and allowed to weather.

Many acid rock discharges also contain elevated levels of potentially toxic metals, especially nickel and copper with lower levels of a range of trace and semi-metal ions such as lead, arsenic, aluminium, and manganese. The elevated levels of heavy metals can only be dissolved in waters that have a low pH, as is found in the acidic waters produced by ARD, this is known as metal leaching (ML). Thus, ARD can cause ML and are considered together as ARD/ML for further discussion.

ARD/ML can contaminate drinking water supplies with increased concentrations of toxic and carcinogenic heavy metals. If these metals are dissolved into the water, they can be highly mobile and can travel long distances; up to 50 km from the source, depending on topography, hydrography, geology and chemistry (Lemiere, 2010). The acidity can corrode metal water mains, further leaching lead, copper and zinc into water supplies. Concrete foundations and bridges, metal culverts and pipes, and buried wiring are examples of infrastructure that ARD can corrode and degrade, causing maintenance and replacement costs to increase (Nova Scotia, 2021).

Weathering of overburden and exposed bedrock outcrops, and subsequent release of trace elements into surface water is a naturally occurring process that is currently ongoing in areas where the overburden or bedrock material is in contact with surface water. Exposure of the materials to the atmosphere, as will occur during construction activities, will intensify the process. For this process to become an issue, the material would need to leach trace elements in concentrations, high enough to be harmful to aquatic biota. For ARD, this would be measured as the pH of the leachate water and may become a concern if it causes the pH of any receiving water bodies to drop below 6.5, the lower limit of the guidelines for protection of aquatic life (Canadian Water Quality Guidelines (CWQG) for the Protection of Freshwater Aquatic Life (PAL) (CCME 2018) and Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOG, MWS 2011)). Similarly for ML,

trace metals would need to leach at concentrations high enough to cause exceedances of the CWQG, the MWQSOG and preexisting background levels to be considered a concern.

According to Edraki et al.(2022) reaction rates for sulphide oxidation show that mine wastes may remain geochemically reactive for centuries to millennia if exposed to air and water. When reactive sulphide minerals such as pyrite are exposed to atmospheric oxygen by excavating them from below ground and bringing them to the surface, they immediately begin to generate acid which reacts rapidly with other minerals in the rock to generate leachate with elevated acid and/or elevated metals.

In the case of highway construction, the oxidation process is accelerated when these rocks are extracted, crushed, and used in applications like road alignments, ballast, and road surfacing materials, leading to higher concentrations of acids (Maloney & Carson, 2018). Crushing rock can expose large quantities of rock materials to air and water as it greatly increases the amount of surface area of the materials that are exposed to potential weathering.

The geochemistry of materials will vary from location to location based on the origin of the material and the combination of natural and anthropogenic processes which have occurred previously. In addition, the amount of ARD/ML that occurs will relate to the amount of surface area created, i.e. the area of exposed rock or soil, and the size of the crushed aggregate material. Traffic gravel (e.g. 2” down) would result in much more overall surface area and leachate potential compared to coarse blast rock used for the roadbed.

The potential impact of acid-generating rock on receiving waters requires detailed analysis and investigation of the discharge and sensitivity (buffering capacity) of the receiving waters, as well as the physical, geological, geochemical and mineralogical composition of the rocks generating the acid drainage (Maloney & Carson, 2018).

ARD can be prevented by incorporating sulphide hazard analysis into the pre-design stage of highway construction. Evaluating the likelihood of encountering sulphidic materials can decrease exposure of problematic materials (Daniels & Orndorff, 2003). Sampling must be timed carefully, as pH and heavy metal content vary with seasons and storm events. In addition, pyrite may be not readily apparent until it weathers. Acidity and heavy metal levels often spike after rainfall due to the flushing of dissolved and particulate materials. Therefore, relying on single water samples is inadequate; multiple samples are necessary, with pH values below 5.5 being particularly concerning. Low pH water samples should be tested for heavy metals, including arsenic, copper, lead, etc. (Maloney & Carson, 2018).

For the Project Footprint and LAA, the Aquatic Environment Report; Existing Environment (Appendix C-1 of the EIS) includes results of water quality sampling completed at 24 stream crossings along the project route which indicated that all stream crossings had pH within the CWQG and MWQSOG guidelines for the protection of aquatic life (6.5-9.0 pH units). The lowest in-situ pH values measured were 6.5 at three of the stream crossing locations, in total 20 of the locations had in-situ pH values between 6.5 and 6.9, with the four other locations between 7.1 and 7.7 which included

the major crossings at Magill Creek and God's River. The laboratory measured pH values all ranged from 6.90 to 7.84. Thus, the sites all have circumneutral pH conditions with relatively high total alkalinity (38.9 to 102.0 mg/L) which provides for buffering capacity against changes to pH and thus considered to have a low acid sensitivity. This suggests naturally occurring ARD/ML is unlikely to occur from the existing materials near waterbodies in the RAA.

There are no records of lithologies within the Project Footprint or LAA that are known to contain sulphide-bearing minerals and/or high metal content, thus the likelihood of ARD/ML generating materials being present is low. However, there is a potential for local bedrock formations to generate ARD/ML in locations where rock and construction materials may be exposed such as blasting at quarry sites and the use of that rock, or blasting along the road alignment.

MTI will conduct geotechnical investigations to support future detailed design, at that time the rock and other construction materials will also be sampled and assessed for ARD/ML using the sampling procedures, analytical methods and criteria described below in Response D. Materials with high metal leaching potential will be identified and delineated. Disturbance of these materials will be minimized and/or avoided where possible. Exposure of rock and soils with high metal leaching potential will be limited to active construction areas, and runoff from this material will be collected (e.g., in engineered ponds), tested and treated (e.g. passive or active, addition of alkaline materials to neutralize the acidity, enhanced wetlands) prior to discharge as required to meet applicable CWQG and MWQSOG surface water quality guidelines. Discussion of potential mitigation measures is provided below in Response C. Baseline conditions of receiving waterways will also be assessed at the detailed design stage of the project so that initial conditions are known prior to construction. Future monitoring and sampling results will then be compared to the baseline to monitor for changes in the chemistry of the water runoff and receiving waterbodies. If baseline conditions exceed applicable CWQG and MWQSOG surface water quality guidelines, then the development of site-specific guidelines based on baseline conditions may be required.

Generally speaking, in the event that ARD/ML is generated and left unmitigated it can have toxicological effects on ecological and human receptors via groundwater, surface water, soil, or sediment pathways. The project-specific pathways of effect include runoff to surface water bodies and infiltration to groundwater. Aquatic and benthic organisms, including fish, could potentially be negatively affected as a result of project-related ARD/ML via direct contact with impacted surface water and sediments. ARD/ML can cause physical, chemical, and biological degradation of stream habitat (Jennings, 2008). Terrestrial and avian organisms, including migratory birds and species at risk, could be negatively affected via ingestion of impacted surface water and/or direct contact with impacted surface water, soils and sediment.

Potential effects could include impacts to the health of fish, and other aquatic organisms, including impaired respiration, effects on growth and reproduction, and even mortality (Jennings, 2008). Acidic water and sediment pollution can alter river and stream channels, impacting natural flow patterns and harming aquatic habitats. Iron hydroxides and oxyhydroxides may be produced and can form a red/orange colored precipitate that may physically coat the surface of stream sediments

and streambeds destroying habitat, diminishing availability of clean gravels used for spawning, and reducing fish food items such as benthic macroinvertebrates (Jennings, 2008). The release of dissolved metals, including heavy metals, can also make the surface water toxic for terrestrial and avian organisms that drink the water. In addition, fish, and other aquatic organisms, may accumulate metals in their bodies, which can then be transported up the food web through bioaccumulation (Watson, 2013).

Significant adverse effects to VCs, including fish, fish habitat, migratory birds and species at risk, due to ARD/ML resulting from the project are not anticipated. Materials from quarries and/or material used in the road construction, or exposed in construction areas (e.g., blasting sites), within the proposed project area with ARD/ML potential, if any, will be avoided and/or mitigation measures implemented to prevent significant adverse effects. For human receptors, including Indigenous peoples, it is not anticipated that there would be a complete exposure ingestion pathway for humans via drinking water pathways (surface or groundwater) associated with the project. The ingestion pathway would be protected by MTI's proposed assessment, monitoring and mitigation described above and in the remainder of this response (Responses B-D), and by the fact that the drinking water supply is treated at various water treatment facilities located on the First Nation communities, which are located between 1.2 km and 3.7 km from the nearest project component. As indicated in the EIS (Chapter 6, Section 6.1.9.3) the traditional knowledge interviews and workshops completed with the various communities in the Indigenous RAA indicated that drinking water is sourced from surface water that is treated at the various community water treatment plants and that there was no indication of other seasonal, periodic or temporary water sources. Thus, no anticipated effects for humans via the drinking water pathway is anticipated.

There is a potential that human receptors, including Indigenous peoples, could be negatively affected as a result of project-related ARD/ML, if generated and left unmitigated, by direct contact through potential recreational activities such as swimming, boating, fishing, etc. in affected water bodies, and the consumption of affected food products such as fish harvested from impacted water bodies. Potential effects, although not likely to occur, could include toxicity (due to toxic heavy metals) from contact with contaminated water and consuming contaminated food products posing a health risk to humans. Significant adverse effects to VCs, including Indigenous peoples, due to ARD/ML resulting from the project are not anticipated as materials within the proposed project area with ARD/ML potential would be avoided and/or mitigation measures implemented to prevent significant adverse effects.

As described in Response C, geochemical testing of rock at potential quarries will be conducted early in the detailed design phase of the Project to evaluate the risk of ARD/ML. If pre-construction testing indicates potential acid rock drainage that cannot be avoided or mitigated, MTI is committed to assess its effects on VCs. The results of ARD/ML testing will be provided to IAAC and, where required, a re-evaluation of effects on VCs and mitigation measures.

b) **Follow-up and Monitoring Program**

The objective of MTI's follow-up and monitoring program is to guide the identification, confirmation, and mitigation of sulphide-bearing rock encountered within the Project 6 RAA. The program will assess the impact on the surrounding environment and evaluate the effectiveness of any implemented engineering designs put in place to reduce, prevent and/or control ARD/ML. Monitoring will be completed following best management practices including utilizing a risk-based approach such as the one described in Chapter 8 of the Global Acid Rock Drainage Guide (GARD Guide) (INAP, 2009). The GARD Guide includes details on the steps in the development of a monitoring program for acid rock drainage including the development of a conceptual site model, defining monitoring objective, designing the monitoring program, implementing the monitoring program, and data analysis and interpretation. These steps are detailed in Figure 8-2 from GARD Guide (INAP, 2009) provided below.

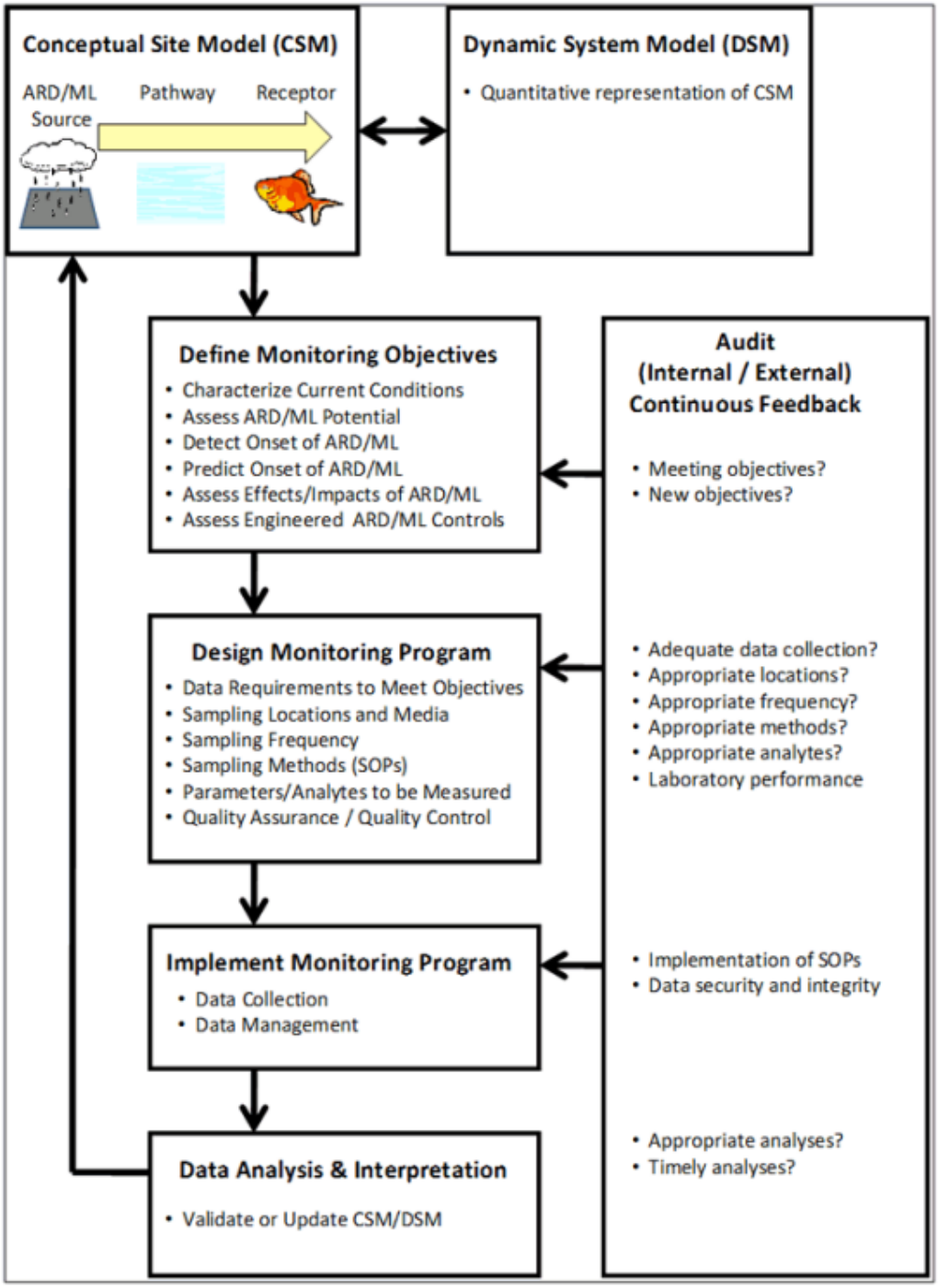


Figure IR1-09-01. Global Acid Rock Drainage Guide's Steps in the Development of a Monitoring Program for Acid Rock Drainage (Figure 8-2 GARD Guide)

A risk-based approach, such as the one described in the GARD Guide to monitoring, evaluates the relationship between the ARD sources, the organisms that live in the environment that receives the ARD products, and the pathways that link the discharge source to the organisms to determine the potential for exposure. Risk (or exposure) can only exist if a stressor (or source), pathway, and receptor coincide.

The Guard Guide (INAP, 2009) details that a risk-based environmental effects monitoring program seeks to identify the following:

- The pathways by which organisms may become exposed to an effluent.
- The extent to which these organisms are likely to be exposed.
- The effect or impact that exposure is likely to have on these organisms.

The monitoring program for ARD/ML would be overseen by an environmental professional and incorporate surface and/or groundwater quality and geochemical parameters which would likely include:

- Sulphate
- pH
- Electrical conductivity
- Metals
- Net Potential Ratio (NP/AP) from Acid-Base Accounting (ABA) testing
- Mineralogical analysis for sulphide content
- Kinetic testing to evaluate metal leaching potential

The program will begin with the ARD/ML assessment of bedrock upon exposure and continue through post-construction monitoring. Assessment and monitoring locations will likely include ARD/ML source areas such as rock outcrops where blasting was necessary, newly exposed bedrock from excavation activities, waste rock piles, stockpiles, and quarries. The monitoring plan will rely primarily on visual observations and the review of geological information, such as rock type and geological formation, with sampling conducted when ARD/ML potential is suspected. Collected samples will undergo laboratory analysis to determine total sulphur content and assess ARD potential.

If ARD potential is confirmed, appropriate mitigation measures, as outlined in Response C, will be implemented. Additionally, post-mitigation monitoring will be conducted to verify the effectiveness of these measures. Post-mitigation monitoring, if needed, will be conducted along ARD/ML transport pathways, including surface water bodies within the RAA and groundwater wells near construction zones. Potential receptor sites, such as downstream aquatic ecosystems, will be monitored to assess environmental impacts. Monitoring locations will be identified following the baseline assessment of contaminants of concern that will be conducted during the project's detailed design stage for all identified quarries, borrow pits, and blasting sites (see Response D).

Collection of samples at the potential source of ARD/ML provides information on the onset of ARD and the magnitude of constituent loading to the environment. Targeted monitoring would be completed and include action trigger levels and responses (i.e. covers, drainage collection) for when trigger levels are exceeded. If laboratory ABA testing results indicate an NP/AP result of <1, ARD mitigation will be required. A quality assurance and quality control program would also be included in the monitoring and sampling program.

The monitoring period will be determined on a site-specific basis. Determination of the appropriate sampling frequency for ARD/ML monitoring must consider temporal variability in acidity and metal release from sources related to climatic conditions. Seasonal changes in temperature and water levels, specifically spring freshet when there are elevated water levels due to snowmelt, or drought conditions with minimal precipitation, or frozen conditions in winter effect the oxidation reaction rates and the amount of ARD/ML that will occur. Initial monitoring would be completed more frequently with potential modifications over time to reduce the frequency if no concerns are identified. For stockpiles, quarterly water sampling is recommended during the first year following construction or as required by site-specific permitting (Golder Associates Ltd., 2015). Additionally, monitoring frequency will align with guidance from the Mine Environment Neutral Drainage (MEND) program (Price, 2009).

Monitoring results will be submitted to IAAC and shared with Bunibonibee Cree Nation, Manto Sipi Cree Nation, and God's Lake First Nation leadership. MTI is committed to ongoing engagement with Indigenous groups and will seek their input before finalizing the monitoring plan.

c) **Mitigation measures**

The primary mitigation measure for ARD/ML is avoidance. If an existing or potential quarry is found to have high ARD/ML potential, the quarry will not be used or developed. Before the start of construction, the bedrock and construction materials will be sampled and assessed for ARD/ML using the sampling procedures, analytical methods and criteria described below (Response D). Materials with high ARD/ML potential will be identified and delineated. Disturbance of these materials will be minimized and/or avoided where possible. Exposure of bedrock with high ARD/ML potential will be limited to active construction areas, and runoff from this material will be collected (e.g., in ponds), tested and treated prior to discharge if required per Manitoba Water Quality Standards, Objectives and Guidelines and in accordance with CCME guidelines.

The Quarry Site Selection and Development Requirements (Chapter 8, Appendix 8-2, EP 20 of the EIS; also available in Appendix IR1-19 in the response to IR1-19) state that "Prior to development quarry sites the potential for acid rock generation will be assessed with the intent of not developing such sites." Therefore, potential effects related to ARD when developing new and using existing quarries, including related effects on other VCs, will not occur. In the RAA it is unlikely to find high ML in a quarry with low ARD potential, because both ARD and ML are generally related to oxidation of sulphide minerals.

Any potential quarry locations that are determined to have a high potential for ADR/ML will be avoided. The locations of potential rock quarries for construction are shown on Figure 6-6 of the EIS (included as Figure IR1-09-02, Appendix IR1-09-1 below) and discussed in Chapter 3, Section 3.3.5 of the EIS. As per Section 3.3.5, "While 62 potential quarry locations have been identified in the vicinity of the proposed all-season road alignment, only 19 quarries are expected to be required for Project construction. Geochemical testing of rock at potential quarries will be completed early in the detailed design phase of the Project to assess the potential for metal leaching and acid generation from quarried rock. This information will be used in the selection of quarry sites."

Exposed soils will be covered with topsoil or other non-acid generating cover materials as soon as possible to reduce the risk for acid rock drainage, by reducing oxidation due to air exposure and reducing water exposure from precipitation and runoff, reducing or eliminating the pathway of effect. Upon completion of the borrow pit excavation, borrow pits would be capped, stockpiled topsoil shall be spread, and the area re-vegetated (Chapter 8, Appendix 8-2, EP 19 - Borrow Pit Decommissioning of the EIS; also included in Appendix IR1-19-1 of the response to IR1-19). Thus, limiting any long-term ARD/ML concerns in those areas.

When exposure cannot be avoided, proper characterisation of the material allows for immediate application of appropriate remedial procedures. Currently, the only known proven technique for permanently remediating these situations is to bulk-blend lime or other alkaline materials with the cut surface, or with the bulk of the disposal fill based upon appropriate acid-base accounting procedures. Where feasible, isolating the potentially acid generating material from oxygen and/or water by creating a water cover or by constructing a dry cover (Mining Watch Canada, 2001).

Where avoidance is not possible, such as along the road alignment where blasting is required, additional adaptive measures, such as engineered covers, will be considered to mitigate potential negative effects of rock with high ARD/ML potential on surface and groundwater. In addition, if monitoring indicates that acid rock drainage is being generated, additional mitigation measures will be implemented to limit or eliminate potential adverse environmental effects to receptors and VCs.

Additional mitigation options for ARD/ML that would be considered for potential implementation, depending on the site (quarry, road base, or cut locations) and conditions (i.e. proximity to water bodies, grade level and slope) may include, but are not limited to (AGI, 2024):

- Reclamation of contaminated land by (1) adding lime or other alkaline materials to neutralize the acidity, and (2) adding uncontaminated topsoil, planting vegetation, and modifying slopes to stabilize the soil and reduce or stop infiltration of surface water into underlying contaminated material.
- Soil removal to relocate contaminated material to new sites where it can be monitored and treated.
- Direct treatment of the contaminated water, either through treatment plants (where lime or other neutralizing materials are added to reduce the acidity, which causes metals to precipitate out of the contaminated water) or artificial wetlands or ponds

(which help sequester contaminated material in place, and where microbial action produces oxygen-free conditions to help prevent further sulphuric acid formation).
- Diverting water from the site to prevent it from running through ARD-forming materials.

If needed, a site mitigation plan would be prepared, this could involve redirecting road drainage away from streams, incorporating limestone into road surfaces, or removing and safely storing acid-generating rock. Important considerations include whether sulphide-bearing rocks are present in the watershed, if mineralized quarry rock is used near streams or lakes, and if surface drainage from acid-generating rock can reach streams (Maloney & Carson, 2018). Detailed assessment of rock and construction materials for the potential for ARD/ML would be completed at the detailed design stage of the project prior to construction, as described in the following section.

d) **Assessment for acid rock drainage and metals leaching**

MTI will conduct a complete characterization of all potential quarries, borrow pits, and sites where blasting is to occur using static (acid/base accounting) and/or kinetic (metal leaching determination) laboratory tests to determine whether the rock is potentially acid generating. MTI will provide this data and an analysis of the data collected to inform the assessment of potential adverse environmental effects of the Project. This work will be completed as described below and data from these tests will be used to inform quarry, borrow pit, and blasting site selection.

During the detailed design stage of the project, a baseline assessment for contaminants of concern will be completed for all potential quarries, borrow pits, and sites where blasting is to occur (when identified).). The field program will include sampling of rock and contact water (e.g., seeps from stockpiles, if present). Sampling frequency will be based on the Mine Environment Neutral Drainage (MEND) guidance (Price, 2009). Rock samples will be laboratory tested for acid base accounting (ABA) to assess ARD potential. The results of ARD/ML testing will be submitted to IAAC and, if ABA procedures are used as a screening process to categorize materials into potentially acid generating and non-acid generating, in addition to determining the forms of sulfur and carbon that are present (ALS, 2019). The MEND guidance (Price, 2009) indicates that ABA consists of:

- Analysis of present pH (rinse pH for weathered material and crushed or paste pH for the weathered and unweathered material).
- Analysis of sulphur species and calculation of Acid Generation Potential (AP).
- Analysis of Acid Neutralization Potential (NP).
- Calculation of neutralization potential ratio (NPR or NP/AP) and net neutralization potential (NNP or NP minus AP).

The future potential for ARD depends on the relative concentration and reaction rates of AP and NP. The relative magnitude of the NP and AP is indicated by the ratio of NP/AP. Assuming accurate AP

and NP measurements, MEND indicates future drainage pH is considered to be (NRC, 2010; Price, 2009):

- Potentially net acid generating if NP/AP < 1.
- Not potentially net acid generating if NP/AP > 2.
- Uncertain if NP/AP is between 1 and 2.

For material where there is a potential for acid generation, or the potential is uncertain, additional testing such as humidity cell testing (also know as kinetic cell testing) can be performed to help define acid generation potential and characteristics, if needed in areas that cannot be avoided (such as blasting locations along the alignment).

To assess for ML potential, MEND (Price, 2009) indicates that the recommended procedure for measuring soluble constituents it to add the sample to shake flasks, with a default ratio of 3 parts solid to 1 part water on a weight basis and gently agitate it for 24 hours. These test conditions can be changed as needed to address site specific prediction questions. Shake Flask Extraction (SFE) is a static solubility test procedure that laboratories are able to preform following the guidance from MEND (ALS, 2019). SFE from rock and soil samples will be analyzed for the suite of trace elements listed in:

- Canadian Water Quality Guidelines (CWQG) for the Protection of Freshwater Aquatic Life (PAL) by CCME (2018).
- Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOG, MWS 2011).

Metal leaching criteria will be based on contact water chemistry with CWQG and MWQSOG thresholds and baseline concentrations in the receiving environment (e.g., surface water). If a parameter in contact water exceeds the baseline concentrations and acute CWQG and MWQSOG thresholds, the material will be assigned high ML potential.

The procedures proposed above may change if better procedures become available (e.g., new testing technology, etc.). Also, if the contractor wants to use a different procedure, they will have to provide Manitoba Transportation and Infrastructure with a justification that the proposed procedure meets the need for identification of ARD/ML, and Manitoba Transportation and Infrastructure must approve the change request before the contractor can proceed. Use of other procedures need to be approved by Manitoba Transportation and Infrastructure and the provincial permitting body. Manitoba Transportation and Infrastructure will only approve changes where appropriate to do so.

The timing of the field program is dependent on finalizing the construction schedule; however, these surveys will be done in advance and in support of evaluating quarry options and development of the overall construction execution plan.

Data from the ARD/ML tests will be used to inform quarry, borrow pit, and blasting site selection. Rock and materials with high ML potential will be avoided where possible and other quarry or

borrow pit locations with low ML potential selected for use. If avoidance is not possible, such as at blasting locations for segments of the road alignment that cannot be altered, then results will be used to determine site-specific mitigation options such as those described above (Response C).

APPENDIX IR1-09-1

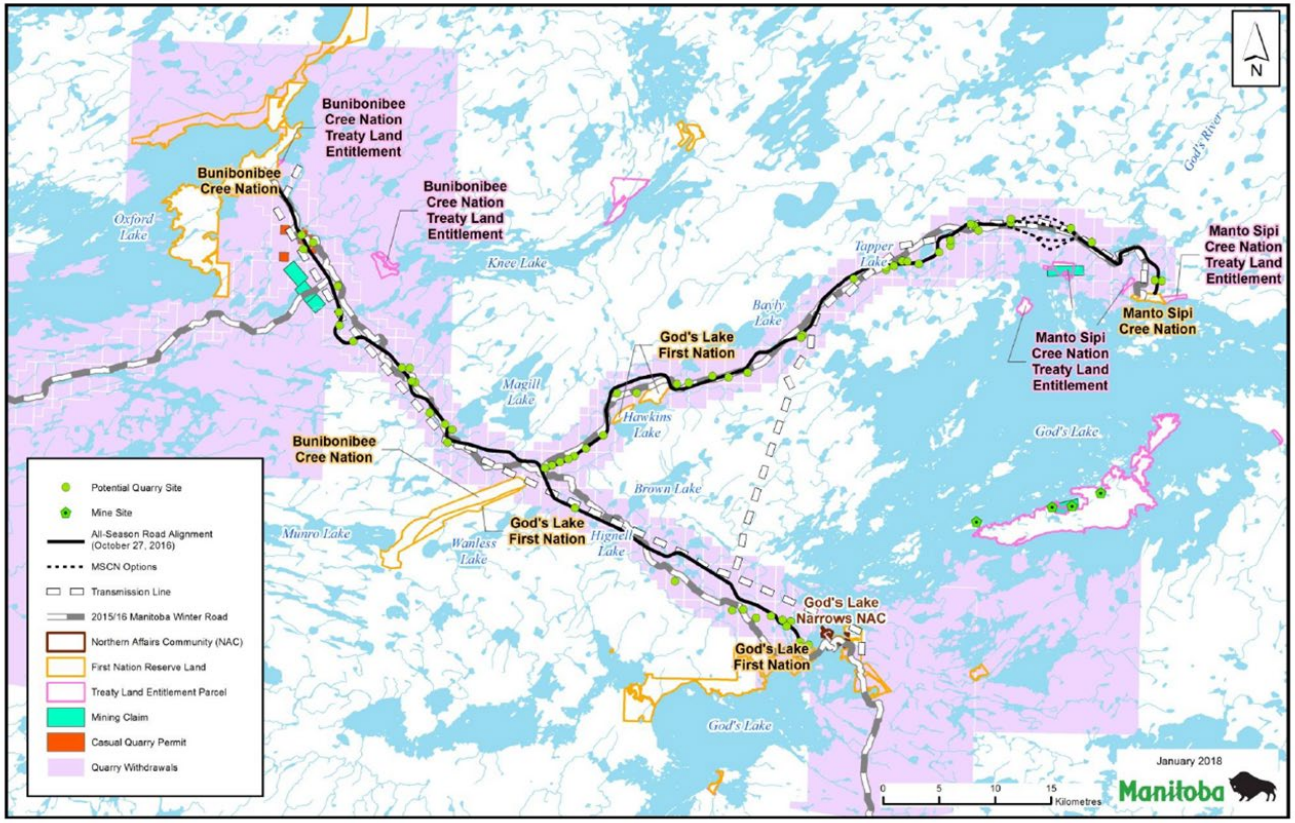


Figure IR1-09-02. Quarry and mining activity in the vicinity of the proposed project and potential construction quarry sites (Figure 6-6 in the EIS)

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QUESTION IAAC IR1-10

EIS Guideline Reference	• Part 2, Section 6.1.5
EIS Reference	• Chapter 6, Section 6.1.5.1.4 and 6.3.4.5.3 • EIS Appendix C-1, Section 4.3.1 • CEAA Annex 2: Early Technical Issues, August 27, 2018 • Environment and Climate Change Canada – Project 6 Technical Review Comments
Category	Surface Water

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent describe seasonal surface water quality, including analytical results (e.g. water temperature, turbidity, pH, dissolved oxygen profiles) and provide an interpretation of this data for representative tributaries and waterbodies, including all sites to receive Project runoff.

The EIS includes one-time baseline water quality data (i.e. temperature, dissolved oxygen, specific conductance, pH, total suspended solids, and turbidity) and nutrient profiles (i.e. ammonia, nitrate, nitrite, total nitrogen, total dissolved and particulate phosphorus, and organic carbon) collected from 24 of 53 stream crossings in the Project footprint. However, the EIS does not include seasonal baseline water quality sampling data from stream crossings in the Project footprint. With respect to this omission, the EIS states “while seasonal water quality sampling (i.e. multitude of sampling over the same year) was not conducted for the Project, such data is available for streams of similar physical characteristics within the same ecozone” and describes how baseline data collected for the Keeyask Power Generation Project (the Keeyask Project) in the Aiken River, Two Goose Creek, Portage Creek, and Rabbit Creek may apply to the Project as these watercourses are similar to streams in the Project study area and are within the Boreal Shield Ecozone. However, the proponent has not provided the baseline data collected for the Keeyask Project, any other relevant data on the watercourses noted, or a comparison of water quality between the Project footprint and the

sampled streams for the Keeyask Project to support the claim that this data can be used as proxy for baseline water quality data for the Project. Without this information, the appropriateness of this dataset as proxy baseline data for the Project cannot be assessed.

The EIS also does not provide baseline data for metals present within waterbodies or watercourses that will or may receive Project runoff. As the Project involves blasting, excavation, and storage of specific bedrock types that may contain materials subject to the generation of geochemical leachate, the Project has the potential to generate acidic runoff that may cause metal leaching. While mitigation measures for avoidance of quarry development in areas with acid generation potential are presented in the EIS, there is potential for acid generation and metal leaching in areas of blasting or rock cutting other than quarries, however this information was not provided.

This information is required to support the proponent's characterization of potential Project effects to surface water quality, and thus potential adverse environmental effects to fish and fish habitat, migratory birds, the current use of lands and resources by Indigenous peoples, and Indigenous peoples' health.

INFORMATION REQUEST

a) Provide the baseline water quality data collected for the Keeyask Project for watercourses that MI purports are representative of baseline water quality for the Project footprint, LAA, and/or RAA.
    - Provide an analysis of the baseline water quality data collected for the Keeyask Project, including an analysis of its applicability as proxy baseline data for the Project. This analysis must include a description and comparison of the physical characteristics of representative streams against streams within the Project footprint, LAA, and/or RAA to support the assertion that the physical characteristics of these streams are similar.
b) Describe which waterbodies and watercourses will or may receive Project runoff and indicate the location where runoff may enter these features.
c) Provide baseline water quality data for metals at sites that are to receive Project runoff from areas of blasting, rock cutting, and quarries, to support monitoring for the effectiveness of mitigation measures to avoid acid rock drainage and metal leaching.

RESPONSE

a) Water quality parameter data collected from God's River, Magill Creek and up to 22 other stream crossings along the all-season road alignment are summarized in Table IR1-10-1 below. Additionally, baseline water quality parameter data collected as part of the Keeyask Project in the Aiken River, Two Goose Creek, Portage Creek, and Rabbit Creek has been summarized in Table IR1-10-1.

Baseline water quality data collected for the Keeyask Project include multi-year sampling across representative tributaries and creeks, including Aiken River, Portage Creek, Two Goose Creek, and Rabbit Creek. Water quality parameters included dissolved oxygen, pH (field and laboratory), specific conductance, total suspended solids (TSS), turbidity, total phosphorus, total organic carbon, and chlorophyll-a. These data characterize natural water quality conditions during the open water season in boreal shield environments and are well suited for comparison with streams in the Project 6 area.

As described in Appendix C-1 of the Environmental Impact Statement, baseline water quality sampling was conducted at 24 stream crossings along the proposed all-season road alignment. Sampling locations included key watercourses such as God's River and Magill Creek, as well as a variety of perennial and intermittent streams. Parameters analyzed were consistent with those included in the Keeyask project, including field measurements (dissolved oxygen, pH, specific conductance) and laboratory indicators (TSS, turbidity, total phosphorus, total organic carbon, chlorophyll-a).

Comparison of both datasets demonstrates strong consistency in water quality characteristics, For instance, field measured pH values for Project 6 ranged from 6.8 to 7.7, while for Keeyask ranged from 7.6 to 8.2. Specific conductance values were similar, with Project 6 averaging approximately 117 µS/cm and Keeyask ranging from 125 to 168 µS/cm. TSS and turbidity also fall within comparable ranges: <2 to 3.73 mg/L and 0.75 to 2.68 NTU in Project 6, and 2 to 7 mg/L and 2 to 6 NTU in Keeyask, respectively. Total phosphorus and chlorophyll-a concentrations were also broadly consistent across the datasets, suggesting similar nutrient and primary productivity levels. While dissolved oxygen levels were slightly lower in Project 6 (5.4 to 8.0 mg/L) compared to Keeyask (11.2 to 13.0 mg/L), all values remain within acceptable ranges for aquatic life and reflect typical variability based on temperature, site morphology, and time of sampling.

In terms of physical and ecological characteristics, both Projects are located in the Boreal Shield Ecozone, and the Hayes River Upland Ecoregion (Chapter 1 Project 6 EIS; Keeyask Hydropower Limited Partnership, 2012a). These regions are largely undeveloped areas dominated by coniferous forest, peatlands, and exposed granitic bedrock. NSC (2017) for Project 6 describe watercourses with low to moderate gradients, riffle-run-pool morphology,

and seasonal flow variation, features that are consistent with the tributaries assessed in the Keeyask studies.

An overall comparison of the measured concentrations and values from the Project 6 sampling locations to the Keeyask Project data shows a general trend of lower concentrations and values in the Project 6 water quality data. Differences in the data samples may be attributed to the difference in sampling frequency with Keeyask Project data having been collected in four sampling events over the summer and early fall months and Project 6 data having been collected in a singular sampling event.

Baseline water quality data from the Project 6 area, that is reflective of water quality variations due to seasonality, will be collected at the detailed design stage of the project.

Table IR1-10-1 - Water Quality Parameters

Project Area	Watercourse	In-situ Parameters			Laboratory Parameters					
		Dissolved Oxygen (mg/L)	Specific Conductance (µS/cm)	Field pH (pH units)	Lab pH (pH units)	Total Suspended Solids (mg/L)	Turbidity (NTU)	Total Phosphorous (mg/L)	Total Organic Carbon (mg/L)	Chlorophyll *a* (µg/L)
Project 6[1]	Gods River	8.0	97	7.7	7.81	<2.0	0.75	0.0128	6.6	3.19
	Magill Creek	7.2	131	7.4	7.84	3.2	2.68	0.0065	10.0	1.95
	Average of 24 (in-situ)/22 (laboratory) stream crossings	5.4	117	6.8	7.42	3.73 [2]	0.98	0.0104	13.9	2.64
Keeyask[3,4,5]	Aiken River (AK-1)	11.2	160	8.2	7.79	7	6	0.026	17	5
	Two Goose Creek (TRIB-1)	13.0	141	7.7	7.71	<2	2	0.013	16	1
	Portage Creek (TRIB-2)	12.2	125	7.65	7.67	2	3	0.020	18	2
	Rabbit Creek (TRIB- 3)	11.8	168	7.6	7.61	2	4	0.016	23	2

1 – Data from EIS Appendix C-1: *Project 6 – All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation, Aquatic Environment Report – Existing Environment* by North South Consultants Inc.

2 – Calculated with the assumption that not detectable values were equal to the detection limit (2 mg/L).

3 – Data from *Aquatic Environment Section 2: Water and Sediment Quality, Table 2-2: Summary of key variables (means) measured in the study area and at several Manitoba Water Stewardship monitoring sites in northern Manitoba* (Keeyask Hydropower Limited Partnership, 2012b).

4 – DO and Field pH data from *Aquatic Environment Section 2: Water and Sediment Quality, Figure 2-3: Open water season mean (±standard error) dissolved oxygen concentrations* and *Figure 2-4: Open water season mean (±standard error) (A) laboratory pH and (B) in situ pH*. (Keeyask Hydropower Limited Partnership, 2012b).

5 – Total phosphorous and total organic carbon data from *Aquatic Environment Section 2: Water and Sediment Quality, Table 2H-1: Summary statistics for routine in situ and laboratory parameters measured in the study area: open water seasons, 2001–2004*. (Keeyask Hydropower Limited Partnership, 2012b).

NA - Not Available

b) Project runoff may be introduced at water crossing locations over the following waterbodies and watercourses:

Magill Creek, God's River, and Unnamed tributaries of Hayes River, Michikanes Lake, Knee Lake, Laird Lake, Hawkins Lake, Wanless Lake, Hignell Lake, God's Lake, Opaskaykow Lake, Bayley Lake, and Tapper Lake.

Water crossings are shown below as Figure IR1-10-1 and Figure IR1-10-2, also included as Figures 1 and 2 in the EIS Appendix C-1: Project 6 – All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation, Aquatic Environment Report – Existing Environment by North South Consultants Inc., copies of these figures are included on the next page.

However, for project components not related to water crossing locations, no other direct waterbodies are expected to receive Project runoff due to the use of setbacks, 100 m vegetated buffers and mitigation methods to be laid out in the site-specific EMP.

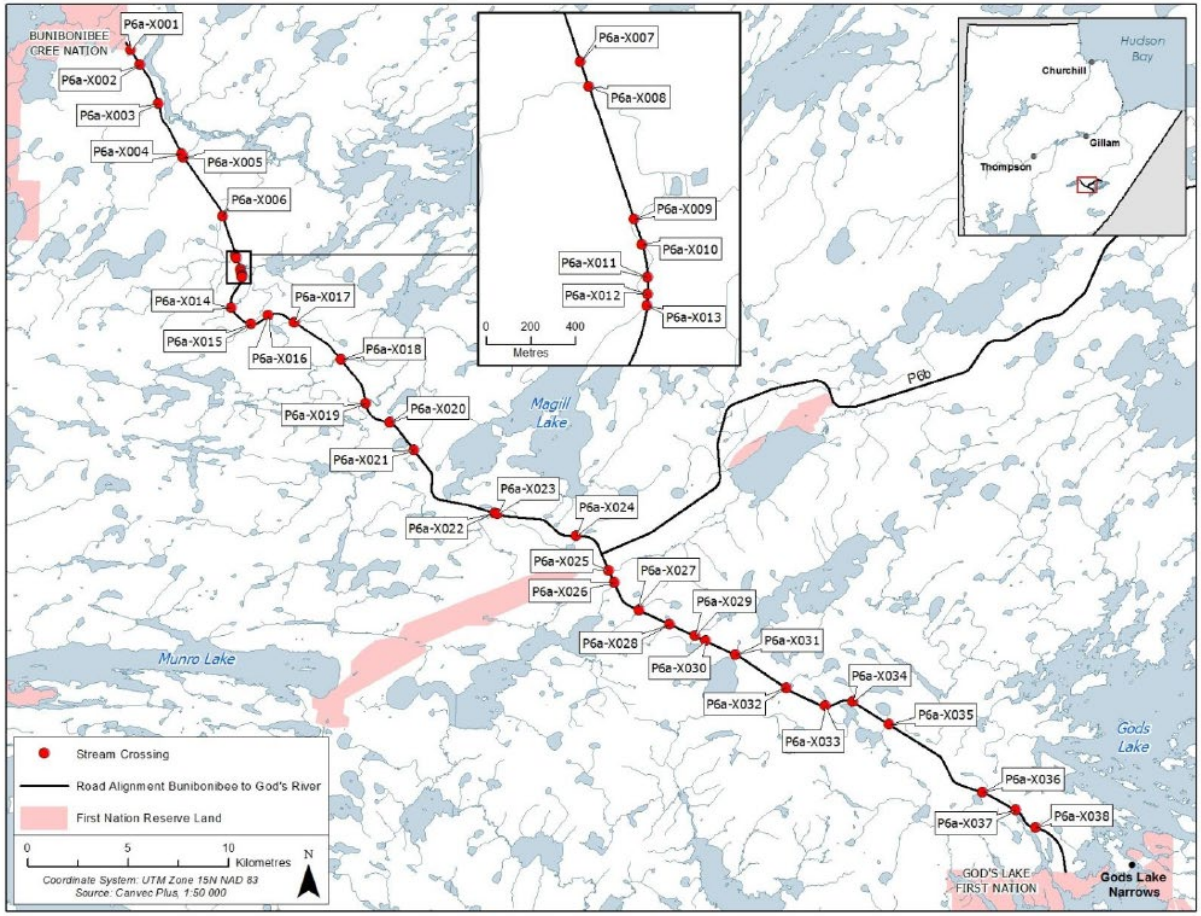


Figure IR1-10-1. Project 6a- Bunibonibee Cree Nation to God's Lake First Nation All Season Road study area and watercourse crossing locations. (Figure 1 in EIS Appendix C-1)

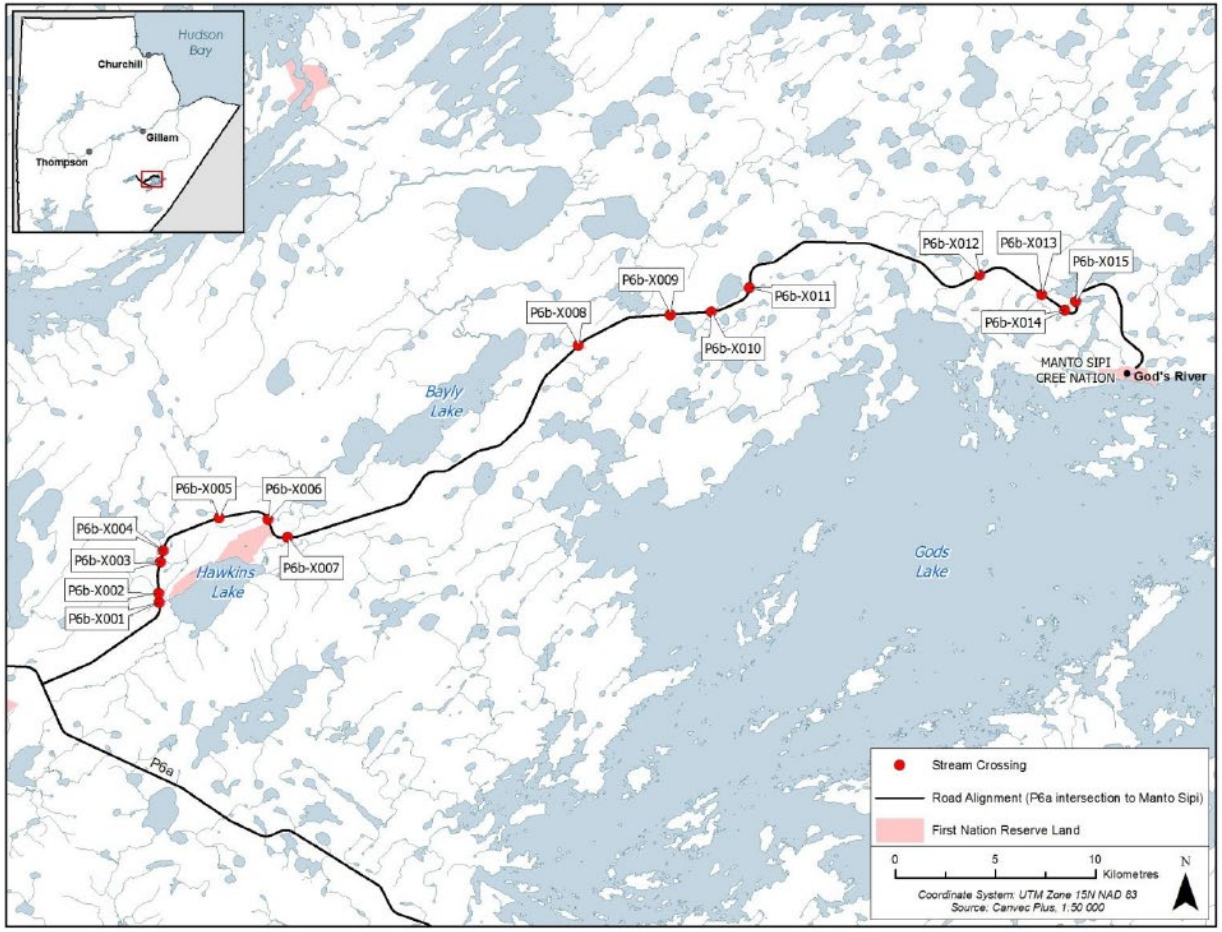


Figure IR1-10-2. Project 6a- Bunibonibee Cree Nation to God's Lake First Nation All Season Road study area and watercourse crossing locations. (Figure 2 in EIS Appendix C-1)

c) As per the response to IR1-09, baseline water quality data for metals at sites that are to receive Project runoff from areas of blasting, rock cutting, and quarries, will be collected at the detailed design phase of the project, prior to construction, when those specific locations are identified. This data would then be used to support future monitoring for the effectiveness of mitigation measures to avoid acid rock drainage and metal leaching.

Details on mitigation options available to avoid or reduce impact (such as avoidance, engineered covers, treatment, etc.) and the planned monitoring (during and post construction) for the effectiveness of mitigation measures to avoid acid rock drainage and metal leaching are detailed in the response to IR1-09.

Baseline assessment data and ongoing monitoring results would be shared with Bunibonibee Cree Nation, Manto Sipi Cree Nation and God's Lake First Nation Chief and Council, God's Lake Narrows Mayor and Council, the Impact Assessment Agency, and Manitoba Environment and Climate Change.

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North South Consultants Inc. March 2017. Project 6 – All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation, Aquatic Environment Report – Existing Environment.

QUESTION IAAC IR1-11

EIS Guideline Reference	• Part 2, Section 6.1.1
EIS Reference	• Chapter 6, Section 6.1.1.4 and 6.2.1.3 • Health Canada – Project 6 Technical Review Comments
Category	Noise

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent describe the current ambient daytime and nighttime noise levels at key receptor points (e.g. Indigenous groups or communities), including the results of a baseline ambient noise survey.

The EIS includes the baseline ambient daytime and nighttime noise levels data collected for the Project 4 – All-Season Road Connecting Berens River to Poplar River First Nation (Project 4), which the proponent considers representative of conditions within the RAA of the Project. However, the EIS does not specify where the Project 4 baseline noise levels were measured (i.e. at the source or at key receptors), the hours during which the measurements were obtained, or the weather conditions and any seasonal variations at the time of measurement, as recommended in Health Canada's 2017 Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise.

This information is required to understand baseline conditions for noise at key receptors near the Project footprint and to assess potential Project contributions to the noise profile of the area that may affect the health of Indigenous peoples and other VCs, such as species at risk and migratory birds.

INFORMATION REQUEST

a) Describe the conditions under which the baseline ambient daytime and nighttime noise levels data were collected for Project 4, including where measurements were taken (i.e. at the source or at key receptors), the hours during which the measurements

were obtained, and the weather conditions and any seasonal variations at the time of measurement.

- Describe how the locations for noise baseline data collection for Project 4 were selected (i.e. the criteria used to select where to take measurements).

b) Provide a rationale for the assertion that the baseline ambient daytime and nighttime noise levels collected for Project 4 are representative of the baseline conditions for the Project (i.e. Project 6). This rationale should include a description of the distance between locations where baseline noise measurements were taken for Project 4 and key receptors associated with Project 6, and a description of how the key receptors for Project 6 for this comparison were selected.

- Alternatively, describe the baseline ambient daytime and nighttime noise levels at key receptor points near or within the Project footprint, LAA, and/or RAA, including but not limited to nearby Indigenous communities.

RESPONSE

a) Ambient sound information collected for the Project 4 all-season road utilised data collected by autonomous recording units (ARUs) originally deployed for the purpose of monitoring birds. A total of four ARUs were deployed in varying habitat types throughout the Project 4 study area along the proposed road alignment as shown in Table IR1-11-1. ARUs were specifically programmed to cycle at key times so as to capture peak bird calling times, but in doing so also captured ambient environmental noise including low frequency sounds down to 3 hertz (Hz).

Table IR1-11-1. Location and habitat types for autonomous recording units used in ambient sound collection for the Project 4 all-season road.

Sampling Site	Location		Habitat[1]
	Latitude	Longitude	
SM1	52.057975	-95.467423	Mixedwood
SM2	52.488708	-96.828041	Open TM
SM3	52.459842	-96.797724	Creek edge – BS, JP
SM4	52.408715	-96.812643	Beaver Flood

[1] BS = black spruce; JP = jack pine; TM = tamarack

Because information was collected for the purpose of baseline information, ambient noise levels were collected at the source (i.e. near the proposed road alignment), however, noise recordings along the Project 4 alignment were collected prior to the project receiving environmental approvals and are therefore representative of ambient conditions only with no equipment or activity present. Due to the large volume of data collected by the ARUs, a random selection of recordings from the full data set were used to establish baseline environmental noise levels. Information was then categorized into morning and night periods and checked against solar schedules to establish daily

sunrise and sunset times. Morning recordings ranged from sunrise to noon, and night recordings ranged from twilight to sunrise.

Once the data set was randomly selected and categorized as a morning or night recording, *Song Scope* software was used to create a waveform data plot to display audio signals. ARUs used in this study recorded the relative sound pressure in decibels (dB) on a logarithmic (log) scale which is *20 log10(|x)*. A conversion factor was then applied to the ARU generated data so as to estimate ambient sound levels:

> Song Scope Value X (relative sound pressure) + 126 dB - gain = dB SPL (sound pressure level) +/-4dB[1]

Randomly selected morning and night data used for the identification of ambient noise levels, as well as averaged values for the morning and night periods, and an overall total ambient noise average are presented in Appendix IR1-11-1. Important to note is that the ARUs used in 2015 had a minimum "noise floor" of 32 dB, meaning that actual ambient noise values of less than 32dB can not be accurately defined. As a result, any recorded value below 32dB was documented as 32dB in the data, and as shown in Table IR1-11-1.

Meteorological conditions for each randomly selected ARU recording date using the nearest weather station (Berens River) are shown in Appendix IR1-11-1.

b) Ambient noise levels established as part of Project 4 baseline monitoring are representative of ambient environmental noise levels for the Project 6 assessment areas for multiple reasons. First, both Project 6 and Project 4 are located within Manitoba's Boreal Shield Ecoregion, meaning that both projects share similar abiotic conditions (e.g. climate, geology) and much of the same biological (e.g. vegetation, fish, wildlife) communities. Secondly, both Project 4 and Project 6 are located in otherwise undeveloped areas, with only seasonal winter roads, hydro-electric distribution lines, and generally small remote communities present nearby. There are currently no major industrial resource extraction or harvesting activities along either of the proposed projects. Both projects would act to provide all-season transportation between remote northern communities that are otherwise only accessible by air or winter road.

Because ambient environmental noise levels For Project 4 were taken along the proposed alignment, and not within either Poplar River First Nation or Berens River First Nation communities, it represents natural conditions. Key receptors for both projects would be the communities themselves, and specifically residences or trapper cabins nearest to the proposed roads.

[1] The 4dB error is related to ARU microphone factory specifications.

APPENDIX IR1-11-1

RANDOM SELECTION OF AMBIENT SOUND PRESSURE LEVELS (DB) RECORDED BY AUTONOMOUS RECORDING UNITS FOR THE PROJECT 4 ALL-SEASON ROAD IN 2015.

Autonomous Recording Unit					Documented Historical Meteorological Conditions (rounded to nearest hour) for Berens River Weather Station (ECCC 2015)			
Date	**Time**	**ARU**	**dB**	**Data Review Comment**	**Temperature (°C)**	**Relative Humidity (%)**	**Precipitation (mm)**	**Wind Speed (km/h)**
Morning								
4/26/2015	6:33:39 AM	SM1	41.4	quiet, slight wind	3.4	46	0	12
4/28/2015	8:35:07 AM	SM1	66.5	slight wind (warbler calling outside time)	5.6	70	0	13
5/4/2015	8:38:53	SM1	47.5	quiet (woodpecker calling outside time)	5.5	72	0	9
5/6/2015	6:37:28	SM1	32.0[1]	quiet (Connecticut warbler calling)	12.1	54	0	14
5/12/2015	8:39:39	SM1	32.0	quiet (bird calling)	9.7	30	0	5
5/14/2015	8:32:39	SM1	45.0	quiet (bird calling)	10.2	54	0	10
5/18/2015	7:38:36	SM4	41.0	slight wind (warbler calling outside time)	-0.2	59	0	12

Autonomous Recording Unit					Documented Historical Meteorological Conditions (rounded to nearest hour) for Berens River Weather Station (ECCC 2015)			
Date	**Time**	**ARU**	**dB**	**Data Review Comment**	**Temperature (°C)**	**Relative Humidity (%)**	**Precipitation (mm)**	**Wind Speed (km/h)**
5/22/2015	7:32:10	SM1	62.0	moderate wind (birds calling)	13.7	48	0	18
5/24/2015	6:38:39	SM1	32.0	quiet (spring peepers and bird)	11.8	47	0	9
5/30/2015	7:38:29	SM1	32.0	quiet (bird and spring peeper outside time)	2.9	54	0	7
6/1/2015	8:08:30	SM1	32.0	quiet (bird calling outside time)	13.5	53	0	24
6/7/2015	7:37:39	SM1	58.0	humming and bird calling	15.4	93	0	5
6/9/2015	7:36:39	SM1	42.6	quiet (bird calling)	14.1	89	0	25
6/19/2015	7:39:29	SM1	58.4	moderate wind (birds calling)	No Data	No Data	No Data	No Data
6/21/2015	6:38:39	SM1	33.8	quiet (birds calling outside)	No Data	No Data	No Data	No Data
Morning Sample Size (n)			15					
Morning Average			43.7					
Night								
4/26/2015	23:30	SM4	33.5	very quiet, no wind	9.6	54	0	5

Autonomous Recording Unit					Documented Historical Meteorological Conditions (rounded to nearest hour) for Berens River Weather Station (ECCC 2015)			
Date	**Time**	**ARU**	**dB**	**Data Review Comment**	**Temperature (°C)**	**Relative Humidity (%)**	**Precipitation (mm)**	**Wind Speed (km/h)**
4/30/2015	23:33:10	SM4	48.0	wood frogs calling	3.7	100	0	6
5/4/2015	23:34:39	SM4	37.5	spring peeper and wood frog calling	2.0	83	.0	5
5/8/2015	0:36:39	SM4	72.2	very windy, gusting	-1.5	92	0	27
5/12/2015	23:31:39	SM4	35.0	quiet, wood frog calling	-1.1	80	0	4
5/16/2015	23:34:17	SM4	78.0	very wind, spring peeper	5.9	71	0	25
5/20/2015	0:30:24	SM4	24.0	very quiet, no wind	8.9	58	0	10
5/24/2015	23:39:29	SM4	47.8	spring peeper calling	5.3	74	0	0
5/28/2015	22:33:49	SM4	56.0	quiet, slight gusting wind	4.8	94	0	24
6/1/2015	23:34:39	SM4	51.3	quiet, slight gusting wind	16.2	62	0	16
6/5/2015	22:33:32	SM4	42.8	spring peepers calling	18.2	48	0	9
6/9/2015	23:34:20	SM4	45.0	Toad and spring peepers calling	11.9	90	0	11
6/13/2015	23:32:29	SM4	32.0	spring peepers calling	No Data	No Data	0	7

Autonomous Recording Unit					Documented Historical Meteorological Conditions (rounded to nearest hour) for Berens River Weather Station (ECCC 2015)			
Date	**Time**	**ARU**	**dB**	**Data Review Comment**	**Temperature (°C)**	**Relative Humidity (%)**	**Precipitation (mm)**	**Wind Speed (km/h)**
6/17/2015	0:37:28	SM4	67.5	very windy, gusting	No Data	No Data	No Data	No Data
6/21/2015	23:36:28	SM4	32.0	very quiet, no wind	No Data	No Data	0	6
Night Sample Size (n)			15					
Night Average			46.2					
Total Sample Size (N)			30.0					
Overall Average			45.0					

REFERENCES

Dillon Consulting. 2016. Project 4- All Season Road Connecting Berens River to Poplar River First Nation Environmental Impact Statement. Available at: https://www.iaac-aeic.gc.ca/050/evaluations/proj/80094

Environment and Climate Change Canada. 2015. Hourly data report for April 26, 2015: Berens River CS, Manitoba. Government of Canada. Available at: https://climate.weather.gc.ca

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

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QUESTION IAAC IR1-12

EIS Guideline Reference	• Part 2, Section 2.1 and 5.1
EIS Reference	• Chapter 1, Section 1.2.3 • Chapter 2, Section 2.1.3 • CEAA Annex 2: Early Technical Issues, August 27, 2018
Category	Socio-Economic

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent describe the predicted environmental, economic, and social benefits of the Project to potentially inform the justifiability of any significant adverse residual environmental effects as defined in section 5 of CEAA 2012, if such effects are identified. The EIS Guidelines also list Indigenous groups which the proponent must consider in its effects assessment, including its consideration of potential benefits of the Project. These Indigenous groups include Bunibonibee Cree Nation, Manto Sipi Cree Nation, God's Lake First Nation, Manitoba Metis Federation, Norway House Cree Nation, Pimicikamak Okimawin, Garden Hill First Nation, Red Sucker Lake First Nation, St. Theresa Point First Nation, and Wasagamack First Nation.

The EIS includes general statements describing the assumed benefits of the Project, such as "Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation will benefit from the improved linkage among their communities". However, the EIS does not provide specific or quantitative information about those benefits or a discussion of the equity of benefits distribution across communities or within communities. Additionally, little information is included in the EIS with respect to potential benefits to Indigenous groups other than Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation.

Additional information and quantitative data is needed to characterize the assumed benefits of the Project, particularly those benefits that the proponent assumes to be acceptable to Indigenous groups as accommodation measures for potential impacts to rights that may result from the residual effects of the Project and to those factors listed under section 5(1)(c) of CEAA 2012 (e.g., impacts to health and socio-economic conditions of Indigenous peoples as a result of direct Project effects to lands and resources, foods, trapping income, etc.).

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INFORMATION REQUEST

a) Provide specific and quantitative information regarding the predicted environmental, economic, and social benefits of the Project. In the description of potential benefits of the Project to Indigenous peoples, ensure that all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines are considered.
b) Describe whether the potential benefits of the Project, notably those that may be proposed as accommodation measures for potential adverse environmental effects to Indigenous peoples and potential impacts to rights, were discussed with Indigenous groups during engagement activities for the Project to confirm that they are acceptable.
    - If so, provide a record of these engagement activities, including a description of what was discussed and the outcome of these activities.
    - If not, describe when and how these engagement activities will occur.

RESPONSE

a) As described in Chapter 5 of the Environmental Impact Statement (EIS), communities have identified that Project benefits will include:

- Decrease in cost of living on food, fuel, freight, services and supplies.
- Increase in employment and training opportunities.
- Increase in educational opportunities and educational infrastructure construction/ expansion of existent community educational facilities).
- Decrease in cost of transportation of goods.
- Easier access to better health care facilities.
- Increase in intercommunity travel.
- Increase in economic development within the region.
- Increase in access to traditional lands or lands that were previously inaccessible for recreational or commercial purposes.
- The Project will make travel to resource areas easier allowing more hunting and fishing opportunities and firewood harvesting from areas currently only easily accessible during winter months.

The Manitoba Government is committed to community economic development as a key component of Manitoba's economic strategy. It intends to develop a provincial economy that is more inclusive, equitable and sustainable. Procurement practices are one of the means that can be used to contribute to Indigenous economic development.

Manitoba Procurement and Supply Chain branch introduced an Indigenous Procurement Initiative (IPI) to increase the participation of Indigenous peoples and suppliers in providing goods and services to government. This initiative provides a number of benefits, including:

- Stimulation of Indigenous business development;
- Creation of new employment opportunities;
- Increased procurement from Indigenous business through sub-contracting and/or joint ventures with non-Indigenous firms when bidding on contracts;
- Increased competitiveness;
- Relationship building between Indigenous suppliers, non-Indigenous contractors and government buyers;
- Better understanding of the process by suppliers, increased knowledge of Indigenous supplier base by government buyers.

Manitoba Transportation and Infrastructure is committed to supporting Indigenous economic development by increasing contracting opportunities for businesses owned by First Nation and Métis people by helping to grow Indigenous businesses via increased access to the government procurement process. Manitoba Transportation and Infrastructure uses established in-house practices, which include mandatory Indigenous Involvement clauses for construction projects. Involvement can include undertaking the work as a contractor, subcontractor or joint venture, and/or the provision of services, materials, fuel, labour, and equipment from the local communities. Indigenous Involvement targets are a minimum of 10%. On similar projects, MTI has found that Indigenous involvement in construction contracts has been much higher than 10%. In addition to local community involvement, the Project may provide additional employment opportunities for individuals residing in other Indigenous communities within the region.

As described in Chapter 5 of the EIS, agreements made with the East Side Road Authority (ESRA) and local communities were in place to train and hire contractors and individuals from the local communities to work on pre-construction activities and road construction. Training has been provided to community members from Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation. Records to September 2017 indicate that in total, 35 members from Manto Sipi Cree Nation, 12 members from Bunibonibee Cree Nation and 23 members from God's Lake First Nation have received training. Specific training opportunities are detailed in Table 5.6 of the EIS.

Based on the 2016 report by the Communities Economic Development Fund, educational attainment among most Indigenous Nations, shows that 69% of the population aged 15 and over have less than a high school education (CEDF, 2016). This includes the communities of Bunibonibee Cree Nation, God's Lake First Nation, Norway House First Nation, Manto Sipi Cree Nation, Red Sucker Lake Cree Nation, St. Theresa Point First Nation, and Wasagamack First Nation. This rate is significantly higher than the provincial average of 8-11% over the past few years (Statistics Canada, 2020). In addition, the average annual household income is $37,279 (CEDF, 2016). Similarly, the average unemployment rate in Northern Manitoba is 33.4%, compared to 6.4% in Southern Manitoba (Statistics Canada, 2020).

According to the Large Area Transportation Network Study (LATNS) (SNC Lavalin, 2011), the project will allow for infrastructure improvements, including new schools and institutional buildings, which could enhance educational attainment and economic growth. Larger populations can lead to

economies of scale in government service provision, potentially allowing for more and better services. This is because larger jurisdictions can spread fixed costs over a larger number of residents, reduce per-capita costs, and enable specialization of staff. Culturally, the Project will connect God's Lake First Nation, Bunibonibee Cree Nation, and Manto Sipi Cree Nation making it easier and less expensive for people to visit family members who reside in these other communities. Members of God's Lake Narrows Northern Affairs Community will also have the benefit of connecting to Bunibonibee Cree Nation and Manto Sipi as road access already exists between God's Lake First Nation and the Northern Affairs Community.

The construction industry is among the top five largest industries in these communities. Project 6 is estimated to require 100-120 construction workers per year for an estimated 7 years, this translates to the creation of upwards of 840 direct jobs. It is thought that an additional 140-170 jobs would be created providing indirect employment (i.e. engineering and services).

The LATNS reported that the development of the ASR would provide easier access to health care, increased access to lands adjacent to the Project for traditional use, and benefit tourism activities, such as canoeing, fishing and camping, especially during summer months. Additionally, a decrease in the cost of services and transport of goods used for businesses is expected, along with a reduced need for flights between communities which would result in a corresponding reduction in GHG emissions. Increased numbers of small woodlots and private sawmills as well as access to potential development locations and areas for enhanced ecotourism are other anticipated benefits. For Project 6, God's Lake First Nation, Bunibonibee Cree Nation, and Manto Sipi Cree Nation and God's Lake Norther Affairs Community would largely accrue these benefits.

Construction of all-season roads in the region have a potential to expand access for the mining sector that would provide substantial additional employment and business opportunities for the communities. As noted in the CEAA 2012 extension request for the Project, there are two mining exploration sites within the Project area. However, there are no timelines identified for the future development of these exploration mine locations at Knee Lake and Gods River. Also, an all-season road connection from the proposed Project to the provincial highway network does not exist and there are no timelines for any future connection. For these reasons, it is anticipated that the Project will have limited influence on mining sector expansion.

Besides the main benefit of having a road, potential socio-economic benefits as mentioned above include larger population base to acquire regional services, increased opportunity for local employment, and reduction in GHG emissions due to less aerial transportation.

b) The purpose of the proposed all-season road is to connect the three Indigenous Nations for the sole benefit of Bunibonibee Cree Nation, Manto Sipi Cree Nation, God's Lake First Nation and God's Lake Northern Affairs Community. The proposed road does not connect to provincial highway grid and no timeline as been identified for other road projects which would be needed to connect the Project to the Provincial Road network (i.e. they are not identified in the MTI 10-year plan). As

discussed in the EIS, the corridor for the proposed project was developed in consideration of input public and Indigenous Nations' input into the LATNS study, and the Project 6 alignment was developed in consultation with Bunibonbee Cree Nation, Manto Sipi Cree Nation, God's Lake First Nation and God's Lake Northern Affairs Community, and MTI is working on confirming the alignment of the remaining 8 km section with MSCN. MTI has provided assessment, a flyover with MSCN and its consultant 8 km section and recommendation and is waiting on a response from MSCN.

Given that the Project is wholly contained within the traditional territories of Bunibonibee Cree Nation, Manto Sipi Cree Nation and God's Lake First Nation, MTI has focused its engagement efforts with those communities and the God's Lake Northern Affairs community. As discussed in Chapter 5 of the EIS, the traditional territories are defined by the registered traplines (RTLs) held by the communities and represent the traditional lands used by a community.

The RTL is a commercial furbearer harvest management system whereby the lineholder is granted exclusive opportunity to harvest furbearing animals within a specified trapline section. Use of RTLs by others can only occur with permission from the trapline holders so that furbearer populations in the area are not jeopardized. Holders of RTLs within the Project's Indigenous RAA are community members from God's Lake First Nation, Bunibonibee Cree Nation and Manto Sipi Cree Nation. MTI has met with these trappers and information received was used to inform the EIS and Project design.

Through engagement activities, members of GLFN emphasized that the road would improve access to basic goods and reduce high food costs, contributing positively to daily life (HTFC, 2017a). In MSCN, community members acknowledged that the Project would bring substantial change to their territory, but there was general optimism that the road would support improved access and opportunities for surrounding communities (HTFC, 2017b). In BCN, there was recognition of the economic potential the road could bring, including youth employment in sectors like mining, as well as acknowledgment that the road may shift existing patterns of travel and harvesting (HTFC, 2017c).

Although the proposed all-season road alignment is located on the existing winter road alignment where possible to minimize environmental effects, the Project will employ mitigation measures to minimize environmental effects. While the communities already have connection to each other and the provincial highway network in winter via winter roads, the Project will only provide inter community connections without connection to the provincial highway network for the remainder of the year. Potential social impacts from Project 6 include a higher risk of vehicle accidents, increased access to drugs and alcohol, or the potential for community members, especially youth to leave their home communities for larger centres. While these effects are acknowledged, they are not considered significant adverse effects under the assessment criteria, and they were considered within the broader analysis provided in Chapter 5 and 6 of the EIS. See IR1-83 and IR1-90 for a detailed discussion on socioeconomic conditions, and impacts to traditional rights, respectively.

Mitigation measures were suggested by community members during engagement efforts. Members from God's Lake First Nation proposed increased RCMP enforcement to monitor what enters the community, designated pullout areas along the road to provide parking near family camp areas (which needs further discussion as it could also facilitate improved hunting access), and the identification of "protected areas" that would be off-limits to potential future development pressures (HTFC, 2017a). Similarly, members from Manto Sipi Cree Nation recommended establishing checkpoints and patrols, maintaining access to traditional ski-doo trails that intersect with the ASR, constructing a wider bridge at God's River, and creating a more direct ASR route between GLFN and MSCN. Other suggestions included safety education for children, road maintenance training, support for MSCN leadership in advancing land use planning, tourism development, local policing, language and cultural programs, and the continuation of meaningful consultation and communication as planning and construction progress. While some suggestions are wholly outside of MTI's mandate and jurisdiction (i.e. RCMP policing), these suggestions will be considered and discussed with Indigenous Nations and others through ongoing engagement and project planning.

Additionally, as mentioned in response to IR1-90, other mitigation measures proposed to address potential impacts to Indigenous peoples are outlined in Appendix 6-4, and Appendix 7-1 of the EIS. These measures were developed to reduce or avoid Project-related effects on land and resource use, including hunting, fishing, trapping, plant gathering, cultural sites, and travel routes.

These measures include route realignments to avoid important harvesting areas, implementation of environmental protection plans to protect water quality and wildlife habitat, timing restrictions on construction to avoid critical harvesting periods, and the application of erosion and sediment control practices to protect culturally important plant-gathering areas and aquatic ecosystems. Specific mitigation measures have also been informed by the results of TK studies and feedback received during community engagement.

At this stage, MTI has not finalized any formal accommodation measures beyond the mitigation strategies identified in the EIS. However, ongoing engagement with Indigenous communities is expected to inform the identification of appropriate accommodations, particularly where residual effects may persist after mitigation. MTI is committed to working collaboratively with Indigenous groups to identify and implement accommodations that respond to concerns related to the exercise of rights throughout the lifecycle of the Project.

Through MTI's engagement activities identified in the EIS and it's sharing of the Project EIS with the Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines, MTI has communicated the Project purpose and the measures developed to mitigate the Project's potential environmental effects and those that may affect the use of lands and resources by Indigenous peoples for their traditional purposes. Additional information will be provided via MTI's responses to provincial and federal information requests.

To assist IAAC and EAB in their regulatory review within the environmental assessment process and to inform both the federal and provincial consultation processes being undertaken for the proposed

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Project, MTI has developed a draft questionnaire based on the questions it received from IAAC in Round 1 packages 1 & 2, as discussed in MTI's response to IR1-77. MTI intends to share the draft questionnaire with the Indigenous groups listed in Part 2, Section 5.1, as a starting point to co-developing the questionnaire that will be used to obtain communities' views and responses to IAAC's questions. MTI will share results and updates with IAAC and EAB throughout this process. Results will be used by MTI to inform IR responses and project planning, and by regulators to inform their regulatory reviews of the project and subsequent consultations with individual communities. Should communities identify additional concerns or impacts to rights from the proposed Project through this process, MTI will endeavour to address these through dialogue and project mitigations if applicable and where possible. However, it is Manitoba and Canada's responsibility to assess claims and determine appropriate accommodation requirements.

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QUESTION IAAC IR1-13

EIS Guideline Reference	• Part 2, Section 3.2.1
EIS Reference	• Chapter 1, Section 1.4.1.2 • Chapter 3, Section 3.3.9, 3.1.4.16, and 3.4.2.7 • Chapter 5, Table 5.9 and 5.10 • Chapter 6, Section 6.6.1.1 and 6.6.1.2 • Chapter 6, Table 6.42 • Chapter 8, Section 8.4.2.3 • Natural Resources Canada - Project 6 Technical Review Comments • ECCC – Project 6 Technical Review Comments
Category	Explosives

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent describe the storage location(s) for explosives and describe how explosives will be managed during all phases of the Project.

The EIS indicates that contractors hired by MI to conduct blasting activities and/or any other work with explosives would be required to develop an Explosives and Blasting Management Plan. However, an Explosives and Blasting Management Plan has not been provided. Information regarding the locations where blasting may occur, type(s) of explosives that may be used (i.e. packaged or bulk), and whether MI and/or its contractors intend to manufacture explosives on site for Project use has also not been provided.

Table 6.42 of the EIS indicates that the maximum probable quantity of ammonium nitrate explosives that may be stored at any given location within the Project footprint is 15,000 to 30,000 kilograms. The Environmental Emergency Regulations administered by Environment and Climate Change Canada regulate the use and storage of regulated substances, including ammonium nitrate explosives, in quantities in excess of 20 metric tonnes2 (i.e. 20,000 kilograms) and that would be

stored on site for more than 72 consecutive hours. As ammonium nitrate explosives associated with the Project may be stored for more than 72 hours in excess of the threshold of 20 metric tonnes, the Project may require that an Environmental Emergency Plan pursuant to the Environmental Emergency Regulations be developed.

This information is required to understand and assess the potential environmental effects of blasting and blasting materials associated with the Project to VCs defined in section 5 of CEAA 2012.

INFORMATION REQUEST

a) Prepare and provide an Explosives and Blasting Management Plan and describe the type of explosives that may be used to support Project activities. Indicate the anticipated concentration of ammonium nitrate in solid and/or liquid explosives.
b) Indicate whether MI and/or its contractors intend to manufacture explosives for Project use on site during construction, operation/maintenance, or decommissioning.
c) Describe and include in a figure the locations where blasting may occur. For each of these locations, characterize:
    - relationship to fish and fish habitat;
    - relationship to migratory birds and their habitat;
    - relationship to species at risk and their habitat;
    - relationship to wetlands and other waterbodies;
    - relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
    - relationship to sites of cultural and heritage value;
    - relationship to species of importance to Indigenous peoples and their habitat;
    - potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
    - potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.
d) Indicate the maximum number of consecutive hours that ammonium nitrate explosives will be stored within or near the Project footprint and confirm whether the maximum probable quantity of ammonium nitrate explosives will exceed the threshold of 20 metric tonnes (i.e. 20,000 kilograms) defined in Schedule 1 of the Environmental Emergency Regulations.
    - If ammonium nitrate explosives would be stored within the Project footprint for more than 72 consecutive hours in quantities in excess of 20 metric tonnes,

develop an Environmental Emergency Plan pursuant to the Environmental Emergency Regulations and in consultation with Environment and Climate Change Canada.

RESPONSE

a) As outlined in the Project 6 Environmental Impact Statement (Chapter 8, Section 8.4.2.3), an Explosives and Blasting Management Plan will be prepared and submitted to Manitoba Transportation and Infrastructure (MTI) by applicable construction contractors in advance of any blasting required throughout the construction and operations phases of the proposed Project. These plans will outline best practices and regulatory requirements for transportation, handling, storage and use of explosives. Further, it will be expected that these plans will identify means of adhering to the requirements identified in the Environmental Protection Specifications (EIS Chapter 8, Appendix 8-3, but also available in Appendix IR1-19 in the response to IR1-19). These requirements are best management practices and mitigation measures.

The Department of Fisheries and Oceans (DFO) Guidelines for Use of Explosives in or Near Canadian Fisheries Waters 1998 will be considered if blasting near a watercourse is required. As noted in EIS Chapter 8, Appendix 8-2, EP 12 blasting plans will be submitted to and approved by DFO through Fisheries Act Authorization prior to commencement of blasting in areas that could affect fish or fish habitat. If residual effects are anticipated, DFO would require MTI to provide fish habitat offsetting, and the application of offsetting measures would prevent the potential for cumulative effects.

Plans submitted by contractors are subject to review and approval by MTI or its designate (i.e. Contract Administrator) prior to start of work, and will need to adhere to environmental protection measures identified above and to applicable provincial and federal regulations. Both EP12 and ES130.15.11 noted in EIS Chapter 8, Appendix 8-2 and 8-3 respectively identify best management practices and mitigation measures for blasting near a watercourse. ES 130.8 identifies contractor requirements for designated areas that would include explosive storages and ES 130.9.2.4 that identifies contractor requirements for Dangerous Goods/Hazardous Waste Handling and Disposal.

b) MTI does not intend to manufacture explosives for use in any Project phase. However, should a particular construction or maintenance contract require blasting, it is possible that a contractor may propose to manufacture explosives on site. If this arises, MTI will require that legislative requirements be followed while still adhering to commitments and requirements of the Environmental Protection Procedures (EIS Chapter 8, Appendix 8-2; Appendix IR1-19-1 in the response to IR1-19) and Environmental Protection Specifications (EIS Chapter 8, Appendix 8-3; Appendix IR1-19-1 in the response to IR1-19).

c) The assessment of potential effects, including effects of blasting, are included throughout Chapter 6 of the EIS, presented in tabular fashion in Appendix 6-4 and 6-5, and summarized in Chapter 7, Appendix 7-1. Additionally, Table IR1-13-1 below outlines a summary of the potential effects of blasting on Valued Components (VCs) including fish and fish habitat, migratory birds, species at risk, and other wildlife species, along with corresponding mitigation measures and residual effects. After the application of mitigation measures, no significant effects are anticipated.

Project-related blasting may be required for two general purposes: aggregate production, or for road cuts. Potential quarry locations are included as Figure IR1-13-1 in Appendix IR1-13-1 of this response, also shown as Figure 3-4 of the EIS. Quarry site selection and associated consideration of environmentally sensitive features and minimum required setbacks from such features is described in the response to IR1-03. Similarly, the response to IR1-50 provides information on the distance between Project components and activities and sensitive areas as well as a consolidated table describing critical lifecycle periods for fish, migratory birds, species at risk, species of importance to Indigenous peoples, and Indigenous peoples.

While detailed design for the proposed Project is not yet complete, the proposed Project will generally utilize what is commonly known as a “cut and fill” construction approach. That is, in areas of undulating terrain and topography, heights of land are often removed via excavation or blasting and lower areas are often built up to create a more level travel corridor and maintain safe sight distances and vertical grades for vehicular travel. As such, it is possible that blasting could occur to varying amounts, along much of the proposed Project alignment.

Regardless of the area in which blasting occurs, requirements as identified in the Environmental Protection Specifications (EIS Chapter 8 Appendix 8-3; Appendix IR1-19-1 in the response to IR1-19) will be adhered to, which should minimize or eliminate further potential effects of this activity.

Table IRI-13-1. Potential Effects on Valued Components and Mitigation Measures Associated with Blasting

Valued Component (VC)	**Potential Blasting Effects Before Mitigation**	**Mitigation Measures**	**Potential Residual Effects**
Fish and Fish Habitat	• Disruption of spawning areas. • Decreased water quality due to accidental spills from explosives. • Net loss of the productive capacity of fish habitat • Injury or death of fish from compressive shock waves close to blasting activities	• Adhere to Manitoba Stream Crossing Guidelines for Protection of Fish and Fish Habitat, DFO Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters, EP12 and ES 130.15.11. • Blasting in watercourses classified as fish habitat is prohibited between April 15 and July 15 of any year, or during periods of high stream flow or identified spawning periods. (i.e., spring & summer). Blasting in watercourses classified as fish habitat is prohibited between April 15 and July 15 of any year, or during periods of high stream flow, or between September 1 and May 15 in watercourses that fall spawning species such as brook trout or lake whitefish (i.e., God's River) inhabit. • Blasting plan to be developed prior to construction. • Adhere to the Explosives Regulations, 2013 (SOR/2013-211).	No significant effects
Migratory Birds and their Habitat	• Sensory disturbance affecting migratory birds and nesting periods • Loss of nests and/or eggs	• Follow blasting (EP14 and ES 130.19) timelines and restrictions to avoid nesting, breeding periods. • Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and ES 130.11) techniques. • Adhere to Manitoba Conservation Data Centre Wildlife, Fisheries, and Enforcement Branch's Recommended Development Setback Distances and Restricted Activity Period for Birds by Wildlife Feature Type to avoid nesting migratory birds.	No significant effects

Valued Component (VC)	**Potential Blasting Effects Before Mitigation**	**Mitigation Measures**	**Potential Residual Effects**
Species at Risk and their Habitat	• Damage to plant species from dust and vibrations. • Disruption of wildlife movements or avoidance of habitat	• Employ general mitigation applicable to all Species at Risk[1]. • Follow EP14 (Wildlife), no blasting would be permitted within 2 km of known caribou calving areas along access roads and quarry areas from April 15 to July 31 and within close proximity to sensitive wildlife habitat during critical lifecycle periods. • Stage construction activities to limit the extent of noise disturbance during critical calving times to defined areas. • Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and ES 130.11) techniques. • Develop and implement an Aquatic Monitoring Plan and Wildlife Monitoring Plan. • Adhere to Manitoba Conservation Data Centre, Wildlife, Fisheries, and Enforcement Branch's Recommended Development Setback Distances and Restricted Activity Period for Birds by Wildlife Feature Type to avoid nesting SAR.	No significant effects
Wildlife (Moose, furbearers)	• Increased sensory disturbance and temporary displacement from habitat.	• Follow EP14 (Wildlife), no blasting would be permitted within close proximity to sensitive wildlife habitat during critical lifecycle periods. • Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and ES 130.11) techniques. • Develop and implement of Aquatic Monitoring Plan and Wildlife Monitoring Plan.	No significant effects

[1] General mitigation applicable to Species at Risk include:

- Right-of-way selected to use existing disturbed/cleared areas and avoid waterbodies (except at crossings) and sensitive habitat (ex: spawning sites, calving sites, raptor nests, multi-generational stick nests, nesting colonies).
- Existing water flow patterns, water levels and wetland hydrologic regimes will be maintained along with vegetated buffers between disturbed areas and waterbodies.
- Follow clearing and grubbing timelines and restrictions to avoid critical calving and nesting times (EP1 and ES 130.17.1).
- Decommission and rehabilitate disturbed areas not required for proposed Project operation and maintenance (EP22).
- Contract Administrators, inspectors and construction staff will receive training and handbooks to facilitate identification of potential Species at Risk that could be encountered, and a member of the Environmental Inspection team will be advised when encounters occur to document and report on species presence and management strategies applied, as required. Prohibit herbicide application near identified environmentally sensitive sites or beyond road ROW and apply by hand within 30 m of any waterbody.

Valued Component (VC)	**Potential Blasting Effects Before Mitigation**	**Mitigation Measures**	**Potential Residual Effects**
Wetlands and other waterbodies	• Increased sedimentations and habitat loss	• Adhere to Manitoba Stream Crossing Guidelines for Protection of Fish and Fish Habitat, DFO Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters, EP12 and ES 130.15.11. • Alignment selected so no work within 100 m of a waterbody (retained vegetated buffer) except at crossings where in-stream work will be conducted during winter months or low flow conditions (EP6, ES 130.15.1 and ES 130.15.2) to the extent possible. • Install erosion and sediment control measures (EP16 and ES 130.16, e.g. silt fencing, erosion control blanket, straw wattle, geotextile).	No significant effects

Human health receptors (e.g traplines, residences, camps, First Nations reserve lands)	• Noise, dust, and vibration affecting nearby communities
	• Risk to human health from decreased quality of the community water supply
	• Risk to human health and disturbance to local communities as a result of reduced air quality
		• Limit quarrying and blasting to daytime hours when working close to local communities.
		• No operator of a quarry is to establish or mine a quarry closer than 400 metres from a residence, unless the operator has established a vegetated berm or tree screen sufficient to shield the quarry from view from the residence (EP20).
		• Quarry site selection shall consider the proximity of sensitive sites including waterbodies, wildlife, heritage resources and culturally important sites. Setbacks will vary depending on circumstances however selected areas are to be a minimum of (EP20):
		  • 100 m from a water course or water body,
		  • 100 m buffer from any large stick nest, eagle nest, heron rookery, or any other sensitive wildlife area,
		  • 30 m from heritage resources or identified cultural sites,
		  • 400 m from any residence,
		  • 15 m from the property line, and
		  • Other setbacks as required.
			No significant effects

Sites of cultural and heritage value	• Potential disturbance to culturally significant sites	• Field assessment of the alignment has identified areas for further investigation prior to construction (EP13 and ES 130.18). • Protection measures (e.g. avoidance and maintaining buffers around heritage resources near the alignment) shall be employed in discussion with Manitoba's Historic Resources Branch (HRB) and the local communities.	No significant effect

Valued Component (VC)	**Potential Blasting Effects Before Mitigation**	**Mitigation Measures**	**Potential Residual Effects**
		• Limit equipment and workers to construction areas (ES 130.6.1); if artifacts are uncovered, work at the location will be stopped and a recovery or protection plan implemented by a qualified archaeologist in consultation with HRB and the local communities (EP13 and ES 130.18) • Conduct appropriate community and cultural activities prior to construction • Quarry site selection shall consider the proximity of sensitive sites including waterbodies, wildlife, heritage resources and culturally important sites. • Setbacks will vary depending on circumstances however selected areas are to be a minimum of (EP20): o 100 m from a water course or water body, o 100 m buffer from any large stick nest, eagle nest, heron rookery, or any other sensitive wildlife area, o 30 m from heritage resources or identified cultural sites, o 400 m from any residence, o 15 m from the property line, and o Other setbacks as required.	
Species of importance to Indigenous peoples and their habitat	• Temporary displacement of key species used for traditional purposes • Reduction in food supply and culturally important species (moose, caribou)	• Design and adjust alignment where there are equitable conditions in the immediate vicinity based on community input to avoid loss of valued habitat and hunting areas • Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and ES 130.11) techniques • Follow blasting (EP14 and ES 130.19.6) timelines and restrictions to avoid important nesting and breeding times • Quarry site selection shall consider the proximity of sensitive sites including waterbodies, wildlife, heritage resources and culturally important sites; setbacks will vary depending on circumstances however selected areas are to be a minimum of (EP20): o 100 m from a water course or water body, o 100 m buffer from any large stick nest, eagle nest, heron rookery, or any other sensitive wildlife area, o 30 m from heritage resources or identified cultural sites, o 400 m from any residence, o 15 m from the property line, and	No significant effects

Valued Component (VC)	**Potential Blasting Effects Before Mitigation**	**Mitigation Measures**	**Potential Residual Effects**
		○ Other setbacks as required.	
Travel Routes	• Decreased access to traditional travel routes used for resource use and recreation during construction, maintenance and operation	• Crossing designs to maintain navigability of navigable watercourses. • Provide an approach (ramps) for users (e.g. boats, snowmobiles, ATVs at key crossings as identified by local communities and post warning signs showing the road crossings if navigability cannot be maintained. • Quarry site selection shall consider the proximity of sensitive sites including waterbodies, wildlife, heritage resources and culturally important sites; setbacks will vary depending on circumstances however selected areas are to be a minimum of (EP20): ○ 100 m from a water course or water body, ○ 100 m buffer from any large stick nest, eagle nest, heron rookery, or any other sensitive wildlife area, ○ 30 m from heritage resources or identified cultural sites, ○ 400 m from any residence, ○ 15 m from the property line, and • Other setbacks as required.	No significant effect
Indigenous Land and Resource Use	• Potential to interact with traditional activities and use of lands and resources for traditional purposes (hunting, trapping, fishing, gathering)	• Design and adjust alignment where there are equitable conditions in the immediate vicinity based on community input to avoid loss of valued habitat and hunting areas. • Identify and map areas of cultural importance prior to clearing for proposed Project planning and design (routing and setbacks) • Design and adjust alignment where there are equitable conditions in the immediate vicinity based on community input to avoid loss of important harvesting areas. • Quarry site selection shall consider the proximity of sensitive sites including waterbodies, wildlife, heritage resources and culturally important sites; setbacks will vary depending on circumstances however selected areas are to be a minimum of (EP20): ○ 100 m from a water course or water body, ○ 100 m buffer from any large stick nest, eagle nest, heron rookery, or any other sensitive wildlife area, ○ 30 m from heritage resources or identified cultural sites,	No significant effects

Valued Component (VC)	**Potential Blasting Effects Before Mitigation**	**Mitigation Measures**	**Potential Residual Effects**
		○ 400 m from any residence, ○ 15 m from the property line, and • Other setbacks as required.	

d) The exact type of explosives to be used on the proposed Project, as well as the duration for which it will be stored will be determined by the construction contractor in compliance with environmental protection measures identified in the responses above and to applicable provincial and federal regulations. An Explosives and Blasting Management Plan will be prepared and submitted to Manitoba Transportation and Infrastructure (MTI) by construction contractors in advance of any blasting required throughout the construction and operations phases of the proposed Project. Plans submitted by contractors are subject to review and approval by MTI or its designate (i.e. Contract Administrator) prior to start of work.

As mentioned in Chapter 6, Section 6.3.1 of the EIS, blasting explosives may contain ammonium nitrate, calcium nitrate, and sodium nitrate. The selection of explosive types will be dependent on site-specific conditions for the area being blasted and specifically the moisture levels in the drill holes. If drill holes are dry, ammonium-nitrate fuel mixtures (i.e. ANFO) may be used. ANFO is economical and can be purchased as a pre-manufactured bagged product, but it cannot be used if drill holes are wet. If drill holes are wet, emulsion explosives would be used. Emulsion is also available as a pre-manufactured and packaged product. Emulsion explosives, if used, would be expected to result in lower ground vibrations (i.e. seismic effect), and reduced environmental disturbance due to their more controlled detonation characteristics (Vinko Škrlec et al., 2024).

However, as described in response to IR1-15, a worst-case scenario for ammonium-nitrate explosives, if used, would likely be related to the transportation of explosives and in the specific circumstance where the raw product is released into the aquatic environment at a water crossing in the open water season. The exact volume of release cannot be predicted but would be of a quantity that can be legally transported in accordance with the Explosives Regulation, 2013.

Release of ammonium nitrate to an aquatic environment could directly impact valued components by introducing or increasing contaminants, or by changing nutrient concentrations. The magnitude of this type of scenario would depend on the volume of material released into the environment. However, given that MTI has identified specific requirements and setbacks for use of explosives from fish bearing waterways, and that transportation of explosives would adhere to the Explosives Regulations, 2013, the potential for release of ammonium nitrates to aquatic environments is anticipated to be low and therefore of low magnitude.

As identified in responses B and C above, the Environmental Protection Procedures and Environmental Protection Specifications (included as Appendix IR1-19-1) include mitigation measures for blasting near water. These measures include adhering to EP12 (Blasting Near a Watercourse), ES 130.15.11 (Blasting Near a Watercourse) and the DFO "*Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters*".

Regardless, should ammonium nitrate explosives be identified in the contractor's Explosives and Blasting Management Plan and planned to be stored within the proposed Project footprint for more than 3 days (i.e. 72 consecutive hours) and in a quantity that is equal to or exceeding 20 metric

tonnes, MTI will ensure that an environmental emergency plan pursuant to applicable provincial and federal regulations, including the Environmental Emergency Regulations, is developed and will do so in consultation with Environment and Climate Change Canada.

An estimate of the types and maximum probable quantities of hazardous materials that may be involved in an accident or malfunction is provided in Chapter 6, Table 6.42 of the EIS. These same values may also correspond to the anticipated maximum probable quantity or volume of substances that may be stored within the Project limits at a given time. Table IRI-13-2 summarizes details regarding anticipated explosives types, and quantities expected to be stored for the Project at any given time. For ammonium nitrate explosives, the estimated quantities are as follows:

Table IR1-13-2. Ammonium nitrate quantity and storage

Hazardous Material	Maximum Probable Quantity	Storage or Transport
Explosives: ammonium nitrate	Storage quantities range from 15,000 kg to 30,000 kg	Storage magazine
	On site transfer- small quantities (<1,000 kg)	Transport – truck (meeting Transport Canada standards)
	On site transport to project (<1,000 kg)	Transport – truck (meeting Transport Canada standards)

APPENDIX IR1-13-1

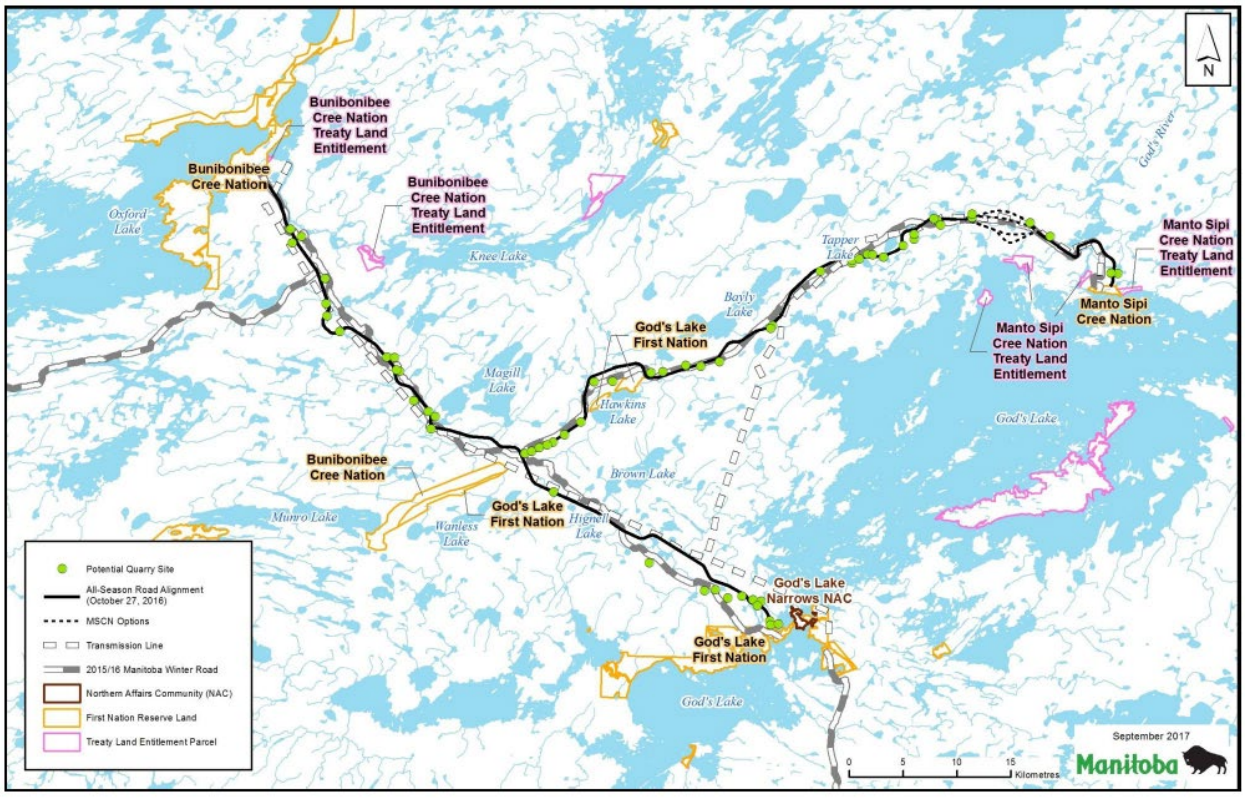


Figure IR1-13-1. Potential construction quarry sites (Figure 3-4 of the Project 6 Environmental Impact Statement)

REFERENCES

Government of Canada, P. S. and P. C. 1998. Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters. Publications.gc.ca. Available at : https://publications.gc.ca/collections/Collection/Fs97-6-2107E.pdf

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

Province of Manitoba. 2021. Recommended Development Setback Distances and Restricted Activity Periods for Birds by Wildlife Feature Type. Available at: https://www.gov.mb.ca/nrnd/fish-wildlife/cdc/pubs/mbcdc-bird-setbacks-nov2021.pdf

Vinko Škrlec, Dobrilović, M., Tumara, B. Š., & Vječislav Bohanek. 2024. The effect of blasting using low-density emulsion explosives. Journal of Sustainable Mining, 23(1), 10–19. https://doi.org/10.46873/2300-3960.1401

QUESTION IAAC IR1-14

EIS Guideline Reference	• Part 1, Section 4.1
EIS Reference	• Chapter 6, Section 6.3.4 • CEAA Annex 2: Early Technical Issues, August 27, 2018
Category	Human Health

CONTEXT AND RATIONALE

The EIS Guidelines encourage the proponent to consult relevant Agency policy and guidance on topics to be addressed in the EIS, as well as any relevant guidance from other federal departments.

The EIS describes how guidance was sought from the Agency's Technical Guidance for Assessing the Current Use of Lands and Resources for Traditional Purposes under the Canadian Environmental Assessment Act, 2012 and Useful Information for Environmental Assessments, published in 2010. However, more recent guidance documents from Health Canada on evaluating human health impacts in environmental assessments are available and should be reviewed and considered by MI in their assessment of potential Project effects to human health.

Consideration of more recent guidance documents would improve the assessment of potential Project effects to human health and may increase the strength of conclusions with respect to potential effects to the health and socioeconomic conditions of Indigenous peoples.

INFORMATION REQUEST

a) Update the assessment of potential environmental effects of the Project to human health and the health and socioeconomic conditions of Indigenous peoples, following review and in consideration of the following updated guidance documents published by Health Canada:
   - Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise (2017);

- Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air Quality (2017);
- Guidance for Evaluating Human Health Impacts in Environmental Assessments: Country Foods (2017);
- Guidance for Evaluating Human Health Impacts in Environmental Assessment: Water Quality (2017); and
- Guidance for Evaluating Human Health Impacts in Environmental Assessment: Radiological Impacts (2017).

RESPONSE

a) Information sources, such as community knowledge, Traditional Knowledge (TK) studies, Manitoba Transportation and Infrastructure's (MTI) Indigenous and Public Engagement Program (IPEP) (Chapter 5 of the Environmental Impact Statement (EIS)) and heritage resource studies as described in Chapter 4, Section 4.4. of the EIS were used to identify potential effects on Indigenous Peoples and the Human Environment in the Indigenous Local Assessment Area (LAA) and Regional Assessment Area (RAA).

Guidance was originally sought from Impact Assessment Agency of Canada's (IAAC) "Technical Guidance for Assessing the Current Use of Lands and Resources for Traditional Purposes under the Canadian Environmental Assessment Act (2012)" and "Useful Information for Environmental Assessments (2010)". Linkages between Project components and activities along with Indigenous Peoples were examined to determine the potential indirect effects that alter the natural environmental due to the construction and operation of the proposed all-season road.

Potential effects related to air quality, country foods, and water quality were considered in Chapter 6 and included in Appendices 6-4 and 6-5 which present the assessment of potential effects before and after the implementation of mitigation measures. Although these effects are not presented in the light of impacts to human health, the assessment of impacts to air quality, country foods (i.e. land and resource use) and water quality and the mitigation measures developed to prevent, control or reduce these effects ultimately apply to reducing impacts to human health.

Radiological effects are not anticipated to be applicable to the proposed Project.

In addition, IR1-88 addresses potential Project effects to Indigenous health and the current use of lands and resources for traditional purposes, and considered Health Canada's Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods (Health Canada, 2018). As mentioned in that response, the effects and mitigations related to the current use of lands and resources by Indigenous peoples have already been addressed and considered as part of the assessment presented in Chapter 6, Appendix 6-4, and Chapter 7, Appendix 7-1 of the EIS, so further revision is not required.

No revision to the assessment is required at this time, as the Health Canada's guidance documents do not affect the methodology or outcomes of the environmental assessment for Indigenous health.

Nonetheless, MTI is developing an engagement questionnaire to share with scoped in Indigenous Nations and interested people and groups (such as government agencies, non-government organizations or members of the public, and stakeholders) during engagement activities (i.e., community meetings). The questionnaire will include environmental related topics (such as Indigenous health) for which regulatory expectations may have evolved since the EIS was filed, and for which additional input from Indigenous Nations could aid MTI to further address as Project mitigation measures and Project design advance. The questionnaire will first be shared and discussed with Indigenous Nations leaderships. All responses received during discussions will be recorded and used to support MTI in providing meaningful feedback to provincial and federal regulatory bodies to meet environmental regulatory requirements and support consultation processes.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-15

EIS Guideline Reference	• Part 2, Section 6.6.1
EIS Reference	• Chapter 6, Section 6.6.1 • Chapter 8, Section 8.4.2.1 • CEAA Annex 2: Early Technical Issues, August 27, 2018
Category	Accidents and Malfunctions

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to identify the probability of potential accidents and malfunctions related to the Project, including an explanation of how those events were identified, potential consequences (including the environmental effects as defined in section 5 of CEAA 2012), the plausible worst case scenarios, and the effects of these scenarios. This assessment must also include an identification of the magnitude of an accident and/or malfunction, including the quantity, mechanism, rate, form, and characteristics of the contaminants and other materials likely to be released into the environment during the accident or malfunction. Potential spills of hydrocarbons and ammonium nitrate to fish-bearing waterways must also be considered in this assessment for all seasons.

The EIS does not describe in sufficient detail what would constitute the worst case scenarios or the potential environmental effects of worst case scenarios such as the accidental release of hazardous substances, accidental fires or explosions, accidental collisions, and accidental encroachments. The EIS generally describes that adverse environmental effects to VCs may result from accidents and malfunctions, including from worst case scenarios, but does not explain specifically how VCs may be affected, including the potential geographical and temporal extent of such effects. For instance, for hazardous material spills, stating that the extent of potential adverse effects to VCs would be a function of the nature, size and location of the release does not provide a clear description of the potential environmental consequences of such an event. Quantitative predictions (e.g. volumes of materials released) for all worst case scenarios should be estimated. The EIS also does not provide information regarding potential spills of ammonium nitrate to fish-bearing waterways.

In characterizing the probability of occurrence of accidents and malfunctions and the potential magnitude of effects, no rationale is provided regarding how conclusions on the probability of occurrence were reached. The assessment of the magnitude of an accident and/or malfunction only considers the degree or intensity of change, but not the quantity of material released, the mechanism of release, rate of release, form of release, or characteristics of the contaminants.

Additionally, this assessment was not conducted for potential accidental encroachments or potential spills of ammonium nitrate to fish-bearing waterways.

With regard to mitigation measures, the EIS describes measures that will be implemented to prevent or minimize the potential for accidents and malfunctions that may result in adverse environmental effects to VCs, including the development of a Waste Management Plan and Emergency Response Plan by the construction contractor. However, detail is not provided regarding the level of influence that MI will have to inform the Waste Management Plan and Emergency Response Plan, or measures that will be implemented to mitigate adverse environmental effects in the event that an accident or malfunction does occur.

This information is required to understand and assess the probability and magnitude of potential accidents and malfunctions and any associated adverse environmental effects to VCs listed under section 5 of CEAA 2012.

INFORMATION REQUEST

a) Provide a description of what would constitute a worst case scenario for accidents and malfunctions related to an accidental release of hazardous substances, fires or explosions, collisions, encroachments, and spills of hydrocarbons and ammonium nitrate to fish-bearing waterways in all seasons. This description should include details regarding the location of the accident and/or malfunction and the magnitude of the event (i.e. clearly considering the quantity of material, mechanism of release, rate of release, form of release, and characteristics of the contaminants and other materials likely to be released into the environment during the event).
    - Describe the characteristics of hazardous substances that may be released and describe how those characteristics may contribute to or cause adverse environmental effects to VCs.

b) For accidental releases of hazardous substances, fires and explosions, collisions, encroachments, and spills of hydrocarbons and ammonium nitrate to fish-bearing waterways, provide specific details regarding how VCs would be affected by the worst case scenarios in all seasons, the associated environmental consequences (such as potential species affected), the temporal and geographical extent of the effects, and the pathway of effects. Describe mitigation measures to limit or prevent any potential adverse environmental effects to VCs.

- If no effects to a particular VC are anticipated, provide a clear and descriptive rationale for this conclusion.

c) Provide a rationale or describe the methodology for how conclusions regarding the probability of occurrence of accidents and malfunctions were reached, including for accidental releases of hazardous substances, fires and explosions, and collisions.
d) Conduct an analysis of the probability of occurrence for accidental encroachments and accidental spills of hydrocarbons and ammonium nitrate to fish-bearing waterways, and provide a rationale or describe the methodology for how conclusions were reached.
e) Identify and describe contingency and response planning for hazardous material spills, including on-site response capacity and times, and spill notification procedures.
f) Describe the relationship that MI will have with the construction contractor, specifically with regard to the development of a Waste Management Plan and Emergency Response Plan. For instance, will MI have the ability to influence or inform the measures included in the contractor's Waste Management Plan and Emergency Response Plan?
    - If MI will have the ability to influence the development of the Waste Management Plan and Emergency Response Plan, describe measures that MI will require be included in these plans to limit or prevent accidents and malfunctions, and to mitigate or prevent adverse environmental effects to VCs in the event that an accident or malfunction occurs.

RESPONSE

a) Anticipated worst-case scenarios for substances, events or circumstances are provided below.

Hazardous Materials

Hazardous materials anticipated to be present during construction of the all-season road includes hydrocarbons (e.g. gasoline, diesel, engine oil), herbicides, and explosives. As described in Chapter 8 of the Project Environmental Impact Statement (EIS), a number of measures have been identified to prevent or protect against the accidental release of hazardous materials to the environment, including fish-bearing water. These measures are included in the Environmental Protection Procedures and Environmental Protection Specifications which were included in the EIS (Chapter 8 Appendix 8-2 and 8-3; also available in Appendix IR1-19-1 in the response to IR1-19). Examples of these measures include requiring overfill protection and spill containment for hydrocarbon storage tanks and maintaining setbacks from water for activities or materials storage.

With the application of these mitigation measures, many accidental releases should be prevented or quickly addressed. As presented in Chapter 6, Section 6.6.1.1 of the EIS, during construction, there is a risk of accidental releases of hazardous substances during transport to the Project site via the winter road, during transfer and storage at staging areas and work locations and during the operation and maintenance of construction equipment, machinery and vehicles. The primary risks

of accidental releases of hazardous substances are associated with construction and maintenance equipment, transport trucks and vehicles. Accidental releases of hazardous materials during construction, operation and maintenance could result from improper storage, mechanical failures, collisions or careless use.

Similarly, Table IR1-15-2 in Appendix IR1-15-1 (included as Table 6.42 in the EIS) identifies possible quantities for the release of various hazardous substances. While the exact location of such a scenario cannot be specified, it is anticipated to occur within the right-of-way, temporary work sites, or quarries where vehicles are operating and/or in motion. Therefore, unless the accident occurs in the immediate vicinity of a water crossing location, the potential for impacts to aquatic environments would be anticipated to be low. Hydrocarbon releases may also occur if an accident or malfunction related to petroleum storage tank were to occur. The worst-case scenario related to a circumstance such as this would likely result if a vehicle were to collide with a full tank and rupture containment. However, the likelihood of this type of scenario is extremely unlikely as petroleum storage tank permitting and operating guidelines require that collision prevention measures, secondary containment and spill response measures be present on site at all times. The exact location of future petroleum storage tanks for use on the Project are not currently known, but it is anticipated that these would be located in temporary work locations such as camps or quarries. Similarly, the exact size of potential petroleum storage tanks are not known, but may be as much as 50,000L as identified in Appendix IR1-15-1.

Since hydrocarbons are hydrophobic, they can quickly spread if they come into contact with water. When spilled on land, hydrocarbons can form non-aqueous phase liquids (NAPLs), which are influenced by the volume of the spill, soil properties, and environmental factors (Nadim et al., 2000). Gravity drives these substances downward, while soil heterogeneity and capillary forces cause lateral spreading and the formation of pools above less permeable layers, slowing further migration (Bradford et al., 2003). Some hydrocarbons may evaporate, particularly lighter ones like gasoline, but heavier components can persist, often becoming trapped in soil pores or interacting chemically with soil, creating a long-term contamination source (Rivett et al., 2011).

These hydrocarbons can also be toxic to plants and ecosystems. Studies have shown that petroleum hydrocarbons can inhibit seed germination, disrupt seedling development, and reduce photosynthetic activity, resulting in severe phytotoxic effects (Henner et al., 1999; Khan et al., 2014). These impacts can harm plants' ability to grow and function, further affecting wildlife that depend on plants for food or are exposed to contaminated water.

These characteristics can impact how such substances interact with the environment and how they may impact valued components. For example, hydrocarbons could be ingested via root systems or otherwise enter plants and damage or kill the organism by impacting its ability to photosynthesize and transpire. Hydrocarbons may also be ingested by terrestrial wildlife through consumption of impacted plants or contaminated water.

The magnitude of a hydrocarbon release to the environment is dependant on the volume released as well as the location of the incident. In a worst-case scenario, if several hundred or thousands of litres of hydrocarbons were released to environment and onto or into waterbodies the magnitude could be high.

Herbicides

Herbicides are purposefully produced products meant to kill undesired plants as a control mechanism and may persist in the environment. Herbicides may be used in accordance with required Pesticide Use Permits to be acquired and used during maintenance activities, but it is not anticipated to be stored in large quantities. Use of herbicides would be very selective and specific (if at all). Spills could result if herbicide containers are breached or if accidents were to occur during storage. However, based on the anticipated potential use of herbicides, it is expected that the volume of product that could be released to the environment would not exceed 4L. Characteristics of herbicides are likely to result in the product being taken up by vegetation if it were to remain on plants or in soil for adequate amounts of time. While the location at which this product could be spilled can't be specified, it would be used in areas away from water where it's use was permitted. Given the likelihood of such a spill occurring away from water, and the small volume of product, the magnitude of this type of event is considered low.

Fires and Explosions

Controlled burning is likely to be used as a means of disposal for cleared brush that cannot be salvaged for community use. As identified in Chapter 8, Appendix 8-2 and 8-3 of the EIS (and IR1-19 in Appendix IR1-19-1) measures such as seasonal restrictions and setbacks have been developed to control project-related burning. Controlled brush disposal fires have low potential of resulting in accidents or malfunctions unless proper procedures are not followed.

While Arienti et al. (2009) found that in boreal landscapes, increased road density was associated with a higher incidence of fires, this effect was observed in regions with a large and increasing abundance of anthropogenic linear disturbances. Fires were mostly caused due to the buildup of fine, flammable fuels along roadsides. In contrast, land in the Project area is mostly undeveloped (Chapter 1, EIS), which makes the fire risk predictable and mitigable through measures outlined in Chapter 7, Appendix 7-1 of the EIS.

Naturally occurring wildfires would therefore represent the worst-case scenario for fires as their uncontrolled nature could result in unanticipated shutdowns, evacuations or undesired damages. Should wildfires reach Project construction areas there is risk that it could impact storage and containment of hazardous materials such petroleum storage tanks or explosives storage areas and could result in releases to the environment. Because hydrocarbons are flammable, exposure of these types of products to a wildfire would likely result in an atmospheric release either as evaporated gases or as combusted emissions. These releases could occur quickly or suddenly and

would therefore occur at a high rate over short periods. Hydrocarbon combustion rates are affected by the specific hydrocarbon, oxygen availability, temperature, pressure, and turbulence.

The rapid or sudden release of hydrocarbon gases or emissions into the atmosphere could impact valued components and would contribute (albeit likely minimally relative to air quality impacts caused by the fire) to decreased air quality. In this scenario, the magnitude of the release is anticipated to be low compared to the severe air quality impacts that naturally occurring wildfires create.

Similarly, explosives are extremely dangerous and as a result, are highly managed and controlled. Explosives storage (e.g. in an explosives magazine) is regulated under Canada's Explosives Regulations, 2013. As outlined in the Explosives Regulations, 2013 the application for an explosive's storage magazine requires that a fire safety plan be developed and that sets out precautions and response measures should a fire occur. Should an uncontrolled wildfire risk, that could impact the work site and explosives storage be realized, the area would likely already have been evacuated. If explosives were to detonate in an uncontrolled manner as a result of contact with heat or flames from a wildfire, valued components may be exposed to an acute and extreme noise and vibration event and may be at risk of injury or death. However, given that this scenario would likely only result in a wildfire event, it is anticipated that mobile valued components would either vacate the area or be at risk of injury or death from natural impacts from the wildfire itself.

Accidents or malfunctions that may occur as a result of handling explosives are also anticipated to be extremely low, as Manitoba Transportation and Infrastructure (MTI) will utilize certified blasters for blasting activities. Should an accident or malfunction occur as a result of explosives handling, the worst-case scenario would likely be injury of the immediate individual(s) handling the explosives rather than potential fatality, as it assumed that such an accidental event would be much smaller in nature (e.g. detonation of small volume of explosives being handled or loaded into a drill hole for aggregate blasting).

Ammonium Nitrate Explosives and Aquatic Habitat

As described in the response to IR1-13, the exact type of explosives to be used for Project construction is unknown at this time. However, should ammonium nitrate explosives be stored within the Project footprint for more than 3 days (i.e. 72 consecutive hours) and in a quantity that is equal to or exceeding 20 metric tonnes, MTI will ensure that an environmental emergency plan is developed. The plan would be developed pursuant to applicable provincial and federal regulations, including the Environmental Emergency Regulations, and in consultation with Environment and Climate Change Canada. Additionally, as outlined in the Project 6 Environmental Impact Statement (Chapter 8, Section 8.4.2.3), an Explosives and Blasting Management Plan will be prepared and submitted to MTI by applicable construction contractors.

These plans will outline best practices and regulatory requirements for transportation, handling storage and use of explosives. Further, it will be expected that these plans will identify means of

adhering to requirements identified in the Environmental Protection Specifications (EIS Chapter 8, Appendix 8-3, but also available in Appendix IR1-19-1 in the response to IR1-19), and if/where applicable the Department of Fisheries and Oceans (DFO) Guidelines for Use of Explosives in or Near Canadian Fisheries Waters 1998. With mitigation measures in place, accidents and malfunctions related to ammonium-nitrate explosives impacting fish and fish habitat is not anticipated. Because actual blasting events will adhere to the Department of Fisheries and Oceans *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters*, accidents or malfunctions relating to blasting effects such as vibration and shock waves are not anticipated to occur.

A worst-case scenario for ammonium-nitrate explosives would likely be related to the transportation of explosives and in the specific circumstance where the raw product is released into the aquatic environment at a water crossing in the open water season. The exact volume of release cannot be predicted but would be of a quantity that can be properly transported in accordance with the Explosives Regulation, 2013.

Release of ammonium nitrate to an aquatic environment could directly impact valued components by introducing or increasing contaminants, or by changing nutrient concentrations. The magnitude of this type of scenario would depend on the volume of material released into the environment. However, given that MTI has identified specific requirements and setbacks for use of explosives from fish bearing waterways, and that transportation of explosives would adhere to the Explosives Regulations, 2013, the potential release of ammonium nitrates to aquatic environments is anticipated to be low and therefore of low magnitude.

Collisions

A worst-case scenario for environmental effects relating to accidents and malfunctions of collisions would likely be a situation where equipment carrying a large volume of hazardous materials (e.g. hydrocarbons) either as cargo, or as onboard materials (i.e. full fuel tanks) collides with another similar vehicle resulting in a release of hazardous substances, or where vehicles and/or equipment exit the roadway and enter a waterbody, again releasing hazardous substances to the environment. While the cause of effects are different, the resulting impacts are anticipated to be very similar to those described for worst-case scenarios relating to hydrocarbon releases above. The magnitude of such an event may vary depending on the nature of the collision, its location, the volume of hazardous materials released, or whether personal injury or death may have occurred. As controls will be in place to regulate speeds and control traffic, the risk and likelihood of a collision of sufficient severity so as to release hazardous substances is anticipated to be low. Similarly, unless the collision involved a transport vehicle moving large volumes of petroleum products or other hazardous materials, it is anticipated that the magnitude of environmental effects would be low to moderate.

Encroachment

A worst-case scenario related to encroachment could include a circumstance where construction crews and/or equipment enter (e.g. built temporary access into), disturb (e.g. clear or excavate) or destroy areas identified or delineated as restricted access zones due to the presence of heritage resources, species at risk, or areas of traditional or cultural importance to Indigenous Nations. Given MTI's plans to maintain continuous engagement with Indigenous Nations, as well as proposed precautionary mitigation measures requiring work sites be clearly delineated, and to maintain spatial and/or temporal buffers to environmentally sensitive sites, the likelihood of this scenario is anticipated to be very low. The exact location in which such a scenario could occur cannot be predicted, but would require very close proximity between construction sites or temporary work areas and sensitive locations and/or time periods.

The magnitude of this type of event is also difficult to predict and is dependant on the circumstance. Impacts to species at risk habitat for example is important but may only result in impacts to specific individuals and are not likely to cause population-level effects for the given species. Similarly, the magnitude for encroachment upon an area of importance to Indigenous Nations may also depend on the nature of the area, as well as the type of activity which resulted in the encroachment (i.e. clearing versus blasting) and the extent of the encroachment itself.

Table IR1-15-1 below presents a summary of the worst-case scenarios described in each of the preceding subsections. The likelihood of the events was determined using the definitions included as Appendix IR1-67-2 in IR1-67. Potential effects to each VC, along with specific mitigation and contingency measures are presented in response to IR1-67, Table IR1-67-1.

Table IR1-15-1. Summary of Worst-Case Environmental Scenarios

Accidents and Malfunctions	Worst-Case Scenario	Potential Location	Potential Effect	Magnitude	Likelihood
Hazardous Materials	Collision or equipment failure causing rupture of a full petroleum tank (up to 50,000L); could occur during transport, transfer, storage, or use.	Right-of-way (ROW), temporary work sites (i.e. staging areas, camps, or quarries where tanks/vehicles operate)	Non-aqueous phase liquids (NAPL) formation; inhibited germination; reduced photosynthesis; plant and wildlife toxicity	Low	Low
Herbicides	Puncture or breach of container (≤4L) during storage or handling.	Areas away from water where herbicide use may occur	Phytotoxic effects: inhibited development, disrupted photosynthesis; localized impacts.	Low	Low
Fires and Explosions	Uncontrolled wildfire or wildfires reaching hydrocarbon/explosive storage, causing rapid emissions or detonation. Accidental detonation may also occur during handling, leading to injury of the immediate individual (s) handling the explosives.	ROW, temporary work sites	Temporary air quality impacts from evaporated gases and combustion; VCs exposed to acute stress/injury from explosion or wildfires; injury risk to workers handling explosives.	Low	Low
Ammonium Nitrate Explosives and Aquatic Habitat	Transport accident releases ammonium nitrate into the aquatic environment at a water crossing in the open water season.	Water crossings	Release of ammonium nitrate to an aquatic environment could introduce, and/ or increase contaminants, or change nutrient concentrations	Low	Low
Collisions	Equipment carrying a large volume of hazardous materials (e.g. hydrocarbons) either as cargo, or as onboard materials (i.e. full fuel tanks) collides with another similar vehicle resulting in a release of hazardous substances, or where vehicles and/or equipment exit the roadway and enter a waterbody, again releasing hazardous substances to the environment.	ROW, temporary work sites, staging areas	NAPL formation; inhibited germination; reduced photosynthesis; plant and wildlife toxicity.	Low	Low
Encroachment	Construction crews and/or equipment enter (e.g. built temporary access into), disturb (e.g. clear or excavate) or destroy areas identified or delineated as restricted access zones due to the presence heritage resources, species at risk, or areas of traditional or cultural importance to Indigenous Nations.	Restricted access zones (i.e. sensitive locations and/or time periods)	Site or habitat disturbance; potential cultural or ecological harm.	Low	Low

b) As outlined in Chapter 6, Sections 6.2.4.1.3 and 6.3.1.1 of the EIS, the worst-case scenario for spills or hazardous material releases would occur prior to the implementation of mitigation measures. In such cases, surface water quality could decrease, resulting in toxic effects on aquatic organisms, including fish. Deleterious substances could directly kill fish and other aquatic biota or impair their health, vigor, and reproductive capacity. Accidental releases of concrete or concrete wash water into watercourses could further elevate water pH levels, damaging fish tissue and increasing the toxicity of substances like ammonia.

Additionally, nitrates from blasting explosives could enter watercourses through accidental spills, elevating nitrate levels, which can have toxic effects on aquatic organisms and contribute to surface water eutrophication (NSC, 2017).

Before mitigation, contaminant concentrations could exceed applicable guidelines, potentially affecting water quality beyond the Project Footprint. Decreased surface and groundwater quality might also negatively impact fish and fish spawning during sensitive life stages. However, with the application of mitigation measures, these effects are considered not significant, as detailed in Chapter 6, Appendix 6-5 of the EIS.

The worst-case scenario for soils involves increased concentrations of contaminants, such as hydrocarbons, resulting from spills of fuel or hazardous materials. These concentrations could exceed applicable regulations before the implementation of mitigation measures. However, following the application of mitigation measures, this impact is assessed as not significant, as outlined in Chapter 6, Appendix 6-5 of the EIS.

For vegetation, the worst-case scenario as described in Chapter 6, Section 6.2.5.1.5 of the EIS includes the impairment or loss of vegetation and desirable species due to fuel or hazardous material spills. Such events could significantly affect common vegetation species and communities prior to mitigation. Similarly, an increased risk of wildfires caused by fires or explosions could also have measurable effects on vegetation. However, with mitigation measures in place, these risks are also considered not significant.

For further details on specific mitigation measures and the evaluation of environmental risks in the event of accidents and malfunctions, refer to Chapter 6, Table 6.43 of the EIS.

Additional details regarding effects of anticipated worst-case scenarios to valued components in all seasons, including associated environmental consequences, the temporal and geographic extent of effects, and the pathway of effects are provided below.

Hazardous Substance

The worst-case scenario for a hydrocarbon release would occur in unfrozen conditions (i.e. spring, summer, or fall). In frozen conditions, hydrocarbons have a much lesser likelihood of leaching into soils, or of spreading quickly over large distances if released onto open water.

Further to the description of a worst-case scenario provided in Response A above, hydrocarbons such as diesel fuel and hydraulic oil are hydrophobic and if released to the environment could leach into loose or porous soils or if spilled over water can spread quickly or be carried by moving waters. Releases into soils can be relatively easy to contain and remediate. A hydrocarbon release onto soil may impact vegetation and subsurface insects, but is unlikely to impact terrestrial wildlife, migratory birds, species at risk or species of importance to Indigenous people as the area can typically be more easily controlled and isolated (as it will not spread in the same manner as it would over water) until remediation occurs. As such, the spatial extent of effects resulting from a hydrocarbon spill over land is anticipated to be limited to the immediate vicinity. Given the ability to remediate such sites relatively easily, the temporal extent of this effect is also anticipated to be limited. Consequences of hydrocarbon releases onto land are not anticipated to be significant as effects would be limited to the immediate area and are not anticipated to impact valued components such as vegetation on a regional, community or population level.

Hydrocarbon releases into water can be much more difficult to contain and control. Should a spill or release occur over water, or flow into water, response measures may be much more complex if proper precautionary measures are not already in place. In most cases, and especially in unfrozen open-water conditions, an uncontrolled hydrocarbon release into or onto water may quickly spread and could impact amphibians, emergent vegetation, insects, aquatic life, terrestrial wildlife, migratory birds, species at risk and species of importance to indigenous people. Additionally, should hydrocarbons be release onto or into water used as a drinking water source, it may also cause risks to human health. The exact spatial or temporal extent of effects is hard to predict and is dependant on the conditions and location in which the release occurs.

As described in Response A above, herbicides are meant to kill undesired plants. The uncontrolled release of such products is therefore likely to result in loss of vegetation in the immediate area of the spill, and if unaddressed may prevent further regrowth until the product decreases in concentration or quantity or is removed as part of remedial processes. Based on the very small anticipated volume for a worst-case scenario accident, the geographic extent of such a release is likely to be very small and isolated to the exact area of the spill. Similarly, based on proposed spill response procedures the temporal extent of effects is anticipated to be brief. The consequence of such a scenario is therefore also anticipated to be not significant.

Fires and Explosives

Wildfires typically occur in unfrozen conditions (spring, summer, fall). The spatial and temporal extent of a wildfire impacting the Project could be considerable. Large wildfires in Manitoba's boreal region can remain active for prolonged period and reach substantial sizes. In 2024, a wildfire between Island Lake and God's Lake and approximately 20km southeast of God's Lake Narrows burned for a reported 88 days and grew to 40,185.7 hectares in size (Government of Manitoba, 2025). Consequences of a wildfire interacting with the Project can be substantial but pale in significance to those caused by the natural event itself.

The spatial and temporal extent of accidental explosions would be very small and brief, but could occur in any season. Accidental explosions would be most likely to occur at storage facilities or at planned blasting locations.

Ammonium Nitrate Explosives and the Aquatic Environment

The release of ammonium nitrate into aquatic environments has adverse ecological consequences, driven largely by human activities. While ammonium nitrate naturally occurs through processes like nitrogen fixation and mineralization, their levels are significantly increased by anthropogenic inputs, disrupting ecosystems on a global scale (Sutton et al., 2013; Galloway et al., 2021; Edwards et al., 2023). Excess ammonium nitrate contributes to eutrophication and biodiversity loss, while its toxicity in aquatic organisms leads to cellular disruptions such as acidification, hypoxia, and impaired neurotransmitter function.

Nitrate, a byproduct of ammonium oxidation, poses additional risks when absorbed by aquatic organisms. It disrupts oxygen delivery, thyroid function, and reproduction, leading to reduced growth, fitness, and survival (Jensen, 1996; Guillette and Edwards, 2005; Monsees et al., 2017).

Chronic exposure exacerbates these effects, increasing developmental deformities and mortality while causing behavioral changes, such as reduced feeding and mate-seeking, which further affect population stability (Alonso and Camargo, 2013; Gomez Isaza et al., 2020).

Collisions

The spatial extend of effects for a worst-case scenario collision is dependant on whether hazardous materials are released to water, as described for hazardous materials above. If so, the spatial extent could be large. The temporal extent of effects from such an event are anticipated to be moderate, as such an event would trigger immediate response and remedial action. Overall, given that remedial action would be implemented immediately in response to such an event the consequence are anticipated to be not significant.

Encroachments

The spatial extent of encroachment is anticipated to be small, but the temporal extent of this type of event could range from moderate (should it be limited to brush clearing) to permanent (should it include destruction of a site) depending on the degree of impact.

c) The probability of occurrence for accidents and malfunctions were reached based on proven experience and demonstrated effectiveness of the mitigation measures outlined in the Environmental Protection Procedures and Environmental Protection Specifications included in Chapter 8, Appendices 8-2 and 8-3 of the EIS (also included as Appendix IR1-19-1 in the response to IR1-19). These same measures were used for construction of the Project 1 all-season road from PR304 to Berens River First Nation and proven effective (ESRA, 2009) .

Professional judgement was also used and also supports the anticipated probability of occurrence for accidents and malfunctions.

d) Based on the mitigation measures outlined by MTI in Appendix 8-2 and 8-3 in Chapter 8 of the EIS (and as Appendix IR1-19-1 in the response to IR1-19), which have outlined measures to prevent, control or respond to accidents and malfunctions, the anticipated probability for accidental encroachments and accidental spills of hydrocarbons and ammonium nitrate to fish-bearing waterways is very low. This anticipated low likelihood of probability is further supported by the fact that these very measures have been proven effective on the Project 1 all-season road from PR304 to Berens River First Nation on the east side of Lake Winnipeg.

e) The mitigation measures outlined by MTI in Appendix 8-2 and 8-3 in Chapter 8 of the EIS (and as Appendix IR1-19-1 in the response to IR1-19) include commitments and requirements for contingency and response planning as it relates to spills of hazardous substances. Specific procedures and requirements which include measures related to spill prevention and spill response include EP2 – Petroleum Handling and Storage, EP3 – Spill Response, EP5 – Materials Handling and Storage, EP6 – Working Within or Near Fish Bearing Waters, EP20 – Quarry Site Selection and Development Requirements, ES130.3 – Submittals, ES130.9 – Materials Handling, Storage and Disposal, and ES130.10 – Spills, Remediation and Emergency Response.

As stated in these measures, materials to contain and cleanup spills must be available at all locations where construction related activities are taking place. As part of contractor submittals, the contractor must develop an emergency plan for spill response and remediation for review and approval by MTI prior to the start of work. And should a spill occur, reportable quantities to

Manitoba Environment and Climate Change are identified and all spills regardless of their size must be reported to MTI within 24hours.

f) Relationships of involved parties, including MTI and contractors are described in Chapter 8 of the EIS. Specifically, responsibilities of each party in relation to environmental protection measures are identified in Chapter 8, Section 8.4 of the EIS. Similarly, Sections 8.4.1 and 8.4.2 of the EIS go into further detail about construction contract specifications and contractor-required plans, including the Waste Management Plan. As identified in Chapter 8, Section 8.4.2 of the EIS contractors will be required to submit plans in accordance with the Environmental Protection Specifications (Appendix 8-3 in Chapter 8 of the EIS; Appendix IR1-19-1) for acceptance by the Contract Administrator. The Contract Administrator, in essence, is a designated representative of MTI and works in MTI's best interest. As a result, MTI does have the ability to influence the development and/or acceptance of contractor-developed plans to ensure they adequately address potential site-specific or contract-specific risks and mitigate or prevent adverse effects to valued components and the broader environment.

Contractor-required plans, including the Emergency Response and Waste Management Plan, must comply with MTI's Environmental Protection Procedures (EPs) (Chapter 8, Appendix 8-2 of the EIS; Appendix IR1-19-1) and the Environmental Protection Specifications (Chapter 8 Appendix 8-3 of the EIS; Appendix IR1-19-1). These documents provide numerous requirements and best practices to reduce the likelihood of accidents and malfunctions and to mitigate or prevent any adverse environmental effects to VCs should such events occur. As mentioned in response to E above, these procedures include measures related to spill prevention and spill response, petroleum handling and storage, materials handling and storage, quarry site selection and development requirements, among others. Contractors will be required to abide by the measures and mitigations outlined in the Environmental Protection Procedures and Environmental Specifications when developing pre-construction submittals and plans, as well as throughout construction activities.

Work will not start until plans have been submitted and accepted. Contractor-required plans will not be accepted unless they satisfactorily demonstrate measures to prevent and respond to potential environmental effects, accidents and malfunctions.

APPENDIX IR1-15-1.

Table IR1-15-2. Recreation of Table 6.42 of the Project 6 Environmental Impact Statement

Hazardous Material	Maximum Probable Quantity	Storage Or Transport	Mechanism Of Release	Form Of Material Release
Waste Oil	20L or 250L tanks	Manufacture's container and transported in accordance with regulatory requirements	Breach of storage or loss during transfer Accident during transport	Liquid
Lubricating oil	1L, 5L or 20L	Manufacture's container	Breach of storage or loss during transfer	Liquid
Hydraulic fluid	5L to 20L	Manufacture's container	Breach of storage or loss during transfer Accident during transport	Liquid
Diesel	Fuel storage tank 5,000 to 50,000 L	Certified tanks and delivery transport	Breach of storage or loss during transfer Accident during transport	Liquid
Diesel – slip tank	Fuel storage tank 250L to 750L	Certified tanks and delivery transport	Breach of storage or loss during transfer Accident during transport	Liquid
Gas	Fuel storage tank 10,000L	Certified tanks and delivery transport	Breach of storage or loss during transfer Accident during transport	Liquid
Gas – slip tank	Fuel storage tank 250L to 750L	Certified tanks and delivery transport	Breach of storage or loss during transfer Accident during transport	Liquid
Herbicides	4L	Manufacture's container	Breach of storage or loss during transfer	Liquid

Hazardous Material	Maximum Probable Quantity	Storage Or Transport	Mechanism Of Release	Form Of Material Release
			Accident during transport	
Explosives – ammonium nitrate	Storage quantities varies: 15,000 kg to 30,000 kg	Storage magazine	Breach of storage or loss during transfer Accident during transport	Solid - Minute quantities of blast residue - nitrates
	On site transfer - small quantities (<1,000 kg)	Transport – truck (meeting Transport Canada standards	Misfire during use	Solid - Minute quantities of blast residue - nitrates
	On site transport to project (<1,000 kg)	Transport – truck (meeting Transport Canada standards)	Misfire during use	Solid - Minute quantities of blast residue - nitrates

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2025-08-27

QUESTION IAAC IR1-16

EIS Guideline Reference	• Section 3.2.2, 5.1, and 6.6.1
EIS Reference	• Chapter 3, Section 3.4.1.12 and Table 3.3 • Chapter 6, Section 6.6.1
Category	Accidents and Malfunctions

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent describe the planned storage and handling of reagents, petroleum products, chemical products, hazardous materials, and residual materials that may be required for the Project. The proponent must also identify the probability of potential accidents and malfunctions related to the Project, including an explanation of how those events were identified and any potential consequences (including the environmental effects as defined in section 5 of CEAA 2012). This assessment should include an identification of the magnitude of an accident and/or malfunction, including the quantity, mechanism, rate, form, and characteristics of the contaminants and other materials likely to be released into the environment during the accident and/or malfunction event.

The EIS describes how accidental releases and unplanned discharges may occur during construction and operation from concrete batch plants, camps (including septic waste), laydown areas, and operation of machinery and construction equipment. While the EIS does list some hazardous materials and fuels associated with Project components and activities that may be present, no information is provided regarding potential liquid wastes or discharges associated with concrete batch plants or machinery and construction equipment, including the types of liquids, characteristics of the liquids, volume of material, or the potential mechanism of the release of these materials. No information is provided regarding the anticipated volume of septic waste associated with construction camps or the potential mechanism of release. The EIS also does not describe potential adverse environmental effects should materials from concrete batch plants, machinery and construction equipment, or septic waste from camps be accidently released or discharged.

With respect to the analysis of the probably and magnitude of potential accidents and malfunctions, including worst case scenarios, the EIS does not include liquid discharges from concrete batch plants, machinery and construction equipment, or septic waste from camps. The

EIS also does not describe mitigation measures to limit or prevent discharges of these wastes or measures to mitigate or respond to an accidental release or discharge.

This information is required to understand and assess the probability and magnitude of potential liquid discharges and any associated adverse environmental effects to VCs listed in section 5 of CEAA 2012.

INFORMATION REQUEST

a) Describe the type and approximate volume of liquids, including any liquid wastes, that may be accidentally released or subject to an unplanned discharge from concrete batch plants, the operation of machinery and construction equipment, and construction camps (i.e. septic waste).
b) Describe the locations that may receive accidental releases from concrete batch plants and construction camps. For each location characterize:
    - relationship to fish and fish habitat;
    - relationship to migratory birds and their habitat;
    - relationship to species at risk and their habitat;
    - relationship to wetlands and other waterbodies;
    - terrestrial habitat that may be adversely impacted, by vegetation cover type;
    - relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
    - relationship to sites of cultural and heritage value;
    - relationship to species of importance to Indigenous peoples and their habitat;
    - potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
    - potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.
c) Describe the locations that may receive accidental releases from machinery and construction equipment. If it is unknown at this time where these accidental releases may occur, identify environmentally and socially sensitive areas within the Project footprint where accidental releases from machinery and construction equipment would result in adverse environmental effects to VCs listed in section 5 of CEAA 2012 and describe what those effects may be. This description should consider:

    - relationship to fish and fish habitat;
    - relationship to migratory birds and their habitat;

- relationship to species at risk and their habitat;
- relationship to wetlands and other waterbodies;
- terrestrial habitat that may be adversely impacted, by vegetation cover type;
- relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
- relationship to sites of cultural and heritage value;
- relationship to species of importance to Indigenous peoples and their habitat;
- potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
- potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.

d) For those hazardous materials listed in Table 3.3, describe the source and/or location of the potential release and characterize for each location:

- relationship to fish and fish habitat;
- relationship to migratory birds and their habitat;
- relationship to species at risk and their habitat;
- relationship to wetlands and other waterbodies;
- terrestrial habitat that may be adversely impacted, by vegetation cover type;
- relationship to human health receptors (e.g. traplines, residences, camps, First Nations reserve lands);
- relationship to sites of cultural and heritage value;
- relationship to species of importance to Indigenous peoples and their habitat;
- potential effects to Indigenous access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred; and
- potential impacts to rights, proposed accommodation measures, and views of Indigenous groups (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.

RESPONSE

a) The types and approximate volumes of liquid and solid wastes, and hazardous materials, that may be accidentally released or subject to an unplanned discharge from concrete batch plants, the operation of machinery and construction equipment, and construction camps have been summarized and provided in the table provided as Appendix IR1-16-1. This table is a revised version of Table 6.42: Accidents and Malfunctions – Release of Liquid/Solid Wastes and Hazardous Materials from Chapter 6 of the Environmental Impact Statement (EIS) with the addition of liquid

and solid wastes in addition to hazardous materials and the added sources of concrete batch plats and construction camps.

In addition, the revised Table 6.42 in Appendix IR1-16-1 now provides mitigation measures in the form of applicable regulations and guidelines that would apply to mitigate any potential effects from an unplanned discharge of the materials.

b) The specific locations of concrete batch plants will be determined at the pre-construction/ detailed design stage of the Project, but it is anticipated that they will be required for two bridge structures over the God's River and Magill Creek. It is anticipated that the concrete batch plants would be located within quarry locations that may be identified during the pre-construction and detailed design stage, or in locations proposed by contractors and approved by MTI during construction which would be located near the crossings. Construction camp locations may also be identified at the pre-construction and detailed design stage of the Project, or in locations proposed by contractors and approved by MTI during construction.

Processes for quarry, camp and temporary work site selection are detailed in the Environmental Protection Procedures and Environmental Protection Specifications (included in Chapter 8, Appendices 8-2 and 8-3 o the Environmental Impact Statement (EIS), and in Appendix IR1-19-1 in the response to information request IR1-19). As part of the site selection process mitigation measures (such as spatial buffers) will be considered and implemented to avoid potential effects to fish, migratory birds, species at risk and their habitats, as well as wetlands and waterbodies, and terrestrial habitat. In addition, effects to human receptors, including human health, sites of cultural and heritage value, species of importance to Indigenous people, Indigenous access and travel routes, and impacts to rights, proposed accommodation measures, and views of Indigenous Nations on proposed accommodations, will be mitigated.

In the EIS Chapter 6, Section 6.6.2, Table 6.43: Potential Accidents and Malfunctions, Mitigation Measures and Evaluation of Environmental Risk, potential effects from machinery and construction equipment are discussed, a similar table has been developed for concrete batch plants and construction camps and is provided in Appendix IR1-16-2. This table includes anticipated potential effects, preventative / contingency mitigation measures, probability of occurrence, emergency response procedures, and the magnitude (degree or intensity of change) that could be caused by accidents and malfunctions.

Site specific mitigation measures will be laid out and included as part of the site selection process for temporary works such as concrete batch plants and construction camps but will adhere to the measures laid out in the Environmental Protection Procedures and Environmental Protection Specifications as described above.

c) It is unknown at this time where accidental releases from machinery and construction equipment may occur, as there is a potential for releases anywhere along the all-season road alignment, or within quarries, concrete batch plants, and construction camps. Environmentally and socially sensitive areas within the Project footprint where accidental releases from machinery and

construction equipment could result in adverse environmental effects to VCs would include areas as described in section 1.3.5 of the EIS. These areas include four heritage sites, sensitive sites (ex: spawning areas, medicinal plant harvesting areas, cultural sites) that were identified by the communities through TK studies and 25 streams that were identified as having habitat to support fish.

Mitigation measures (setbacks, vegetated buffers) will be implemented to avoid potential effects to fish, migratory birds, species at risk and their habitats, as well as wetlands and waterbodies, and terrestrial habitat. In addition, effects to human receptors, including human health, sites of cultural and heritage value, species of importance to Indigenous people, Indigenous access and travel routes, and impacts to rights, proposed accommodation measures, and views of Indigenous Nations on proposed accommodations, will be mitigated.

In the EIS Chapter 6, Section 6.6.2, Table 6.43: Potential Accidents and Malfunctions, Mitigation Measures and Evaluation of Environmental Risk, potential effects from machinery and construction equipment are discussed, this table has been modified and is provided in Appendix IR1-16-2. This table includes anticipated potential effects, preventative / contingency mitigation measures, probability of occurrence, emergency response procedures, and the magnitude (degree or intensity of change) that could be caused by accidents and malfunctions.

Site specific mitigation measures will be laid out and included as part of the site selection process for temporary works such as concrete batch plants and construction camps but will adhere to the measures laid out in the Environmental Protection Procedures and Environmental Protection Specifications as described above.

d) For those hazardous materials listed in Table 3.3, including diesel, gasoline, propane, oil, hydraulic fluid, and acetylene are anticipated to be stored and utilised in construction equipment/vehicles, generators, heating trailers and hoarding equipment, and cooking appliances; at all-season road, temporary access, quarries and borrow areas, steel girder bridges, culverts, and temporary construction bridges, temporary construction laydown areas, and temporary construction camps. Specific location information will be determined at the pre-construction/ detailed design stage. Hazardous materials will be handled in accordance with the appropriate guidelines and regulations.

Any releases are anticipated to have negligible impacts on the environment, including fish, migratory birds, species at risk and their habitats, as well as wetlands and waterbodies, and terrestrial habitat, and/or to human receptors, including human health, sites of cultural and heritage value, species of importance to Indigenous people, Indigenous access and travel routes, and impacts to rights, proposed accommodation measures, and views of Indigenous Nations on proposed accommodations. Effects will be mitigated with the use of setbacks, vegetated buffers and mitigation methods to be laid out in the site-specific EMP.

In the EIS Chapter 6, Section 6.6.2, Table 6.43: Potential Accidents and Malfunctions, Mitigation Measures and Evaluation of Environmental Risk, potential effects from machinery and construction

equipment are discussed, a similar table has been prepared for hazardous materials and is provided in Appendix IR1-16-2. This table includes anticipated potential effects, preventative / contingency mitigation measures, probability of occurrence, emergency response procedures, and the magnitude (degree or intensity of change) that could be caused by accidents and malfunctions.

Specific mitigation measures will be laid out in the site-specific (EMP) that will be developed at the pre-construction/ detailed design stage for each work area within the project footprint.

APPENDIX IR1-16-1

Table 6.42: Accidents and Malfunctions – Release of Liquid/Solid Wastes and Hazardous Materials

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
Concrete Batch Plants						
Concrete wash water	Estimated to be 200 gallons	2-cell holding pits	Breach of holding pit	Liquid	Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Applicable Manitoba Conservation Work Permits Provincial Batch Plant Environment Act Licence ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES 130.9.2.1 Domestic Solid, Demolition, and Construction Waste ES 130.10 Spills and Remediation and Emergency Response ES 130.15 Working Within or Near Water ES 130.15.1 General EP3 – Spill Response EP5 – Materials Handling and Storage EP6.4.18 – Working Within or Near Fish Bearing Waters EP17 - Concrete Washout Management Practices	Low

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
Concrete	Estimated to be 20 m^3 (approximately equivalent to 2 typical concrete trucks)	Batch Plant and Transport truck (meeting Transport Canada standards)	Breach of storage or loss during transfer Accident during transport	Liquid	Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Applicable Manitoba Conservation Work Permits Provincial Batch Plant Environment Act Licence ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES 130.9.2.1 Domestic Solid, Demolition, and Construction Waste ES 130.10 Spills and Remediation and Emergency Response ES 130.15 Working Within or Near Water ES 130.15.1 General EP3 – Spill Response EP5 – Materials Handling and Storage EP6.4.18 – Working Within or Near Fish Bearing Waters EP17 - Concrete Washout Management Practices	Low

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
Construction Machinery and Equipment						
Waste oil	20 L or 250L tanks	Manufacturer container, transported in accordance with regulatory requirements	Breach of storage or loss during transfer Accident during transport	Liquid	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *The National Fire Code of Canada* Provincial *Dangerous Goods Handling and Transportation Act* Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Provincial *Storage and Handling of Petroleum Products and Allied Products Regulation* Applicable Manitoba Conservation Work Permits ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES 130.9.2.1 Domestic Solid, Demolition, and Construction Waste ES 130.9.2.4 Dangerous Goods/Hazardous Waste Handling and Disposal ES 130.9.2.5 Petroleum Handling and Storage ES 130.10 Spills and Remediation and Emergency Response ES 130.15 Working Within or Near Water ES 130.15.1 General EP2 – Petroleum Handling and Storage EP3 – Spill Response EP5 – Materials Handling and Storage EP6.4.13, EP6.4.14, and EP6.4.15 - Working Within or Near Fish Bearing Waters	Low

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
Lubricating oil	1L, 5L or 20 L	Manufacture's container	Breach of storage or loss during transfer Accident during transport	Liquid	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *The National Fire Code of Canada* Provincial *Dangerous Goods Handling and Transportation Act* Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Provincial *Storage and Handling of Petroleum Products and Allied Products Regulation* Applicable Manitoba Conservation Work Permits ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES 130.9.2.1 Domestic Solid, Demolition, and Construction Waste ES 130.9.2.4 Dangerous Goods/Hazardous Waste Handling and Disposal ES 130.9.2.5 Petroleum Handling and Storage ES 130.10 Spills and Remediation and Emergency Response ES 130.15 Working Within or Near Water ES 130.15.1 General EP2 – Petroleum Handling and Storage EP3 – Spill Response EP5 – Materials Handling and Storage EP6.4.13, EP6.4.14, and EP6.4.15 - Working Within or Near Fish Bearing Waters	Low
Hydraulic fluid	5L - 20 L	Manufacture's container	Breach of storage or loss during transfer Accident during transport	Liquid	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *The National Fire Code of Canada* Provincial *Dangerous Goods Handling and Transportation Act* Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Provincial *Storage and Handling of Petroleum Products and Allied Products Regulation* Applicable Manitoba Conservation Work Permits	Low

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
					ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES 130.9.2.1 Domestic Solid, Demolition, and Construction Waste ES 130.9.2.4 Dangerous Goods/Hazardous Waste Handling and Disposal ES 130.9.2.5 Petroleum Handling and Storage ES 130.10 Spills and Remediation and Emergency Response ES 130.15 Working Within or Near Water ES 130.15.1 General EP2 – Petroleum Handling and Storage EP3 – Spill Response EP5 – Materials Handling and Storage EP6.4.13, EP6.4.14, and EP6.4.15 - Working Within or Near Fish Bearing Waters	
Diesel	Fuel storage tank 5000 to 50,000 L	Certified tanks and delivery transport	Breach of storage or loss during transfer Accident during transport	Liquid	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *The National Fire Code of Canada* Federal *Highway Tanks and TC Portable Tanks for the Transportation of Dangerous Goods (Standard CSA B620)* Provincial *Dangerous Goods Handling and Transportation Act* Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Provincial *Storage and Handling of Petroleum Products and Allied Products Regulation* Applicable Manitoba Conservation Work Permits ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES 130.9.2.1 Domestic Solid, Demolition, and Construction Waste ES 130.9.2.4 Dangerous Goods/Hazardous Waste Handling and Disposal ES 130.9.2.5 Petroleum Handling and Storage	Low

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
					ES 130.10 Spills and Remediation and Emergency Response ES 130.15 Working Within or Near Water ES 130.15.1 General EP2 – Petroleum Handling and Storage EP3 – Spill Response EP5 – Materials Handling and Storage EP6.4.13, EP6.4.14, and EP6.4.15 - Working Within or Near Fish Bearing Waters	

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
Diesel – slip tank	Fuel storage tank 250L – 750L	Certified tanks and delivery transport	Breach of storage or loss during transfer Accident during transport	Liquid	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *The National Fire Code of Canada* Federal *Highway Tanks and TC Portable Tanks for the Transportation of Dangerous Goods (Standard CSA B620)* Provincial *Dangerous Goods Handling and Transportation Act* Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Provincial *Storage and Handling of Petroleum Products and Allied Products Regulation* Applicable Manitoba Conservation Work Permits ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES 130.9.2.1 Domestic Solid, Demolition, and Construction Waste ES 130.9.2.4 Dangerous Goods/Hazardous Waste Handling and Disposal ES 130.9.2.5 Petroleum Handling and Storage ES 130.10 Spills and Remediation and Emergency Response ES 130.15 Working Within or Near Water ES 130.15.1 General EP2 – Petroleum Handling and Storage EP3 – Spill Response EP5 – Materials Handling and Storage EP6.4.13, EP6.4.14, and EP6.4.15 - Working Within or Near Fish Bearing Waters	Low
Gasoline	Fuel storage tank 10,000L	Certified tanks and delivery transport	Breach of storage or loss during transfer Accident during transport	Liquid	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *The National Fire Code of Canada* Federal *Highway Tanks and TC Portable Tanks for the Transportation of Dangerous Goods (Standard CSA B620)* Provincial *Dangerous Goods Handling and Transportation Act* Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act*	Low

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
					Provincial *Storage and Handling of Petroleum Products and Allied Products Regulation* Applicable Manitoba Conservation Work Permits ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES 130.9.2.1 Domestic Solid, Demolition, and Construction Waste ES 130.9.2.4 Dangerous Goods/Hazardous Waste Handling and Disposal ES 130.9.2.5 Petroleum Handling and Storage ES 130.10 Spills and Remediation and Emergency Response ES 130.15 Working Within or Near Water ES 130.15.1 General EP2 – Petroleum Handling and Storage EP3 – Spill Response EP5 – Materials Handling and Storage EP6.4.13, EP6.4.14, and EP6.4.15 - Working Within or Near Fish Bearing Waters	
Gas – slip tank	Fuel storage tank 250L to 750L	Certified tanks and delivery transport	Breach of storage or loss during transfer Accident during transport	Liquid	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *The National Fire Code of Canada* Federal *Highway Tanks and TC Portable Tanks for the Transportation of Dangerous Goods (Standard CSA B620)* Provincial *Dangerous Goods Handling and Transportation Act* Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Provincial *Storage and Handling of Petroleum Products and Allied Products Regulation* Applicable Manitoba Conservation Work Permits ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES 130.9.2.1 Domestic Solid, Demolition, and Construction Waste ES 130.9.2.4 Dangerous Goods/Hazardous Waste Handling and Disposal	Low

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
					ES 130.9.2.5 Petroleum Handling and Storage ES 130.10 Spills and Remediation and Emergency Response ES 130.15 Working Within or Near Water ES 130.15.1 General EP2 – Petroleum Handling and Storage EP3 – Spill Response EP5 – Materials Handling and Storage EP6.4.13, EP6.4.14, and EP6.4.15 - Working Within or Near Fish Bearing Waters	
Herbicides	4L	Manufacture's container	Breach of storage or loss during transfer Accident during transport	Liquid	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *Pest Control Products Act* Provincial *The Environment Act* Provincial *Dangerous Goods Handling and Transportation Act* Provincial *The Pesticides and Fertilizers Control Act* Provincial *Regulation 94/88 R – Pesticides Regulation* Applicable Manitoba Pesticide Use Permits ES 130.5 Record Keeping ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES130.9.2.4 Dangerous Goods/Hazardous Waste Handling and Disposal ES 130.16 Erosion and Sediment Control EP3 – Spill Response EP5 – Materials Handling and Storage EP6 – Working Within or Near Fish Bearing Waterways	Low
Explosives – ammonium nitrate	Storage quantities vary: 15,000 kg to 30,000 kg	Storage magazine	Breach of storage or loss during transfer Accident during transport	Solid - Minute quantities of blast residue - nitrates	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *The National Fire Code of Canada* Federal *Explosives Act* Federal *Explosives Regulations* Federal *Explosives Guidelines and Standards* Provincial *Mines and Minerals Act*	Low

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
					Provincial *The Operation of Mines Regulation* Provincial *The Quarry Minerals Regulation* Provincial *Dangerous Goods Handling and Transportation Act* Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Applicable Federal and Provincial Licences and Permits Blaster certified by Manitoba *Workplace Safety and Health, Mines Safety Unit* A magazine licence (F06-01) must be obtained from *Explosives Regulatory Division, Natural Resources Canada* Project *Explosives and Blasting Management Plan* ES 130.15 *Working Within or Near Water* ES 130.15.10 Beaver Dam Removal ES 130.15.11 Blasting Near a Watercourse EP12- Blasting Near a Watercourse EP20 – Quarry Site Selection and Development Requirements	
	On site transfer - small quantities <1,000 kg	Transport – truck (meeting Transport Canada standards)	Misfire during use	Solid - Minute quantities of blast residue - nitrates		
	On site transport to project - <1,000 kg	Transport – truck (meeting Transport Canada standards)	Misfire during use	Solid - Minute quantities of blast residue - nitrates		
Propane	420 lbs cylinder 500 Gallon tank	Certified tanks and delivery transport	Breach of storage or loss during transfer Accident during transport	Compressed Gas	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *The National Fire Code of Canada* Federal *Highway Tanks and TC Portable Tanks for the Transportation of Dangerous Goods (Standard CSA B620)* Provincial *Dangerous Goods Handling and Transportation Act* Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Applicable Manitoba Conservation Work Permits ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.10 Spills and Remediation and Emergency Response EP5 – Materials Handling and Storage	Low
Acetylene	3 m^3 to 10.3 m^3 (tank size 2 to 69)	Certified tanks and delivery transport	Breach of storage or loss during transfer Accident during	Compressed Gas	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *The National Fire Code of Canada* Federal *Highway Tanks and TC Portable Tanks for the Transportation of Dangerous Goods (Standard CSA B620)* Provincial *Dangerous Goods Handling and Transportation Act*	Low

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
			transport		Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Applicable Manitoba Conservation Work Permits ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.10 Spills and Remediation and Emergency Response EP5 – Materials Handling and Storage	
Construction Camps						
Septic Waste	65,000 m^3	Certified tanks and transport trucks	Breach of storage or loss during transfer Accident during transport	Liquid	Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Provincial *Onsite Wastewater Management Systems Regulation No. 83/2003* Applicable Provincial Licences and Permits ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES 130.9.2.3 - Domestic Sewage and Grey Water EP3 – Spill Response EP5 – Materials Handling and Storage 4.3 – Domestic Sewage EP6 – Working Within or Near Fish Bearing Waterways	Low
Solid Waste	280,000 kg	Storage bins and certified transport trucks	Breach of storage or loss during transfer Accident during transport	Solid	Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Applicable Provincial Licences and Permits ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.9.2 Handling and Storage of Wastes ES 130.9.2.1 - Domestic Solid, Demolition and Construction Waste EP3 – Spill Response EP5 – Materials Handling and Storage 4.2 – Domestic Solid Wastes, Demolition and Construction Waste	Low

Material	Maximum Probable Quantity	Storage or Transport	Mechanism of Release	Form of material released	Mitigation Measures	Effects assessment
					EP6 – Working Within or Near Fish Bearing Waterways	
Propane	420 lbs cylinder 500 Gallon tank	Certified tanks and delivery transport	Breach of storage or loss during transfer Accident during transport	Compressed Gas	Federal *Transportation of Dangerous Goods Act* Federal *Transportation of Dangerous Goods Regulations* Federal *The National Fire Code of Canada* Federal *Highway Tanks and TC Portable Tanks for the Transportation of Dangerous Goods (Standard CSA B620)* Provincial *Dangerous Goods Handling and Transportation Act* Provincial *The Environment Act* Provincial *The Workplace Safety and Health Act* Applicable Manitoba Conservation Work Permits ES 130.9 Materials Handling, Storage and Disposal ES 130.9.1 General ES 130.10 Spills and Remediation and Emergency Response EP5 – Materials Handling and Storage	Low

APPENDIX IR1-16-2

Table 6.43: Potential Accidents and Malfunctions, Mitigation Measures and Evaluation of Environmental Risk

Potential Accident or Malfunction	Potential Effects	Preventative / Contingency Mitigation Measures	Probability of Occurrence [a]	Emergency Response Procedures [b]	Magnitude (degree or intensity of change) [c]
Concrete Batch Plants and Construction Camps					
Accidental release of concrete or concrete wash water	▪ Adverse effects on fish and fish habitat due to introduction of deleterious substances into waterbodies (e.g. concrete or concrete wash water). • Effects on fish and fish habitat are discussed in Chapter 6, section 6.3.1.1 *Predicted Effect on Fish Populations due to Spills or Hazardous Materials*. ▪ Adverse effects on wildlife (including migratory birds and species at risk) and wildlife habitat due to introduction of deleterious substances into aquatic (wetlands and other waterbodies) and terrestrial habitats. Loss /alteration of vegetation. • Project effects on migratory birds and their habitat are discussed in Chapter 6, section 6.3.2 *Migratory Birds*. • Project effects on species at risk and their habitat are discussed in Chapter 6, section 6.3.3 *Species at Risk*. ▪ Soil, surface water and groundwater contamination and potential effects on human health receptors (e.g. traplines, residences, camps, First Nations reserve lands). • Project effects on human health receptors are discussed in Chapter 6, section 6.3.4 *Indigenous Peoples and Human Health*. ▪ Adverse effects to sites of cultural and heritage value not anticipated. • Project effects on cultural and heritage value are discussed in Chapter 6, section 6.3.4.4 *Heritage and Archaeological Resources*. ▪ Adverse effects to Indigenous peoples, including: • Species of importance to Indigenous peoples and their habitat could be affected due to introduction of deleterious substances. ○ Discussed in Chapter 6, section 6.3.4.1 *Land and Resource Use*. • Access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred, not likely to be affected. ○ Discussed in Chapter 6, section 6.3.4.2 *Travel Routes*. • Impacts to rights, proposed accommodation measures, and views of Indigenous Nations (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations, not likely to be affected.	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP3 - Spill Response • EP5 - Materials Handling and Storage • EP6 - Working Within or Near Fish Bearing Waters • EP13 - Heritage Resources • EP17 - Concrete Washout Management Practices ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.7 - Inspections • ES 130.9 - Materials Handling, Storage and Disposal • ES 130.15 – Working within or near water • ES 130.21 – Cement Batch Plant and Concrete wash out area ▪ Concrete batch plants will require a provincial Environment Act license. This license will include requirement for wastewater from the batch plant to be contained in a wastewater containment system. ▪ Alignment selected so that no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (Section 6.4.4.1.3, EP6 and ES 130.15.1). ▪ Adherence to Provincial legislation such as: • The Environment Act (Waste Management Facilities Regulation, Onsite Wastewater Management Systems Regulation). • The Dangerous Goods Handling and Transportation Act (Dangerous Goods Handling and Transportation Regulation, Environmental Accident Reporting Regulation, and Storage and Handling of Petroleum Products and Allied Products Regulations). ▪ Adherence to Federal legislation such as: • The Transportation of Dangerous Goods Act.	Low	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP3 - Spill Response ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.10 - Spills, Remediation and Emergency Response ▪ Application of contractor's Environmental Emergency Plan for Spill Response and Remediation.	Low
Accidental release of septic waste	▪ Adverse effects on fish and fish habitat due to introduction of deleterious substances into waterbodies (e.g. septic waste). • Effects on fish and fish habitat are discussed in Chapter 6, section 6.3.1.1 *Predicted Effect on Fish Populations due to Spills or Hazardous Materials*. ▪ Adverse effects on wildlife (including migratory birds and species at risk) and wildlife habitat due to introduction of deleterious substances into aquatic (wetlands and other waterbodies) and terrestrial habitats. Loss /alteration of vegetation. • Project effects on migratory birds and their habitat are discussed in Chapter 6, section 6.3.2 *Migratory Birds*. • Project effects on species at risk and their habitat are discussed in Chapter 6, section 6.3.3 *Species at Risk*. ▪ Soil, surface water and groundwater contamination and potential effects on human health receptors (e.g. traplines, residences, camps, First Nations reserve lands). • Project effects on human health receptors are discussed in Chapter 6, section 6.3.4 *Indigenous Peoples and Human Health*.	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP3 - Spill Response • EP5 - Materials Handling and Storage ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.7 - Inspections • ES 130.9 - Materials Handling, Storage and Disposal ○ ES 130. 9.2.3 – Domestic Sewage and Grey Water ▪ Construction camp liquid wastes (sewage and grey water) shall be collected and stored in holding tanks licensed under the provincial Onsite Wastewater Management Systems Regulation (Manitoba Regulation No. 83/2003). ▪ Camp locations will be selected so that they are not within 100 m of a waterbody (retained vegetated buffer). ▪ Adherence to Provincial legislation such as:	Low	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP3 - Spill Response ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.10 - Spills, Remediation and Emergency Response ▪ Application of contractor's Environmental Emergency Plan for Spill Response and Remediation.	Low

Potential Accident or Malfunction	Potential Effects	Preventative / Contingency Mitigation Measures	Probability of Occurrence [a]	Emergency Response Procedures [b]	Magnitude (degree or intensity of change) [c]
	▪ Adverse effects to sites of cultural and heritage value not anticipated. • Project effects on cultural and heritage value are discussed in Chapter 6, section 6.3.4.4 *Heritage and Archaeological Resources*. ▪ Adverse effects to Indigenous peoples, including: • Species of importance to Indigenous peoples and their habitat could be affected due to introduction of deleterious substances. o Discussed in Chapter 6, section 6.3.4.1 *Land and Resource Use*. • Access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred, not likely to be affected. o Discussed in Chapter 6, section 6.3.4.2 *Travel Routes*. • Impacts to rights, proposed accommodation measures, and views of Indigenous Nations (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations, not likely to be affected.	• The Environment Act (Waste Management Facilities Regulation, Onsite Wastewater Management Systems Regulation).			
Machinery and Construction Equipment					
Accidental release of hazardous substances	▪ Adverse effects on fish and fish habitat due to introduction of deleterious substances into waterbodies (e.g., leaked fuel and oil). • Effects on fish and fish habitat are discussed in Chapter 6, section 6.3.1.1 *Predicted Effect on Fish Populations due to Spills or Hazardous Materials*. ▪ Adverse effects on wildlife (including migratory birds and species at risk) and wildlife habitat due to introduction of deleterious substances into aquatic (wetlands and other waterbodies) and terrestrial habitats. Loss /alteration of vegetation. • Project effects on migratory birds and their habitat are discussed in Chapter 6, section 6.3.2 *Migratory Birds*. • Project effects on species at risk and their habitat are discussed in Chapter 6, section 6.3.3 *Species at Risk*. ▪ Soil, surface water and groundwater contamination and potential effects on human health receptors (e.g. traplines, residences, camps, First Nations reserve lands). • Project effects on human health receptors are discussed in Chapter 6, section 6.3.4 *Indigenous Peoples and Human Health*. ▪ Adverse effects to sites of cultural and heritage value not anticipated. • Project effects on cultural and heritage value are discussed in Chapter 6, section 6.3.4.4 *Heritage and Archaeological Resources*. ▪ Adverse effects to Indigenous peoples, including: • Species of importance to Indigenous peoples and their habitat could be affected due to introduction of deleterious substances. o Discussed in Chapter 6, section 6.3.4.1 *Land and Resource Use*. • Access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred, not likely to be affected. o Discussed in Chapter 6, section 6.3.4.2 *Travel Routes*. • Impacts to rights, proposed accommodation measures, and views of Indigenous Nations (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations, not likely to be affected.	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP2 - Petroleum Handling and Storage • EP3 - Spill Response • EP5 - Materials Handling and Storage • EP6 - Working Within or Near Fish Bearing Waters • EP13 - Heritage Resources ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.7 - Inspections • ES 130.9 - Materials Handling, Storage and Disposal o ES 130.9.2.4 - Dangerous Goods/Hazardous Waste Handling and Disposal o ES 130.9.2.5 - Petroleum Handling and Storage • ES 130.15 – Working within or near water ▪ Alignment selected so that no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (Section 6.4.4.1.3, EP6 and ES 130.15.1). ▪ Designated areas would be established for fuel storage and re-fueling activities a minimum of 100 m from waterbodies, as described in Section 6.4.4.1.3. ▪ Adherence to Provincial legislation such as: • The Environment Act. • The Dangerous Goods Handling and Transportation Act (Dangerous Goods Handling and Transportation Regulation, Environmental Accident Reporting Regulation, and Storage and Handling of Petroleum Products and Allied Products Regulations). ▪ Adherence to Federal legislation such as: • The Transportation of Dangerous Goods Act. ▪ Contractor(s) to ensure a copy of the Material Safety Data Sheets is in a location accessible to all workers, including MTI personnel, on the work site, for each hazardous product that is used and/or kept on-site.	Low[d]	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP3 - Spill Response ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.10 - Spills, Remediation and Emergency Response ▪ Application of contractor's Environmental Emergency Plan for Spill Response and Remediation.	Low
Fire or explosion	▪ Adverse effects on fish and fish habitat due to introduction of deleterious substances into waterbodies (e.g. ash and debris). • Effects on fish and fish habitat are discussed in Chapter 6, section 6.3.1.1 *Predicted Effect on Fish Populations due to Spills or Hazardous Materials*. ▪ Adverse effects on wildlife (including migratory birds and species at risk) and wildlife habitat due to	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP12 Blasting Near A Watercourse ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS):	Low	▪ Application of contractor's Evacuation and Emergency Preparedness Plan in the Event of a Wildfire, as found in ▪ EP15 *Wildfires* (Appendix 8-2 *Environmental Protection Procedures*	Low

Potential Accident or Malfunction	Potential Effects	Preventative / Contingency Mitigation Measures	Probability of Occurrence [a]	Emergency Response Procedures [b]	Magnitude (degree or intensity of change) [c]
	fire or explosion, including wetlands and other waterbodies, and terrestrial habitats. Potential mortality of wildlife and /or disturbance of wildlife and loss /alteration of vegetation and habitat. • Project effects on migratory birds and their habitat are discussed in Chapter 6, section 6.3.2 *Migratory Birds*. • Project effects on species at risk and their habitat are discussed in Chapter 6, section 6.3.3 *Species at Risk*. ▪ Soil, surface water and groundwater contamination and potential effects on human health receptors (e.g. traplines, residences, camps, First Nations reserve lands) due to fire or explosion. • Project effects on human health receptors are discussed in Chapter 6, section 6.3.4 *Indigenous Peoples and Human Health*. ▪ Adverse effects to sites of cultural and heritage value due fire or explosion including disturbance or destruction of sites. • Project effects on cultural and heritage value are discussed in Chapter 6, section 6.3.4.4 *Heritage and Archaeological Resources*. ▪ Adverse effects to Indigenous peoples due to fire or explosion, including damage or destruction of: • Species of importance to Indigenous peoples and their habitat. ○ Discussed in Chapter 6, section 6.3.4.1 *Land and Resource Use*. • Access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred. ○ Discussed in Chapter 6, section 6.3.4.2 *Travel Routes*. • Impacts to rights, proposed accommodation measures, and views of Indigenous Nations (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations. ▪ Risk of death or injury to workers and the public from explosives used during construction.	• ES 130.15.11 - Blasting Near a Watercourse ▪ Adherence to federal regulations for the storage of explosives. ▪ Adherence to provincial Code of Practice and legislative regulations / requirements for the use of explosives. ▪ Contractor(s) to prepare Emergency Response Plan(s) for fires and explosives. ▪ Contractor(s) to prepare Safe Work Plan(s). ▪ Blasting contractor(s) will be certified. ▪ Provide notice to local communities when working near the communities. ▪ Provide warning signs prior to detonation. ▪ Presence and maintenance of on-site fire suppression equipment.		of the EIS*J*. ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.20 – Wildfires ▪ Application of contractor's Materials Management Plan in the event of an Unplanned Shutdown, as required. As found in ▪ ES 130. 3.2.6 *Submittals,* and ▪ ES 130.13 *Planned and Unplanned Shutdowns*	
Forest fires during construction and operation	▪ Adverse effects on fish and fish habitat due to introduction of deleterious substances into waterbodies (e.g. ash and debris). • Effects on fish and fish habitat are discussed in Chapter 6, section 6.3.1.1 *Predicted Effect on Fish Populations due to Spills or Hazardous Materials*. ▪ Adverse effects on wildlife (including migratory birds and species at risk) and wildlife habitat due to wildfire, including wetlands and other waterbodies, and terrestrial habitats. Potential mortality of wildlife and /or disturbance of wildlife and loss /alteration of vegetation and habitat. • Project effects on migratory birds and their habitat are discussed in Chapter 6, section 6.3.2 *Migratory Birds*. • Project effects on species at risk and their habitat are discussed in Chapter 6, section 6.3.3 *Species at Risk*. ▪ Soil, surface water and groundwater contamination and potential effects on human health receptors (e.g. traplines, residences, camps, First Nations reserve lands) due to wildfire. • Project effects on human health receptors are discussed in Chapter 6, section 6.3.4 *Indigenous Peoples and Human Health*. ▪ Adverse effects to sites of cultural and heritage value due wildfire including disturbance or destruction of sites. • Project effects on cultural and heritage value are discussed in Chapter 6, section 6.3.4.4 *Heritage and Archaeological Resources*. ▪ Adverse effects to Indigenous peoples due to wildfire, including damage or destruction of: • Species of importance to Indigenous peoples and their habitat. • Discussed in Chapter 6, section 6.3.4.1 *Land and Resource Use*. • Access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred. • Discussed in Chapter 6, section 6.3.4.2 *Travel Routes*. • Impacts to rights, proposed accommodation measures, and views of Indigenous Nations (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP15 Wildfires ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130. 20 – Wildfires ▪ Maintain on-site fire suppression equipment when working under high fire conditions. ▪ Establish procedures to close the road due to proximity to wildfires. ▪ Contractor(s) to prepare Emergency Response Plan(s) for fires. ▪ Contractor(s) to prepare Safe Work Plan(s).	Low	▪ Application of contractor's Evacuation and Emergency Preparedness Plan in the event of a Wildfire. ▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP15 - Wildfires ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.20 - Wildfires. • ES 130.13 - Planned and Unplanned Shutdowns ▪ Application of contractor's Materials Management Plan in the event of an Unplanned Shutdown, as required.	Low

Potential Accident or Malfunction	Potential Effects	Preventative / Contingency Mitigation Measures	Probability of Occurrence [a]	Emergency Response Procedures [b]	Magnitude (degree or intensity of change) [c]
	▪ Risk of death or injury to workers and the public from wildfire.				
Increased risk of Vehicle collisions During construction, operation and maintenance	▪ Adverse effects on fish and fish habitat due to introduction of deleterious substances into waterbodies (e.g. leaked fuel and oil). • Effects on fish and fish habitat are discussed in Chapter 6, section 6.3.1.1 *Predicted Effect on Fish Populations due to Spills or Hazardous Materials*. ▪ Adverse effects on wildlife (including migratory birds and species at risk) due to collisions causing injury or mortality. Effects to habitat, including wetlands and other waterbodies, and terrestrial habitats due to introduction of deleterious substances into aquatic and terrestrial habitats (e.g. leaked fuel and oil). • Project effects on migratory birds and their habitat are discussed in Chapter 6, section 6.3.2 *Migratory Birds*. • Project effects on species at risk and their habitat are discussed in Chapter 6, section 6.3.3 *Species at Risk*. ▪ Soil, surface water and groundwater contamination and potential effects on human health receptors (e.g. traplines, residences, camps, First Nations reserve lands) due to introduction of deleterious substances (e.g. leaked fuel and oil). • Project effects on human health receptors are discussed in Chapter 6, section 6.3.4 *Indigenous Peoples and Human Health*. ▪ Adverse effects to sites of cultural and heritage value not anticipated. • Project effects on cultural and heritage value are discussed in Chapter 6, section 6.3.4.4 *Heritage and Archaeological Resources*. ▪ Adverse effects to Indigenous peoples, including: • Species of importance to Indigenous peoples and their habitat could be affected due to introduction of deleterious substances. ○ Discussed in Chapter 6, section 6.3.4.1 *Land and Resource Use*. • Access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred, not likely to be affected. ○ Discussed in Chapter 6, section 6.3.4.2 *Travel Routes*. • Impacts to rights, proposed accommodation measures, and views of Indigenous Nations (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations, not likely to be affected. ▪ Risk of death or injury to workers and/or road users from vehicle collisions.	▪ Contractor(s) to provide Safe Work Plan(s). ▪ Provide warning signage, speed control, flag persons near work areas along all-season road, as required. ▪ Adherence to provincial highway safety regulations and codes. ▪ Posting of appropriate speed limit, crossing and wildlife warning signage. ▪ Incorporation of standard safe road design configurations and construction methods in the detailed all-season road design. ▪ Regular construction progress updates to the local communities to communicate which areas along the all-season road route will be under construction and will ensure that emergency service providers are aware of the Project construction schedule.	Low	▪ Application of the contractor(s) Emergency Response Plan(s).	Low
Accidental Encroachments	▪ Adverse effects on sensitive fish and fish habitat due to encroachment of equipment and/or construction staff. • Effects on fish and fish habitat are discussed in Chapter 6, section 6.3.1.1 *Predicted Effect on Fish Populations due to Spills or Hazardous Materials*. ▪ Adverse effects on sensitive wildlife (including migratory birds and species at risk) and wildlife habitat due to encroachment of equipment and/or construction staff. • Project effects on migratory birds and their habitat are discussed in Chapter 6, section 6.3.2 *Migratory Birds*. • Project effects on species at risk and their habitat are discussed in Chapter 6, section 6.3.3 *Species at Risk*. ▪ Soil, surface water and groundwater contamination and potential effects on human health receptors due to encroachment of equipment and/or construction staff is not anticipated.	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP6 - Working Within or Near Fish Bearing Waters • EP13 - Heritage Resources ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.7 - Inspections • ES 130.15 – Working within or near water ▪ Alignment selected so that no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (Section 6.4.4.1.3, EP6 and ES 130.15.1). ▪ Identification of sensitive sites through baseline environmental studies (vegetation, wildlife, aquatics, heritage resources, traditional knowledge) and	Low	▪ Creation and application of buffers as found in MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): ○ EP1 - Clearing and Grubbing ○ EP6 - Working Within or Near Fish Bearing Waters ○ EP7 - Stream Crossings ○ EP14 – Wildlife ○ EP20 - Quarry Site Selection and Development Requirements ▪ Application of mitigation measures recommended by historic resource consultant as found in: ○ EP13 - Heritage Resources	Low

Potential Accident or Malfunction	Potential Effects	Preventative / Contingency Mitigation Measures	Probability of Occurrence [a]	Emergency Response Procedures [b]	Magnitude (degree or intensity of change) [c]
	• Project effects on human health receptors are discussed in Chapter 6, section 6.3.4 *Indigenous Peoples and Human Health*. ▪ Adverse effects to sites of cultural and heritage value due to encroachment of equipment and/or construction staff. • Project effects on cultural and heritage value are discussed in Chapter 6, section 6.3.4.4 *Heritage and Archaeological Resources*. ▪ Adverse effects to Indigenous peoples due to encroachment of equipment and/or construction staff, including: • Species of importance to Indigenous peoples and their habitat. ○ Discussed in Chapter 6, section 6.3.4.1 *Land and Resource Use*. • Access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred, adverse effects are not anticipated. ○ Discussed in Chapter 6, section 6.3.4.2 *Travel Routes*. • Impacts to rights, proposed accommodation measures, and views of Indigenous Nations (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.	avoidance through design ▪ Careful layout and clear demarcation of limits of temporary and permanent working areas will be made ▪ Establish clearly identify buffers to support protection of sensitive areas ▪ Reclamation of encroachment areas		▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): ○ ES 130.8 – Designated Area and Access ○ ES 130.15 – Working Within or Near Water ○ ES 130.17 - Clearing and Grubbing	
Hazardous Materials					
Accidental release of hazardous substances – Liquids (diesel, gasoline, oil, hydraulic fluid)	▪ Adverse effects on fish and fish habitat due to introduction of deleterious substances into waterbodies (e.g., leaked fuel and oil). • Effects on fish and fish habitat are discussed in Chapter 6, section 6.3.1.1 *Predicted Effect on Fish Populations due to Spills or Hazardous Materials*. ▪ Adverse effects on wildlife (including migratory birds and species at risk) and wildlife habitat due to introduction of deleterious substances into aquatic (wetlands and other waterbodies) and terrestrial habitats. Loss /alteration of vegetation. • Project effects on migratory birds and their habitat are discussed in Chapter 6, section 6.3.2 *Migratory Birds*. • Project effects on species at risk and their habitat are discussed in Chapter 6, section 6.3.3 *Species at Risk*. ▪ Soil, surface water and groundwater contamination and potential effects on human health receptors (e.g. traplines, residences, camps, First Nations reserve lands). • Project effects on human health receptors are discussed in Chapter 6, section 6.3.4 *Indigenous Peoples and Human Health*. ▪ Adverse effects to sites of cultural and heritage value due to introduction of deleterious substances. • Project effects on cultural and heritage value are discussed in Chapter 6, section 6.3.4.4 *Heritage and Archaeological Resources*. ▪ Adverse effects to Indigenous peoples due to introduction of deleterious substances, including: • Species of importance to Indigenous peoples and their habitat. ○ Discussed in Chapter 6, section 6.3.4.1 *Land and Resource Use*. • Access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred. ○ Discussed in Chapter 6, section 6.3.4.2 *Travel Routes*. • Impacts to rights, proposed accommodation measures, and views of Indigenous Nations (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations.	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP2 - Petroleum Handling and Storage • EP3 - Spill Response • EP5 - Materials Handling and Storage • EP6 - Working Within or Near Fish Bearing Waters • EP13 - Heritage Resources ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.7 - Inspections • ES 130.9 - Materials Handling, Storage and Disposal ○ ES 130.9.2.4 - Dangerous Goods/Hazardous Waste Handling and Disposal ○ ES 130.9.2.5 - Petroleum Handling and Storage • ES 130.15 – Working within or near water ▪ Alignment selected so that no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (Section 6.4.4.1.3, EP6 and ES 130.15.1). ▪ Designated areas would be established for fuel storage and re-fueling activities a minimum of 100 m from waterbodies, as described in Section 6.4.4.1.3. ▪ Adherence to Provincial legislation such as: • The Environment Act. • The Dangerous Goods Handling and Transportation Act (Dangerous Goods Handling and Transportation Regulation, Environmental Accident Reporting Regulation, and Storage and Handling of Petroleum Products and Allied Products Regulations). ▪ Adherence to Federal legislation such as: • The Transportation of Dangerous Goods Act. ▪ Contractor(s) to ensure a copy of the Material Safety Data Sheets is in a location accessible to all workers, including MTI personnel, on the work site, for each hazardous product that is used and/or kept on-site.	Low[d]	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP3 - Spill Response ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.10 - Spills, Remediation and Emergency Response ▪ Application of contractor's Environmental Emergency Plan for Spill Response and Remediation.	Low

Potential Accident or Malfunction	Potential Effects	Preventative / Contingency Mitigation Measures	Probability of Occurrence [a]	Emergency Response Procedures [b]	Magnitude (degree or intensity of change) [c]
Accidental release of hazardous substances – Compressed Gases (propane, acetylene)	▪ Adverse effects on fish and fish habitat not anticipated. • Effects on fish and fish habitat are discussed in Chapter 6, section 6.3.1.1 *Predicted Effect on Fish Populations due to Spills or Hazardous Materials*. ▪ Adverse effects on wildlife (including migratory birds and species at risk) and wildlife habitat due to accidental release of compressed gases into aquatic (wetlands and other waterbodies) and terrestrial habitats possible but unlikely. • Project effects on migratory birds and their habitat are discussed in Chapter 6, section 6.3.2 *Migratory Birds*. • Project effects on species at risk and their habitat are discussed in Chapter 6, section 6.3.3 *Species at Risk*. ▪ Soil, surface water and groundwater contamination and potential effects on human health receptors (e.g. traplines, residences, camps, First Nations reserve lands). • Project effects on human health receptors are discussed in Chapter 6, section 6.3.4 *Indigenous Peoples and Human Health*. ▪ Adverse effects to sites of cultural and heritage value not likely to occur. • Project effects on cultural and heritage value are discussed in Chapter 6, section 6.3.4.4 *Heritage and Archaeological Resources*. ▪ Adverse effects to Indigenous peoples due to introduction of deleterious substances, including: • Species of importance to Indigenous peoples and their habitat. ○ Discussed in Chapter 6, section 6.3.4.1 *Land and Resource Use*. • Access and travel routes and places where fish, wildlife, birds, plants, or other natural resources are harvested, including places that are preferred, adverse effects not anticipated. ○ Discussed in Chapter 6, section 6.3.4.2 *Travel Routes*. • Impacts to rights, proposed accommodation measures, and views of Indigenous Nations (listed in Section 5.1 of Part 2 of the EIS Guidelines) on proposed accommodations, adverse effects not anticipated.	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP3 - Spill Response • EP5 - Materials Handling and Storage • EP6 - Working Within or Near Fish Bearing Waters ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.7 - Inspections • ES 130.9 - Materials Handling, Storage and Disposal ○ ES 130.9.2.4 - Dangerous Goods/Hazardous Waste Handling and Disposal • ES 130.15 – Working within or near water ▪ Alignment selected so that no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (Section 6.4.4.1.3, EP6 and ES 130.15.1). ▪ Designated areas would be established for fuel storage and re-fueling activities a minimum of 100 m from waterbodies, as described in Section 6.4.4.1.3. ▪ Adherence to Provincial legislation such as: • The Environment Act. • The Dangerous Goods Handling and Transportation Act (Dangerous Goods Handling and Transportation Regulation, Environmental Accident Reporting Regulation, and Storage and Handling of Petroleum Products and Allied Products Regulations). ▪ Adherence to Federal legislation such as: • The Transportation of Dangerous Goods Act. ▪ Contractor(s) to ensure a copy of the Material Safety Data Sheets is in a location accessible to all workers, including MTI personnel, on the work site, for each hazardous product that is used and/or kept on-site.	Low[d]	▪ Application of MI's Environmental Protection Procedures (Appendix 8-2 of the EIS): • EP3 - Spill Response ▪ Application of MI's Environmental Protection Specifications (Appendix 8-3 of the EIS): • ES 130.10 - Spills, Remediation and Emergency Response ▪ Application of contractor's Environmental Emergency Plan for Spill Response and Remediation.	Low

Note: a Probability of accident or malfunction after application of preventative / contingency mitigation measures.
b Refer to **Chapter 8** (Environmental Protection and Sustainable Development), **Appendix 8-3** for MI's ES 130s and required emergency response plans.
c Degree or intensity of the change considering both preventative measures and application of emergency response measures. Low: negligible negative effect, unlikely to occur; Medium: moderate negative effect, could reasonably be expected to occur; High: large negative effect, will occur.
d Low likelihood of significant release (i.e. reportable hydrocarbon spill over 100L) after mitigation measures.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-17

EIS Guideline Reference	• Guidelines Part 2, Section 6.2, 6.3, and 6.5
EIS Reference	• Chapter 1, Section 1.3 • Chapter 6, Section 6.2, 6.3, 6.5, and 6.5.1.1.2 • Appendix D-1, Section 1.0
Category	Editorial

CONTEXT AND RATIONALE

The Environmental Impact Statement Guidelines (EIS Guidelines) require the proponent to describe the predicted changes to the environment and valued components (VCs) as a result of the Project 6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation (the Project) during all Project phases, and any residual effects to VCs following the implementation of mitigation measures. Predicted changes and residual effects are to be described in terms of their magnitude, geographic extent, timing, duration, frequency, reversibility, and ecological and social context. The significance of any residual effects must also be characterized.

The EIS indicates that the Project alignment consists of a total 141 kilometres of all-season road (ASR) on a new right of way. However, Appendix D-1 of the EIS describes the Project length as 138 kilometres.

The EIS also notes that the environmental effects of the Project were identified from a review of environmental assessment reports conducted on other ASR projects east of Lake Winnipeg and using professional judgement. It is unclear whose professional judgement is being relied upon or the underlying assumptions and expertise this professional judgement is based upon.

INFORMATION REQUEST

a) Clarify whether the proposed ASR is anticipated to be 138 kilometres or 141 kilometres in length. If the accuracy and applicability of the assessments presented may be

compromised by this discrepancy, revise all assessments presented in the EIS to reflect the actual road length.

b) Clarify whose professional judgement was relied upon to identify and assess potential Project effects. Discuss underlying assumptions and expertise associated with the professional judgement that was applied.

RESPONSE

a) The proposed all-season road alignment length will vary slightly depending on which option is selected near Manto Sipi Cree Nation (see the response to information request IR1-02). Overall, the proposed alignment will range from approximately 140 to 141 kilometers in length. A total length of 141 kilometres is therefore anticipated to represent a worst case scenario.

b) The Environmental Impact Statement (EIS) was prepared by KGS Group on behalf of Manitoba Transportation and Infrastructure (MTI) using the approach described in Chapter 4 of the Project's Environmental Impact Statement (EIS). Specific details regarding the identification of potential effects were provided in Section 4.5.3 of Chapter 4 in the EIS.

KGS augmented their team with specialist sub-consultants: Falk Environmental Inc., E. Hicks & Associates Ltd., 4D Natural Resources Consulting and Scatliff+Miller+Murray Inc. who assisted and supported the development of the EIS and implementation of the Indigenous and Public Engagement Program (IPEP). The addition of these sub-consultants to KGS's EIS development team provided extensive experience in projects of similar nature located in both Manitoba and Northwestern Ontario. The following is a brief detailing of each sub-consultant's qualifications and experience:

- **Falk Environmental Inc.** is a specialist environmental consulting company offering professional services ranging from environmental assessment and management systems to environmental regulation advice, public hearing advice and support, and environmental training program development and delivery since 1997. Falk Environmental Ltd. provided specialist advice in conducting the environmental assessment.
- **4D** is a First Nation owned company, established in 2008 by the sole proprietor Dr. Stewart Hill who has over twenty five (25) years of experience and is a member of God's Lake First Nation. 4D provides research, writing and advisory services in the fields of natural resources, environmental and lands management issues such as land use planning, traditional land use mapping, presentations, negotiations support, environmental assessment support and other areas requiring technical expertise. 4D offers extensive experience in the service of First Nations and their land, environment and natural resources issues within their respective traditional territories as well as experience with group

facilitation and community consultation, including an understanding of the dynamics of First Nations governance and its relationship and interaction with mainstream governments. DR. Hill has been involved in a number of environmental assessments in northern Manitoba such as the Split Lake Transmission Line Project, the North Central Transmission Line Project, and the Proposed Keeyask and Conawapa hydroelectric dams, as well as various studies and consultation activities. Dr. Hill liaised with communities, attended and assisted with the coordination of the IPEP.

- **E. Hicks & Associates Ltd.** is an independent firm based in Winnipeg, Manitoba which was incorporated in 2006; Elisabeth Hicks, the President of E. Hicks & Associates, has over twenty seven (27) years of experience in providing project management, socio-economic and public engagement consulting services for site/route selection and environmental assessments in Manitoba. Ms. Hicks was the lead author in conducting and preparing the environmental assessment and worked with KGS Group throughout the IPEP.
- **Scatliff+Miller+Murray Inc.** formed in the late 1980s and worked with KGS Group in the design and creation of IPEP communication materials.

The KGS team (which included the firms engaged as sub-consultants identified above) has experience in environmental assessment and in preparing EIS for various projects. In developing the Project 6 EIS, KGS also worked with a number of independent contractors having expertise in specific environmental disciplines or focus areas to conduct the environmental assessment and develop the EIS. These additional independent contractors were engaged to provide technical expertise to particular Valued Components (VCs) or focus areas for consideration in the environmental assessment.

As described in Section 4.4 in Chapter 4 of the EIS, various information sources were used to characterise the existing environment and potential Project effects. Desktop review of existing information, baseline field surveys and studies, and information provided by local Indigenous Nations were all used or conducted by a number of independent contractors, each specializing in particular VCs or focus areas as listed in Table IR1-17-1.

Table IR1-17-1. List of independent contractors and consultants engaged by MTI to complete technical studies and to contribute to the assessment of effects for proposed Project 6 all-season road.

Valued Component	Consultant
Physical Environment	
Atmospheric Environment – Greenhouse gas (GHG) calculations	Dillon Consulting
Surface Water Quality	North South Consultants
Fish and Fish Habitat	
Fish Habitat	North South Consultants
Fish	
Terrestrial Environment	
Species at Risk (Vegetation)	Szwaluk Environmental Consulting Ltd. and Calyx Consulting
Key Community Harvest Areas (Vegetation)	
Mammals – Ungulates	Joro Consultants Inc
Mammals – Aquatic furbearers	
Species at Risk (Wildlife)	
Birds – Waterfowl, Raptors, Upland Game Bird, Migratory Songbird	
Amphibian	
Indigenous and Human Environment	
Socioeconomic and Land and Resource Use	Elisabeth Hicks & Associates, HTFC Planning & Design,
Heritage and Archaeological Resources	AMEC Foster Wheeler

The independent contractors listed in Table IR1-17-1 were engaged through a competitive bid process which included evaluation of proposed methodology, expertise and relevant experience. Summaries of key experience and qualifications for each of the firms listed in Table IR1-17-1 are provided below:

- **Dillon Consulting Ltd.**
  - Completed the GHG Assessment for the proposed Project.
  - Dillon Consulting was launched in 1946; the project team assembled had in-depth expertise in GHG assessment and experience conducting GHG and air quality assessments in Manitoba and Ontario.
  - The project manager was a registered Professional Engineer that had 13 years of experience in conducting GHG and air quality assessments within a range of environments in Canada.
- **North/South Consultants Inc.**
  - Completed the aquatic environment baseline study and the aquatic effects assessment for the proposed Project.
  - North/South Consulting Inc. was established in 1981 and specializes in biophysical and resource use studies related to freshwater, estuarine and marine environments.
  - Have extensive project-related experience in aquatic systems throughout Manitoba and has conducted aquatic studies in most of Manitoba's larger river systems
  - Have worked extensively in remote locations, including northern Manitoba, and on numerous projects dealing with the effects of linear developments on fish and aquatic habitats in each province from Ontario west to British Columbia and Nunavut
  - The project manager was a senior aquatic biologist with 30 years of experience conducting and managing environmental screenings, aquatic assessments, impact assessments, resource use studies, and monitoring programs related to linear, hydroelectric, flood protection and agricultural developments.
- **Szwaluk Environmental Consulting Ltd.**
  - Completed the botanical and vegetation resource field survey and the vegetation characterization and effects assessment of the proposed Project with Calyx Consulting
  - Szwaluk Environmental Consulting was established in 2008 and specializes in environmental assessments vegetation and rare plant surveys, soil surveys, forest assessments, environmental monitoring, data management and analysis, and ecological land classification.
  - The project manager/field lead was a vegetation ecologist with over 15 years of botanical and environmental assessment consulting experience working in a variety of vegetation regions including the boreal, parklands and prairies in many parts of Manitoba, Alberta and Saskatchewan, as well as in northwestern Ontario and northern British Columbia.
- **Calyx Consulting**
  - Completed the botanical and vegetation resource field survey and the vegetation characterization and effects assessment of the proposed Project with Szwaluk Environmental Consulting.
  - Calyx Consulting was established in 1992 and specializes in botanical services and reporting, including pre-construction and post project monitoring, rare plant

surveys and mapping, botanical inventories, invasive plant surveys and vascular plant identification.
    - The consulting lead was a botanical specialist with over 30 years experience in rare vascular plant surveys and botanical inventories, working in southern, central and northern Manitoba.
- **Joro Consultants Inc.**
    - Joro Consultants Inc. completed the wildlife monitoring program and wildlife characterization and effects assessment of the proposed Project, with assistance from InterGroup Consultants, Golder Associates, and Eagle Vision Resources.
        - InterGroup Consultants Ltd. is a multi-disciplinary company that had been in business for over 40 years with over a decade of experience in the public engagement sector and over 40 years of participation in socio-economic research related to the resource and public infrastructure sectors, including linear development.
        - Eagle Vision Resources was created in 2011 and was engaged in the involvement of local community trappers and collaborating with InterGroup on the facilitation of stakeholder input.
        - Golder Associates was established in 1960 and had experience with siting, licensing, permitting, monitoring, and post-approval activities; members of their regional wildlife group have published over 60 papers in peer reviewed journals and written over 80 consulting and government reports; the lead was a highly recognized and published boreal woodland caribou specialist.
    - Joro Consultants Inc. had operated since 1992 (formerly Terrestrial and Aquatic Environmental Managers) and specialized in wildlife research and monitoring with extensive experience in the planning and implementation of aerial population and track surveys, trail camera studies, local community engagement studies, and bird surveys.
    - Joro had executed an extensive range of activities in relation to baseline data acquisition, the identification of predicted effects, the identification of mitigation measures, and effects monitoring, especially with respect to moose and furbearers in Manitoba.
- **HTFC Planning & Design**
    - Completed the TK studies with Manto Sipi Cree Nation, Bunibonibee Cree Nation, God’s Lake First Nation, and God’s Lake Narrows Northern Affairs Community for the proposed Project.
    - HTFC Planning and Design was established in 1969, specializes in community-based research, environmental impact assessment, community engagement, traditional knowledge research community planning and First Nations’ land claims, and has worked with many First Nation communities in Manitoba.

  - The Project manager had a background in natural resource management and environmental biology; with over ten years experience focusing on land use and natural resource management in Indigenous and rural communities in Manitoba, Ontario and Nunavut.
  - The senior advisor had been leading community and regional planning projects for more than 30 years in Manitoba and Northwestern Ontario.
- **Center for Indigenous Environmental Resources (CIER)**
  - Supported HTFC Planning & Design's with the TK study.
  - CIER was established in 1994, is a First Nation national, environmental non-profit organization whose mandate is to work with First Nations across Canada to educate, conduct research and build skills to help them take action to solve environmental problems that affect their lands and waters, and has worked on several TK studies and mapping studies in Manitoba.
  - The lead had over 10 year's experience working in the environmental field and with Indigenous communities across Canada and rural, remote communities in developing countries with expertise in the areas of Indigenous land claims and treaty rights, environment and development issues, water governance and management, and Indigenous Knowledge.
- **AMEC Foster Wheeler Environment & Infrastructure (AMEC)**
  - Completed the Heritage Resource Impact Assessment, the baseline desktop heritage study and flyover to support the HRIA.
  - AMEC Foster Wheeler existed from 2014 to 2017 and was formed through the merger of Amec (formed in 1982) and Foster Wheeler (formed in 1927) in 2014; in 2017, Amec Foster Wheeler was acquired by Wood Group.
  - AMEC Foster Wheeler has completed HRIAs for other linear projects in Manitoba, Alberta, and Northwest Territories.
  - The Project manager had over 25 years experience in Canadian archaeology and has directed projects ranging from small assessments and construction monitoring to large excavations employing multiple crews and was recognized as a specialist on early precontact Indigenous sites, historic fur trade and exploration sites, and early twentieth-century domestic and industrial sites.
  - The Archaeological Permit Holder had 15 years experience in heritage resource management directing historical resource assessments throughout western Canada and the North.

These independent consultant team individually identified and provided an assessment of potential project effects to VCs including the atmospheric, aquatic and terrestrial environment based on input from local resource users, findings and results of field studies, and based on desktop reviews of scientific literature and other linear projects (e.g. roads, transmission lines) in Manitoba. Environmental reports associated with each technical disciple (e.g., aquatics, wildlife) which

documented methodology used to characterise the existing environment, and potential Project effects were appended to the EIS as appendices A through D2. Information included in the technical reports characterizing the existing environment and potential Project effects were then used to help assess the Project as presented in Chapter 6 of the EIS. In the case of effects to Indigenous peoples, HTFC was contracted to conduct Traditional Knowledge studies with Bunibonibee Cree Nation, God's Lake First Nation, Manto Sipi Cree Nation and God's Lake Narrows Northern Affairs Community, to understand health and socio-economic conditions, physical and cultural heritage, and the use of lands and resources.

Assumptions and limitations related to the characterization of existing environmental conditions, or of potential Project effects are detailed in each of the Technical Reports appended to the EIS as Appendices A through D2. Generally, it is assumed that the baseline condition information collected and used to characterise and assess the existing environment is representative of conditions that would continue into the future during the operation of the proposed road. Similarly, the baseline condition has been defined as best possible through use of desktop review, use of scientific literature, or as observed through field surveys and studies. It is assumed that the number of replicates, samples, and other source information used to characterize the existing (baseline) condition has appropriately captured the range of natural variability for consideration as part of the environmental assessment. A summary of key assumptions and/or limitations associated with the assessment of potential Project effects for each VC is provided in Table IR1-17-2.

Table IR1-17-2. Examples of Key Assumptions and/or Limitations Used to Characterize the Existing Environment and Potential Project Effects for Valued Components

Valued Component	Key Assumptions and/or Limitations
Physical Environment	
Atmospheric Environment	- Baseline scenario for existing conditions and climatic conditions remain consistent into the future - Fire history was used to age forest, and that where no fire history existed maximum tree age was 100 years - Air traffic remains consistent in future years - Used assumed fuel economy values for various vehicle and equipment types
Surface Water Quality	- Sampling provided a snapshot of water quality at a single point in time to understand general conditions, and could change rapidly due to factors like rainfall, runoff and biological activity - Inability to detect transient contaminants - Potential for errors during sampling, transportation, and laboratory analysis

Valued Component	Key Assumptions and/or Limitations
Physical Environment	
Fish Habitat Fish	- Shorelines were assumed to be representative of normal flow conditions - Risk assessment assumes that standard measures to avoid and mitigate harm will be implemented - For culverts, road bed width was assumed to represent the width of instream impact
Terrestrial Environment	
Species at Risk (Vegetation) Key Community Harvest Areas (Vegetation)	- Complete assessment of the entire Project footprint is not feasible or required to understand the existing environment. - 38 forest and wetland sites were identified and sampled along the alignment. - Field studies were assumed to have identified all habitat types for sampling and that those sites sampled are reflective of the regional land cover
Mammals; Ungulates Mammals; Aquatic furbearers Birds; Waterfowl, Raptors, Upland Game Bird, Migratory Songbird. Amphibian	- Field studies such as autonomous recording units (ARUs) assumed that critical lifecycle timing would occur as anticipated and coincide with data collection and ARUs would detect the presence of both birds and amphibians, including species at risk - Complete population-level studies are not feasible or required to understand existing environmental conditions. Collected data was assumed to be of adequate sample size to infer broader regional trends and be representative of existing conditions and/or variation - The estimates of abundance and distribution is representative of the population of the species (e.g., caribou and moose) during all phases of the proposed project
Indigenous and Human Environment	
Socioeconomic and Land and Resource Use Heritage and Archaeological Resources	- As described in the response to other information requests, MTI is committed to continuing engagement with Indigenous Nations - Information gained from communities and/or traditional knowledge participants is assumed to be reflective of the communities' general outlook, land and resource use, and information for consideration by the Project

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

Joro Consultants Inc. 2018. Project 6: Existing Environment Wildlife Report. Submitted to KGS for the P6 Environmental Impact Assessment Report.

North/South Consultants INC. 2017. East Side Road Authority Project 6: All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation. Aquatic Environment Report: Existing Environment. Prepared for the Manitoba Infrastructure – Remote Road Operations by North/South Consultants Inc.

2025-08-27

QUESTION IAAC IR1-18

EIS Guideline Reference	• Part 1, Section 4.4
EIS Reference	• Chapter 4, Appendix 4-2, Maps 1 and 2
Category	Editorial

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to include charts, diagrams, tables, maps, and photographs, where appropriate, to clarify the text in the Environmental Impact Statement (EIS).

Some of the maps and figures provided in the EIS are missing labels. For instance, Manto Sipi Cree Nation (MSCN) noted that their community name is missing from Maps 1 and 2 of Appendix 4-2. All maps and figures provided in the EIS must be labelled correctly with all relevant features clearly indicated to ensure that the information presented is clear and unambiguous.

INFORMATION REQUEST

a) Review and revise the maps and figures presented in the EIS to ensure that all relevant features are clearly labelled.

RESPONSE

The following maps were found to be missing labels and have been corrected:

1. Chapter 1 Figure 1-5. The map was missing a citation to reference GIS base data.
    a. A revised figure has been included as Appendix IR1-18-1

2. Chapter 4, Appendix 4-2 Maps 1 & 2 Joro Consultants were missing a label Manto Sipi Cree Nation.
    a. Revised maps have been included as Appendix IR1-18-2

3. Chapter 6 Figure 6-8. Labelling for Bunibonibee Cree Nation is partially outside of the map view.
    a. A revised figure has been included as Appendix IR1-18-3

4. Revised copies of maps 02, 03 and 04 from Szwaluk Environmental Consulting Ltd. 2017. *Botanical and Vegetation Resource Survey of the Proposed All-Season Road Project 6 Field Report* which was included with Technical Reports. Labelling for Bunibonibee Cree Nation is partially outside of the map view.
    a. Revised maps have been included as Appendix IR1-18-4

5. Revised copies of maps 02 and 03 from Szwaluk Environmental Consulting Ltd. 2017. *Vegetation Characterization and Effects Assessment of the Proposed All-Season Road Project 6 Interim Report* which was included with Technical Reports. Labelling for Bunibonibee Cree Nation is partially outside of the map view.
    a. Revised maps have been included as Appendix IR1-18-5

6. Revised copy of Figure 7 from Joro 2018 Project 6: Existing Environment Wildlife Report which was included with Technical Reports. The figure was included in the text, was of reduced size and labels for fire history were not legible.
    a. An enlarged copy of the figure has been included as Appendix IR1-18-6

APPENDIX IR1-18-1

Revised version of chapter 1 figure 1-5 including the missing citation referencing GIS base data.

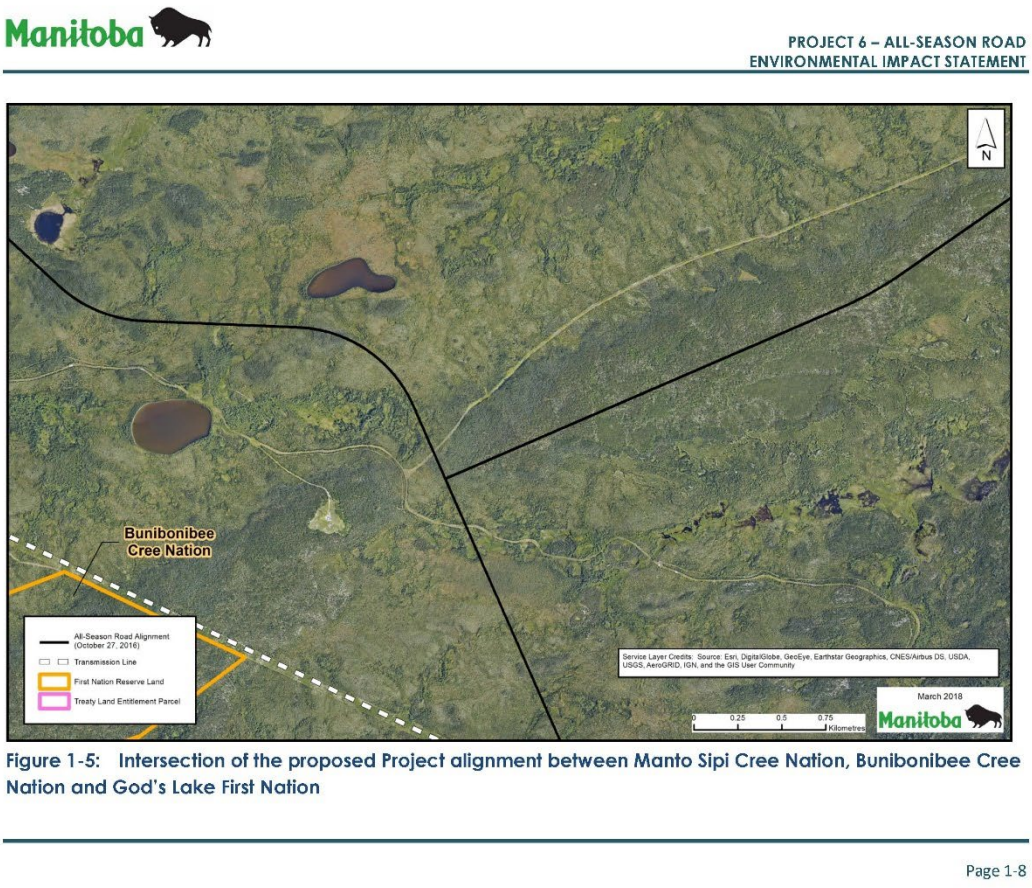


Figure IR1-18-1.Revised map from Chapter 1 Figure 1-5 including the missing citation referencing GIS base data.

APPENDIX IR1-18-2

Revised maps from Chapter 4, Appendix 4-2 Maps 1 & 2 Joro Consultants

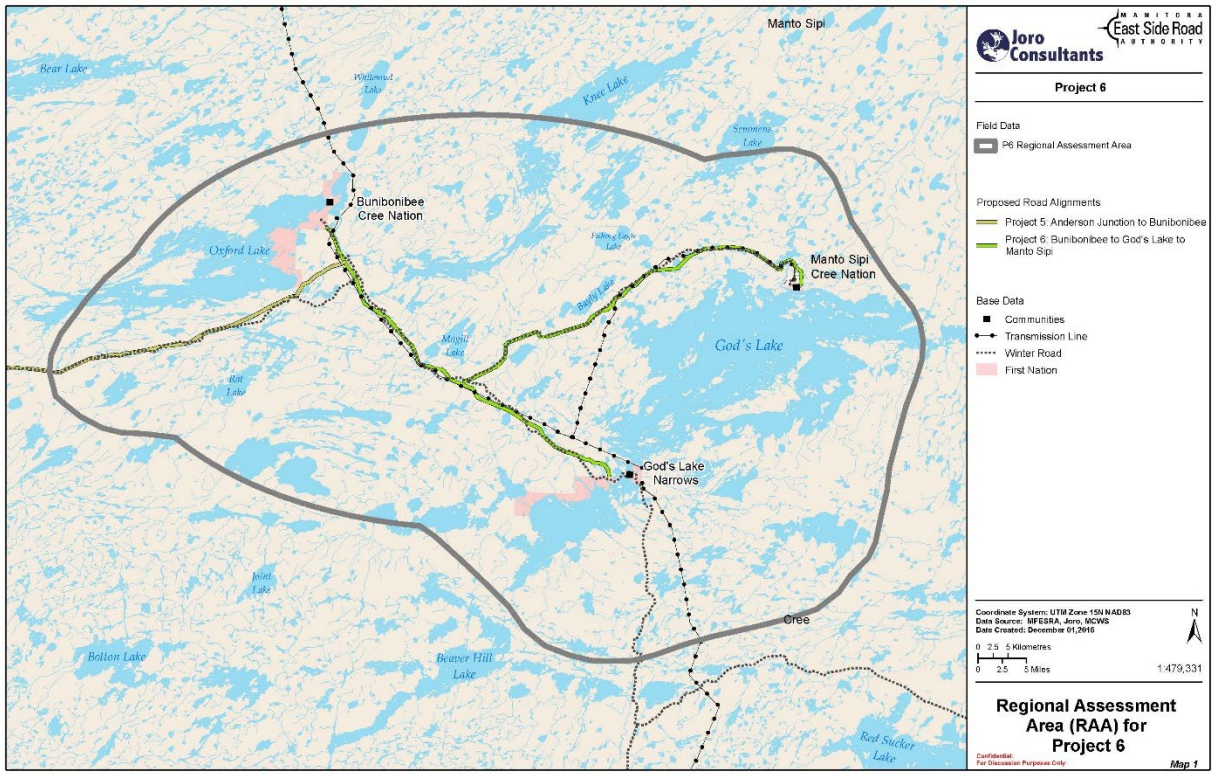


Figure IR1-18-2. Revised version of Chapter 4, Appendix 4-2 Map 1 which includes labelling for Manto Sipi Cree Nation.

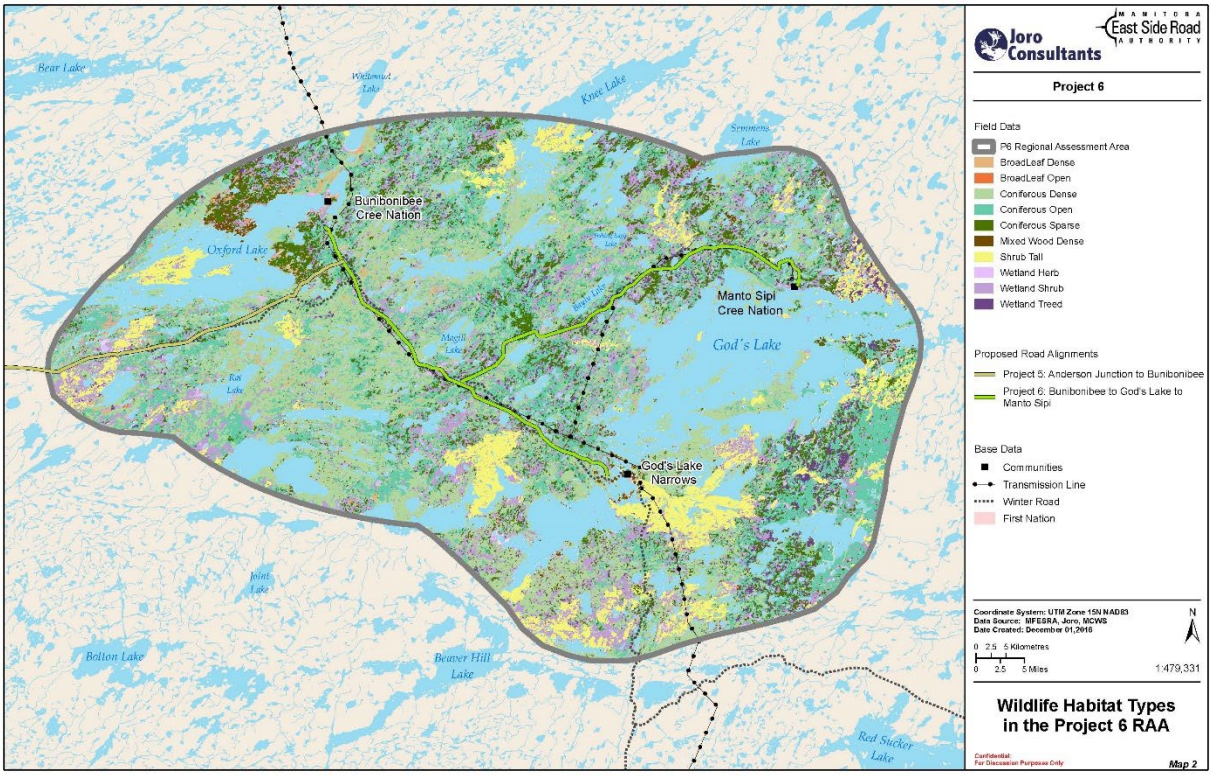
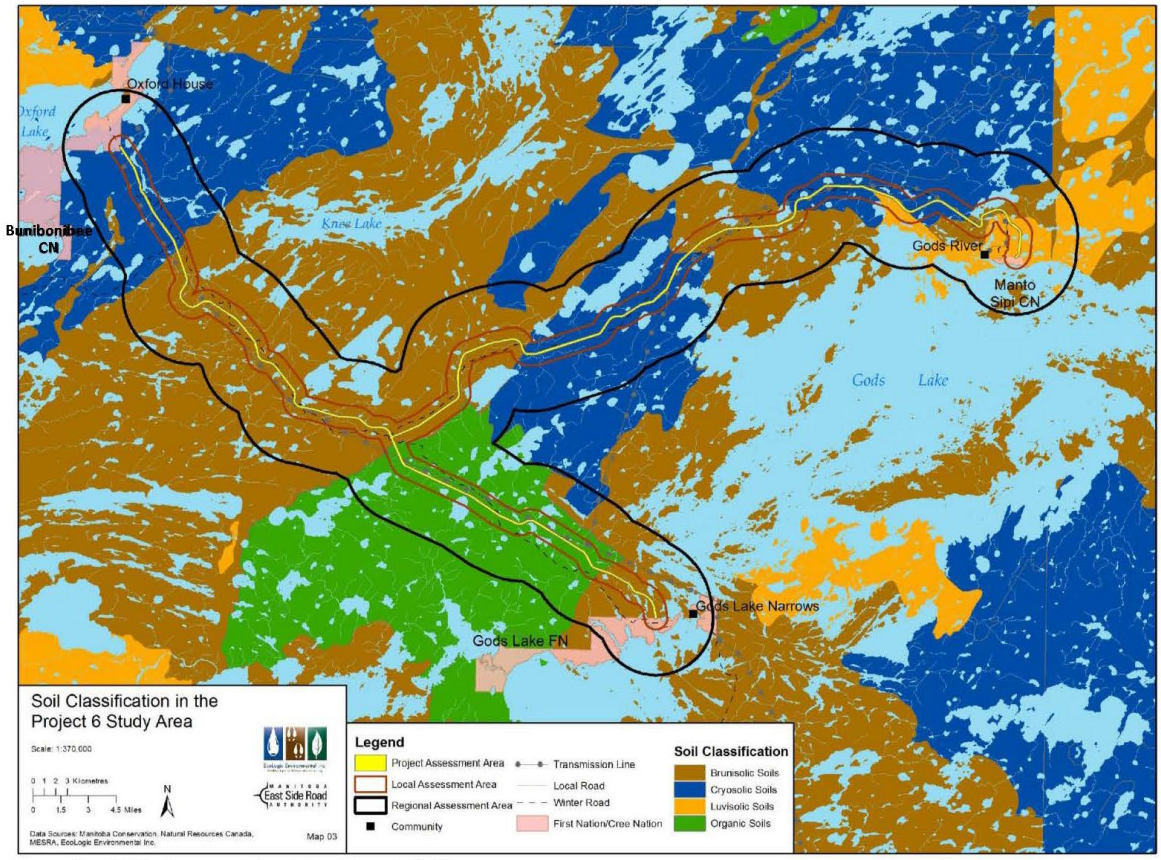


Figure IR1-18-3. Revised version of Chapter 4, Appendix 4-2 Map 2 which includes labelling for Manto Sipi Cree Nation.

APPENDIX IR1-18-3

Revised version of Chapter 6 Figure 6-8



Source: Szwaluk Environmental Consulting Ltd. *et al.* 2017a

Figure IR1-18-4. Revised map from Chapter 6 Figure 6-8 with proper labelling for Bunibonibee Cree Nation.

APPENDIX IR1-18-4

Revised maps 02, 03 and 04 from Szwaluk Environmental Consulting Ltd 2017. Botanical and Vegetation Resource Survey of the Proposed All-Season Road Project 6 Field Report included with Technical Reports.

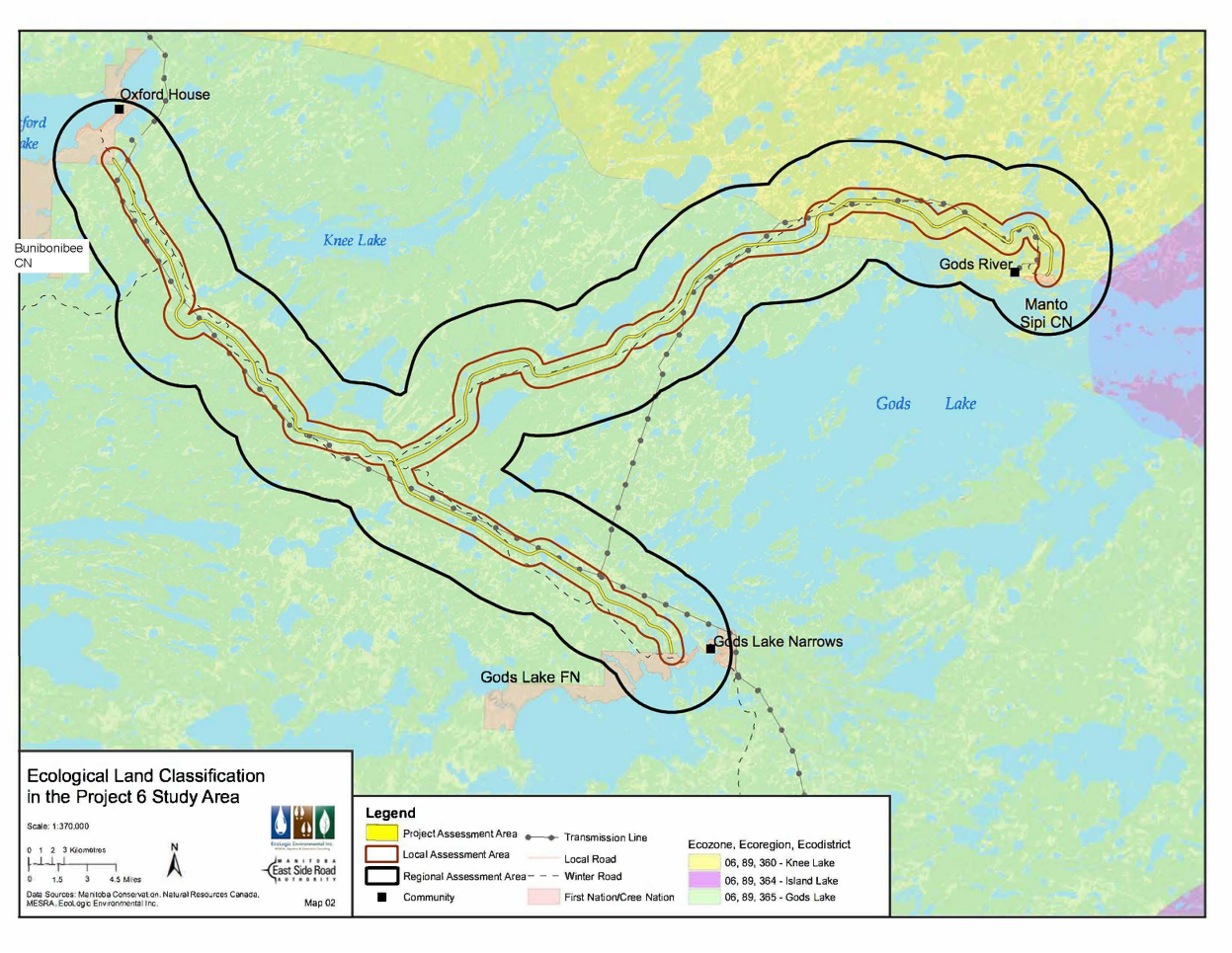


Figure IR1-18-5. Revised version of Map 02 from Szwaluk Environmental Consulting Ltd. 2017. Botanical and Vegetation Resource Survey of the Proposed All-Season Road Project 6 Field Report which includes complete labelling for Bunibonibee Cree Nation.

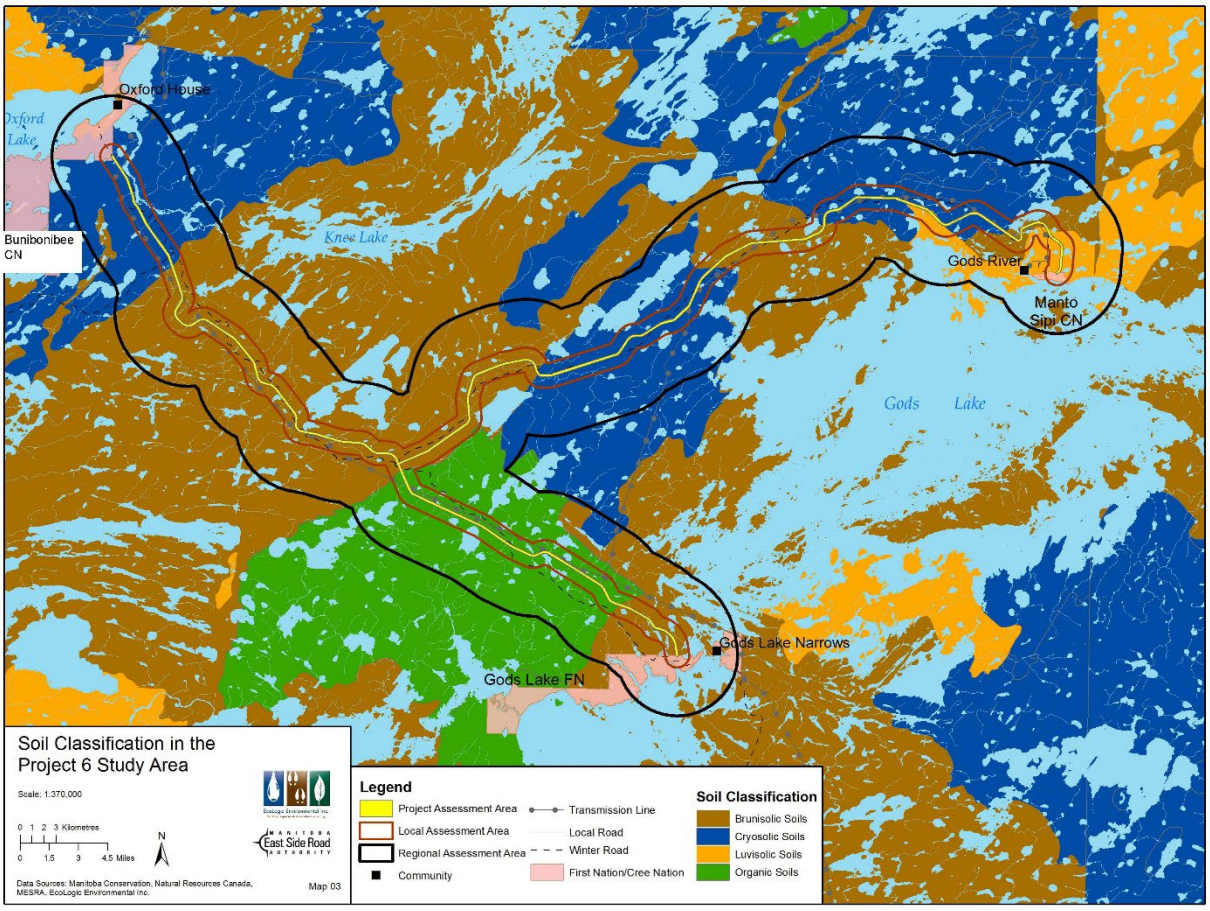


Figure IR1-18-6. Revised version of Map 03 from Szwaluk Environmental Consulting Ltd. 2017. Botanical and Vegetation Resource Survey of the Proposed All-Season Road Project 6 Field Report which includes complete labelling for Bunibonibee Cree Nation.

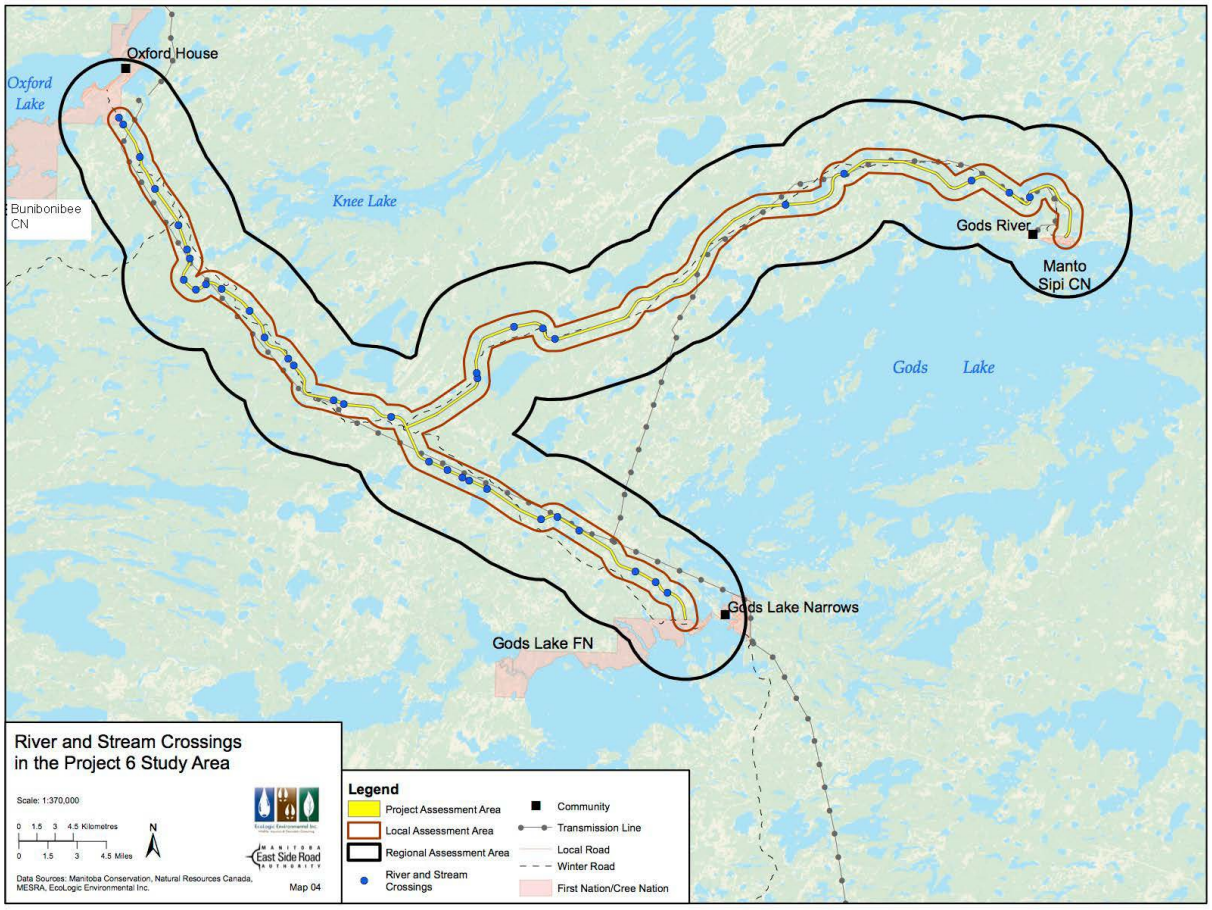


Figure IR1-18-7. Revised version of Map 04 from Szwaluk Environmental Consulting Ltd. 2017. Botanical and Vegetation Resource Survey of the Proposed All-Season Road Project 6 Field Report which includes complete labelling for Bunibonibee Cree Nation.

APPENDIX IR1-18-5

Revised maps 02 and 03 from Szwaluk Environmental Consulting Ltd. 2017. Vegetation Characterization and Effects Assessment of the Proposed All-Season Road Project 6 Interim Report which was included with Technical Reports.

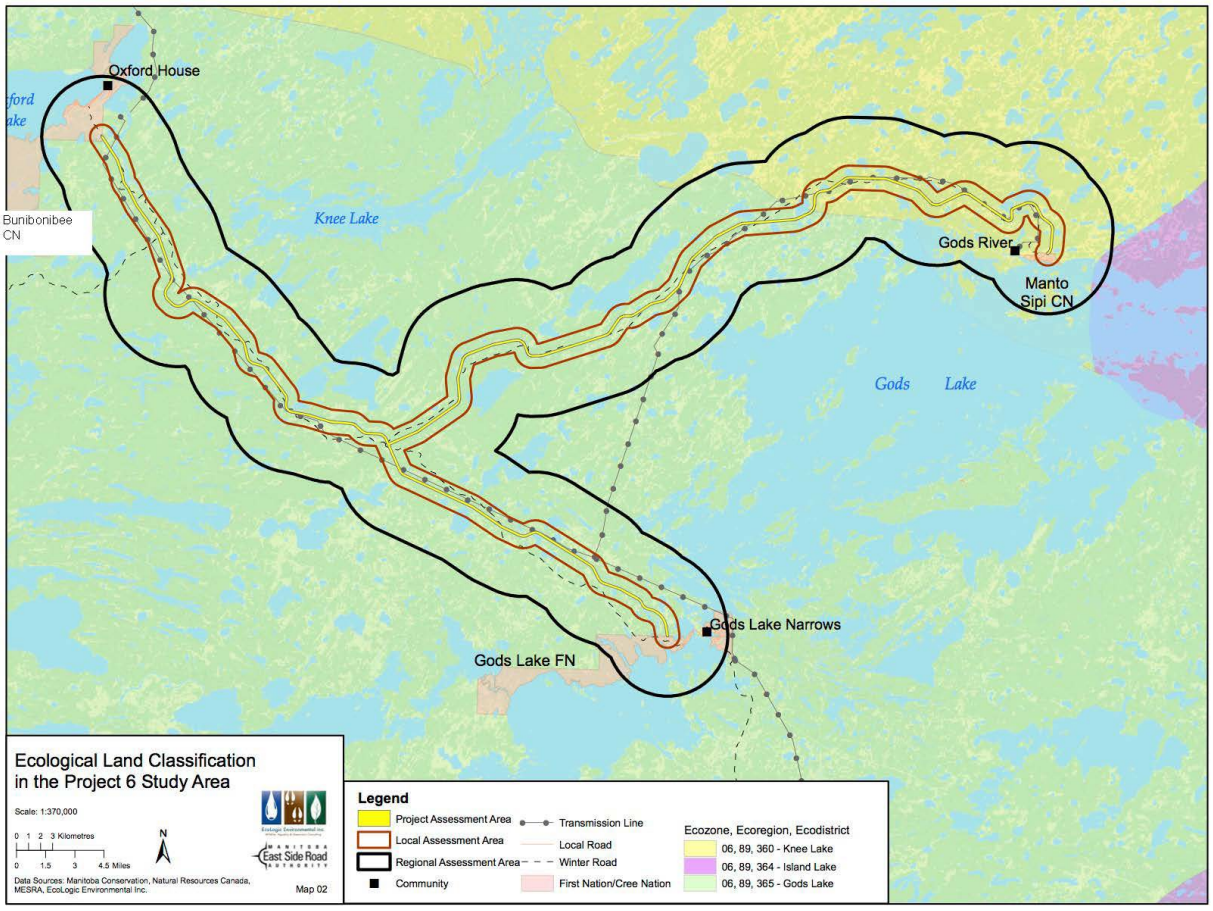


Figure IR1-18-8. Revised version of Map 02 from Szwaluk Environmental Consulting Ltd. 2017. Vegetation Characterization and Effects Assessment of the Proposed All-Season Road Project 6 Interim Report which includes complete labelling for Bunibonibee Cree Nation.

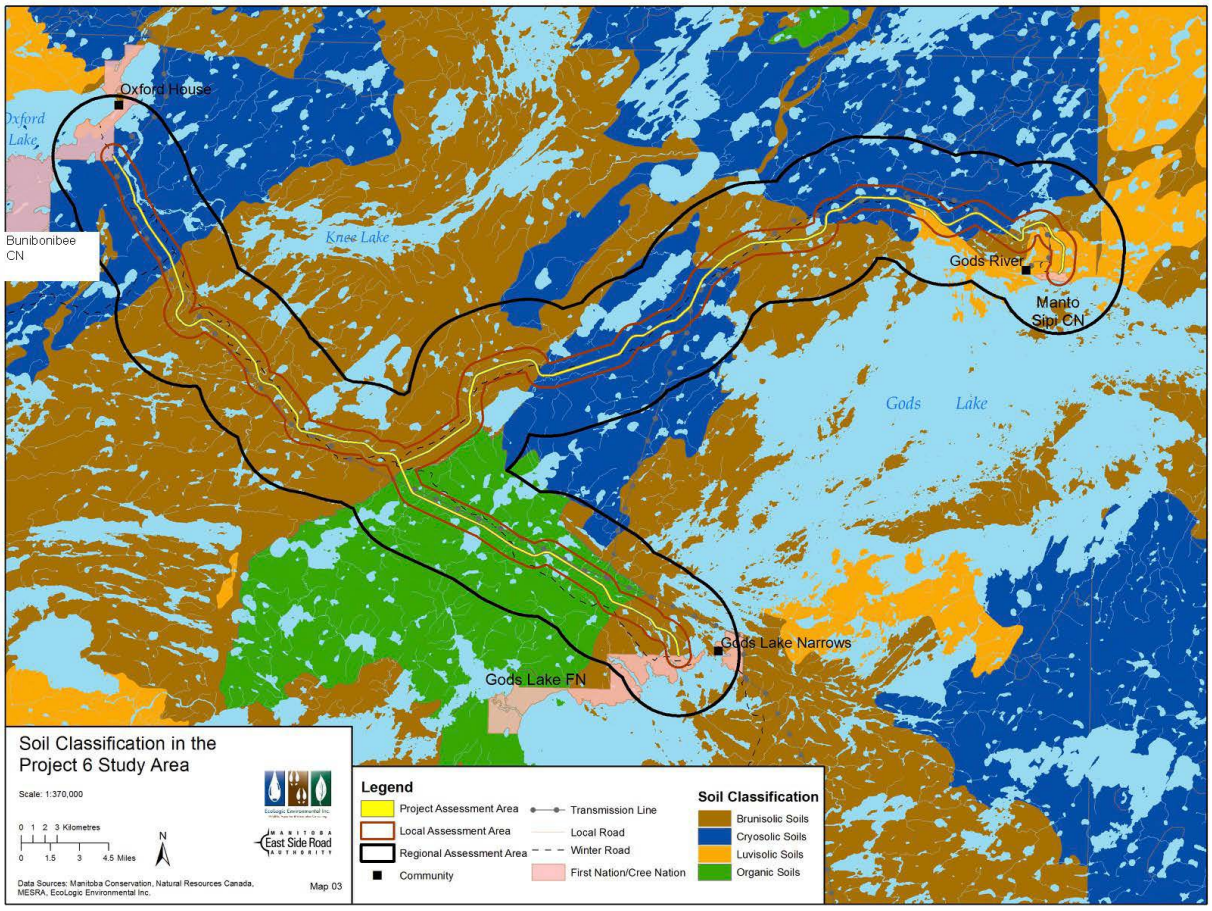


Figure IR1-18-9. Revised version of Map 03 from Szwaluk Environmental Consulting Ltd. 2017. Vegetation Characterization and Effects Assessment of the Proposed All-Season Road Project 6 Interim Report which includes complete labelling for Bunibonibee Cree Nation.

APPENDIX IR1-18-6

Revised copy of Figure 7 from Joro 2018 Project 6: Existing Environment Wildlife Report which was included with Technical Reports.

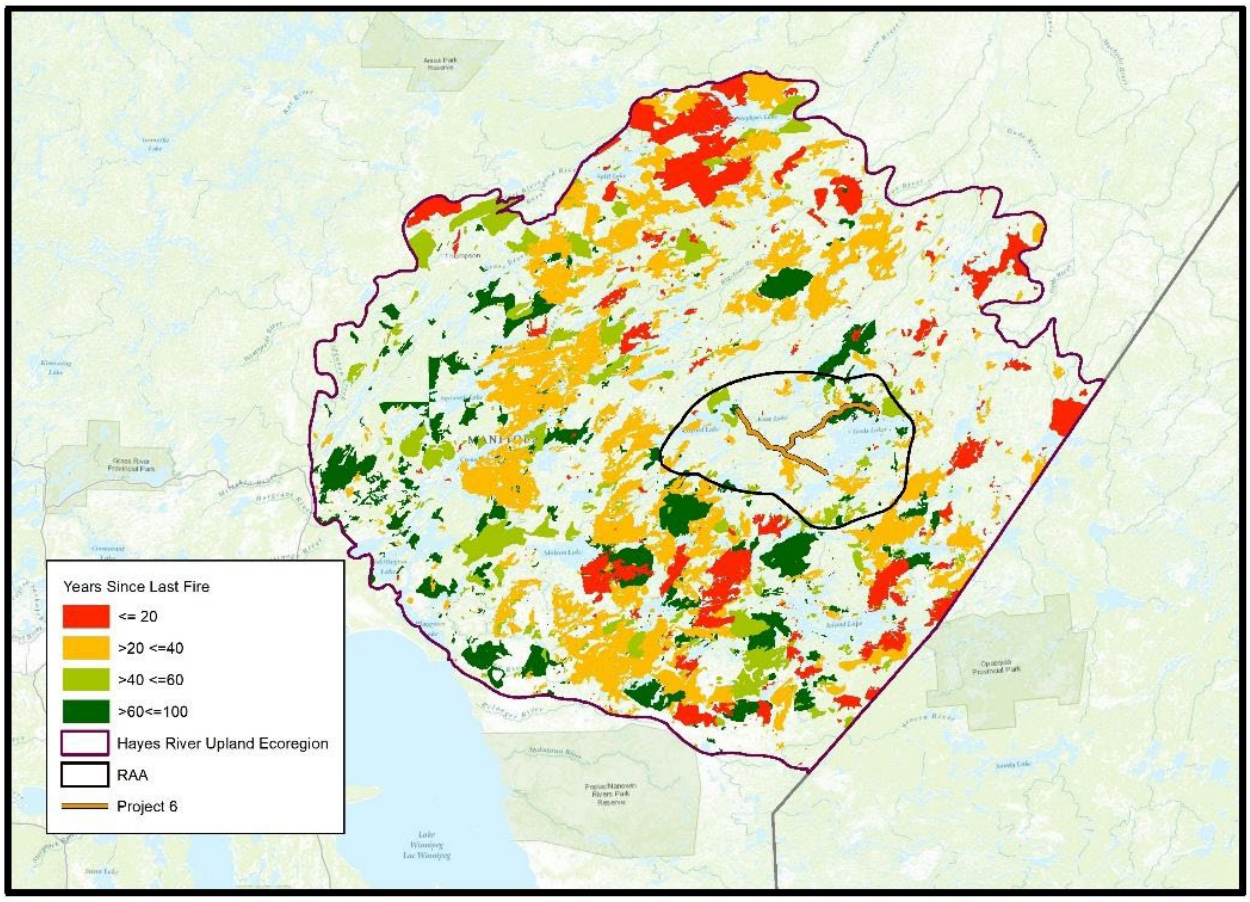


Figure IR1-18-10. Enlarged copy of Figure 7 from Joro 2018 Project 6: Existing Environment Wildlife Report better showing labels for fire history.

2025-08-27

QUESTION IAAC IR1-19

EIS Guideline Reference	• Part 2, Section 6.1
EIS Reference	• Chapter 3, Section 3.5
Category	Baseline

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to present baseline information in sufficient detail to enable the identification of how the Project could affect VCs and an analysis of those effects.

The EIS indicates that construction of the Project is not anticipated to begin until 2030. Several Indigenous groups have expressed concerns that baseline data collected in support of the environmental assessment for the Project may become outdated by the time construction is expected to begin. As such, it may be necessary to conduct pre-construction surveys in advance of construction to verify that baseline data are still accurate and to ensure that mitigation measures are still appropriate to adequately mitigate potential effects to VCs. It is also unclear what mitigation/contingency measures will be implemented to protect species at risk that may be added to Schedule 1 of the Species at Risk Act (SARA) by 2030.

MSCN also noted that they are concerned with the minimal amount of field data that were collected for all VCs and that desktop study data used may be outdated and/or not applicable to the Project footprint, Local Assessment Area (LAA), or Regional Assessment Area (RAA). For instance, the EIS notes that land cover classification (LCC) data from 2000 was used to support the description of baseline data for the Botanical and Vegetation Resource Survey (i.e. Appendix B-1) and that Boreal Avian Modelling used LCC data from 2005. MSCN expressed concerns that these data may be outdated.

Supplementary information is required to understand how the proponent will ensure the accuracy of information presented in the EIS, verify predictions with respect to potential effects to VCs, and ensure that potential Project effects to VCs are appropriately mitigated.

INFORMATION REQUEST

a) Describe how MI will ensure that the baseline data, effects assessments, and proposed mitigation measures presented in the EIS are valid prior to construction of the Project, given that construction is not expected to begin until 2030 and data may be outdated.
b) Describe how the effects assessment and mitigation/contingency measures will be updated to consider species at risk that may be added to Schedule 1 of SARA at the time of construction.
c) If updated data are available, including LCC data, verify and provide a rationale that the data included in the EIS are still valid. If the data presented in the EIS is no longer valid, provide updated data for the area of the Project, including a table describing the area of each vegetation type and a figure illustrating the land cover within the Project footprint, LAA, and RAA.

   i. If new data are provided, revise the description of baseline data for vegetation and habitat and the assessment of potential Project effects1, the residual effects assessment, and the cumulative effects assessment for all applicable VCs to include this new information.

RESPONSE

a) Manitoba Transportation and Infrastructure (MTI) will conduct selective review(s) of data validity 1-2 years before all-season road construction begins. The review will focus on key topics where legislative changes (e.g. updates to species at risk listings) occur. This process will verify that related key predictions made in the Environmental Impact Statement (EIS) remain accurate and that proposed mitigations and monitoring such as the Environmental Protection Procedures (Chapter 8, Appendix 8-2 of the EIS; Appendix IR1-19-1) and the Environmental Protection Specifications (Chapter 8 Appendix 8-3 of the EIS; Appendix IR1-19-1) remain relevant and applicable. Data verification will include a desktop exercise incorporating detailed design, newly collected data available to MTI, and may be followed by field studies if required. If there are significant changes in baseline data, a review of potential effects may also be conducted.

In addition, if there are changes in potential effects and/or associated mitigation measures, these will be discussed with regulators and Indigenous Nations, whose traditional territory may be affected. Appropriate mitigations will be selected and implemented to minimize or avoid impacts. The outcomes of the data validity review will be documented in a report and, should changes be identified, will be submitted to the Impact Assessment Agency of Canada (IAAC), Manitoba Environmental Approvals Branch (EAB), and potentially affected Indigenous Nations. If necessary,

Environmental Management Plans (EMPs) and monitoring plans (see Chapter 8 of the EIS) will be updated accordingly so as to account for changes to legislation and environmental protections.

The development of monitoring plans which considers terrestrial and aquatic environmental components, and which is applicable to all Project phases, including additional baseline collection (as or if required based on outcomes of the data validity review process) will be developed prior to the start of construction and will include input and engagement from provincial and federal regulators as well as Indigenous Nations.

Compliance with new legislation will be ensured by taking appropriate steps to adhere to updated regulations. MTI will conduct compliance monitoring (including site inspections) and verification monitoring, where appropriate, to confirm that environmental conditions align with baseline data and that pre-construction mitigation commitments are being implemented as planned.

While the EIS originally identified that clearing and construction would likely begin in 2030, clearing of the All-Season Road (ASR) alignment is now intended to start in the winter following regulatory approvals to accommodate rerouting of winter road traffic in accordance with the request of God's Lake FN and Manto Sipi CN. Once the alignment is cleared to an initial width of 20m, winter road traffic would be re-routed to the new alignment, allowing the former winter road corridor to begin re-naturalizing. Better aligning the existing winter road with the P6 ASR will improve road safety and address requests from local communities. When construction of the all-season road begins, the remaining width of the alignment will be cleared and the all-season road will be constructed. Further details on this updated timeline and rationale are provided in the response to IR1-04.

b) As part of the data validity review process, and as detailed engineering for the proposed Project advances, additional field surveys of the biophysical environment, including Species At Risk, may be needed. These field surveys may be warranted and performed on the basis of advanced engineering design (e.g. slight refinements or alterations related to the route alignment, or temporary works) as well as existing environmental conditions such as major changes to landcover from fire events, or changes to provincial and federal protections for plants and wildlife including updates to Schedule 1 of the Species At Risk Act. Updates to federal and provincial protections would be accounted for as part of the data validity reassessment described in Response A.

Should the result of this process identify a change to key predictions made in the EIS, updated mitigation, monitoring and follow-up, or both, will be included in the proposed Project's EMPs as or if required. These plans will be applicable to all Project phases. Further information regarding potential Project monitoring activities are provided in the response to IR1-73. provided in the response to IR1-73.

The EIS considered species listed in the following categories as species at risk; federal species listed under the federal SARA or designated by the Committee on the Status of Endangered Wildlife

in Canada (COSEWIC) for listing on Schedule 1 of the federal SARA, including species in the risk categories of extirpated, endangered, threatened and special concern (Canadian Environmental Assessment Agency 2017a); provincial species listed as Endangered or Threatened under the Manitoba ESEA; and species listed as very rare (provincial status of S1) or rare (provincial status of S2) throughout their range as listed by the MCDC (Manitoba Conservation Data Centre 2016). MTI will continue to employ this precautionary approach to address the potential for a species to be added to Schedule 1 of SARA at the time of construction. Consequently, if new species are listed under COSEWIC and/or considered for SARA listing, they will still be assessed and given proper consideration. If new effects are identified when the reassessment is conducted, mitigation measures will be implemented, and the reports and documentation will be updated accordingly

An example of the success of this approach can be seen in the assessment of potential Project effects to lake sturgeon (*Acipenser fluvescens*). When field studies were conducted by North South Consultants in 2017, the Lake Sturgeon Southern Hudson Bay population was designated as a species of Special Concern by COSEWIC (2006). Although not legally protected at that time, they were assessed as a species at risk in anticipation of potential future listing under SARA, which in fact occurred in 2019 when lake sturgeon was added to Schedule 1 (SARA, 2019). As a result of this approach, lake sturgeon was included as a VC, and the effects assessment concluded that no adverse impacts are anticipated.

c) As mentioned above, MTI will conduct a review of data validity 1-2 years before all-season road construction begins.

Should updated data be available to MTI and/or generated through this process, such as Land Cover Classification (LCC) or fire history data, it will be used to verify the validity of data included in the EIS. However, as described in the response to IR1-04, it is anticipated that clearing of the all-season road alignment to an initial width of 20m so as to accommodate winter road traffic will begin in the winter following receipt of necessary Project approvals. This will reduce risk associated with data validity as clearing of the alignment will begin sooner than was originally anticipated in the EIS. Nonetheless, should data presented in the EIS no longer be valid when all-season road construction begins, MTI will provide necessary updates to provincial and federal regulators as well as to Indigenous Nations. New data for the area of the Project, including a table describing the area of each vegetation type and a figure illustrating the land cover within the Project footprint, Local Assessment Area (LAA), and Regional Assessment Area (RAA) may also be provided if updates or changes occur. In a case where new land cover data is provided, MTI will include a description of new data for vegetation and habitat and a data validity review of potential Project effects, the residual effects assessment, and the cumulative effects assessment for applicable valued components (VCs) as described in Response A..

APPENDIX IR1-19-1

Environmental Protection Procedures and Environmental Protection Specifications as included as Appendices 8-2 and 8-3 of the Environmental Impact Statement

Manitoba Infrastructure

Remote Road Operations

March 2018 Revision

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ENVIRONMENTAL PROTECTION PROCEDURES

1

CLEARING AND GRUBBING

March 2018 Revision

1.0 Description

.1 The clearing and grubbing of vegetation shall be undertaken as instructed by the Manitoba Infrastructure – Remote Road Operations to accommodate for various activities, including geotechnical investigation, construction camp preparation and quarry site development. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that clearing and grubbing operations are conducted in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Applicable Provincial Licences and Permits
- The Manitoba Conservation Brush Disposal Guidebook – March 2005
- The Manitoba Stream Crossing Guidelines for the Protection of Fish Habitat – May 1996
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Fisheries Act (R.S., 1985, c. F-14)
- The Manitoba Sustainable Development Forest Practices Guidebook: Forest Management Guidelines for Terrestrial Buffers – 2010-2022

4.0 *Procedures*

.1 Clearing and grubbing shall be limited to the site and associated access routes.

.2 Clearing and grubbing shall only be undertaken between September, 1 of any year and April, 1 of the following year.

.3 Within the limits as directed and staked out by the Contract Administrator, all brush and trees, except those designated by the Contract Administrator to be saved, is to be cut level with the ground, and all surface debris, excluding merchantable timber but including fallen timber, slash limbs, brush, grass and weeds, is to be disposed as directed or permitted by the Contract Administrator. Disposal may involve:

- Burning
- Spreading and compacting
- Limbing/chipping

.4 All clearing and grubbing operations shall be clearly marked and completed to the approval of the Contract Administrator. The Contract Administrator will take into account required buffers, and sensitive areas.

.5 Where possible, grubbing shall not occur within 2 m (2.5 yards) of standing timber in order to prevent damage to root systems of adjacent standing trees and reduce the occurrence of blow down.

.6 Clearing activities shall be limited to removing vegetation to ground level without disturbing root mass. Height of stumps shall not exceed 15 centimetres.

.7 Trees shall be felled towards the centre of the area to be cleared. Any brush falling outside the area to be cleared shall be moved back to the work area and disposed as directed by the Contract Administrator. The Contractor shall take all precautions against the damage to other trees, traffic structures, pole lines or property in the felling of trees. The Contractor is liable for any damages occurring in the performance of this work.

.8 Timber from which forest products can be manufactured (merchantable) shall be cleared of limbs and stockpiled on the worksite in consolidated piles more than 1 metre from standing timber or as directed or permitted by the Contract Administrator. Merchatable timber shall be made available for community use free of charge upon request from community member or organizations. Removal and or disposal of any unused merchantable timber remains the responsibility of the contractor.

.9 There shall be no bulldozing of woody debris into standing timber.

.10 Existing trails, trap lines, portages and other travelways shall not be altered so as to interfere with other users.

.11 No clearing shall be permitted from April 1 to September 1 to avoid disturbance to nesting birds and other wildlife species.

.12 Clearing within 30 metres of a watercourse shall be by hand.

.13 Cleared trees and vegetation shall not obstruct waterways during any season, and shall be stored above the ordinary high water mark (1 in2 year high water mark). Stockpiles of any material are to be stored a minimum of 100 m from any water body or watercourse.

4.1 *Brush Disposal*

.1 Disposal of cleared trees and brush must be done as directed or approved by the Contract Administrator. Disposal may involve burning, compacting, piling, burying, windrowing and compacting, limbing and chipping.

.2 All cleared vegetation, grubbed material, and debris that is to be left in place shall be piled and compacted in windrows. Windrows shall be compacted to lie as close to the ground as possible (maximum height of 0.6 of a metre) and shall be no closer than 1 metre to the bush line. Windrows are required to have a 15 metre break every 100m in length.

.3 Cleared and grubbed material that is to be burned shall be piled for burning. Burn piles shall be located a minimum of 15 metres from other wood and brush piles and standing timber.

.4 Merchantable timber that is identified by the Contract Administrator shall be stockpiled within existing clearings and at least 1 metre from standing timber. Stockpile sites shall not be located within 100 metres of a waterbody. Unless otherwise specified, all stockpiled material shall be removed from Crown land by April 30 following the date of issuance.

.5 The burning of debris piles shall not permitted in the spring or early summer to avoid disturbing small wildlife species which may have young in the piles or may have prepared nesting sites. The best and preferred option for wildlife is burning in the fall or winter.

.6 No burning of debris piles shall occur on deep organic soils. Piles shall be a minimum of 15 metres away from standing timber and the high water mark of any waterbody.

.7 Slash shall be piled in a manner that allows for clean, efficient burning of all material. Avoid mixing soil into the slash.

.8 The Contractor shall obtain a burning permit for open fires between April 1 and November 15. Burning between November 16 and March 31 does not require a burning permit; however, the supervising

officer shall be advised prior to any burning. All fires shall be completely extinguished by March 31.

.9 Ensure safety precautions are taken to keep the fire under control. Burn piles shall be monitored, to ensure that subsequent fire hazards are not present. Upon completion of the burn, burn piles shall be completely extinguished.

.10 All occurrences of fire spreading beyond the debris piles shall be reported to the Contract Administrator and the Natural Resources District Supervisor

ENVIRONMENTAL PROTECTION PROCEDURES

2

PETROLEUM STORAGE

March 2018 Revision

1.0 Description

.1 The storage and handling of petroleum and allied products shall be undertaken in accordance with contract specifications, environmental legislation, permits and authorizations as approved by the Manitoba Infrastructure – Remote Road Operations.

.2 Fuel spills, leaks and releases present a hazard to human health and safety, and can be a threat to wildlife habitats, vegetation, soil, surface water and wetlands, groundwater and aquifers, and structures such as wells, drains and ditches. Besides the potential impacts on health and the environment, there may be significant costs associated with wasted fuel, treatment of oily wastewater, and remediation of fuel- impacted sites. The Contractor is responsible for complying with all contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that all petroleum storage is carried out in accordance with applicable legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Manitoba Environment Act - C.C.S.M. c. E125
- The Workplace Safety and Health Act - C.C.S.M. c. W210
- Applicable Provincial Licences and Permits
- The Dangerous Goods Handling and Transportation Act, C.C.S.M. c. D12
- Storage and Handling of Petroleum Products and Allied Products Regulation – 188/2001
- Technical Bulletin PSF-004, March 2015: Impact Protection Requirements for Above Ground Storage Tanks Systems
- National Fire Code of Canada. Canadian Commission on Building and Fire Codes, National Research Council of Canada, 2005
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact

Statement – April 2018

- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

4.1 Petroleum Storage and Handling

.1 All petroleum handling and storage shall comply with Manitoba *Regulation 188/2001* respecting *"Storage and Handling of Petroleum Products and Allied Products"*.

.2 Petroleum products shall be transported in accordance with the Manitoba Provincial "*Dangerous Goods Handling and Transportation Act"*.

.3 All reasonable precautions shall be taken to ensure that refuelling only takes place within a Designated Area used for fuel storage or handling.

.4 In the event that a piece of equipment must be refuelled outside a Designated Area, the fuel shall be transported in Approved containers.

.5 Absorbent pads, or other precautions, such as a high density polyethylene (HDPE) groundsheet, shall be used to contain the fuel and prevent fuel from being spilled onto the ground surface.

.6 Equipment shall not be refueled from a watercraft.

.7 All reasonable precautions shall be taken to ensure that cleaning, washing, and servicing of equipment only takes place within a Designated Area.

.8 All mobile equipment that is not in use shall be parked within a Designated Area.

.9 All Designated Areas used for petroleum product storage shall be a minimum distance of 100 metres from any water body and shall have the top soil stripped and be underlain with at least 30 cm of impermeable soil or approved alternate and dyked in such a manner as to contain any leakage or spillage. The dykes shall be designed, constructed and maintained to retain not less than 100% of the capacity of the total number containers or 110% of the largest container, whichever is greatest. The top soil shall be stored and used in the restoration of the site.

.10 Tank vehicles used to deliver fuel to the worksite and/or used to move fuel

around the worksite shall meet the requirements for highway tanks for the shipment of dangerous goods by road set out in CSA Preliminary Standard B620-98, *Highway Tanks and Portable Tanks for the "Transportation of Dangerous Goods"*.

.11 All Designated Areas used for petroleum storage shall be a minimum distance of 3 metres from a property line or building and 15 metres horizontally from hydroelectric poles and lines.

.12 Construction, installation and removal of petroleum storage tank systems shall occur under the supervision of a registered licenced petroleum technician.

.13 Petroleum storage tanks shall be grounded and the dispensing tank shall be attached with a bonding cable to an appropriate location on the receiving tank prior to commencing fueling.

.14 Petroleum products shall be labeled as to their contents and stored and handled within designated areas.

.15 Dedicated petroleum storage areas shall provide spill containment and facilitate clean up through measures such as:

- Maximum separation from environmentally sensitive features;
- Clear identification of the materials present;
- Access restricted to authorized vehicles and employees;
- Impervious bermed storage areas; and
- Dedicated spill response equipment.

.16 Storage sites for petroleum products shall be secured and signs including hazard warnings, who to contact in case of a spill, access restrictions and under whose authority the access is restricted shall be posted.

.17 All employees involved in the handling and storage of fuels shall have WHMIS and spill response training.

.18 All combustible engines shall be shutdown during fueling.

.19 There shall be no smoking and no open flames at the petroleum storage area at any time.

.20 Only above ground storage tanks shall be used for the storage of bulk petroleum products. The tanks shall be equipped with overfill protection and spill containment consisting of perimeter dykes or secondary containment in the tank design. If dykes are used, the containment areas shall be dewatered after a rainfall event and the containment water disposed of as approved by the Contract Administrator. Product inventory shall be taken weekly by the owner/operator of all aboveground storage tanks with a capacity of 5000 litres or greater and retained for

inspection upon request.

.21 All petroleum storage tanks with a capacity of 5000 litres or greater shall be registered with Manitoba Sustainable Development. New tanks shall be registered before installation. Tanks shall be designed, installed, and operated in accordance with the Manitoba Provincial *"Dangerous Goods Handling and Transportation Act"* and the Federal *"Transportation of Dangerous Goods Act"*. Smaller stationary tanks shall adhere to requirements of the Manitoba Fire Code. A copy of the petroleum license shall be posted at the fuelling site.

.22 Fueling from unregistered tanks shall not be permitted.

.23 Concrete barriers shall be installed around all petroleum storage tanks to prevent collisions (as per Technical Bulletin PSF-004, March 2015: Impact Protection Requirements for Above Ground Storage Tanks Systems).

.24 Bulk waste oil shall be stored in aboveground oil tanks, which shall have secondary containment and a weatherproof cover. Waste oil shall be recycled by a reputable recycling agency. Waste oil shall never be used as a dust suppressant.

.25 All petroleum storage containers and tank vehicles shall be inspected daily for leaks and spillage. Damaged or leaking fuel storage containers shall be promptly removed from site.

.26 All petroleum handling and storage areas shall be kept clear of snow and materials so as to allow clear access and routine inspection and leak detection.

.27 In the event that there is a spill onto the ground surface from any piece of equipment, such as a broken hydraulic hose, the entire affected area shall be cleaned up and all contaminated soil shall be appropriately disposed of at a licenced soil recycling facility. If contaminated soil is to be stored on site for any time a designated storage area is to be identified and prepared to prevent secondary contamination. Contaminated soil is segregated.

.28 As petroleum storage and equipment servicing areas are taken out of service any remediation shall be conducted, including the appropriate disposal of the contaminated material to the satisfaction of the Contract Administrator.

.29 The Contractor shall designate on-site Emergency Spill Response Coordinators.

.30 The Contractor shall prevent fuel, lubricants or compounds from being released. All empty containers from equipment refueling and servicing

shall be removed to a licenced disposal site. The Contractor shall be thoroughly familiar with provincial/federal spill response compliance procedures.

.31 Materials required for spill containment and clean up shall be available at all sites where construction related activities occur. All vehicles hauling fuel shall carry materials and equipment for emergency spill containment.

.32 At locations where stationary filled oil equipment is used, oil containment measures such as secondary containment shall be incorporated (i.e., berms).

.33 Contaminated soils resulting from releases shall be remediated or disposed of in a manner approved by the Contract Administrator.

.34 Fuel barrels shall be securely fastened to the vehicle during transport and if possible during refueling operations.

.35 All petroleum product storage sites and mobile transportation units shall, at all times, be equipped with appropriate categories of equipment and volumes of fire suppression products.

.36 Fueling procedures shall be posted where fueling occurs.

4.2 Fueling Procedures

.1 Fueling equipment from a fixed fuel tank of sliptank

- Ensure the slip tank is clear of snow and debris
- Ensure the pump is turned off
- Connect the pump to the battery
- Use a piece of rag or absorbent pad to cover the tip of the nozzle
- Place the nozzle in equipment tank– be careful of splash back
- Turn on the pump
- Fill the tank – ensure you do not overfill the tank
- Turn off the pump
- After fuelling – catch all drips on an absorbent pad, use a rag or absorbent pad to wipe off the nozzle.
- Once the nozzle has stopped dripping, use the rag to cover the end of nozzle and return the nozzle to the slip tank
- Disconnect the pump from the battery
- Accidental spills must be cleaned up immediately using the Spill Response Procedures
- Used absorbent pads must be discarded in a designated Spill

.2 Fuelling equipment using a jerry can

- Ensure the slip tank is clear of snow and debris
- Place jerry can on an absorbent pad in a spill tray
- Ensure the pump is turned off
- Connect the pump to the battery
- Use a piece of rag of absorbent pad to cover the tip of the nozzle
- Place the nozzle in the jerry can – be careful of splash back
- Turn on the pump
- Fill the can to the fill line
- Turn off the pump
- After fuelling – catch all drips on the absorbent pad, and use a rag or absorbent pad to wipe off the nozzle.
- Once the nozzle has stopped dripping, use the rag to cover the end of nozzle and return the nozzle to the slip tank
- Disconnect the pump from the battery
- Fuel the chainsaw/ATV/snowmobile using the jerry can – be careful of splash back
- All fuel transfers must occur with an absorbent pad and/or oil catcher placed underneath to catch spills
- Wipe down the jerry can with a rag before removing from the absorbent pad
- Accidental spills must be cleaned up immediately using the Spill Response Procedures
- Used absorbent pads must be discarded in a designated Spill Disposal Container

4.3 Emergency Response Plan For Spills

.1 It is the responsibility of the Contractor to conduct appropriate soil testing on Designated Area(s) and contract work sites prior to the mobilization of equipment to the site to establish baseline conditions. The Contractor will be held responsible for any contamination unless evidence to the contrary can be provided by the contractor.

.2 The contractor will maintain an emergency response plan in accordance with EP3, the Environmental Protection Specifications and applicable legislations

ENVIRONMENTAL PROTECTION PROCEDURES

3

SPILL RESPONSE

March 2018 Revision

1.0 Description

.1 The Contractor shall develop and submit to the Manitoba Infrastructure – Remote Road Operations a spill response plan in accordance with all applicable contract specifications, environmental legislation, permits and authorizations.

.2 Fuel spills, leaks and releases present a hazard to human health and safety, and can be a threat to wildlife habitats, vegetation, soil, surface water and wetlands, groundwater and aquifers, and structures such as wells, drains and ditches. Besides the potential impacts on health and the environment, there may be significant costs associated with wasted fuel, treatment of oily wastewater, and remediation of fuel- impacted sites. The Contractor is responsible for complying with all contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that all necessary precautions are taken to prevent spills, leaks or releases, in accordance with applicable legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Manitoba Environment Act - C.C.S.M. c. E125
- The Workplace Safety and Health Act - C.C.S.M. c. W210
- Applicable Provincial Licences and Permits Permits
- The Dangerous Goods Handling and Transportation Act, C.C.S.M. c. D12 - 2010
- Storage and Handling of Petroleum Products and Allied Products Regulation – 188/2001
- National Fire Code of Canada. Canadian Commission on Building and Fire Codes, National Research Council of Canada, 2005
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 –

4.0 *Procedures*

4.1 General

.1 All petroleum handling and storage shall comply with Manitoba Regulation 188/2001 respecting *"Storage and Handling of Petroleum Products and Allied Products"*.

.2 Petroleum products shall be transported in accordance with the Manitoba Provincial *"Dangerous Goods Handling and Transportation Act"* and the federal "*Transportation of Dangerous Goods Act"*.

.3 Tank vehicles used to deliver fuel to the worksite and/or used to move fuel around the worksite must meet the requirements for highway tanks for the shipment of dangerous goods by road set out in CSA Preliminary Standard B620-98, *Highway Tanks and Portable Tanks for the "Transportation of Dangerous Goods"*.

.4 Dedicated petroleum storage areas shall provide spill containment and facilitate clean up through measures such as:

- Maximum separation from environmentally sensitive features,
- Clear identification of the materials present,
- Access restricted to authorized vehicles and employees,
- Impervious bermed storage areas, and
- Dedicated spill response equipment.

.5 All employees involved in the handling and storage of fuels and hazardous materials shall have WHMIS training.

.6 The Contractor shall designate on-site Emergency Spill Response Coordinators.

.7 It is the responsibility of the Contractor to conduct appropriate soil testing on Designated Area(s) and contract work sites prior to the mobilization of equipment to the site to establish baseline conditions. The Contractor will be held responsible for any contamination unless evidence to the contrary can be provided by the contractor.

4.2 Emergency Response Plan For Spills

.1 The Contractor shall ensure that due care and caution is taken to prevent spills, at all times.

.2 An updated list of key contacts and telephone numbers for reporting spills, problems, etc., shall be kept on-site at all times.

.3 A Workplace Hazardous Materials Information System (WHMIS) file shall be maintained on-site for all hazardous materials at the work area. Prior to commencement of the Work, Material Safety Data Sheets (MSDS) shall be submitted to Manitoba Infrastructure – Remote Road Operations for all hazardous materials to be used on- site. No material shall be brought to the site without prior submission of a MSDS.

.4 All major spills of petroleum products or other hazardous substances with significant impact on the environment and threat to human health and safety (as defined in Table 1) shall be reported to Manitoba Sustainable Development, immediately after occurrence of the environmental accident, by calling the 24-hour emergency number (204) 945-4888 (Toll Free: 1-855-944-4888). The contractor will follow any instructions given by Manitoba sustainable development regarding spill response.

.5 All spills shall be reported to Manitoba Infrastructure – Remote Road Operations within 24 hours whether it was necessary to report the spill to Manitoba Sustainable Development or not. The spill report shall include the following:

- Personnel responding to the spill,
- Material spilled,
- Cause of spill,
- Estimated amount of material spilled,
- Estimated area and volume of soil affected by the spill,
- Cleanup action undertaken, and
- Means used to contain, transport and dispose of the materials involved.

.6 The Contractor shall designate a qualified supervisor(s) as the on-site emergency response coordinator(s). The emergency response coordinator(s) shall have the authority to redirect manpower and equipment in order to respond in the event of a spill.

.7 An updated on-site spill response and containment plan for each dangerous good/hazardous waste shall be maintained in the work area at all times.

.8 The designated emergency response coordinator shall periodically review and if necessary revise the on-site response plan.

.9 Appropriate materials for containment and cleanup of any spill of dangerous goods or hazardous wastes shall be available on-site when such materials are present in the work area. Also designated personnel and first responders shall be familiar with the storage

location and proper application of such containment and cleanup materials.

.10 All spills of quantities less than those set out in Table 1 and without a potential impact to the environment shall be contained and cleaned up immediately by on-site personnel in accordance with the on-site emergency response and containment plan.

.11 All personnel responsible for the handling of dangerous goods and hazardous wastes shall be familiar with the on-site response and containment plan.

.12 The following actions shall be taken by the person in charge of the spilled material or by first person(s) arriving at the scene of a hazardous material accident or by the on-site emergency-response coordinator:

.1 Notification and Spill Assessment

.1 Notify the emergency-response coordinator,

.2 Identify exact location and time of accident,

.3 Request assistance as required by magnitude of accident from Manitoba Sustainable Development (24-hour Spill Response Line (204) 945-4888), Police, Fire Department, or Ambulance and Company backup, and

.4 Notify the Manager of Environmental Services for Manitoba Infrastructure.

.2 Attend to Public Safety

.1 Secure the area from public access,

.2 Eliminate ignition sources, and

.3 Initiate evacuation of immediate area, if necessary.

.3 Gather and Assess Information on Status of Situation, noting:

.1 Personnel on-site,

.2 Cause and effect of spill,

.3 Estimated extent of damage,

.4 Amount and type of material involved, and

.5 Proximity to waterways.

.4 If safe to do so, and in Accordance with the On-Site Response and Containment Plan Try to Stop the Dispersion or Flow of Spill Material by:

.1 Approach from upwind,

.2 Stop or reduce leak if safe to do so,

.3 Dyke spilled material with dry, inert sorbet material or dry clay, and

.4 Prevent spill material from entering waterways, utilities or other openings by dyking proximity to waterways.

Table 1

Spills that must be reported to Manitoba Sustainable Development as Environmental Accidents

Column I **Classification**	Column II **Hazard**	Column III **Reportable Quantity Or Level**
1	Explosives	All
2.1	Compressed Gas (Flammable)	100 L*
2.2	Compressed Gas	100 L*
2.3	Compressed Gas (Toxic)	All
2.4	Compressed Gas (corrosive)	All
3	Flammable liquids	100 L
4	Flammable Solids	1 Kg
5.1 PG** I & II	Oxidizer	1 Kb or 1 L
PG III	Oxidizer	50 Kg or 50 L
5.2	Organic Peroxide	1 Kg or 1 L
6.1 PG I	Acute Toxic	1 Kg or 1L
PG II & III	Acute Toxic	5 Kg or 5 L
6.2	Infectious	All
7	Radioactive	Any discharge or radiation level exceeding 10 m Sv/h at the package surface and 200 uSv/h at 1m from the package
8	Corrosive	5 Kg or 5 L
9.1	Miscellaneous (Except PCB mixtures)	50 Kg 0
9.1	PCB mixtures	500 grams
9.2	Aquatic Toxic	1 Kg or 1 L
9.3	Wastes (Chronic Toxic)	5 Kg or 5 L

Procedure name:
Noise Control

Reference number
FR1

1.0 Description

NOISE CONTROL

1.0 Description

.1 All construction activities shall be undertaken by means that do not result in violation of the noise by-laws of adjacent municipal authorities. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that the Contractor complies with noise by-laws of the adjacent municipal authorities.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 All plant and equipment supplied by the Contractor for use on the Project shall be effectively "sound-reduced" by means of proper silencers, mufflers, acoustic linings, acoustic shields or acoustic sheds.

.2 The Contractor shall comply with the noise By-laws of the adjacent First Nations, communities and municipal authorities and any noise related clauses incorporated in the project's Environment Act License.

.3 Any operation of plant or equipment outside the hours as regulated by the adjacent First Nations, communities or municipal authorities shall require an exemption in writing. The Contractor shall provide a copy of such an exemption to the Contract Administrator.

Procedure name: Reference number

MATERIALS HANDLING AND STORAGE

Prepared by: G. Chamberlain	Revision Number 5..5	Date Issued: March 2015
Approved by: J. Smith		Date of Revision: 2018-03-09
Updated Sec 3.0		

1.0 *Description*

.1 This procedure specifies materials handling and storage requirements during all phases of construction.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that construction sites are kept clean and orderly at all times in accordance with applicable contract specifications, legislation, permits and authorizations.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Dangerous Goods Handling and Transportation Act, CCSM c D12
- Workplace Safety and Health Act, CCSM c W210
- The Environment Act, CCSM c E125
- Waste Management Facilities Regulation, CCSM c E125
- Onsite Wastewater Management Systems Regulation No. 83/2003
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

4.1 General

.1 All construction areas shall be kept clean and orderly at all times during and at completion of construction.

.2 Waste material shall be recycled to a degree that is economically and

practically feasible.

.3 There shall be no indiscriminate dumping of waste and litter on or off the construction site.

.4 Different waste streams shall not be mixed.

.5 All waste materials shall be collected and contained in a designated waste storage area and in containers appropriate to the waste classification until removed from the site for recycling or disposal at an approved facility.

.6 Waste storage sites shall be designated for each worksite and camp as approved by the Contract Administrator.

.7 Waste material (i.e. food and food containers) that is likely to attract nuisance wildlife shall be stored in wildlife proof storage bins and hauled off site at regular intervals for disposal at an approved disposal facility.

.8 Contaminated runoff or water shall be contained and prevented from entering any watercourse. The collected contaminated runoff or water shall be hauled off site for disposal at an approved disposal facility.

4.2 Domestic Solid Wastes, Demolition and Construction Waste

.1 At no time during construction shall domestic solid, demolition, or construction waste be permitted to accumulate at any location on the work site, other than at a dedicated waste storage site, unless approved by the Contract Administrator.

.2 All domestic solid waste containers shall be clearly marked to identify the nature and type of material to be deposited (e.g. containers for recyclable material and containers for disposal).

.3 No on-site burning of waste or any other material is allowed unless approved by the Contract Administrator. The Contractor shall be responsible for obtaining a burning permit from Manitoba Sustainable Development for burning between April 1 and November 15.

.4 All domestic solid waste storage shall be confined to Designated Areas.

.5 Waste concrete from concrete pumps and concrete trucks, cleanout materials from concrete trucks, concrete pumps and other equipment shall be deposited only in the concrete washout Designated Area. All of this material shall be hauled off site, for disposal at an approved landfill or to a recycling facility, not later than at the closure of the Designated Area.

4.3 Domestic Sewage

.1 All sewage shall be collected through the provision of an outside toilet facility in compliance with the *Onsite Wastewater Management Systems Regulation No. 83/2003*.

.2 All collected sewage shall be removed from the site at least once every seven (7) days by a registered sewage hauler, as defined in section 21(1) of the *Onsite Wastewater Management Systems Regulation No. 83/2003* and disposed of at a wastewater treatment facility licenced under The Environment Act or otherwise federally regulated.

4.4 Dangerous Goods/Hazardous Waste Handling and Disposal

.1 Dangerous goods/hazardous wastes shall be identified and shall be handled in accordance with The Dangerous Goods Handling and Transportation Act and Regulations and Health Canada's Workplace Hazardous Materials Information System (WHMIS).

.2 The Contractor shall have staff, trained and certified in the handling of dangerous goods, present on-site whenever said dangerous goods are being utilized for the performance of the work.

.3 All dangerous goods/hazardous waste shall be confined to Designated Areas and stored in a secure manner to prevent access by non-designated employees.

.4 Designated dangerous goods/hazardous waste storage areas shall have the top soil stripped and be lined with at least 30 cm of impermeable material or approved equal and dyked in such a manner as to contain any leakage or spillage. The dykes shall be designed, constructed and maintained to retain not less than 100% of the capacity of the total number of containers or 110% of the largest container, whichever is greatest. The top soil shall be stored and used in the restoration of the site.

.5 Disposal of hazardous waste shall only be at hazardous waste facilities licensed under The Dangerous Goods Handling and Transportation Act.

.6 All waste stored at designated hazardous waste storage areas shall be removed from the site at least once every seven (7) days.

.7 Hydrocarbons shall not be stored or disposed of in earthen pits on- site.

.8 All used oils shall be stored in appropriate drums or tanks until removed to a registered waste oil recycling centre or hazardous waste disposal facility.

.9 Used oil filters shall be drained, placed into suitable storage containers and disposed of at approved facilities. The oil drained out of the used filters shall be collected and handled in the same manner as used oil.

.10 A pesticide use permit shall be obtained prior to the application of pesticides. The Contractor shall ensure that all pesticides are applied by a licenced commercial applicator and adhere to all conditions specified in this permit. These conditions include submitting a properly completed post seasonal form to the Contract Administrator at the completion of the Contract or at the end of each calendar year confirming that any terms and conditions of the permit have been satisfied. The Contractor shall supply the following information to the Contract Administrator:

.1 The name of each pesticide used,

.2 The Pest Control Product number of each pesticide,

.3 Quantity in litres of each pesticide used,

.4 Total area treated in hectares,

.5 A map of the treated areas,

.6 Legal description of the land where practical, and

.7 Color coded map to indicate where each type of pesticide was used.

.11 All pesticides shall be handled and applied by or under the direct supervision of a licensed commercial applicator, as defined in section 4.1 of the *Pesticides Regulation 94/88*, and further all pesticides shall be used in accordance with any terms and conditions of the permit.

.12 As dangerous goods/hazardous waste storage areas are taken out of service any remediation shall be conducted, including the appropriate disposal of the contaminated material to the satisfaction of the Contract Administrator.

ENVIRONMENTAL PROTECTION PROCEDURES

6

WORKING WITHIN OR NEAR FISH BEARING WATERS

March 2018 Revision

1.0 Description

.1 This procedure specifies requirements for working within or near fish bearing waters during all phases of construction.

2.0 *Purpose*

.1 To ensure that any works occurring within a watercourse is conducted according to applicable guidelines and permit requirements.

.2 To ensure the implementation of appropriate mitigation measures and Best Management Practices to protect aquatic habitats.

.3 To ensure that water quality standards are met throughout the course of instream construction activities.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Applicable Provincial Licences and Permits
- Applicable Fisheries and Oceans Canada (DFO) Authorizations
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Freshwater Intake End-of-Pipe Fish Screen Guidelines – Department of Fisheries and Oceans 1995 (www.dfo- mpo.gc.ca/Library/223669.pdf)
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 The Contractor shall schedule and plan the Work so that the amount of in-water work is kept to a minimum. Construction activities shall not occur within 100 metres of a watercourse with the exception of construction of a watercourse crossing.

.2 In-water work shall be restricted to low flow periods where possible. Whenever possible, in-water works shall be scheduled during a period when the watercourse is seasonally dry or frozen to the bottom.

.3 The Contractor shall not undertake construction activities in fish bearing waters or potentially fish bearing waters between April 15 and July 15 of any year, or during periods of high stream flow or identified spawning periods. In watercourses determined to contain fall spawning fish species, the contractor shall not undertake "in water" construction activities before July 15 or after September 15.

.4 Material, cleared vegetation, stockpiles and/or waste shall not be deposited or stored within 100 metres of a watercourse, unless approved by the Contract Administrator. No borrow shall be removed from within 100 metres of water body.

.5 The disturbance to the stream bed and banks shall be minimized. Use existing trails, roads or cut lines to access the site where possible to avoid disturbance to riparian vegetation.

.6 All construction activities shall be suspended during adverse weather conditions (i.e., heavy rains).

.7 As a general rule, keep roads a minimum of 100 metres away from a watercourse except when crossing the watercourse. This often forces the alignment onto drier sites. If a 100 metre distance is not possible, allow a buffer zone of undisturbed vegetation between the road and the waterway, using a buffer zone width of approximately 10 m plus 1.5 times the slope gradient or 30 m, whichever is greater.

.8 Backfill (i.e. rip rap and other rock materials) installed adjacent to a fish bearing water body shall be clean and well graded granular material that is free of fines.

.9 Where possible, in-water work shall be staged to occur as a single event and machinery access shall be limited to a single point on the shoreline.

.10 The distance between the machinery access point and the worksite shall be minimized.

Prepared by: G. Chamberlain	Revision Number 6.5	Date Issued May 2016
Approved by: J. Smith		Date of Revision: 2018-03-09
Updated 3.0, 4.3, 4.22		

.11 The Contractor shall use an in-stream pad built of washed gravel where in-water equipment activity would generate excess sediment.

.12 If work is being conducted under a Fisheries and Oceans Canada (DFO) Authorization, adhere to all conditions outlined within the Authorization.

.13 Equipment shall arrive on site in a clean, washed condition, and free of fluid leaks.

.14 Equipment shall be kept in good repair to prevent leakage of fuel oil etc. Avoid fuelling, changing oil, repairing or washing any equipment within 100 metres of the normal high water mark. Ensure runoff and water used for equipment cleaning does not enter any water body.

.15 Spill containment and cleanup supplies shall be stored and accessible on site at all times.

.16 Vehicles and other equipment shall be kept away from and out of the water unless instructed otherwise by the Contract Administrator.

.17 If there is no existing crossing and the watercourse must be crossed, a temporary crossing shall be constructed to keep all vehicles and equipment out of the watercourse.

.18 Concrete works shall be conducted in a manner that does not allow direct or indirect entry of concrete, concrete fines or concrete wastewater into the watercourse.

.19 Natural debris removal shall be limited to that which is necessary to protect bridge piers or abutments or to that which is blocking culverts.

.20 Debris and other objects shall be lifted out of the water whenever possible. Items shall not be dragged across the stream bed/lake bottom and banks/shoreline.

.21 All banks/shoreline areas that are disturbed shall be restored to their original conditions as soon as practicable, including re-vegetation if necessary. Erosion and sediment control measures shall be implemented, inspected and maintained until vegetation is established.

.22 Work plans for beaver dam removal shall be provided to the Contract Administrator 5 business days prior to the start of dam removal.

ENVIRONMENTAL PROTECTION PROCEDURES

7

STREAM CROSSINGS

March 2018 Revision

Prepared by: G. Chamberlain	Revision Number 6.5	Date Issued May 2016
Approved by: J. Smith		Date of Revision: 2018-03-09
Updated 3.0, 4.3, 4.22		

Procedure name:
Stream Crossings

Reference number:
EP7

1.0 *Description*

.1 The installation of stream crossings will be required to facilitate various activities. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that stream crossings are installed in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Applicable Provincial Licences and Permits
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat –May 1996 (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Freshwater Intake End-of-Pipe Fish Screen Guidelines – Department of Fisheries and Oceans 1995 (www.dfo- mpo.gc.ca/Library/223669.pdf)
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 All stream crossings shall be constructed in accordance with *The Manitoba Stream Crossing Guidelines for the Protection of Fish Habitat – May 1996*.

.2 A minimum vegetated buffer strip of 30 metres shall be maintained between the worksite and watercourse except at the actual crossing location.

.3 Where possible, existing stream crossings shall be utilized to traverse watercourses.

.4 Temporary stream crossings shall be located at straight stream sections, perpendicular to the bank. In particular, meandering bends, braided streams, alluvial fans and other unstable areas shall be avoided.

.5 Temporary stream crossings shall be designed for their intended construction loading and to accommodate anticipated water flows.

.6 The number of temporary stream crossings constructed shall be minimized.

.7 When feasible, the construction of stream crossings shall be scheduled for the period of lowest stream flow and should be a single event.

.8 Streams shall be crossed at right angles to minimize shoreline disturbance to the extent possible.

.9 The natural alignment of the stream shall be maintained.

.10 Where possible, there shall be no dredging, infilling, grading or excavating of the channel bed or banks.

.11 Temporary stream crossings shall be removed as soon as possible following completion of the work or when it is no longer required.

.12 Following the removal of a temporary stream crossing, the site shall be restored to its original state. The restoration shall include appropriate erosion and sediment control measures and re- vegetation of disturbed areas as required.

ENVIRONMENTAL PROTECTION PROCEDURES

8

TEMPORARY STREAM DIVERSIONS

March 2018 Revision

1.0 Description

.1 Worksite isolation shall be undertaken as instructed by the Manitoba Infrastructure – Remote Road Operations to accommodate any in water works that must be conducted "in the dry" within fish bearing waters to minimize erosion and sedimentation and maintain downstream flows. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

.2 Suspended sediment presents a hazard to fish and fish habitat as it can clog and abrade gills, smother eggs, change habitat structure and cover food supply. Maintaining downstream flows is critical to the survival of many aquatic species.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that temporary stream diversions are installed in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Environment Act - C.C.S.M. c. E125
- The Workplace Safety and Health Act - C.C.S.M. c. W210
- Applicable Provincial Licences and Permits
- Department of Fisheries and Oceans' *"Freshwater Intake End-of-Pipe Fish Screen Guideline" (1995)*.
- The Manitoba Stream Crossing Guidelines for the Protection of Fish Habitat – May 1996
- Fisheries Act – RSC, 1985, c. F-14
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

4.1 General

.1 Temporary stream diversions shall be constructed under low flow conditions and shall be designed to accommodate flows that may occur during storm events.

.2 Instream diversion structures (i.e., sheet piling, sandbags, etc.) shall be constructed using erosion resistant materials.

.3 Temporary stream diversions shall be designed to provide fish passage, even during low flow conditions. If elevated pipes are used, remove diversion during fish migration periods.

.4 Stream diversion channels shall be constructed in the dry, excavating from downstream to upstream. Diversion channels shall have gentle curves and similar gradient to the natural watercourse.

.5 To help prevent potential erosion, the diversion channel shall be lined with erosion resistant materials (i.e., plastic, rock) where practicable.

.6 While the worksite is isolated, flow shall be maintained downstream at all times.

.7 A fish salvage operation shall be conducted by a qualified biologist with a "live fish handling permit" prior to dewatering of the isolated work area.

.8 The site shall be restored as soon as possible following completion of the Work. The restoration work shall include re-vegetation of disturbed areas (i.e. channel banks), infilling any temporary channels, removing all construction materials and debris and installation and maintenance of required erosion and sediment control measures.

4.2 Temporary Diversion Channels

.1 Temporary diversion channels shall be designed to accommodate expected watercourse flow from storm events.

.2 Temporary diversion channels shall be constructed "in the dry" by not excavating upstream and downstream ends of the diversion channel.

.3 Existing watercourses shall not be disturbed until temporary diversion channels have been constructed.

.4 Diversion channels shall be opened from the downstream end first. Stabilize the connection of the diversion channel to the main watercourse. Pump flows around work site, if possible during construction of the channel connection.

Prepared by: G. Chamberlain	Revision Number 8.4	Date Issued: March 2015
Approved by: J. Smith		Date of Revision: 2018-03-12
Updated Sec 3.0 and 4.2.2		

.5 The upstream connection to the main watercourse shall be constructed and stabilized while pumping flows, if possible, around the work area.

.6 Gradient controls shall be used to ensure that diversion channel slopes correspond to the existing channel gradients.

.7 Erosion control measures shall be installed to protect any unstable channel beds and banks.

.8 The diversion channel shall be inspected following a severe rainstorm or at the end of the spring freshet to identify areas of incipient erosion. Eroded areas shall be repaired promptly.

4.3 Pumped Diversions

.1 Pumped diversions shall be used wherever a channel must be completely blocked to allow work 'in the dry'.

.2 Intakes shall be sized and screened to prevent debris blockage and fish mortality in accordance with DFO's *Freshwater Intake End-of- Pipe Fish Screen Guideline*.

.3 The Pumping system shall be sized to accommodate expected watercourse flow from storm events (generally 1 in 5 year event, although the 1 in 2 year event may be used for non-critical situations).

.4 Pumps shall be discharged onto geofabric, gravel, straw bales or an alternate approved by the Contract Administrator to dissipate the energy of discharge and mitigate scouring of channel banks and/or streambed.

ENVIRONMENTAL PROTECTION PROCEDURES

9

FISH PASSAGE

March 2018 Revision

Prepared by: G. Chamberlain	Revision Number 8.4	Date Issued: March 2015
Approved by: J. Smith		Date of Revision: 2018-03-12
Updated Sec 3.0 and 4.2.2		

Procedure name:
Fish Passage

Reference number:
EP9

1.0 *Description*

.1 Providing fish passage shall be undertaken as instructed by the Manitoba Infrastructure – Remote Road Operations (MI-RRO) to accommodate for in-water construction activities. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that fish passage is maintained in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Environment Act - C.C.S.M. c. E125
- Applicable Provincial Licences and Permits
- Fisheries Act – RSC, 1985, c. F-14
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 Flow shall not be constricted by more than two thirds (66.6%) of the original stream width.

.2 Flow shall be maintained at all times to permit the safe and unimpeded passage of fish.

.3 A temporary diversion channel to direct flows around the work site shall be constructed if flows are to be constricted by more than two thirds of the original stream width in fish bearing waters.

.4 In non fish bearing waters a pumped diversion may be used instead to maintain flows downstream.

.5 Cleared trees, vegetation or construction materials shall not obstruct waterways during any season, and shall be stored above the ordinary high water mark (1 in 2 year high water mark).

ENVIRONMENTAL PROTECTION PROCEDURES

10

FISH SALVAGE

March 2018 Revision

1.0 Description

.1 Fish salvage operations shall be undertaken as instructed by the Manitoba Infrastructure – Remote Road Operations to accommodate for in-water construction activities. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 To ensure that fish salvages are conducted in accordance with applicable environmental permits, guidelines and legislation.

.2 To ensure that best management practices and guidelines are implemented for the protection of aquatic species.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Applicable Provincial Licences and Permits
- Applicable Fisheries and Oceans Canada Authorizations
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 A fish salvage operation shall be conducted where site isolation and/or dewatering is required.

.2 Fish salvages shall be conducted by qualified Professional Biologist possessing the necessary Manitoba Sustainable Development Permits for fish handling.

.3 Fish salvages shall be conducted following the isolation of the worksite and prior to the completion of dewatering and/or commencement of construction works.

.4 Partial dewatering is permissible to decrease wetted area and increase efficiency of capture, provided that pump intakes are adequately screened (See DFO *Freshwater Intake End-of-Pipe Fish Screen Guideline*). However, the fish salvage shall be completed prior to dewatering the entire area.

.5 If necessary, captured fish shall be placed in a holding tank with adequate water until released.

.6 Captured fish shall be cataloged by species. The length and weight of a representative proportion of captured fish species shall be recorded.

.7 The following information shall be collected and recorded:

- .1 Date,
- .2 Location (watercourse name and geographic coordinates),
- .3 Description of project/construction works,
- .4 Physical habitat parameters – channel width, wetted width, size (area) and depth of salvage area, water temperature,
- .5 Fish capture method (e.g. Seine net, dip net, gill net, backpack electrofishing) ,
- .6 Effort (e.g. two passes with a seine net; two people dip netting for 0.5 hours; backpack electrofishing for 350 seconds),
- .7 Number of fish collected, by species, and
- .8 Length and weight of a representative proportion of captured fish species.

.8 All captured fish shall be released downstream of the worksite.

ENVIRONMENTAL PROTECTION PROCEDURES

11

CULVERT MAINTENANCE AND REPLACEMENT

March 2018 Revision

1.0 Description

.1 Culvert maintenance and replacement shall be undertaken as instructed by the Manitoba Infrastructure – Remote Road Operations to accommodate for in-water construction activities. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 To ensure that culvert maintenance and replacement is conducted in accordance with applicable environmental permits, guidelines and legislation.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Applicable Provincial Licences and Permits
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Freshwater Intake End-of-Pipe Fish Screen Guidelines – Department of Fisheries and Oceans 1995 (www.dfo- mpo.gc.ca/Library/223669.pdf)
- Applicable Fisheries and Oceans Canada (DFO) Authorizations or Letters of Advice
- Fisheries Act, RSC.,1985, c-F14
- The Environment Act - C.C.S.M. c. E125
- The Workplace Safety and Health Act - CCSM. c. W210
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
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4.0 *Procedures*

.1 Material and debris removal shall be timed to prevent disruption to sensitive fish life stages by adhering to DFO's restricted activity timing windows unless accumulated material is preventing the passage of water and/or fish through the structure. The Contractor shall not undertake construction activities in fish bearing waters or potentially fish bearing waters between April 15 and July 15 of any year, or during periods of high stream flow.

.2 Emergency debris removal using hand tools or machinery (e.g. backhoe) may be carried out at any time of year. Emergencies include situations where carrying out the project immediately is in the interest of preventing damage to property or the environment, or is in the interest of public health or safety. DFO is to be notified immediately.

.3 Effective erosion and sediment control measures shall be installed prior to starting work. These measures shall be inspected regularly during the course of construction. The contractor shall make all necessary repairs if any damage occurs.

.4 The contractor shall limit the removal of accumulated material (i.e., branches, stumps, other woody materials, garbage, etc.) to the area within the culvert, immediately upstream of the culvert and to that which is necessary to maintain culvert function and fish passage.

.5 Accumulated material and debris shall be removed slowly to allow clean water to pass, to prevent downstream flooding and reduce the amount of sediment-laden water going downstream.

.6 When removing beaver dams and associated debris for culvert maintenance, the Contractor shall:

- .1 Time work to avoid harm to spawning fish, eggs, and larval fish.
- .2 Install effective sediment and erosion control measures before starting work. Erosion and sediment control is to be inspected regularly to ensure proper function and repaired immediately if found damaged.
- .3 Operate machinery from outside from outside the water that minimizes the disturbance to the banks and bed of the watercourse.
- .4 Remove dam gradually to allow water to release slowly and prevent sediment at the bottom of the pond from being released downstream.
- .5 Not create a breach in the dam exceeding the width of the original stream.
- .6 Not use explosives without MI and DFO approval.

.7 Safely return any stranded fish to the main channel.
.8 Stabilize any waste material above the ordinary high water mark. Spoil piles shall be removed or contained within appropriate erosion and sediment control measures.
.9 Minimize removal of riparian vegetation.
.10 Re-vegetate any disturbed area.
.11 Maintain erosion and sediment control until such time as the as re-vegetation is complete.

.7 Machinery shall arrive at site in a clean condition and shall be operated on land (from outside of the water) and in a manner that minimizes disturbance to the bed and banks of the watercourse.

.8 The bed and banks of the watercourse shall be restored to preexisting conditions following a disturbance.

.9 To ensure that fish passage is maintained, culverts in fish bearing waters shall adhere to the following design criteria:

.1 For culverts less than 25 m long the flow velocity through the crossing shall not exceed 1 m/s
.2 For culverts greater than 25 m long the flow velocity through the crossing shall not exceed 0.8 m/s
.3 The crossing shall not be impassable to fish for longer than 3 consecutive days once in 10 years or 7 consecutive days once in 50 years
.4 The culvert shall be designed such that fish passage is possible even in low flows

.10 If more than one culvert is to be installed, a minimum of 2 m between adjacent culverts is recommended. There shall be no more than three culverts at one crossing.

.11 If works are being conducted under a DFO Authorization, all conditions outlined within the Authorization shall be adhered to.

.12 A site visit shall be conducted prior to the commencement of in-water construction activities to determine the site-specific environmental protection measures that may be required (i.e., worksite isolation methods, site restoration considerations, erosion and sediment control materials required, etc.).

.13 Cofferdams or other structures (diversions) shall be installed to separate the dewatered worksite from flowing water. Materials that are used to build these dams shall not be taken from below the high water mark (1 in 2 year high water level). Cofferdams shall be designed to accommodate any expected high flows during the construction period.

.14 Downstream flows shall be maintained at all times. If isolated sites are required, flows shall be detoured around the sites, and original flows through the site shall be restored as soon as work is completed.

.15 A fish salvage operation shall be conducted prior to dewatering of isolated sites.

.16 The contractor shall maintain a culvert gradient as close to the natural stream grade as possible.

.17 The contractor shall install culverts a minimum of 30 cm or 10% of culvert diameter (whichever is greater) below the normal stream bed.

.18 The contractor shall avoid using frozen backfill. Backfill shall be compacted to avoid settling, hydrostatic uplifting or side movements of the culvert that may lead to blockage of fish passage or washouts.

.19 Slopes shall be contoured to an appropriate steepness to minimize erosion; erosion controls shall be installed as soon as possible.

.20 Soils shall be graded in the direction away from the watercourse and never into the stream itself.

ENVIRONMENTAL PROTECTION PROCEDURES

12

BLASTING NEAR A WATERCOURSE

March 2018 Revision

1.0 Description

.1 Blasting within or near a watercourse shall be undertaken as approved by the Manitoba Infrastructure – Remote Road Operations. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 To ensure that blasting near water bodies is conducted according to applicable guidelines and permit requirements.

.2 To ensure the protection of aquatic environments by implementing appropriate Best Management Practices during blasting activities.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Dangerous Goods Handling and Transportation Act, CCSM c. D12
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Applicable Provincial Licences and Permits
- Applicable Fisheries and Oceans Canada (DFO) Authorizations or Letters of Advice
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters (1998) (www.dfo-mpo.gc.ca/oceans-habitat/habitat/water-eau/explosives-explosifs/page03_e.asp)
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 Blasting plans developed by the contractor shall comply with blasting regulations and reflect the appropriate timing of life cycle events as they relate to critical life functions of fish and wildlife species (i.e. migration, calving, nesting and spawning). Therefore, to reduce impacts to birds and other wildlife, blasting activities shall be restricted to outside the most sensitive breeding and brood rearing months (i.e. May to late-July) as much as possible. Blasting in watercourses classified as fish habitat is prohibited between April 15 and July 15 of any year, or during periods of high stream flow or identified spawning periods.

.2 Where applicable, blasting shall be undertaken during winter months to minimize permafrost degradation.

.3 Reference shall be made to DFO's document "*Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters" 1998*. Blasting plans shall be submitted to and approved by DFO prior to commencement of blasting in areas that could affect fish habitat. See tables 1 and 2 below.

.4 The blasting contractor shall possess all required permits/certificates. Notification shall be given to affected parties including site employees and the local general public prior to each blasting event.

Table 1. Setback distance (m) from centre of detonation of a confined explosive to fish habitat to achieve 100 kPa guideline criteria for various substrates.

	Weight of Explosive Charge (kg)							
Substrate Type	0.5	1	2	5	10	25	50	100
Rock	3.6	5	7.1	11	15.9	25	35.6	50.3
Frozen Soil	3.3	4.7	6.5	10.4	14.7	23.2	32.9	46.5
Ice	3	4.2	5.9	9.3	3.2	20.9	29.5	41.8
Saturated Soil	3	4.2	5.9	9.3	13.2	20.9	29.5	41.8
Unsaturated Soil	2	2.9	4.1	6.5	9.2	14.5	20.5	29

Table 2. Setback distance (m) from centre of detonation of a confined explosive to spawning habitat to achieve 13 mm•sec-1 guideline criteria for all types of substrate.

	Weight of Explosive Charge (kg)						
	0.5	1	5	10	25	50	100
Setback distance (m)	10.7	15.1	33.7	47.8	75.5	106.7	150.9

ENVIRONMENTAL PROTECTION PROCEDURES

13

HERITAGE RESOURCES

March 2018 Revision

Procedure name:
Heritage Resources

Reference number:

1.0 Description

.1 Heritage resources are an important component of Manitoba's historical legacy which may be uncovered during a wide range of construction activities. Heritage resources may include human remains, a heritage site, a heritage object, and any work or assembly of works of nature or human endeavor that is of value for its archeological, paleontological, pre-historic, historic, cultural, natural, scientific, or aesthetic features, and may be in the form of sites or objects or a combination thereof.

2.0 *Purpose*

.1 To ensure that due consideration has been given throughout the design and construction phases of the project in order to minimize the potential disturbances to heritage resources.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Heritage Resources Act CCSM. c. H39.1
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 Specific areas where heritage or cultural resources of interest are suspected of being present such as along major waterways at crossings shall be inspected prior to the start of construction to confirm potential presence and extent.

.2 Where archeological or historic artifacts are encountered during construction activities, work at that location shall immediately cease

and the discovery shall be reported to the Field Supervisor and Contract Administrator. The Contract Administrator shall inform the Province of Manitoba's Historic Resources Branch and any affected communities.

.3 A specialist historic resource consultant shall be utilized to assess archeological or historic artifacts that are encountered and recommend mitigation measures. Manitoba Infrastructure – Remote Road Operations will engage interested communities and Manitoba's Historic Resources Branch to present and discuss mitigative options.

ENVIRONMENTAL PROTECTION PROCEDURES

14

WILDLIFE

March 2018 Revision

Procedure name:
Wildlife

Reference number:
EP14

1.0 Description

.1 Wildlife includes a broad range of species that may be affected by various activities. This procedure is intended to compliment other targeted procedures, regulatory requirements and monitoring plans. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 To ensure that appropriate environmental measures are implemented to avoid, minimize and/or mitigate potential effects on Wildlife.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Wildlife Act CCSM. c. W130
- The Endangered and Ecosystems Species Act CCSM. c. E111
- Species at Risk Act S.C 2002, c. 29)
- The Manitoba Sustainable Development Forest Practices Guidebook: Forest Management Guidelines for Terrestrial Buffers – 2010-2022
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 Employees, workers and other staff shall not hunt or trap wildlife.

.2 The Contractor shall not remove, destroy or disturb species pursuant to *Manitoba Regulation 25/98*, or any future amendment thereof, respecting *Threatened, Endangered and Extirpated Species*, or species

listed in the federal Species at Risk Act.

.3 Wildlife habitat shall not be destroyed or damaged, except pursuant to a licence, permit or other authorization issued for the Project.

.4 No person shall take or be in possession of or willfully destroy the nest or eggs of birds.

.5 No person shall remove, disturb, spring or in any way interfere with any trap set out lawfully by any other person for the purpose of taking furbearing animals.

.6 No blasting shall be permitted within close proximity to sensitive wildlife habitat during critical lifecycle periods.

.7 Construction camps and worksites shall be kept clean and tidy. All food and garbage waste shall be stored in an appropriate manner and be disposed of at an area which has been designated as an appropriate waste disposal site.

.8 Employees, workers and other staff shall not feed or harass wildlife that they may encounter.

.9 Nuisance wildlife shall be immediately reported to the Natural Resources officer and onsite supervisor.

.10 Trees containing large nests of sticks and areas where active dens or burrows occur shall be identified, left undisturbed and reported to the Natural Resources Officer.

.11 A 100m buffer is required to be left around eagle nests, and heron rookeries. Additional buffers may apply – see table 1 of Forest Management Guidelines for Terrestrial Buffers (2017).

.12 Whenever it is necessary to remove existing beaver dams reference shall be made to EP11 Section 4.6

.13 To reduce the possibility of vehicle collisions with wildlife, vehicle speed shall not exceed posted speed limits and wildlife warning signs shall be installed where appropriate.

.14 No temporary roadbed borrow operations shall occur within 2 kilometres of known caribou calving areas along access roads from May 7 to July 1 of any given year.

.15 Prior to reinstating a quarry or borrow site, the area shall be surveyed to determine presence or absence of bank swallows and or common nighthawk nests. If nests are discovered, work shall be suspended and the MI Environmental coordinator will be contacted for further advice.

.16 Prior to removing temporary structures, an inspection shall be conducted to determine the presence or absence of barn swallow nests. If nests are discovered, work shall be suspended and the MI Environmental coordinator will be contacted for further advice.

ENVIRONMENTAL PROTECTION PROCEDURES

15

WILDFIRES

March 2018 Revision

Prepared by: G. Chamberlain	Revision Number 14.6	Date Issued: May 2016
Approved by: J. Smith		Date of Revision: 2018-03-21
Updated Sec 3.0, added 4.15 4.16		

Procedure name:
Wildfires

Reference number:

1.0 Description

.1 Wildfires can be a threat to people and activities taking place in wilderness areas particularly when under dry conditions. Advance planning and the implementation of safety measures is needed effectively respond to wildfires when they do occur.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that appropriate measures are in place to prevent and/or minimize effects caused by wildfires during construction and operation activities.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Fires Prevention and Emergency Response Act CCSM. c. F80
- The Forest Act CCSM. c. F150
- The Wildfires Act CCSM. c. W128
- The Workplace Safety and Health Act - CCSM. c. W210
- The Dangerous Goods Handling and Transportation Act C.C.S.M. c. D12
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Wildfires in Manitoba: How to Prepare *[Brochure]*

4.0 *Procedures*

.1 An evacuation and emergency preparedness plan addressing wildfires shall be implemented and submitted to the Contract Administrator prior to commencing construction.

.2 No fires shall be started without first taking sufficient precautions to ensure that the fire can be kept under control.

.3 To the extent possible, burning shall be avoided during the dry season. In Manitoba the dry season is typically defined as occurring between April 1st and November 15th of a given year. In the event that burning is required, an application for a burning permit shall be submitted for approval to Manitoba Sustainable Development. All conditions imposed by the burning permit shall be adhered to.

.4 In the event that burning is required, any active fires shall be monitored by staff for the duration of the burning activities. No fires shall be left unattended.

.5 No activity shall be conducted which may cause a fire to spread. Similarly, burning or smoldering matter shall not be placed where it may cause a fire to spread.

.6 A primary zone shall be established around camp sites and other longer term temporary structures associated with construction and maintenance activities. Flammable materials such as leaves, brush, dead limbs, and fallen trees shall be cleared from the area regularly.

.7 Combustible materials such as fuel and/or other hazardous substances shall be stored in a safe manner.

.8 The locations of construction camps, offices, and related structures shall be chosen in such a fashion as to minimize the risk of exposure to wildfires.

.9 In the event that a wildfire occurs, it shall be immediately reported to the Contract Administrator and to Manitoba Sustainable Development at 1-800-782-0076.

.10 All reasonable steps shall be taken in order to prevent a fire from burning out of control or spreading from land owned or occupied for construction purposes.

.11 In the event that a wildfire is identified where construction activities are taking place, all reasonable attempts shall be made in order to extinguish the wildfire. All available equipment, services and labor shall be made available at the disposal of an officer for the purposes of wildfire protection operations.

.12 All construction and related activities taking place in the vicinity of a wildfire shall cease until advised by the Contract Administrator that it is safe to resume operations.

ENVIRONMENTAL PROTECTION PROCEDURES

16

EROSION AND SEDIMENT CONTROL

March 2018 Revision

1.0 Description

.1 Erosion and sediment control shall be implemented as required to prevent, minimize and/or mitigate environmental effects. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that erosion and sediment control measures are installed to prevent, minimize and/or mitigate environmental effects in accordance with contract specifications, applicable legislation and associated regulations and guidelines.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Fires Prevention and Emergency Response Act CCSM. c. F80
- The Forest Act CCSM. c. F150
- The Wildfires Act CCSM. c. W128
- The Workplace Safety and Health Act - CCSM. c. W210
- The Dangerous Goods Handling and Transportation Act CCSM. c. D12
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 The installation of erosion and sediment control measures shall be completed in accordance with the Contract Documents as approved by the Contract Administrator.

.2 Prior to construction, all vegetated areas that are to be preserved or untouched shall be well marked out and noted.

.3 Vegetation cover shall be preserved for as long as possible; operations shall be halted during heavy rainstorms.

.4 Effective erosion and sediment control measures shall be installed before starting work within or near fish habitat.

.5 Erosion and sediment control measures shall be inspected by the contractor regularly and after every major rain or spring melt event; necessary repairs shall be made immediately after damage has been discovered. Inspections will be confirmed by the project manager and Manitoba infrastructure environmental staff.

.6 A turbidity curtain shall be installed downstream of all in-water works within fish bearing waterways.

.7 Hand clearing shall be utilized within 30 metres of a watercourse instead of mechanical clearing where possible to prevent disturbance of the organic soil layer.

.8 Slash and debris that is collected during clearing operations shall be retained and used to temporarily protect erosion-prone slopes.

.9 Sediment shall be prevented from entering streams by placing overburden or topsoil stockpiles a minimum of 100 metres above the high water mark.

.10 Stream banks and bed shall be protected with erosion-resistant materials such as riprap at culvert openings.

ENVIRONMENTAL PROTECTION PROCEDURES

17

CONCRETE WASHOUT AREA MANAGEMENT PRACTICES

March 2018 Revision

Procedure name: Concrete Washout Management

Reference number: EP17

1.0 *Description*

.1 This procedure specifies best management practices for the implementation and use of concrete washout areas during all phases of construction.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that concrete, concrete fines or washout produced is disposed of in accordance with applicable contract specifications, legislations, permits, and authorizations.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Fisheries Act (RSC., 1985, c. F-14)
- Environment Act
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Freshwater Intake End-of-Pipe Fish Screen Guidelines – Department of Fisheries and Oceans 1995 (www.dfo-mpo.gc.ca/Library/223669.pdf)
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 Concrete wash out areas should be designated at the pre-construction site meeting and approved by Manitoba Infrastructure – Remote Road Operations.

.2 Concrete washout areas should be located a minimum of 100 metres away from the normal high water mark of a waterbody or watercourse and in a non porous soil location.

.3 Concrete works shall be conducted in a manner that does not allow direct or indirect entry of concrete, concrete fines or concrete washout into the watercourse.

.4 Concrete truck wash out areas shall be at a dedicated site 100m away from nearby watercourses and waterbodies and shall be cleaned up at the end of the construction activities to the satisfaction of the Contract Administrator.

.5 Where water for concrete washout activities is taken from a watercourse or waterbody, the Department of Fisheries and Oceans Freshwater Intake End-of-Pipe Fish Screen Guidelines, the Water Rights Act and other appropriate legislative and mitigative measures must be followed.

.6 The contractor shall comply with all requirements as laid out in the Water Rights Act, including but not limited to:

.1 The contractor must not release any excess cement and/or wastewater to surface waters, including wetlands,

.2 Any containment area must not be connected to or drain to any surface waters, including wetlands, and

.3 Any wastewater generated on site must be contained within the construction site.

.7 The contractor shall comply with all requirements as laid out in the Environment Act Licence regarding utilization, cleanup and disposal of water, waste and hazardous materials at the washout site.

.8 All Concrete obtained and utilized for Manitoba Infrastructure – Remote Road Operations' projects must be sourced from a concrete batch plant licensed in accordance with the Manitoba Environment Act.

.9 The contractor shall comply with all requirements laid out in the Concrete Batch Plant licence.

.10 With regard to reclamation and site cleanup, the contractor will:

.1 Begin reclamation and site cleanup as soon as construction has completed, and

.2 Re-contour, stabilize, and re-vegetate disturbed areas to suit original conditions.

ENVIRONMENTAL PROTECTION PROCEDURES

18

DUST SUPPRESSION PRACTICES

March 2018 Revision

1.0 Description

1. This procedure specifies best management practices for the implementation and use of dust suppression on roadways during all phases of construction.

2.0 *Purpose*

1. The purpose of this procedure is to ensure that any chemical or material used on roads for suppression dust is done so in accordance with applicable contract specifications, legislations, permits and authorizations.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Fisheries Act (R.S., 1985, c. F-14)
- The Environmental Act, CCSM c E125
- Canadian Environmental Protection Act, 1999, SC 1999, c 33
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 Follow the manufacturer's specifications or other tested and approved procedures.

.2 The application shall be limited to the roadway, driveway or parking lot.

.3 Carefully monitor the application rate to ensure adequate coverage without pooling or runoff of products.

.4 The amount of dust suppressant applied should not exceed the minimum amount required to effectively suppress dust.

.5 There should be no evidence of excess product on the roadway.

.6 The material must not migrate or run off the traveled portion of the roadway.

.7 Dust suppressants must conform with the manufacturer's specifications and must not contain concentrations of contaminants that would not normally be found in the suppressant.

.8 Ensure that dust suppressants do not enter and contaminate water bodies, including surface and groundwater. Do not allow the product to leave the roadway.

.9 Do not apply products to areas of roads that are subject to flooding.

.10 Do not apply products if precipitation is occurring, or forecast to occur before the product sets or cures.

.11 Wherever feasible water is to be used in preference over chemical dust suppressants

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5.0 *Working Near Water*

.1 Observe a 100-metre setback from any watercourse.

.2 Apply as per the manufacturer’s guidelines.

.3 Avoid over-application or application beyond the road shoulder.

6.0 *Approved Products*

.1 Water (Preferred)

.2 38%, 35%, 34%, or 30% Calcium Magnesium Chloride

.3 77% Flake Calcium/Magnesium Chloride

.4 32.6%, 30.3%, or 28% Magnesium Chloride,

.5 Lignosulfonate

7.0 *Dust and the Public*

.1 In the event that construction, maintenance, or operation produces a large quantity of dust

.1 Inform the public to wash any country foods or medicinal plants gathered from the area where the dust settled.

.2 Inform the public to travel with the windows of their vehicles closed when dust on the roadway is visible in the air.

ENVIRONMENTAL PROTECTION PROCEDURES

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BORROW PIT DECOMMISSIONING

March 2018 Revision

Prepared by: G. Chamberlain	Revision Number 18.4	Date Issued: March 2015
Approved by: J. Smith		Date of Revision: 2018-03-09
Updated Sec 3.0		

1.0 *Description*

.1 The excavation of a borrow pit shall be undertaken in areas outlined by the Contractor, Contract Administrator or by Manitoba Infrastructure – Remote Road Operations, and consist of the excavating of material, other than solid rock.

.2 The decommissioning of borrow pits shall include the removal or disposal of all site debris, appropriate sloping of borrow pit sides, removal of site access, and reseeding of the area. The Contractor is responsible for ensuring compliance with all contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that borrow pit decommissioning operations are conducted in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Fisheries Act (R.S., 1985, c. F-14)
- The Manitoba Sustainable Development Forest Practices Guidebook: Forest Management Guidelines for Terrestrial Buffers – 2010-2022
- Manitoba Infrastructure and Transportation Standard Construction Specifications for Grading – January 2008
- The Manitoba Conservation Brush Disposal Guidebook – March 2005
- The Manitoba Stream Crossing Guidelines for the Protection of Fish Habitat – May 1996
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 –

4.0 *Procedures*

4.1 Clearing and Grubbing

.1 Where clearing and grubbing is required, it shall be completed prior to excavation of the borrow pit.

.2 Clearing and grubbing shall be limited to the site and associated access routes.

.3 Clearing and grubbing shall only be undertaken between September, 1 of any year and April, 1 of the following year.

.4 All clearing and grubbing operations shall occur in accordance with the Clearing and Grubbing Environmental Protection Procedure (EP1).

4.2 Brush Disposal

.1 Disposal of cleared trees and brush must be done as directed or approved by the Contract Administrator. Disposal may involve burning, compacting, piling, burying, windrowing and compacting, limbing and chipping.

.2 All cleared vegetation, grubbed material, and debris that is to be left in place shall be piled and compacted in windrows. Windrows shall be compacted to lie as close to the ground as possible (maximum height of 0.6 metres) and shall be no closer than 1 metre to the bush line. Windrows are required to have a 15 metre break every 100 metres in length.

.3 Cleared and grubbed material that is to be burned shall be piled for burning. Burn piles shall be located a minimum of 15 metres from other wood and brush piles and standing timber.

.4 Merchantable wood that is identified by the Contract Administrator shall be stockpiled within existing clearings and at least 1 metre from standing timber. Stockpile sites shall not be located within 100 metres of a waterbody. Unless otherwise specified, all stockpiled material shall be removed from Crown land by April 30 following the date of issuance.

.5 The burning of debris piles shall not permitted in the spring or early summer to avoid disturbing small wildlife species which may have young in the piles or may have prepared nesting sites. The best and preferred option for wildlife is burning in the fall or winter.

.6 No burning of debris piles shall occur on deep organic soils. Piles shall be a minimum of 15 metres away from standing timber and the high water mark of any waterbody.

.7 Slash shall be piled in a manner that allows for clean, efficient burning of all material. Avoid mixing soil into the slash.

.8 The Contractor shall obtain a burning permit for open fires between April 1 and November 15. Burning between November 16 and March 31 does not require a burning permit; however, the supervising officer shall be advised prior to any burning. All fires shall be completely extinguished by March 31.

.9 Ensure safety precautions are taken to keep the fire under control. Burn piles shall be monitored, to ensure that subsequent fire hazards are not present. Upon completion of the burn, burn piles shall be completely extinguished.

.10 All occurrences of fire spreading beyond the debris piles shall be reported to the Contract Administrator and the Natural Resources District Supervisor.

.11 All brush disposal operations shall occur in accordance with the Clearing and Grubbing Environmental Protection Procedure (EP1).

4.3 Borrow Pit Sloping

.1 The borrow pit excavation shall be conducted as uniformly as possible to the depths and within the limits outlined by contract specifications, environmental legislation, permits and authorizations.

.2 Upon excavation completion, stockpiled stripped soil shall be placed uniformly over the slopes and bottom of the borrow pit.

.3 Side slopes shall maintain a slope of 4:1, unless otherwise permitted or directed.

.4 Upon completion of the borrow pit excavation, the Contactor shall cap, level and trim the borrow pit prior to decommissioning the area. If burying woody debris, the area shall be capped with ½ metre of clay. Stockpiled topsoil shall be spread, and the area re-vegetated.

4.4 Access Road Removal

.1 The temporary access road to the borrow pit, and any equipment brought onto site, shall be removed as soon as possible following completion of the work or when it is no longer required.

.2 Following the removal of the temporary access road, the site shall be restored; and disturbed areas re-vegetated to suit original conditions.

4.5 Re-Vegetation

.1 Borrow pits will be left in a manner which promotes natural re- vegetation of the site.

.2 In cases where seeding is required, and when conditions permit, seeding shall commence immediately upon completion of capping and trimming operations.

.1 Seeding operations shall not be carried out under adverse conditions of high winds, frozen ground, or ground covered with snow, ice, or standing water.

.2 When conditions do not permit immediate seeding, Manitoba Infrastructure – Remote Road Operations will endeavor to ensure seeding is completed within the next growing season.

ENVIRONMENTAL

PROTECTION PROCEDURES

20

Quarry Site Selection and Development Requirements

March 2018 Revision

1.0 Description

1. This procedure specifies best management practices for the selection of quarry sites and quarry development. These best management practices are to be applied to quarries established adjacent to the road alignment and to areas within the right of way where blasting and quarrying activities are required for engineering purposes.
2. The Contractor is to comply with all legislation, licences, authorizations and permits respecting the Project.
3. All proposed quarries are subject to a site selection analysis by Manitoba Infrastructure – Remote Road Operations to confirm that the proposed quarry site will not interfere with sensitive features including heritage resources and known cultural sites; sensitive wildlife habitat including species at risk and migratory birds; surface water, fish or fish habitat; or other sensitive sites

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2.0 Purpose

1. The purpose of this procedure is to outline criteria for site selection of quarries and their development.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Mines and Mineral Act C.C.S.M. c. M162
- Quarry Minerals Regulations 1992 M162 — R.M. 65/92
- The Fires Prevention and Emergency Response ACT CCSM. c. F80
- The Forest Act CCSM. c. F150
- The Wildfires Act CCSM c. W128
- The Workplace Safety and Health Act – CCSM. c. W210
- The Dangerous Goods Handling and Transportation Act CCSM. c. D12
- Explosives Act R.S.C., 1985, c. E-17The Manitoba Sustainable Development Forest Practices Guidebook: Forest Management Guidelines for Terrestrial Buffers – 2010-2022
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 Site Selection

.1 No operator of a quarry is to establish or mine a quarry closer than 400 metres from a residence, unless the operator has established a vegetated berm or tree screen sufficient to shield the quarry from view from the residence.

.2 With the exception of quarries that are contiguous with the road right-of- way, all quarry operations shall maintain a 100 metres buffer from the proposed road right-of-way. If no vegetated buffer or screen exists this distance shall be at least 150 metres.

.3 Habitat occupied by endangered species shall be avoided.

.4 Quarry site selection shall consider the proximity of sensitive sites including waterbodies, wildlife, heritage resources and culturally important sites. Setbacks will vary depending on circumstances however selected areas are to be a minimum of:

.1 100 m from a water course or water body,
.2 100 m buffer from any large stick nest, eagle nest, heron rookery, or any other sensitive wildlife area,
.3 30 m from heritage resources or identified cultural sites,
.4 400 m from any residence,
.5 15 m from the property line, and
.6 Other setbacks as required.

.5 Prior to development quarry sites, the potential for acid rock generation will be assessed with the intent of not developing such sites.

5.0 Quarry Development

.1 General

.1 The Contractor shall comply with all legislation, licences, authorizations and permits respecting the Project.

.2 All operations are subject to the appropriate Acts and Regulations,

.3 The Contractor shall not commence any mobilization or drilling activities until a Casual Quarry permit or Quarry Lease have been issued by the Province of Manitoba.

.4 The Contractor's Site Supervisor shall attend a pre-construction meeting with the Contract Administrator, at a mutually agreed upon date, to discuss the development of the quarry and establishment of the crushing operation. The meeting shall be initiated by the Contractor and be held in advance of commencing the field quarry establishment operations. Topics to be discussed shall include the type and quantity of equipment to be used, sequence of work, traffic control, environmental requirements and other pertinent topics.

.5 The Contractor is responsible for maintaining the site and promoting surface water runoff to minimize ponding after rainfall events. In the event that ponding does occur, it shall be discharged or removed using effective erosion and sediment control devices and pumps (if required), as accepted by the Contract Administrator.

.2 Scope of Work

.1 The development of the quarry shall be in accordance with the site plan submitted to Manitoba Infrastructure - Remote Road Operations prior to the beginning of construction and the immediate quarry area plan provided to Manitoba Sustainable Development as part of the work permit application where applicable.

.2 The major components of the Work are as follows:

.1 Access Road Construction,
.2 Clearing and Grubbing,
.3 Blasting, and
.4 Gravel Crushing and Stockpiling of Aggregate.

.3 Site work roads shall be confined to the Quarry Lease with the exception of the quarry access road.

.4 A buffer zone shall be maintained between the excavation area and the registered quarry site boundary.

.3 Fuel Handling and Spill Response

.1 All dangerous goods shall be handled in accordance with The Dangerous Goods Handling and Transportation Act.

.2 The Contractor shall ensure that due care and caution is taken to prevent spills, at all times.

.3 Tank vehicles used to deliver fuel to the work site and/or used to move fuel around the work site must meet the requirements for highway tanks for the shipment of dangerous goods by road set out in CSA Preliminary Standard B620-98, *Highway Tanks and Portable Tanks for the Transportation of Dangerous Goods*

.4 An updated list of key contacts and telephone numbers for reporting spills, problems, etc., shall be kept on-site by the Contractor at all times.

.5 A Workplace Hazardous Materials Information System (WHMIS) file shall be maintained on-site for all hazardous materials at the work area. Prior to commencement of the Work, Safety Data Sheets (SDS) shall be submitted to the Contract Administrator for all hazardous materials to be used on-site. No material shall be brought to the site without prior submission of a MSDS.

.6 All spills shall be reported to the Contract Administrator within 24 hours. The spill report shall include the following:

.1 Personnel responding to the spill,
.2 Material spilled,
.3 Cause of spill,
.4 Estimated amount of material spilled,
.5 Estimated area and volume of soil affected by the spill,
.6 Cleanup action undertaken, and
.7 Means used to contain, transport and dispose of the materials involved.

.7 The Contractor shall designate a qualified supervisor(s) as the on-site emergency response coordinator(s). The emergency response coordinator(s) shall have the authority to redirect manpower and equipment in order to respond in the event of a spill.

.8 Appropriate materials for containment and cleanup of any spill of dangerous goods or hazardous wastes shall be available on-site when such materials are present in the work area. Also, designated personnel and first responders shall be familiar with the storage location and proper application of such containment and cleanup materials.

.9 All spills shall be contained and cleaned up immediately by on-site personnel in accordance with the on-site emergency response and containment plan.

.4 Quarry Site Development and Mobilization

.1 Description

.1 Site development and mobilization covers the mobilization and demobilization of equipment, tools, materials, facilities and all things necessary for the Work including but not limited to site access, site work roads, site drainage, snow removal, clearing and grubbing, general site cleanup and restoration.

.2 Equipment/Materials

.1 Equipment, implements, tools, materials, and facilities shall be of a size and type as required to complete the Work in the required time. The equipment to be used for the Work shall include bulldozers,

front-end loaders, rock trucks, graders, backhoes, and other equipment as needed.

.2 All equipment, implements, tools, plants, materials, and facilities shall be kept in good working order. The Contractor shall have sufficient standby equipment available at all times, as required.

.3 Submittals and Advanced Notice

.1 The Contractor shall submit to Manitoba Infrastructure – Remote Road Operations a site plan showing the location of the proposed crushing operation.

.2 The Contractor shall provide Manitoba Infrastructure – Remote Road Operations at least eleven working days advance notice of the location of the crushing operation. The notice to Manitoba Infrastructure – Remote Road Operations shall include a drawing of the working area including the location of the initial extraction area, the progression of the extraction area and the location of sheds, offices, toilets and other temporary structures, drainage and stockpile areas. The suitability of the working area shall be subject to approval of Manitoba Infrastructure – Remote Road Operations.

.3 The Contractor shall provide the Contract Administrator with at least six working days advance notice of the intention to commence production of aggregates. The notice shall include a preliminary schedule for the clearing, establishment of access, relocation of equipment, establishment of water and wastewater services, blasting and commencement of crushing operation.

.4 Prior to preparatory work for each blast, the Contractor shall submit a blast plan to the Contract Administrator including such information as:

.1 The location, depth and area of each blast;
.2 Diameter, depth, pattern and inclination of blast holes;
.3 The type, strength, amount, column load and distribution of explosives to be used per hole, per delay and per blast; and
.4 The sequence and pattern of delays and the description and purposes of any special methods to be adopted.

.5 Clearing and Grubbing

.1 Description

.1 Clearing and grubbing consists of the removal and disposal of all tree stumps, roots, logs, shrubs, grass, weeds, fallen timber and other surface litter wherever they occur within the crushing operation and stockpile sites.

.2 Clearing shall only occur between September 1 and April 1 of the following year. Felled timber and debris will be disposed of in a manner consistent with EP1 Section 4.1. Merchantable timber is shall be removed from the site by April 30 following the clearing activity.

.3 All persons involved in clearing and grubbing activities shall follow safe work practices and procedures regarding chain saw operation, fueling, personal protective equipment, safety features, and transportation and storage.

.4 All persons involved in tree felling shall posses a training certificate for chainsaw and tree felling operations.

.2 Construction Methods

.1 Prior to the production of aggregates, the source of supply shall be cleared, grubbed and stripped of overburden to only the extent and manner necessary as approved by Manitoba Infrastructure – Remote Road Operations.

.2 Brush disposal shall occur in accordance with the *Manitoba Conservation Brush Disposal Guidebook – March 2005*.

.3 Within the limits as directed and staked out by Manitoba Infrastructure – Remote Road Operations, all brush and trees, except those designated by Manitoba Infrastructure – Remote Road Operations to be saved, shall be cut level with the ground, and all surface debris, excluding merchantable timber but including fallen timber, slash limbs, brush, grass and weeds, shall be disposed as directed or permitted by Manitoba Infrastructure – Remote Road Operations.

.4 All stumps and roots shall be grubbed out within areas where excavation will occur and where the embankment grade is less than one metre above the original ground level.

.5 Trees shall be felled towards the centre of the area to be cleared. Any brush falling outside the area to be cleared shall be moved back to the work area and disposed of as directed by Manitoba Infrastructure – Remote Road Operations. The Contractor shall take all precautions against the damage to other trees, traffic structures, pole lines or property in the felling of trees. The Contractor shall be liable for any damages occurring in the performance of this work.

.6 Timber from which forest products can be manufactured (merchantable) shall be cleared of limbs and stockpiled on the worksite in consolidated piles more than 1 metre from standing timber or as directed or permitted by the Contract Administrator. Merchantable timber shall be made available for community use free

of charge upon request from community member or organizations. Removal and or disposal of any unused merchantable timber remains the responsibility of the contractor.

.7 Quarry operations shall not encroach within 15 metres of any property boundary adjoining, private, municipal, or crown leased land.

.8 No operator of a quarry shall establish or mine a quarry closer than 150 metres from a Provincial Trunk Highway, or Provincial Road, unless the operator has established a vegetated berm or tree screen sufficient to shield the quarry from view from the road or residence. A quarry shall not be established within 400 metres of a residence

.9 The burning of debris piles shall not permitted in the spring or early summer to avoid disturbing small wildlife species, which may have young in the piles or may have prepared nesting sites. The best and preferred option for wildlife is burning in the late summer or fall.

.10 No burning of debris piles shall occur on deep organic soils. Piles shall be a minimum of 15 metres away from standing timber and the high water mark of any waterbody.

.11 Slash shall be piled in a manner that allows for clean, efficient burning of all material. Avoid mixing soil into the slash.

.12 A burning permit is required for open fires between April 1 and November 15. Burning between November 16 and March 31 does not require a burning permit; however, the supervising officer must be advised prior to any burning. All fires must be completely extinguished by March 31.

.13 Ensure safety precautions are taken to keep the fire under control. Burn piles must be monitored, to ensure that subsequent fire hazards are not present. Upon completion of the burn, burn piles must be completely extinguished.

.14 All occurrences of fire spreading beyond the debris piles shall be reported to the District Supervisor.

6.0 Quarrying and Crushing Operations

.1 Description

.1 Quarrying and Crushing Operations consist of those activities associated with the day to day operation of the quarry site, including but not limited to blasting, crushing and stockpiling of materials.

.2 Materials

.1 The produced aggregate and supplementary granular material shall consist of sound durable particles of crushed rock, gravel, stone, sand and fines free from sod, roots and organic material.

.2 The aggregate shall be well graded and shall not vary from the maximum to minimum of the specification ranges for consecutive tests.

.3 Traffic gravel shall be subject to testing at the time the material is being produced in accordance with Manitoba Infrastructure – Remote Road Operations instruction. The Contractor shall place the processed aggregate in a separate stockpile until satisfactory production tests have been completed. Rejected material shall be immediately moved either to the vicinity of the feed end of the crusher for reprocessing or to an area completely removed from any approved material.

.4 The addition of supplementary granular material to a quarried material shall not be permitted.

.5 Crushers shall, unless otherwise approved by Manitoba Infrastructure – Remote Road Operations, be equipped with an approved mechanical sampling device for obtaining samples off the main delivery belt.

.3 Submittals

.1 In accordance with Section 25 of the Manitoba Provincial *Quarry Minerals Regulation – M162* the holder of a quarry permit or lease shall provide the Mining Recorder with:

- .1 An annual statement of the total quantity of quarry mineral produced from the quarry lease;
- .2 A royalty payment;
- .3 A rehabilitation levy payment; and
- .4 The annual rent, no later than the 30th day following the anniversary date of the lease.

.2 Only quarry minerals that are **produced and removed** from the quarry shall be included within the annual statement.

.3 Quarry mineral removed by a contractor for a public purpose is **exempt** from payment of royalties where the public agency certifies in an **exemption certificate** prepared on a form furnished by the recorder that the quarry mineral has been used for a public purpose.

.4 A rehabilitation levy shall be paid by the lease holder for production of aggregate quarry mineral. This only applies to quarry minerals that are **produced and removed** from the quarry lease; no fee is required to be paid as long as the quarry mineral remains stockpiled on the quarry lease. (The current levy is 12¢ per tonne, as of 2018, and subject to change.)

.5 The contractor will inform local communities prior to the commencement of quarry operations and prior to blasting. Communication will include

actions to take if collecting country foods downwind of blasting in areas where dust is likely to settle (thoroughly wash foods prior to consuming)

.4 Construction Methods

.1 Quarry operations shall not be permitted within 150 metres of a Provincial Trunk Highway or Provincial Road or within 400 m of a residence.

.2 The Contractor shall ensure all fuel storage and equipment servicing areas are located a minimum of 100 metres from any waterbody.

.3 If authorized to work in or near a waterbody, the Contractor shall ensure that any work is done in accordance with the *Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, May 1996*.

.4 The Contractor may be subject to operational restrictions if in close proximity to sensitive environmental receptors (such as fish, birds, and wildlife, during critical life stages or periods of traditional land use) as required by Manitoba Infrastructure – Remote Road Operations and/or applicable permits. The frequency of blasts are at the discretion of the contractor based on construction timelines, aggregate requirements, physical conditions of the geography, and availability of supplies, provided the blasts comply with these restrictions.

.5 The local Natural Resource Officer shall be notified no less than one week prior to completion of operations to allow for final inspection of the operation.

.6 All operations must be completed to the approval of the local Natural Resource Officer.

.7 Immediately following blasting, and at any time during the quarry operation, all excavated faces which, in the opinion of the Contract Administrator and/or the Contractor, are unsafe or appear to endanger persons, work, or property, shall be scaled and the loose rock shall be removed from the excavation.

.8 The active excavation face shall be maintained at stable slopes, to the satisfaction of the Contract Administrator.

.9 The Contractor shall ensure work adheres to the maximum peak particle velocity and minimum set back distances as recommended in the *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters, 1998*.

.10 The Contractor shall minimize disturbance to vegetation and install erosion and sediment control measures as directed by the Contract Administrator.

.11 The Contractor shall maintain the quarry site in a tidy condition and free

from the accumulation of debris.

.12 The suitability and location of stockpile sites, as well as access to the sites, including sites at the crushing operation or elsewhere shall be subject to the approval of Manitoba Infrastructure – Remote Road Operations.

.13 The Contractor shall provide stockpile sites, which are level, well drained and have adequate bearing capacity to support the weight of the material that is to be placed thereon.

.14 Stockpiles shall be constructed at locations and by methods that will neither interfere with nor damage utility lines or other utility infrastructure.

.15 Access to stockpiles shall be readily available at all times

.16 The Contractor shall clear the stockpile sites of all debris, vegetation, rocks, snow and other objectionable material prior to placing any aggregate on the stockpile sites.

.17 The pile of material at the end of the discharge belt shall not be allowed to build up to a height greater than 3 metres.

.18 Stockpiling shall be performed using loaders, trucks or stacking conveyors.

.19 When trucks or loaders are used, loads shall be spot dumped uniformly over the entire stockpile area. The aggregate shall be placed in layers not exceeding 1.25 metres in depth. Each layer shall be completed and levelled prior to placing the succeeding layer.

.20 If more than one material is to be stockpiled at the same site, each stockpile shall be separated by a sufficient distance to allow equipment access to all sides of the stockpile.

.21 Aggregates which become mixed with others of different kind, class, source or gradation or which become contaminated by foreign material shall be rejected and promptly removed from the site of work.

.22 The completed stockpiles shall be neat, regular in form and constructed to occupy the smallest feasible area.

7.0 Decommissioning Phase

.1 A Decommissioning Plan shall be developed in consultation with Manitoba Infrastructure – Remote Road Operations and in accordance with all applicable Legislation and Regulations.

ENVIRONMENTAL PROTECTION PROCEDURES

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WINTER ROAD CLOSURE AND RECLAMATION PLAN

March 2018 Revision

1.0 Description

.1 With construction of all-season roads, existing winter roads shall be closed in segments or in whole and left to regenerate naturally.

.2 Decommissioning of the winter road shall include the removal of site access, removal of culverts, installation of erosion and sediment control (if required) and the promotion of natural re-establishment of vegetation. The Contractor is responsible for ensuring compliance with all contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that the decommissioning and reclamation of the winter road is conducted in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operations (MI-RRO) Contracts and Associated Documents, specifically 130.15/EP6 – Working In or Within Water, and EP11 – Culvert Maintenance and Replacement
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Manitoba Stream Crossing Guidelines for the Protection of Fish Habitat – May 1996
- Fisheries Act (R.S., 1985, c. F-14)
- The Manitoba Sustainable Development Forest Practices Guidebook: Forest Management Guidelines for Terrestrial Buffers – 2010-2022
- The Manitoba Conservation Brush Disposal Guidebook – March 2005
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

- Joro Consultants. (2015). Various Wildlife Photographs Provided by Joro Consultants from Research and Field Studies. Prepared for Manitoba Floodway and East Side Road Authority.

4.0 *Procedures*

4.1 Access Removal

.1 As winter roads are decommissioned, access shall be obstructed and blocked using, rocks, gates, timbers or other barriers to impede access.

.2 Temporary access roads intersecting winter roads shall be decommissioned or blocked as soon as possible following completion of the work or when no longer required.

.3 Effective erosion and sediment control measures shall be installed where required.

4.2 Culvert Removal

.1 Material and debris removal shall be timed to prevent disruption to sensitive fish life stages through adherence to DFO's Restricted Activity Timing Windows to prevent disruption of fish and wildlife habitat. The contractor shall not undertake construction activities in fish bearing waters or potentially fish bearing waters between April 15 and July 15 of any year, or during periods of high stream flow. In watercourses determined to contain fall spawning fish species, the contractor shall not undertake "in water" construction activities before July 15 or after September 15.

.2 Machinery shall arrive at site in a clean condition and shall be operated on land (from outside of the water) and in a manner that minimizes disturbance to the bed and banks of the watercourse.

.3 Machinery shall be operated from the top of bank, if required.

.4 The work area shall be isolated from all flowing water in a manner that does not cut off flow to downstream portions of the stream at the time during removal.

.5 If dewatering of the site is required, a qualified Fisheries Biologist with appropriate fish handling permits shall be on hand to make the final decision regarding the need for a water quality monitoring and fish salvage program. If fish salvage is necessary, recovered fish shall be relocated to a safe area outside of the influence of the worksite and transport containers must not be overloaded with fish.

Prepared by: G. Chamberlain	Revision Number: 21.3	Date Issued: August 2016
Approved by: J. Smith		Date of Revision: 2018-03-12
Updated Sec 3.0		

.6 Any old structures shall be removed to a suitable upland disposal site, away from the riparian area and floodplain to avoid waste material from re-entering the watercourse.

.7 The bed and banks of the watercourse shall be restored to preexisting conditions following a disturbance.

.8 A site visit shall be conducted prior to the commencement of in-water construction activities to determine the site-specific environmental protection measures that may be required (i.e., worksite isolation methods, site restoration considerations, erosion and sediment control materials required, etc.).

.9 Cofferdams and other structures (diversions) shall be installed to separate the dewatered worksite from flowing water. Materials that are used to build these dams shall not be taken from below the high water mark (1 in 2 year high water level). Cofferdams shall be designed to accommodate any expected high flows during the construction period.

.10 Downstream flows shall be maintained at all times. If isolated sites are required, flows shall be detoured around the sites, and original flows through the site shall be restored as soon as work is completed.

.11 A fish salvage operation shall be conducted prior to dewatering of isolated sites.

.12 Culvert removal techniques shall be utilized that result in the least amount of impacts to the watercourse and riparian area.

.13 The contractor shall avoid using frozen backfill.

.14 Culvert removal shall be avoided during wet and rainy periods

.15 Slopes shall be contoured to an appropriate steepness to minimize erosion; erosion controls shall be installed as soon as possible, and maintained until complete re-vegetation of the disturbed area(s) is achieved.

.16 Soils shall be graded in the direction away from the watercourse and never into the stream itself.

.17 All brush disposal operations shall occur in accordance with the Clearing and Grubbing Environmental Protection Procedure (EP1).

4.3 Re-Vegetation

.1 Winter roads shall be left in a manner which promotes natural re-vegetation of the site. Vegetation recovery for vascular plants is expected within 5 years, followed by longer periods of success for tree species.

ENVIRONMENTAL PROTECTION PROCEDURES

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TEMPORARY SITE DECOMMISSIONING

March 2018 Revision

Prepared by: G. Chamberlain	Revision Number: 21.3	Date Issued: August 2016
Approved by: J. Smith		Date of Revision: 2018-03-12
Updated Sec 3.0		

1.0 Description

.1 Upon the completion of work, all temporary sites shall be decommissioned. The decommissioning shall include the removal or disposal of all site debris, appropriate sloping and regrading of the area, removal of site access, and the promotion of natural re- establishment of vegetation.

.2 The Contractor shall ensure compliance with all contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that temporary site decommissioning operations are conducted in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operations (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Manitoba Stream Crossing Guidelines for the Protection of Fish Habitat – May 1996
- Fisheries Act (R.S., 1985, c. F-14)
- The Manitoba Sustainable Development Forest Practices Guidebook: Forest Management Guidelines for Terrestrial Buffers – 2010-2022
- The Manitoba Conservation Brush Disposal Guidebook – March 2005
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Manitoba Infrastructure and Transportation Standard Construction Specifications for Grading – February 2017

4.0 *Procedures*

4.1 Site Decommissioning

.1 All temporary structures and equipment shall be removed from the temporary site.

.2 All granular material shall be stripped and removed from the temporary site.

.3 The area shall be leveled to natural or pre-existing grade and slope prior to decommissioning the area. Stockpiled topsoil and other organic matter that had been removed from the site shall be spread to promote natural re-establishment of vegetation.

4.2 Access Road Removal

.1 Access roads and any equipment brought onto site shall be removed or blocked as soon as possible following completion of the work, or when no longer required.

.2 Access roads shall be obstructed and blocked using, rocks, gates, timbers or other barriers to impede access.

4.3 Re-Vegetation

.1 Temporary site locations shall be left in a manner which promotes natural re-vegetation of the site.

.1 In cases where seeding is required, and when conditions permit, it shall commence immediately upon completion of grading, capping and trimming operations. When conditions do not permit immediate seeding, Manitoba Infrastructure – Remote Road Operations shall endeavor to ensure seeding is completed within the next growing season.

.2 Seeding operations shall not be carried out under adverse conditions of high winds, or ground covered with snow, ice, or standing water.

ENVIRONMENTAL PROTECTION PROCEDURES

23

Mussel Salvage

March 2018 Revision

Procedure name:
Mussel Salvage

Reference number:

1.0 Description

.1 Mussel survey and if necessary salvage and relocation shall be undertaken as instructed by the Manitoba Infrastructure – Remote Road Operations in advance of various activities, including bridge construction, temporary water crossing structures, spawning shoals or spurs, and/or culvert installation in fish bearing waterways. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that mussel survey, salvage and relocation are conducted in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- Manitoba Infrastructure – Remote Road Operations (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Species at Risk Act, S.C. 2002 c.29
- Fisheries Act R.S.C., 1985, c. F-14
- Applicable Fisheries and Oceans Canada (DFO) Authorizations
- Species at Risk (SAR) Permit
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Protocols for Detection and Relocation of Freshwater Mussel Species at Risk In Ontario Great Lakes Area (OGLA) (Mackie et al. 2008) (http://www.dfo-mpo.gc.ca/Library/332071.pdf)
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

1. Permits
    1. Mussel Salvages shall be conducted to remove mussels from in- water footprints of project components.
    2. Necessary permits shall be obtained prior to conducting any in- water mussel work.
        i. Mussel salvage and relocation work shall be conducted under and in accordance with a live fish handling permit obtained from Manitoba Sustainable Development.
        ii. Where a species at risk (SAR), as listed under Schedule 1 of the Species at Risk Act is known to occur, or is found in the waterbed, work shall also be conducted under and in accordance with a species at risk (SAR) permit obtained from Department of Fisheries and Oceans (DFO). SAR permit application can be found online at: http://www.dfo-mpo.gc.ca/species-especes/permits-permis/pdf/SARA_permit_application-eng.pdf .
    3. Mussel survey and salvage operations shall be conducted by a qualified biologist:
        i. Mussels captured during the survey shall be identified and transported while submerged to a designated location with similar habitat an appropriate distance upstream from the construction work site. (minimum 250 m)
    4. Fish and mussel handling best practices shall be followed to reduce harm to mussels or mussel habitat.
    5. If a SAR is found in a new area, work shall be stopped, DFO informed DFO, and SAR permit obtained prior to continuing work.
    6. Riparian habitats shall be restored to original pre-work condition.
    7. Applicable measure in *Protocol for detection and relocation of freshwater mussel species at risk in Ontario Great Lakes Area (OGLA)* (Mackie et al. 2008) shall be used including:
        i. Preserve SAR listed mussels killed or mortally injured during survey or relocation in 95% ethanol and supply to DFO as per permit requirement.
    8. Mussel surveys, salvage and relocation activities and results shall be documented in a report generated by the fish biologist and submitted to Manitoba Infrastructure – Remote Road Operations for

review and approval. The report shall contain detailed descriptions, photos, and drawings of site conditions including:

i. Location, habitat profile, description of methodology (including names of collectors) contact information, organization, and schedule of activities.
ii. Results including photos of collected species and sites, depths, locations, and substrate in which each animal was found, numbers and the types of species found.
iii. Fish and mussel data collection table, where work is conducted under SAR permit. MI will supply the DFO template to the fish biologist conducting the work.

9. Any death of a listed SAR mussel during the salvage operation or associated construction shall be reported immediately to MI and the DFO Species at Risk Biologist.
10. Any circumstance during the mussel salvage or associated construction which has lead to the serious harm to fish (including any mussel) or a part of a commercial, recreational, or aboriginal fishery or deposit of deleterious substance in waters with potential fish presence the fish biologist/contractor shall report information to Manitoba Infrastructure – Remote Road Operations for submission to DFO under section 38(4) and 38(5) *Duty to Notify*.
11. Where required, Manitoba Infrastructure – Remote Road Operations shall submit reports to DFO and Manitoba Sustainable Development.

ENVIRONMENTAL PROTECTION PROCEDURES

24

Water Quality Monitoring

March 2018 Revision

Prepared by: C. McDermid	Revision Number: 23.3	Date Issued: September 2016
Approved by: J. Smith		Date of Revision: 2018-03-12
Updated Sec 3.0		

1.0 Description

.1 Water quality monitoring shall be undertaken to demonstrate that deleterious substances are not entering fish bearing waters or exceeding MWQSOGs.

.2 Monitoring shall be undertaken as instructed by Manitoba Infrastructure (MI) prior to, during, and after in-water construction activities in fish-bearing watercourses, and may be required when working near fish-bearing watercourses or tributaries to fish bearing watercourses. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that water quality monitoring activities are conducted in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- MI Contracts and Associated Documents
- Species at Risk Act, S.C. 2002 c.29
- Fisheries Act R.S.C., 1985, c. F-14
- Applicable Fisheries and Oceans Canada (DFO) Authorizations
- Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOGs)
- Canadian Council of Ministers of the Environment – Protocols Manual for Water Quality Sampling in Canada 2011
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All - Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 Water quality monitoring shall occur:

.1 When working in-water in fish-bearing watercourses, or near fish-bearing watercourses when below the normal high-water mark (Q2, or 1:2 year flood levels)

.2 When working in water upstream of and within 5km of a water treatment plant intake.

.3 As directed by MI when working near fish-bearing watercourses of tributaries to fish bearing watercourses.

.2 Water quality monitoring shall consist of:

.1 Total Suspended Solids (TSS) and turbidity monitoring during stream crossing construction and shall be based on an upstream- downstream approach, with sufficient coverage of the study area to define effects in the initial zone of dilution, as well as effects downstream (spatial extent and magnitude of any increases).

.1 A TSS/turbidity relationship for each in-water work shall be developed; turbidity shall be used as a surrogate for rapid on- site monitoring.

.2 Regular in-situ turbidity monitoring shall be conducted and laboratory Total Suspended Solid samples shall be collected and analyzed as required to validate in-situ monitoring where required by permit licence or authorization for the work.

.3 Further sampling shall be conducted as required by permit, licence or authorization for the work.

.2 Benzene Toluene, Ethylbenzene and Xylene (BTEX), and petroleum hydrocarbon fractions F1 to F4 shall be monitored where equipment is working in water or where there has been an accidental release on land that has the potential to or has resulted in the release entering a waterbody.

.3 Data collected at downstream sites shall be compared to data collected at upstream reference sites (background conditions) and compared to the *Manitoba Water Quality Standards, Objectives and Guidelines* (MWQSOGs) for the protection of aquatic life. Further monitoring and corrective action may be required if data falls beyond applicable standards or guidelines.

.3 Water quality monitoring activities shall be conducted or overseen by a qualified Fish Biologist pre-approved by MI. Works requiring water quality monitoring shall not be undertaken without the presence of a qualified Fish Biologist, or a person trained by a qualified Fish Biologist as authorized by MI.

.4 Where monitoring results demonstrate changes above *Manitoba Water Quality Standards, Objectives and Guidelines* (MWQSOGs), the activity shall cease until effective mitigation measures are taken and shown to be effective.

.1 Where an isolated work area is being dewatered and discharge exceeds guidelines, mitigation measures shall be employed and may include diverting waters to splash pads or small settling ponds before the impacted water re-enters a watercourse, or diverting water to the top of a bank where the water will not run back into the watercourse.

.5 The spatial extent and intensity of water quality monitoring during in-water works shall depend upon the presence and velocity of stream flow at the time of construction, or other permit, licence or authorization requirements.

.6 The Contractor shall be responsible for:

.1 Preparing a Fish and Water Quality Protection Plan for work requiring, or that may require water quality monitoring and submitting the Plan to MI prior to the start of the contract. The Plan shall include a description of the works and measures proposed to mitigate adverse changes to water quality.

.2 Contracting with a qualified fish biologist to conduct water quality monitoring activities unless otherwise directed by MI in writing.

.3 Conducting water quality monitoring prior to, during, and after construction activities.

.4 Reporting exceedances immediately to MI.

.5 Ceasing work if exceedances occur and employing corrective actions to mitigate exceedances prior to restarting work.

.6 Notifying MI immediately when the water quality monitoring plan is not being adhered to.

.7 Submitting water quality monitoring reports prepared by a qualified fisheries biologist to MI.

.7 Water Quality Monitoring Reports shall include:

.1 Coordinates of sampling locations,

.2 Description of the construction activity(ies),

.3 Description of the Total Suspended Solids (TSS)-Turbidity relationship,

.4 Measurements and timing of measurements of TSS and Turbidity,

.5 All other sampling data and analysis, and

.6 Exceedances based on rapid on-site monitoring results and corrective actions employed to mitigate exceedances.

.8 Water quality analysis shall be conducted at an Canadian Association for Laboratory Accreditation certified laboratory. Field equipment shall be calibrated in accordance with manufacturer's specifications prior to the start of monitoring work.

ENVIRONMENTAL PROTECTION PROCEDURES

25

Prevention of the Transfer of Invasive Species

March 2018 Revision

1.0 Description

.1 Procedures to prevent the transfer of invasive species shall be undertaken as instructed by Manitoba Infrastructure (MI) prior to, during, and after construction activities, including in-water work and work in sensitive or wilderness areas. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 *Purpose*

.1 The purpose of this procedure is to ensure that the transfer of aquatic and terrestrial invasive species are not transferred from one worksite to the next in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 *Legislation and Supporting Documents*

- MI Contracts and Associated Documents
- Fisheries Act R.S.C., 1985, c. F-14
- Aquatic Invasive Species Regulations SOR/2015-121
- The Water Protection Act C.C.S.M C. W65
- Applicable Fisheries and Oceans Canada (DFO) Authorizations
- Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOGs)
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 *Procedures*

.1 Aquatic Environment

.1 The Contractor shall ensure that equipment which has previously been in contact with an aquatic ecosystem, including but not limited to rivers,

lakes, and marshes is properly cleaned so as to prevent the spread of aquatic invasive species.

.1 Equipment of particular concern includes, water tanks, tank trucks, pumps, hoses, intake screens, boats and motors, and fish and water monitoring equipment.

.2 Equipment coming in contact with aquatic ecosystems shall be cleaned drained completely, dried, and inspected before and after contact. Cleaning is defined as the removal of all aquatic plants, animals, and sediments.

.3 Equipment that has or will come in contact with listed control zones (see attached Map) shall be decontaminated using one of the methods described in table 1. (See Manitoba Sustainable Development's website for the most up to date list of Control zones: http://www.gov.mb.ca/waterstewardship/stopais/)

Table 1: Decontamination methods for water related equipment as described by Manitoba Sustainable Development. Source: http://www.gov.mb.ca/waterstewardship/stopais/help/methods.html [2017-03-09]

Product	Dilution	Method	Duration	Next steps
Bleach 5.25% (household sodium hypochloride)	100 ml bleach to 1 L of water	Completely submerge and ensure the item is in direct contact with solution.	30 minutes	Rinse thoroughly with potable water and wipe down with a cloth.
Vinegar (white) (5% acetic acid)	No dilution required	Completely submerge and ensure the item is in direct contact with solution.	60 minutes	Rinse thoroughly with potable water and wipe down with a cloth
7% hydrogen peroxide	64 ml to 1 L of water	Completely submerge and ensure the item is in direct contact with solution.	60 minutes	Rinse thoroughly with potable water and wipe down with a cloth.
Table salt (NaCl)	10 ml of salt to 1 L of water	Completely submerge and ensure the item is in direct contact with solution.	24 hours	Rinse thoroughly with potable water and wipe down with a cloth.
Hot water (>60 C)	N/A	Completely submerge and ensure the item is in direct contact with water at all times.	10 seconds	Wipe down with a cloth.
Hot water (>60 C)	N/A	Clean with hot water (minimum 60 C) that is discharged at a pressure between 40 to 60 psi. The water must be sprayed no more than 10 cm from the surface being cleaned.	All surfaces being cleaned must receive a minimum of 20 seconds of exposure to the hot water.	Wipe down with a cloth.
Temperatures below -10 C	N/A	Expose item to required minimum temperature.	three consecutive days	None

.4 Equipment that has come into contact with aquatic ecosystems in another province, territory, or country must be decontaminated as described in Table 1.

.2 In the event that aquatic invasive species are discovered during inspection the contractor shall inform the MI project manager and environmental coordinator as well as Manitoba Sustainable Development using the web-form linked below: (http://www.gov.mb.ca/waterstewardship/stopais/ais_reporting.html

.2 Terrestrial Environment

.1 To prevent the transfer of terrestrial invasive species, all equipment shall be cleaned to remove all earthen material and plant debris and inspected before being brought to sight and before it is removed from sight. Cleaning shall be carried out with a pressure washer or scrub brush. If soap is used it shall be phosphate free.

.2 In the event terrestrial invasive species are discovered the contractor shall inform the MI project Manger and environmental coordinator and the Invasive Species Council of Manitoba using the web-form at: http://invasivespeciesmanitoba.com/site/index.php?page=report-a-sighting

.3 Documentation

.1 Documentation of measures to ensure the prevention of the spread of aquatic and terrestrial species invasive species shall be incorporated into the respective Water Quality and Fish Protection Plan and Monthly Environmental reports including:

- .1 History of equipment work locations and potential sources of contamination.
- .2 Detailed Cleaning and Decontamination Plan and procedures (methods) to be employed.
- .3 Documentation of cleaning and decontamination (date, personnel, confirmation of methods used).

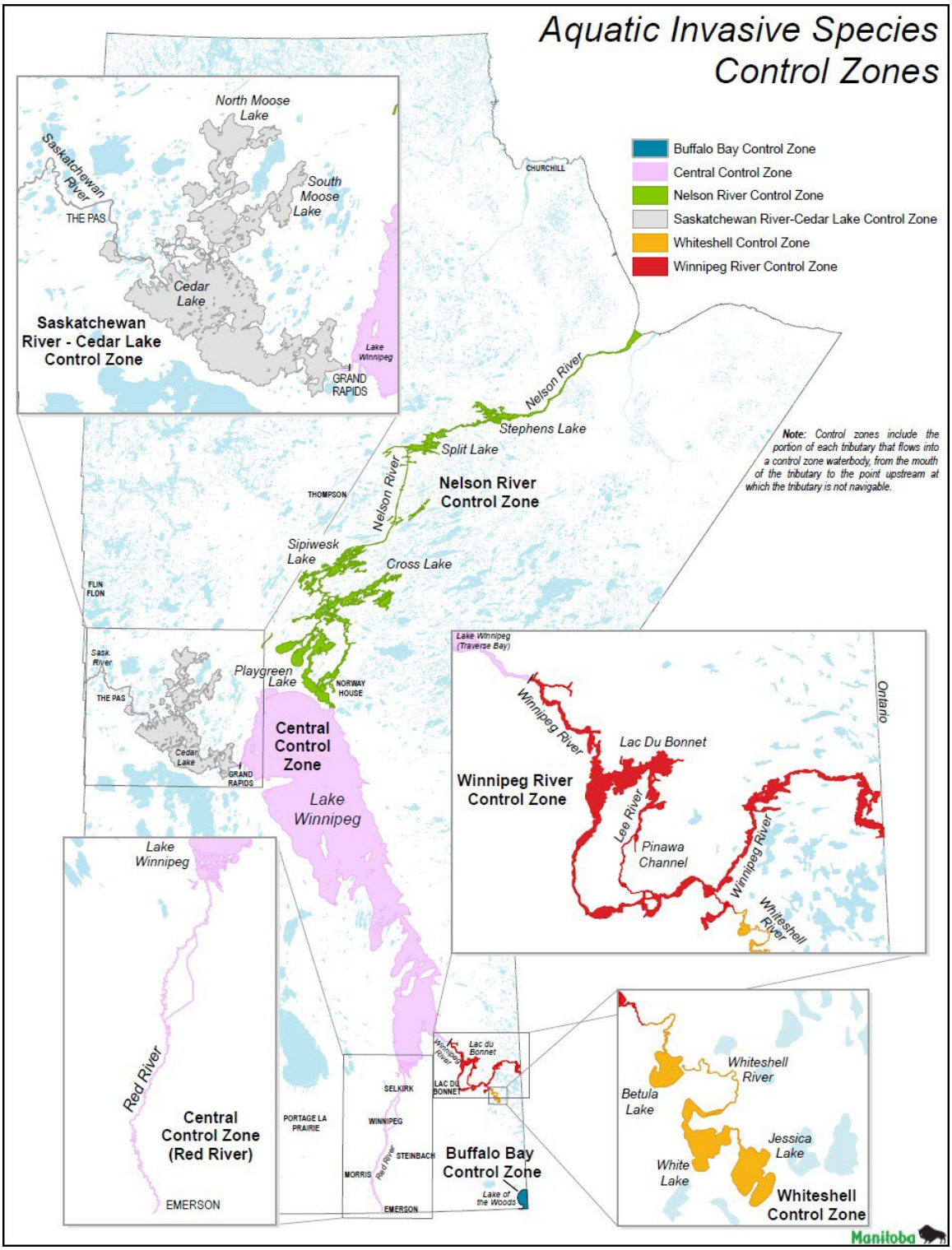


Figure 1: Manitoba Aquatic Invasive control Zone Map. Source:

http://www.gov.mb.ca/waterstewardship/stopais/help/control_zone.pdf

Prepared by: G Chamberlain	Revision Number 25.2	Date Issued: March 2017
Approved by: J. Smith		Date of Revision: 2018-03-12
Updated Sec 3.0 and 4.0		

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130.1 DESCRIPTION

.1 This Specification covers general requirements for the protection of the Environment.

130.2 ENVIRONMENTAL PROTECTION PLAN

.1 The Contractor shall plan and implement the Work of this Contract in accordance with the Specifications and Drawings.

130.3 SUBMITTALS

.1 The Contractor shall submit details of the proposed Designated Areas for review and acceptance by the Contract Administrator in accordance with the General Conditions. Submittals shall include marked up Drawings, and coordinates of the proposed Designated Areas including access, and shall provide sufficient detail to demonstrate full compliance with these specifications. Designated Areas requiring submittals are:

- .1 laydown and staging area(s);
- .2 waste storage area(s);
- .3 fuel storage and refuelling area(s);
- .4 equipment servicing area(s);
- .5 work camp(s);
- .6 parking area(s);
- .7 cement batch plant(s);
- .8 cement washout area(s); and
- .9 others as required by the Contract Administrator.

.2 The Contractor shall submit for review and acceptance by the Contract Administrator 10 business days in advance of the start of work:

.1 Environmental Emergency Plan for Spill Response and Remediation;
.2 Material Safety Data Sheets;
.3 A Water Quality and Fish Protection Plan including but not limited to:

- Construction Phase Erosion and Sediment Control measures;
- In-water works;
- Water quality monitoring;
- Isolation plan;
- Fish salvage and;
- Mussel salvage.

.4 monthly reports providing the records as specified in 130.5 of this Specification;
.5 Waste Management Plan;
.6 Material Management Plan in the event of an Unplanned Shutdown;
.7 Problem Wildlife Management Plan;
.8 Cement Washout Plan;
.9 Petroleum Storage and Equipment Fuelling and Servicing Plan;
.10 Evacuation and Emergency Preparedness Plan in the Event of a Wildfire;
.11 Copies of all required approvals, clearances, permits, licences, and certificates issued to the contractor, or their sub-contractors, including but not limited to:

- Batch Plant Environment Act Licence;
- Fish collection permits;
- Septic permits;
- Crown Lands Well permit.

.12 Other submittals as required.

130.4 ENVIRONMENTAL APPROVALS AND AUTHORIZATIONS

.1 No work is to begin without having the proper permits or authorizations on hand for said work.

.2 The Contractor shall adhere to conditions specified in any and all permits, authorizations, licences, approvals and letters of advice or directive issued for the Work.

.3 Where MI applies for permits, authorizations, licences, approvals and letters of advice or directive to any regulatory body to facilitate the Contractor's work plan, there shall be no award for damages, delay claims or other costs by the Contractor on MI as a result of delays in issuance or rejections of applications.

130.5 RECORD KEEPING

.1 The Contractor shall maintain a record file at the Site in which all relevant information relating to materials handling, spills, leaks, releases, and the implementation and adjustment of the environmental protection measures shall be documented. The Contractor shall maintain a copy of these records for a minimum of 5 years. Relevant information and/or significant events to be documented and provided to the Contract Administrator in a timely fashion may include, but are not limited to:

.1 all accidents, spills, leaks, and releases and the reporting and clean-up procedures used;
.2 any reviews, improvements and adjustments to the environmental protection measures;
.3 details of all environmental training sessions, including the schedule of these sessions and the names of participants;
.4 a full inventory of dangerous goods brought onto the site;

.5 a full inventory of all hazardous wastes encountered on the site;
.6 records of all waste hauled from the site for disposal, including the location, name and description of the disposal facility and waybills/manifests;
.7 records of all material hauled from the site for recycling, including the location, name and description of the person or facility the material was delivered to;
.8 records of all fuel transported and stored at the site;
.9 records of equipment inspections and maintenance;
.10 records of all public complaints;
.11 records of actions taken to remove deleterious substances and debris from watercourses;
.12 records of annual use of pesticides; and
.13 wildlife encounters and/or management measures employed.

130.6 GENERAL

.1 All construction traffic shall be restricted to the Site, existing roads, or approved access routes.

.2 The Contractor shall employ all reasonable precautions to prevent the general public from entering the Site.

.3 The Contractor shall maintain equipment and vehicles in good working order and shall restrict the servicing of equipment to Designated Areas. Where equipment and vehicles cannot be moved to the Designated Area, spill containment is required.

.4 The design of temporary works shall be provided to the Contract Administrator and shall be approved in advance of construction. There may be cases where community concerns and/or changing regulatory schemes may require the Contractor to design temporary works beyond what is outlined in regulation or in these General Requirements. If costs associated with these additional temporary works are not identified prior to the Submission Deadline, GC7.00 will apply.

.5 In the design of temporary works, the Contractor shall assume, unless otherwise advised in writing by the Contract Administrator, that all watercourses are navigable and shall design temporary works in accordance with this premise. Where navigability cannot be provided, the Contractor shall provide a plan that outlines warning signage and markers and alternate means of passage for approval by the Contract Administrator.

130.7 INSPECTIONS

.1 Periodic inspections of the site will be conducted to ensure that the Site is managed in accordance with the specifications. The Contractor shall address inadequate environmental protection measures, remediate contamination and restore site conditions to the satisfaction of the Contract Administrator.

.2 As sites are decommissioned the CA will retain a third party independent environmental consultant to assess these sites. The contractor shall remediate, including appropriate disposal of contaminated material to the satisfaction of the CA.

130.8 DESIGNATED AREAS AND ACCESS

.1 The Contractor shall construct and maintain Designated Areas for their intended purpose and in a manner which provides for inspection including the regular

clearance of snow.

.2 The Designated Areas shall be contained within the Site unless otherwise authorized by the Contract Administrator.

.3 The topsoil in Designated Areas shall be stripped and stockpiled for later reuse in site restoration. Granular material shall be placed to ensure all weather accessibility.

.4 Locations within Designated Areas where equipment, hazardous material and/or wastes will be stored or maintained shall be underlain with at least 30 cm of impermeable soil or approved equal and lined with an impermeable groundsheet to contain spills and minimize cleanup costs. Hazardous materials must also comply with the additional requirements outlined in 130.9.2.4.4.

.5 Designated Areas shall be located a minimum of 100 metres from any waterbody.

.6 Access to Designated Areas from a public roadway shall be such that it is not a safety hazard to the employees or the general public.

.7 The Contractor shall restore the Designated Areas and access roads not required for on-going maintenance to their original condition.

.8 The Contractor shall ensure access to Designated Areas is restricted to prevent access of unauthorized personnel.

130.9 MATERIALS HANDLING, STORAGE AND DISPOSAL

130.9.1 General

.1 All construction areas shall be kept clean and orderly at all times during and at completion of construction.

.2 The Contractor shall take all reasonable measures to prevent compounds harmful to human health or the environment from being released.

.3 All unused, partially used and waste material shall be removed and properly disposed of prior to the end of the Contract.

.4 Materials required for spill containment and clean up shall be available at all locations where construction related activities occur.

130.9.2 Handling and Storage of Wastes

130.9.2.1 Domestic Solid, Demolition and Construction Waste

.1 Waste material shall be recycled to the degree that is economically and practically feasible.

.2 There shall be no dumping of waste on or off the construction site.

.3 Different waste streams shall not be mixed.

.4 Waste shall be stored in Designated Areas for each worksite and camp as approved by the Contract Administrator. At no time during construction shall domestic solid, demolition, or construction waste be permitted to accumulate at any other location on the work site.

.5 All waste materials shall be collected and contained in marked containers appropriate to the waste classification until removed from the site for recycling or disposal as approved by the Contract Administrator.

.6 All solid waste generated at the camp must be disposed of at a registered waste disposal ground or recycling facility. On-site burning or burial is not permitted.

130.9.2.3 Domestic Sewage and Grey Water

.1 All sewage and grey water shall be collected through the provision of a wastewater management system in compliance with the Manitoba Regulation No. 83/2003 respecting Onsite Wastewater Management Systems or any future amendments thereof.

.2 All collected sewage shall be removed from the site at least once every seven (7) days, where transportation permits, by a registered sewage hauler and disposed of at a Designated licensed wastewater treatment facility.

130.9.2.4 Dangerous Goods/Hazardous Waste Handling and Disposal

.1 Dangerous goods/hazardous wastes shall be identified and shall be handled in accordance with The Dangerous Goods Handling and Transportation Act and Regulations, WHMIS and any other applicable regulation.

.2 All dangerous goods/hazardous waste storage areas shall have the top soil stripped and lined with at least 30 cm of impermeable material and an impermeable ground sheet in a manner as to minimize the spread of any leak or spill. Top soil shall be stored and used in the restoration of the area.

.3 All dangerous goods/hazardous wastes shall be stored with a storage vessel or constructed dyking system designed to contain 110% of the total volume. Where dyke shall be used it shall be designed and maintained in such a manner so as to capture spills. Accumulated fluid in the dyke is to be disposed of as hazardous waste unless test results from an approved accredited lab demonstrate otherwise.

.4 A WHMIS file shall be maintained on-site for all hazardous materials at the work area. Prior to commencement of the Work Material Safety Data Sheets (MSDS) shall be submitted to the Contract Administrator for all hazardous materials to be used on-site. No material shall be brought to the site without prior submission of a MSDS.

.5 The Contractor shall have staff trained and certified in the handling of dangerous goods present on-site whenever dangerous goods are being transported, stored or utilized for the performance of the work. All staff responsible for the handling of dangerous goods and hazardous wastes must also be trained in emergency spill response and containment.

.6 All dangerous goods/hazardous waste shall be confined to Designated Areas and stored in a secure manner to prevent access by unauthorized personnel.

.7 Disposal of hazardous waste shall only be at hazardous waste facilities licensed under The Dangerous Goods Handling and Transportation Act.

.8 All hazardous waste stored at Designated Areas shall be removed from the site at least once every seven (7) days or as approved by the Contract Administrator. Should access to the site pose an issue, all hazardous waste shall be stored in an approved storage vessel until transportation of waste can be accomplished.

.9 All used oil shall be stored in leak-proof drums with tight fitting lids or tanks until removed to a registered waste oil facility or hazardous waste disposal facility. Outdoor storage of used oil in drums must be stored in such a manner so as to provide for secondary containment, prevent corrosion and damage from collision and prevent a spill to the environment.

.10 Used oil filters shall be drained, placed into suitable storage containers and disposed of at approved facilities. The oil drained out of the used filters shall be

collected and handled in the same manner as used oil.

.11 A pesticide use permit shall be obtained prior to the application of pesticides. The Contractor shall ensure that all pesticides are applied by a licensed commercial applicator and adhere to all conditions specified in Manitoba Regulation 94/88 respecting Pesticides or future amendments thereof and associated permits. The Contractor is to submit a completed post seasonal form to the Contract Administrator at Substantial Performance and at the end of each calendar year, confirming that the terms and conditions of the permit have been satisfied.

130.9.2.5 Petroleum Handling and Storage

.1 Fuel tanks are not to be used without a proper authorization and documentation of such (Permit, etc.)

.2 All petroleum handling, and storage shall comply with Manitoba Regulation 188/2001 respecting Storage and Handling of Petroleum Products and Allied Products or future amendments thereof, the Manitoba Fire Code and all other applicable requirements.

.3 Petroleum products shall be transported in accordance with the Manitoba Provincial Dangerous Goods Handling and Transportation Act.

.4 Fuelling of storage tanks and mobile equipment is to take place within Designated Area(s) for fuel storage and fuelling.

.5 In the event that a piece of equipment must be fuelled or maintained outside a Designated Area, the fuel shall be transported in approved containers.

.6 All fueling activities shall use spill trays and/or polyethylene (HDPE) groundsheets to contain the fuel and prevent fuel from being spilled onto the ground surface. Fuelling areas should be kept clean and free of snow and other materials so as to allow clear access and routine inspection and leak detection.

.7 Tank vehicles used to deliver fuel to the worksite and/or to refuel around the worksite shall meet the requirements for highway tanks for the shipment of dangerous goods by road set out in CSA Preliminary Standard B620-98, Highway Tanks and Portable Tanks for the Transportation of Dangerous Goods or any future amendment thereof.

.8 Equipment shall not be refueled from fuel dispensed from a watercraft.

.9 Petroleum storage shall be a minimum of 3 metres from property lines or buildings, 15 metres horizontally from hydroelectric poles and lines, 1 metre from other storage tanks and 100 metres from any watercourse.

.10 Petroleum storage tanks shall be grounded and the dispensing tank shall be attached with a bonding cable to an appropriate location on the receiving tank prior to commencement of fueling.

.11 Petroleum products shall be labeled as to their contents and stored and handled within Designated Areas which clearly identify the materials present.

.12 Access to the Designated Area(s) for petroleum storage areas shall be restricted to authorized personnel.

.13 Storage tanks shall be secured.

.14 Signs shall be posted in Designated Area(s) for fuel storage and refueling including:

.1 Materials identification and hazard placards;
.2 Storage tank permit(s);

.3 Spill response procedures including contact list in the event of a spill;
.4 Clean up procedures;
.5 Fuelling procedures; and
.6 Access restrictions.

.15 Personnel involved in the handling and storage of fuels shall have WHMIS and spill response training.

.16 Combustible engines shall be shutdown during fueling.

.17 No smoking and no open flames are permitted at storage tanks or the Designated Area for fuel storage and refueling at any time.

.18 Only above ground storage tanks shall be used for the storage of bulk petroleum products. All storage tanks over 230 litres must be double-walled tanks meeting the standard defined under the Canadian Council of Ministers of the Environment Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products. All storage tanks over 5000 litres require a permit and must meet the requirements under the Manitoba Regulation 188/2001 respecting Storage and Handling of Petroleum Products and Allied Products or any future amendments thereof,

.19 Storage tanks shall be equipped with overfill protection and spill containment at the transfer area(s) in the system design approved by the Contract Administrator.

.20 Product inventory shall be taken weekly by the owner/operator of all above-ground storage tanks greater than 5000 litres and retained for inspection upon request.

.21 Barriers shall be installed to encircle petroleum storage tanks to prevent collisions with vehicles and heavy equipment. The mass, height and setback of the barricades are to be determined by the size of equipment on site and shall be operable under conditions of snow accumulation.

.22 All petroleum storage containers and tank vehicles shall be inspected daily for leaks and spillage. Damaged or leaking fuel storage containers shall be promptly removed from the Site.

.23 Secondary containment shall be incorporated at locations where stationary equipment is used.

.24 Fuel barrels shall be transported in accordance with the Dangerous Goods Handling and Transportation Act and be securely fastened to vehicles during transport.

.25 Fuel transfers must be monitored.

.26 All vehicles hauling fuel shall carry materials and equipment for emergency spill response.

.27 All petroleum product storage sites and mobile transportation units shall, at all times, be equipped with appropriate categories of equipment and volumes of fire suppression products.

130.10 SPILLS, REMEDIATION AND EMERGENCY RESPONSE

.1 All spills or accidental releases of petroleum products or other hazardous substances to a watercourse, to federal lands, and/or as specified by the Manitoba Regulation 439/87 respecting Environmental Accident Reporting or future amendments thereof shall be immediately reported to Manitoba Sustainable Development and the Contract Administrator.

It is the responsibility of the Contractor to conduct appropriate soil testing on Designated Area(s) and contract work sites prior to the mobilization of equipment to site to establish baseline conditions. The Contractor will be held responsible for any contamination unless evidence to the contrary can be provided by the Contractor.

.2 All environmental emergencies shall be reported to the Contract Administrator within 24 hours whether it was necessary to report the spill to Manitoba Sustainable Development or not. The report shall include the following:

.1 Location of spill or release (GPS coordinates);
.2 Personnel responding;
.3 Materials spilled;
.4 Cause of spill;
.5 Estimated quantity of released material;
.6 Estimated area and volume of soil affected;
.7 Cleanup action undertaken; and
.8 Means used to contain, transport and dispose of the materials involved.

.3 The Contractor shall designate a qualified on-site emergency response coordinator(s) who shall be on site at all times that work is being undertaken. The emergency response coordinator(s) shall have the authority to redirect manpower and equipment in order to respond in the event of a spill, release or other environmental emergency.

.4 All spills or releases of petroleum and other products shall be contained, treated and disposed of in accordance with the Manitoba Regulation 188/2001 respecting the Storage and Handling of Petroleum Products and Allied Products Regulation or any future amendment thereof and any other applicable requirement.

.5 An updated environmental emergency plan for each dangerous good/hazardous waste shall be maintained in the work area at all times. The environmental emergency plan must include:

.1 The identification of any environmental emergency that can reasonably be expected to occur and that would likely cause harm to the environment or constitute a danger to human life or health and identification of the harm or danger;
.2 a description of the measures to be used to prevent, prepare for, respond to and recover from any environmental emergency identified above;
.3 a list of individuals who are to carry into effect the plan in the event of an environmental emergency and a description of their roles and responsibilities;
.4 the identification of the training received for each of these individuals;
.5 a list of the emergency response equipment and the equipment's location; and
.6 the measures to be taken to notify members of the public who may be adversely affected by an environmental emergency.

.6 The Contractor is responsible for restoring site, including soil and water remediation resulting from the activities of the Contractor, any Subcontractors and agents of the Contractor.

.7 As the Designated Areas are scheduled for decommissioning, the Contract Administrator will coordinate an environmental site assessment(s) of the Designated Areas by MI or its Agent. The Contractor will provide notice to the Contract Administrator at least 30 days prior to completion of work and/or

Designated Area(s) decommissioning.

.8 Where spill events occur, the Contract Administrator will coordinate an environmental site assessment(s) by MI or its Agent.

.9 The Contract Administrator and the MI will coordinate the submission of a Remedial Action Plan (RAP) to Manitoba Sustainable Development for approval, if necessary. The Contractor shall remediate contaminated sites as per the criteria identified in the approved RAP and to the satisfaction of the Contract Administrator.

.10 The Contractor may, at their expense, engage a member of the Association of Professional Engineers and Geoscientists of the Province of Manitoba to draft and submit a RAP to Manitoba Sustainable Development for approval. The Contractor must provide copies of the RAP draft(s) and approval(s) to MI prior to the start of remediation.

.11 Where multiple Contractors are using a Designated Area the Contract Administrator shall ensure an agreement is reached between Contractors to deal with overlap of responsibility for site restoration and remediation.

.12 The Contractor shall provide a work plan and schedule to the Contract Administrator regarding remediation activities within 10 business days following receipt of approved RAP and at minimum 5 business days prior to the anticipated start of remedial works. Remedial works shall only begin in the presence of MI or their designated agent.

.13 The Contractor shall provide the equipment and personnel required to conduct the remediation in a timely manner and shall work cooperatively with MI and their designated agent to address site contamination.

.14 The Contractor shall dispose of all contaminated materials at a licensed treatment facility unless otherwise provided for in the RAP. Contaminated runoff or water shall be collected and contained. The collected runoff shall be disposed of as identified in the RAP.

.15 Waybills for disposal shall be provided by the Contractor to the Contract Administrator in all instances. The Contract Administrator may, prior to issuing Substantial Performance to the Contractor, require a hold-back, which will be released to the Contractor following submission of all waybills.

130.11 DUST AND PARTICULATE CONTROL

.1 All work shall be conducted by methods that minimize the raising of dust from construction operations.

.2 Water or approved dust suppressants only shall be used for dust control when necessary. The use of waste petroleum or petroleum by-products is not allowed.

.3 All vehicles used to haul materials to or from the work site shall have the load covered with a tarpaulin during transport.

.4 All stock piles or spoil piles shall be maintained as to minimize wind erosion.

130.12 NOISE AND NOISE LIMITATIONS

.1 All equipment supplied by the Contractor shall be effectively sound-reduced by means of silencers, mufflers, acoustic linings, acoustic shields or acoustic sheds.

.2 The Contractor shall comply with the noise By-laws of the adjacent First Nations and/or municipal authorities.

.3 Any operation of equipment outside the hours as regulated by the adjacent First Nations and/or municipal authorities shall require an exemption in writing. The Contractor shall provide a copy of such an exemption to the Contract Administrator.

.4 The Contract Administrator may impose requirements on the Contractor to minimize noise nuisance at their discretion.

130.13 PLANNED AND UNPLANNED SHUTDOWNS

.1 The Contractor shall ensure all equipment, supplies, and any other items used during construction are relocated to Designated Areas for laydown and staging or taken off site prior to any shutdown period.

.2 All dangerous goods/hazardous waste shall be removed from the Site, including from the Designated Areas for waste and/or fuel storage, for any shutdown period where transportation permits and/or at the discretion of the Contract Administrator. In all instances dangerous goods/hazardous waste shall be securely stored and inspected regularly during the shutdown.

.3 Waste products shall be removed from the construction site during a shutdown period, including from the Designated Areas where transportation permits and/or at the discretion of the Contract Administrator. The demolition and construction waste products, such as gravel and waste concrete, may be left on-site as long as they are stored in a secure Designated Area for waste.

.4 The Contractor shall submit a plan to the Contract Administrator for removal and/or securing of equipment, supplies and waste materials in the event of an unplanned shutdown.

130.14 STAFF TRAINING AND AWARENESS

.1 The Contractor shall provide mandatory training and awareness sessions prior to the start of construction and to new personnel to ensure all personnel working on the Contract are aware of and understand the environmental provisions of the Contract documents including relevant drawings, specifications and Contractor submittals and updates. Such orientation and participants shall be documented.

.2 The Contractor shall submit the planned frequency and records of these meetings. The Contractor shall maintain access to all environmental provisions of the Contract documents including relevant drawings, specifications and Contractor submittals and updates, in a location and manner accessible to all employees, subcontractors, and agents,

130.15 WORKING WITHIN OR NEAR WATER

130.15.1 General

.1 Material, cleared vegetation, stockpiles and/or waste shall not be deposited or stored within 100 metres of a watercourse, unless approved by the Contract Administrator, No borrow shall be removed from within 100 meters of a water body.

.2 Construction activities shall not occur within 100 meters of a watercourse with the exception of construction of a watercourse crossing.

.3 Where a 100 meter distance is not possible, a buffer zone of undisturbed vegetation between the construction activities and the watercourse shall be established. The buffer zone width shall be established according to the following formula: Width = 10 meter + 1.5(slope gradient) or 30 meters whichever is greater.

.4 Backfill installed adjacent to a fish bearing water body shall consist of clean and well graded granular material that is free of fines. Rip-Rap and other rock or granular materials to be used in or adjacent to a fish bearing water body shall be free of fines.

.5 Vehicles and other equipment shall be kept away from and out of the water unless otherwise approved by the Contract Administrator. Equipment shall not be washed within 100 meters of a watercourse. Where the Contractor will be using equipment or supplies in water, and where there is risk of importing invasive species, the Contractor shall clean the equipment and supplies in accordance with Manitoba Sustainable Development's Protocol for Cleaning Equipment.

.6 Whenever it is necessary to remove existing beaver dams, the Contractor shall adhere to the
130.15.10. Work plans for beaver dam removal shall be provided to the Contract Administrator 10 business days prior to the start of dam removal for application of a beaver dam removal permit from Manitoba Sustainable Development.

.7 Effective erosion and sediment control measures shall be implemented where and when necessary to prevent sediment from entering any watercourse and in accordance with 130.16.

.8 The Contract Administrator and/or an MI Environment Officer shall inspect the site prior to the commencement of in-water construction activities.

.9 Deleterious substances shall be prevented from entering any watercourse or any of their contributory channels.

.10 A silt curtain should be placed downstream of in water work.

130.15.2 Timing of Work

.1 The Contractor shall schedule, plan, and carry out works such that in-water work is kept to a minimum. When practical, in-water work shall be staged to occur as a single event.

.2 In-water work shall be restricted to low flow periods and shall be scheduled during a period when the watercourse is seasonally dry or frozen to the bottom whenever possible.

.3 The Contractor shall not undertake construction activities in watercourses during periods of high stream flow.

.4 South of Leaf River, the Contractor shall not undertake construction activities in fish bearing waters or potentially fish bearing waters between April 1 and June 30, during periods of high stream flow or identified spawning periods. In waters that have fall spawning fish, the Contractor shall not undertake construction activities between September 15 to April 30, unless otherwise authorized by the Fisheries and Oceans Canada and Manitoba Sustainable Development.

.5 North of Leaf River, the Contractor shall not undertake construction activities in fish bearing waters or potentially fish bearing waters between April 15 and July 15, during periods of high stream flow or identified spawning periods. In-waters that have fall spawning fish, the Contractor shall not undertake construction activities between September 1 to May 15, unless otherwise authorized by the Fisheries and Oceans Canada and Manitoba Sustainable Development.

130.15.3 Disturbance to Stream Bed and Stream Banks

.1 Machinery access for in-water work shall be limited to a single point on the shoreline. The distance between the machinery access point and the worksite shall be minimized. The machinery shall arrive on site in a clean, washed condition, and be free of fluid leaks prior to any in-water work.

.2 The Contractor shall use an in-water pad built of washed gravel where in-water equipment activity may generate excess sediment.

.3 The Contractor shall minimize the disturbance to stream bed and banks. The bed and banks of the watercourse shall be restored to preexisting conditions following a disturbance.

.4 The Contractor shall use existing trails, roads or cut lines to access the site where possible to avoid disturbance to riparian vegetation.

.5 Debris and other objects shall be lifted out of the water whenever possible. Items shall not be dragged across the stream bed/lake bottom and banks/shoreline.

130.15.4 Authorizations and Approvals

.1 Construction within 30 meters of a waterway requires authorization by Manitoba Sustainable Development except construction of watercourse crossing approaches.

.2 Fisheries and Oceans Canada Authorization(s) may be required prior to the commencement of any in-water or near water work. MI shall obtain these permits as required. The Contractor is required to provide MI with all project specific information required for these submissions a minimum 90 calendar days prior to the undertaking of in-water and/or near water works, with the understanding that Fisheries and Oceans Canada may request additional information. MI shall not be responsible for delays associated with Fisheries and Oceans Canada Authorization(s). All conditions specified in Fisheries and Oceans Canada Authorizations, Letters of Advice and/or other Fisheries and Oceans Canada directives apply to the work.

.3 Transport Canada (TC) Navigation Protection Approval(s) may be required for the construction of permanent, temporary or other watercourse crossings and/or in water structures. MI shall obtain these permits as required. The Contractor is required to provide MI with all project specific information required for these submissions a minimum 90 calendar days prior to the need to undertake the works with the understanding that TC may request additional information. MI shall not be responsible for delays associated with TC Navigation Protection Approval(s). All conditions specified in TC Navigation Protection Approval(s) and other directives apply to the work.

.4 For all temporary work and construction activities required for in-water works MI will apply for required authorizations, permits, and approvals. Contractors must supply detailed schedules and work plans to facilitate these applications and cooperate with additional information requests from regulatory bodies. It may take up to 90 or more business days to process applicable authorizations, permits required. The contractor is bound by all conditions specified in regulatory directives applicable to the work. MI shall not be held responsible for any delays related to approvals.

130.15.5 Stream Crossings

.1 Where possible existing stream crossings shall be utilized to traverse watercourses. The number of temporary stream crossings shall be minimized.

.2 All stream crossings shall be constructed in accordance with The Manitoba Stream Crossing Guidelines for the Protection of Fish Habitat – May 1996.They must be designed for their intended construction loading and to accommodate intended water flows.

.3 Streams shall be crossed at right angles at a narrow channel section where the width is no greater than five meters, measured from high water mark to high water mark. Meander bends, braided streams, alluvial fans and other unstable areas shall be avoided.

.4 The natural alignment of the stream shall be maintained.

.5 Dredging, infilling, grading or excavating of the channel bed or banks of fish bearing waterways will require DFO authorizations.

.6 If there is no existing crossing and the watercourse must be crossed, the contractor must either:

.1 Construct a temporary crossing or ice bridge. Ice bridges constructed solely of clean water do not require Fisheries and Oceans Canada Authorization provided they do not obstruct fish passage during timing windows. Ice bridges constructed otherwise require Fisheries and Oceans Canada Authorization; or

.2 Ford the watercourse. For one-time crossing (over and back) of watercourses where the width is no greater than five meters, measured from high water mark to high water mark. For larger watercourses or crossings that require multiple fordings, Fisheries and Oceans Canada Authorization shall be obtained.

.7 Fording activities may require water quality monitoring as per 130.15.8.

.8 Temporary stream crossings shall be removed as soon as possible following completion of the construction activities or when it is no longer required, whichever is sooner.

GR130.15.6 Base Flow, Diversions and Fish Passage

.1 The Contractor is responsible for maintaining base flows for the duration of construction activities in watercourses requiring in-water and near water work, including those works which may require the installation of cofferdams and related structures, unless otherwise approved.

.2 Temporary stream diversions may be used wherever a watercourse must be completely blocked to allow work in the dry.

.3 Temporary stream diversions shall be constructed under low flow conditions. The Contractor must ensure the diversion structure design accommodates any expected high flows during the construction period. Materials used shall not be taken from below the high water mark.

.4 Diversion channels shall be constructed in the dry by excavating from downstream to upstream and removing the ends of the channel last. Diversion channels shall have gentle curves and similar gradient to the natural watercourse.

.5 In-water diversion structure channels shall be constructed using erosion resistant materials.

.6 Existing watercourses shall not be disturbed until temporary diversion channels have been constructed.

.7 Gradient controls shall be used to ensure that diversion channel slopes

correspond to the existing channel gradients.

.8 Erosion control measures shall be installed to protect any unstable channel beds and banks in accordance with 130.16 of this specification.

.9 The diversion channel shall be routinely inspected to identify areas of incipient erosion. Eroded areas shall be repaired immediately.

.10 A pumped diversion may be used to maintain flows downstream in non-fish bearing watercourses.

.11 For pumped diversions of fish bearing watercourses all water intakes shall be sized and screened to prevent blockage and/or fish mortality in accordance with Fisheries and Oceans Canada's Freshwater Intake End-of-Pipe Fish Screen Guideline.

.1 The pumping system shall be sized to accommodate expected watercourse flow from storm events.

.2 Pumps shall be discharged onto geofabric, gravel, straw bales or an alternate approved by the Contract Administrator to dissipate the energy of discharge.

.12 Temporary stream diversions shall be designed to provide fish passage, even during low flow conditions. The diversion shall be removed during fish migration periods where elevated pipes are used.

.13 At least one-third of the width of any fish bearing watercourse shall be left open to permit the safe and unimpeded passage of fish. If width is to be constricted by more than two thirds Fisheries and Oceans Canada Authorization is required. Authorizations shall be sought in accordance with 130.15.4

.14 The original flows through the site shall be restored as soon as work is completed.

130.15.7 Fish Salvage

.1 The Contractor cannot initiate any work where fish salvage may be required without a live fish handling permit and the direct oversight of a qualified Fish Biologist.

.2 Fish salvage shall be conducted prior to the commencement of in-water construction activities and/or prior to dewatering of an isolated work area.

.3 Where fish salvage is being coordinated by others, the Contractor must cooperate and coordinate with the Contract Administrator, MI and its agents.

.4 The Fish and Water Quality Protection Plan shall be developed by the Contractor so as to minimize the onsite requirement for a fish biologist to the greatest extent practical. Any alterations to the submitted Fish and Water Quality Protection Plan shall be submitted 15 days in advance of the start of work.

.5 The Contractor must advise the Contract Administrator 15 business days in advance of in-water works where fish salvage is required. The Contractor shall reconfirm the schedule 5 business days and 48 hours in advance of the start of work. Any alteration to the schedule after the 5 business days which results in direct or indirect costs to the Contractor Administrator, MI or its agent shall be at the Contractor's expense.

.6 Fish salvage shall be conducted immediately after an area within a watercourse has been isolated. Partial dewatering is permissible to decrease wetted area and increase efficiency of capture, however, the fish salvage shall be completed prior

to dewatering the entire area.

.7 The Contractor must provide access and facilitate fish salvage activities including removal of ice within the isolated area and any other works as necessary at no additional cost.

.8 Isolation structures shall be monitored by the Contractor once the fish salvage is completed to ensure that they remain barriers to fish passage and do not allow fish to enter the isolated area. In the event that the isolation is breached or expanded in a manner that may allow fish to enter the isolated area, fish salvage by MI or its agent will be required. The salvage shall be conducted at the Contractor's expense.

130.15.8 Water Quality Monitoring

.1 Water quality monitoring shall be required for in-water work in fish-bearing watercourses and may be required when working near fish-bearing watercourses or tributaries to fish bearing watercourses to demonstrate that deleterious substances are not entering into the watercourse. Water quality monitoring shall also occur when working upstream and within 5km of a water treatment plant intake.

.2 A Fish and Water Quality Protection Plan shall prepared by the Contractor in advance of construction works and any amendments must be submitted 15 days in advance of the start of work requiring or may requiring water quality monitoring. The Plan shall include a description of the works and measures proposed to mitigate adverse changes to water quality.

.3 Where water quality monitoring is being coordinated by others, the Contractor must cooperate and coordinate with Contract Administrator, MI and its agents. All water quality monitoring activities must be conducted or overseen by a qualified Fish Biologist. No works requiring monitoring shall be undertaken without a qualified Fish Biologist representative.

.4 The Contractor must advise the Contract Administrator 15 business days of work where water quality monitoring is or may be required. The monitoring shall be conducted prior, during and after construction activities. The Contractor shall reconfirm the schedule 5 business days and 48 hours in advance of the start of work. Any alteration to the schedule which results in direct or indirect costs to the Contract Administrator, MI or its agent shall be at the Contractor's expense.

.5 Where monitoring results demonstrate changes above Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOGs), the activity shall cease until effective mitigative measures are taken. Where an isolated work area is being dewatered and discharge exceeds guidelines, mitigation measures may include diverting waters to splash pads or settling ponds prior water re-entering a watercourse or diverting to the top of bank where the water will not run back into the watercourse.

130.15.9 Culvert Maintenance and Replacement

.1 Construction and maintenance activities, including material and debris removal, shall be timed to prevent disruption to sensitive fish life stages on fish bearing waterways by adhering to the timing windows outlined in 130.15.2 where accumulated material is preventing the passage of water and/or fish through the structure.

.2 Emergency debris removal(s) may be carried out at any time of year.

.3 The Contractor shall limit the removal of accumulated material to the area within the culvert, immediately upstream of the culvert and to that which is necessary to maintain culvert function and fish passage.

.4 Erosion controls shall be installed as soon as possible in accordance with 130.16 of this specification.

.5 Accumulated material and debris shall be removed slowly to allow clean water to pass, to prevent downstream flooding and reduce the amount of sediment-laden water going downstream.

.6 Installation or replacement of culverts shall occur in isolated and dewatered worksites. Diversion structures shall be installed in accordance with 130.15.6 of this specification.

.7 Culverts in fish bearing waters shall adhere to the following design criteria to ensure that fish passage is maintained:

.1 For culverts less than 25 meters long the flow velocity through the crossing shall not exceed 1 metre/second;

.2 For culverts greater than 25 meters long the flow velocity through the crossing shall not exceed 0.8 metre/second;

.3 The crossing shall not be impassable to fish for longer than 3 consecutive days once in 10 years or 7 consecutive days once in 50 years; and

.4 The culvert shall be designed such that fish passage is possible even in low flows.

.8 A minimum spacing of 2 meters between adjacent culverts is required if more than one culvert is to be installed at a crossing location. There shall be no more than three culverts at one crossing.

.9 The Contractor shall maintain a culvert gradient as close to the natural stream grade as possible.

.10 The Contractor shall install culverts a minimum of 30 centimeters or 10% of culvert diameter (whichever is greater) below the normal stream bed.

.11 The Contractor shall avoid using frozen backfill. Backfill shall be compacted to avoid settling, hydrostatic uplifting or side movements of the culvert that may lead to blockage of fish passage or washouts.

.12 Slopes shall be contoured to an appropriate steepness to minimize erosion.

.13 Soils shall be graded in the direction away from the watercourse and never into the stream.

.14 Metal culverts are not to remain on site and should be disposed at an appropriate disposal or recycling facility.

130.15.10 Beaver Dam Removal

.1 Beaver Dams to be removed shall be identified in consultation with and as approved by the Contract Administrator. Beaver dams may not be removed without first obtaining authorization from Manitoba Sustainable Development.

.2 Removal of the dam shall not adversely affect a fishery, or recreational property uses that depend on the dam's existence, both upstream and downstream.

.3 Removal activities shall be restricted to removal or breaching of the dam itself and shall not involve channel or shoreline modification downstream of the dam.

.4 Beaver dam removal is not to be conducted in the winter as this may result in loss of fish habitat.

.5 Whenever possible remove beaver dams by hand.

.6 Remove the dam gradually to allow a slow release of water to prevent sediment release and potential flooding downstream.

.7 if explosives are to be used in dam removal, individual detonations shall not exceed one kilogram of explosives, diesel fuel and fertilizer are not to be used as explosives.

.8 Removals are not to be completed on beaver dams directly connected to a culvert or bridge.

130.15.11 Blasting Near a Watercourse

.1 The Contractor may be requested by the Contract Administrator to modify the timing of blasts to respect key life cycle events to critical life functions of fish and wildlife.

.2 Blasting near watercourses classified as fish habitat shall adhere to set back and weight of explosive charge guidelines as referenced in Fisheries and Oceans Canada document Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters 1998. Where these guidelines cannot be met, blasting plans shall be submitted to the Contract Administrator for MI's application to Fisheries and Oceans Canada to obtain necessary approvals prior to commencement of blasting in areas that could affect fish habitat.

130.16 EROSION AND SEDIMENT CONTROL

.1 Erosion and sediment control measures shall be installed in accordance with the Contract specifications and as directed by the Contract Administrator.

.2 Erosion and sediment control for work near water must be installed prior to any disturbance and maintained throughout the contract.

.3 Erosion and sediment control for road works must be installed and maintained progressively as directed by the Contract Administrator.

.4 Prior to construction, all vegetated areas that are to be preserved or untouched shall be well marked. Vegetation cover shall be maintained to the greatest extent possible adjacent to watercourses.

.5 Vegetation cover shall be preserved for as long as possible by staging construction. Vegetation within 30 m of a watercourse shall be cleared by hand.

.6 Operations shall be halted during heavy rain events.

.7 Erosion and sediment control measures shall be installed before starting work within 100m of a waterway. Erosion and sediment control measures are to be inspected weekly and after every major rain or melt event for proper functioning; necessary repairs shall be made immediately.

.8 Turbidity curtains shall encircle in-water works and be installed in such a manner so as to prevent sediment from escaping the isolated area.

.9 Slash and debris from clearing operations shall be retained and used to temporarily protect erosion-prone slopes.

.10 Stream banks and bed at culvert openings shall be protected with erosion-resistant materials such as riprap.

.11 The Contractor shall ensure that the point of discharge from seepage, runoff water or pumped water from any excavation is a minimum of 30 meters from any watercourse.

.12 All disturbed areas including shorelines shall be restored to their original condition as soon as practicable following completion of construction activities. The restoration may include but is not limited to, infilling of any temporary diversion channels; removal of construction materials and debris; installation, maintenance, and removal of sediment and erosion control measures and re-vegetation of disturbed areas.

.13 When re-vegetation by seeding, the Contractor shall use an approved seed mix in accordance with the Contract. Where there is sufficient time in the growing season seeding will commence immediately upon completion of trimming operations. Seed mixtures will be selected based on specific soil conditions and location.

.14 Pesticides shall be applied by hand within 30 m of all waterbodies.

.15 Sediment and erosion control measures shall remain in place and be maintained until the vegetation has become established.

130.17 CLEARING AND GRUBBING

130.17.1 General

.1 Clearing and grubbing shall be limited to the Site and associated access routes.

.2 Clearing and grubbing shall not occur between April 1 and September 1 of any year to minimize disturbances to wildlife and habitat.

.3 Prior to clearing or grubbing work areas shall be clearly marked and approved by the Contract Administrator.

.4 A vegetation buffer shall be maintained between the ROW and any development including, but not limited to, borrow areas, quarries, laydown areas, personal property, utility poles and camps as outlined in the Forest Management Guidelines for Terrestrial Buffers.

.5 A vegetation buffer shall be maintained between the ROW and sensitive features including, but not limited to, sticknests, mineral licks, dens, heritage sites as outlined in the Forest Management Guidelines for Terrestrial Buffers.

130.17.2 Clearing

.1 Clearing in known permafrost areas will be minimized where possible. Where clearing cannot be avoided the Contractor shall retain the top layer of organic soil, ground vegetation and an insulating cover.

.2 Areas for selective clearing (i.e. sensitive) must be accurately flagged as approved by Contract Administrator prior to clearing. Appropriate mitigation measures must be identified and applied. Any new sensitive areas found during clearing must be reported to the Contract Administrator and are not to be cleared.

.3 Trees shall be felled towards the centre of the ROW and woody debris shall not fall or be pushed into standing timber. Any debris or trees that fall outside of the ROW shall be moved back into the ROW.

.4 Clearing activities shall be limited to removing vegetation to ground level without disturbing root mass. Height of stumps shall not exceed 30 centimetres.

.5 Clearing within 30m of a watercourse shall be by hand.

130.17.3 Grubbing

.1 Grubbing activities shall end 2 meters from any standing timber to avoid disturbing the root systems of nearby standing trees and reduce blow down.

.2 The Contractor will take steps to avoid damage to property when grubbing. The Contractor is responsible for any damages and will be required to fix any damage to property to its original condition.

.3 Grubbing will not change access to the existing trails, trap lines, portages and other travel corridors.

130.17.4 Disposal and Storage

.1 Merchantable wood identified by the Contract Administrator shall be stockpiled outside and immediately adjacent to the clearing limits. Stockpile sites shall be located within existing clearings or areas of non-merchantable timber. Unless otherwise specified, all stockpiled material shall be removed from Crown Land by April 30 of any given year.

.2 Disposal of cleared trees and brush must be done as directed or approved by the Contract Administrator. Disposal may involve burning, compacting, piling, burying, windrowing and compacting, limbing and chipping.

.1 Windrows have to be compacted as close to the ground as possible with a maximum height of 0.6 metre.

.2 If burying is selected as a means of disposing woody debris, the area shall be capped with
½ metre of clay, followed by the stockpiled topsoil, and revegetated.

.3 Wood and brush piled for burning must be located at least 15 meters from other wood and brush piles and standing timber prior to burning. If piles are windrowed for burning a 15 meter break should occur for every 100 meters in length. Trees and brush shall be piled in a way that allows for clean and complete burning of all material. Avoid mixing soil into the slash. See 130.20 for additional burning restrictions.

.4 For exploratory clearing burning must occur in the centre of the right of way or push outs, whichever is furthest from standing timber.

130.18 HERITAGE RESOURCES

.1 Areas where heritage or cultural resources of interest are suspected of being present shall be inspected prior to the start of construction.

.2 Work shall immediately cease where archaeological or historic artifacts are encountered during construction activities. The discovery shall be reported to the Contract Administrator and MI.

.3 Work at the location will be suspended until a Historic Resource Consultant can assess archeological or historic artifacts that are encountered and mitigation measures are confirmed with the Manitoba Historic Resources Branch.

130.19 WILDLIFE

.1 During the term of the Contract, the Contractor, its employees and agents shall not hunt, trap or harass wildlife at or in the vicinity of the Site.

.2 The Contractor shall not remove, destroy or disturb endangered species or their habitat as defined under the Manitoba Endangered Species Act and/or Species at Risk Act.

.3 Wildlife habitat shall not be destroyed or damaged, except pursuant to a license, permit or other authorization issued for the Project.

.4 No person shall take, or have possession of, or willfully disturb, destroy the nest or eggs of birds pursuant to the Migratory Birds Convention Act and/of the Manitoba Wildlife Act.

.5 No person shall remove, disturb, spring or in any way interfere with any trap set out lawfully by any other person for the purpose of taking furbearing animals.

.6 The Contract Administrator may restrict construction activities, including blasting, within close proximity to sensitive wildlife or wildlife habitat during critical lifecycle periods.

.7 Construction camps and worksites shall be kept clean and tidy and free of wildlife attractants. All food and garbage waste shall be stored in bear proof containers away from sleeping quarters and be disposed of at an area which has been designated as an appropriate waste disposal site. Disposal shall occur at regular intervals.

.8 Employees, workers and other staff shall not feed or harass wildlife that they may encounter. Nuisance wildlife shall be immediately reported to the Natural Resources Officer, Contract Administrator and onsite supervisor.

.9 Trees containing large nests of sticks and areas where active dens or burrows occur shall be identified, left undisturbed and reported to the Contract Administrator. No construction is to occur within 100m of an eagle's nest, heron rookery or other sensitive wildlife area without prior approval from the Contract Administrator and MI.

130.20 WILDFIRES

.1 An evacuation and emergency preparedness plan addressing wildfires shall be prepared and submitted to the Contract Administrator prior to the commencement of work.

.2 No fires shall be started without first taking sufficient precautions to ensure that the fire can be kept under control. The Contract Administrator must be notified prior to any burning.

.3 Burning will normally occur between November 16th and March 31st. To the extent possible, burning shall be avoided between April 1st and November 15th of any given year. In the event that burning is required, an application for a burning permit shall be submitted by MI for approval to Manitoba Sustainable Development.

.4 All fires shall be monitored by the Contractor for the duration the burning activities. No fire shall be left unattended.

.5 No activity shall be conducted which may cause a fire to spread. Similarly, burning or smoldering matter shall not be placed where it may cause a fire.

.6 A primary zone shall be established around camp sites and other longer term temporary structures associated with construction and maintenance activities. Flammable materials such as leaves, brush, dead limbs, and fallen trees shall be cleared from the area regularly.

.7 Combustible materials shall be stored in a safe manner.

.8 The locations of construction camps, offices, and related structures shall be chosen in such a fashion as to minimize the risk of exposure to wildfires.

.9 No burning shall occur on deep organic soils like peat. If a fire occurs in peat soils it must be immediately extinguished.

.10 Burning near communities or roadways shall occur only when weather conditions allow the safe dispersal of smoke.

.11 Any wildfire or any fire outside the intended burn area, shall be immediately reported to the Contract Administrator and to Manitoba Sustainable Development at 1-800-782-0076.

.12 All reasonable attempts shall be made to extinguish wildfires. All available equipment, services and labor shall be made available for the purposes of wildfire protection operations.

.13 All construction and related activity taking place in the vicinity of a wildfire shall cease until advised by the Contract Administrator that it is safe to resume operations.

130.21 CEMENT BATCH PLANT AND CONCRETE WASH OUT AREA

.1 It is the Contractor's responsibility to ensure that on-site concrete batch plants have a current Environment Act Licence and Crown Lands Work Permit prior to commencing on-site operation.

.2 The Contractor shall apply for the Crown Lands Work Permit unless otherwise advised by the Contract Administrator, and shall provide to the Contact Administrator prior to the start of work.

.3 Where MI applies for the Crown Lands Work Permit for the batch plant, the Contractor shall provide MI a copy of all necessary documentation a minimum 45 days prior to operation to support the work permit application including but not limited to the Environment Act Proposal, environmental protection/management plans and Licence.

.4 The Contactor must obtain all applicable permits for ground or surface water withdrawals and provide to the Contract Administrator prior to the start of operations. Permits are required under the Water Rights Act where water removal from a surface water course exceeds 25,000L/day.

.5 Concrete wash out areas shall be located so as to avoid the removal of standing timber. Concrete wash out areas shall be a minimum 100 m from a water course or other sensitive feature and shall not drain to any water course.

.6 Decommissioned concrete wash out areas shall be left in such as manner so as to not impede future construction activities or pose a hazard to people or the environment.

130.22 MEASUREMENT AND PAYMENT

.1 The requirements set out in 130 are considered incidental to the Work and will not be measured for payment unless indicated otherwise in the Specifications.

REFERENCES

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2006. COSEWIC assessment and status report on the Lake Sturgeon *Acipenser fulvescens* in Canada. Ottawa.

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

North/South Consultants INC. 2017. East Side Road Authority Project 6: All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation. Aquatic Environment Report: Existing Environment. Prepared for the Manitoba Infrastructure – Remote Road Operations by North/South Consultants Inc.

Species at Risk Act (SARA). 2019. Species at Risk Public Registry. Available at: Lake Sturgeon *(Acipenser fulvescens)*, Southern Hudson Bay - James Bay populations - Species search - Species at risk registry (canada.ca)

QUESTION IAAC IR1-20

EIS Guideline Reference	• Part 1, Section 4.5
EIS Reference	• Chapter 5, Table 5.8
Category	Baseline

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to provide a summary of the engagement conducted with Indigenous groups, a summary of the issues raised, and the proponent's responses.

In response to concerns raised by Indigenous groups, the EIS indicates that parts of the EIS may need to be updated prior to beginning construction.

No further detail is provided regarding which aspects of the EIS may need to be updated. Should updates be required, for instance, to the assessment of potential Project effects or to proposed mitigation measures, the Impact Assessment Agency of Canada (the Agency), would need to be made aware of these changes to factor them into the Environmental Assessment Report and potential conditions.

Clarity on this topic is required to understand whether the information presented in the EIS reflects the most accurate and up to date data available to the proponent and to potentially support the characterization of potential Project effects.

INFORMATION REQUEST

a) Identify and explain which aspects/sections of the EIS may need to be updated prior to the beginning of construction and discuss the potential implications to the conclusions presented in the EIS.

   i. If these updates will be made to sections of the EIS describing potential Project effects to VCs, mitigation measures, residual effects, cumulative effects, or follow-up and monitoring plan(s), clearly describe the potential changes to the EIS and their implications to the conclusions presented in the EIS.

RESPONSE

a) Comments regarding possible updates to the environmental assessment (EA) arose from a community meeting discussion in February 2018, and are captured in Appendix 5-6 in Chapter 5 of the Environmental Impact Statement (EIS). These comments and Manitoba Transportation and Infrastructure's (MTI) response were referring to the fact that changes to the assessment may be required due to the transition of the Project from the former East Side Road Authority to MTI. They do not state that the EIS itself may require update.

As per Appendix 5-6 in Chapter 5 of the EIS, the comments suggesting that updates to the EA may be needed, pre-date the submission of the EIS to the Impact Assessment Agency of Canada (IAAC; the Agency). The response therefore considered that environmental assessment (which was still underway) could require updates. The EIS itself was submitted to the Agency in July of 2018 (5 months after the comment was made). The EIS was then resubmitted to the Agency in April of 2019 (1 year after the comments were made) in order to meet conformance.

Further updates to the Environmental Impact Statement (EIS) are therefore not anticipated to be required, and are considered appropriate, applicable, and accurate for anticipated Project effects in order to allow the Impact Assessment Agency of Canada (IAAC) to draw necessary conclusions for its Decision Statement.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-21

EIS Guideline Reference	• Part 1, Section 4.4
EIS Reference	• Chapter 4, Section 4.3.3 • Appendix A to D • Appendix B-2, Map 2 and 8a to 8c
Category	Baseline

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe detailed studies, including all relevant supporting data and methodologies that were conducted for the Project.

The EIS generally describes the methodologies employed during desktop and field investigations for species at risk, species of importance to Indigenous peoples, migratory birds, vegetation, and the aquatic environment. Minimal detail is provided regarding the methods used, the survey locations chosen, how representative literature or desktop data were selected, or justification for why certain methodologies were chosen over others.

Indigenous groups have raised concerns that the lack of detailed information limits their ability to assess the appropriateness of the study methodologies used. Indigenous groups have also expressed concerns regarding the minimal amount of information provided regarding the methodologies used to collect Indigenous traditional knowledge and whether permission was obtained from Indigenous groups to present certain information in the EIS publicly (e.g. Appendix B-2, Map 8a to 8c).

Supplementary information is required to support the characterization of the methodologies used in baseline studies and to determine whether the methods used were adequate to provide an accurate representation of the baseline environment of the Project footprint, LAA, and RAA.

INFORMATION REQUEST

a) Provide a detailed description of the methodologies employed during desktop and field investigations to collect baseline data for species at risk, species of importance to Indigenous peoples, migratory birds, vegetation, and the aquatic environment. This description must address:

   i. how and why literature cited in the EIS to support the description of baseline data were chosen and determined to be representative of current conditions (e.g. when the data were collected, where, for which species, etc.); and

   ii. why the methodologies used were chosen over other alternatives that may have been as or more effective. This description may include reference to other studies conducted using the same methodology.

b) Describe in detail the methods used to collect Indigenous traditional knowledge, the standards adhered to, and how these data were used to inform the description of the baseline environment of the Project footprint, LAA, and RAA. Indicate whether permission was sought and obtained to present the information contained in Maps 8a to 8c publicly.

c) Provide a rationale for why more field studies were not conducted to collect baseline data for all VCs. For the desktop data referenced in the EIS that were collected in areas outside of the RAA, provide a rationale for how these data may be applicable to the area of the Project.

d) If additional studies or additional data are deemed necessary in response to c), provide the results of these studies and/or the additional data to inform the Environmental Assessment Report.

RESPONSE

a) A detailed description of the methodologies employed during desktop and field investigations to collect baseline data is presented as Appendix B for vegetation, Appendix C for aquatic environment, and Appendix D for wildlife.

Vegetation

A detailed description of the methodologies employed during desktop and field investigations is provided in Szwaluk Environmental Consulting (2017) report, which was included as Appendix B of the Environmental Impact Statement (EIS). Baseline studies prepared for the Manitoba East Side Road Authority (MESRA) used a variety of available spatial data such as high-resolution imagery (30 cm), Google Earth imagery, and Project shapefiles (e.g., Land Cover Classification), to select potential vegetation sampling sites. The National Stratification Working Group's ecological

framework database was used to identify and describe ecological land classification to the ecodistrict level. Traditional Knowledge (TK) studies and information gained from engagement activities as referenced in the report was used to identify plant species of interest.

Vegetation and soil surveys were planned within a 1 km radius of the proposed Project, where direct environmental effects are likely. Sites were selected based on accessibility, vegetation cover type, disturbance, and potential to support species of conservation concern. A native vegetation survey was conducted in June 2016 using temporary sample plots in homogeneous vegetation areas, both upland and wetland. The sampling followed methods outlined by Redburn and Strong (2008), using a 30 m transect with five 2.5 m by 2.5 m quadrats and a 1 m by 1 m nested quadrat spaced at 5 m increments for shrubs and herbs. Tree cover composition (>2.5 m tall) was determined using a 20 m by 30 m plot centered on each transect. Species presence/absence data was recorded. Within each plot, the tallest tree of each species was aged by counting growth rings from a core extracted at breast height (1.3 m). Diameter at breast height (DBH) and tree height (using a clinometer) were measured. These methods were chosen to maintain consistency in data collection and allow for precise measurement of plant community composition. Unlike randomized plots, which could miss important spatial patterns in plant distribution, particularly in transitional areas such as wetlands, this approach ensures that vegetation changes across different habitats are accurately captured.

Searches for species of conservation concern focused on uncommon plant communities and unique habitats using a meander search pattern. Plant species of interest, traditionally used for medicine, subsistence, and cultural purposes, were recorded. Prior to field studies, a list of culturally important species was compiled from literature and traditional knowledge studies conducted with local community members through workshops and interviews.

To summarize and characterize local vegetation, forested and wetland sites were further classified based on vegetation composition, distribution, structure, soil type, and profile information, following Zoladeski et al. (1995) and Ducks Unlimited (2015). Presence/absence data was recorded for species in the tall shrub and herb and low shrub strata over five quadrats at each site. Species distribution was categorized as widespread (4-5 quadrats), frequent (3 quadrats), or scattered (1-2 quadrats). Incidental species observed near the sites were also noted.

The methods outlined by Zoladeski et al. (1995) were used because they align with established ecological land classification frameworks in Canada, providing a consistent and comprehensive approach to assessing plant communities. This classification system is also repeatable and comparable with past and future studies, making it well-suited for long-term monitoring. Similarly, the Ducks Unlimited (2015) guide is based on the Enhanced Wetland Classification System developed by Ducks Unlimited Canada for the Boreal Plains Ecozone of Western Canada. Designed for use at both the planning and operational levels, this guide is applicable to a wide range of professionals, including engineers, biologists, and construction supervisors, ensuring a standardized approach to wetland classification and management.

Aquatic Environment

A detailed description of the methodologies employed during desktop and field investigations for the aquatic environment is provided in the North/South Consultants report (2017) which was provided as Appendix C-1 of the EIS. Watercourse crossing sites identified by Manitoba Transportation and Infrastructure (MTI) were given to North/South Consultants in shapefile format. The ASR alignment was overlaid on the CanVec 1:50,000 hydrographic dataset using ArcGIS® 10.2 to identify additional crossing sites. Aquatic environment field data were collected in June 2016 by North/South Consultants where the ASR alignment intersected watercourses. The data provided a physical description of fish habitat and assessed potential fish use at each location (NSC, 2017; Appendix C-1 of the EIS).

For each crossing site, upstream drainage area and distance to the nearest downstream major waterbody were calculated. Watershed boundaries for smaller streams were delineated using the SRTM Digital Elevation Model, and upstream drainage area was calculated with ArcGIS® 10.2. Linear distances were based on the CanVec dataset. This dataset was selected because it is a high-resolution, government-validated source that provides current, consistent, and accurate data on Canadian hydrographic features. It ensures compliance with international geomatics standards, offering reliable and standardized information on various hydrographic phenomena across Canada.

Orthophoto analysis and aerial surveys classified each watercourse by size and connectivity to other fish-bearing waterbodies into four classes: Yes, Yes-Likely, Yes-unlikely, and No. Streams were further classified into Class 1 (medium to large streams), Class 2 (small streams), and Class 3 (drains). Channel sinuosity was calculated for Class 1 and larger Class 2 streams. Water quality was sampled at sites supporting a commercial, recreational and/or Aboriginal (CRA fishery), with surface water samples collected and analyzed for various parameters. In situ measurements of temperature, dissolved oxygen, pH, turbidity, specific conductance, and conductivity were taken.

Class 1 Streams:

- Three transects established within the proposed cleared RoW (60 m on centerline) to record riparian and bank conditions; transects located at the crossing centerline, 25 m upstream, and downstream.
- Side scan sonar used for channel profile and stream bed characteristics.
- Physical assessments completed at two study areas (400 m upstream and downstream) around each crossing.
- Boat-based habitat mapping conducted with Lowrance® HDS-5 and StructureScan® HD sonar imaging for detailed bottom topography and fish-attracting structures.
- Substrate composition determined using side scan sonar.
- Fish sampling completed with backpack electrofishing and gillnetting; mollusk sampling targeted within the crossing area.

Class 2 Streams

- A minimum of five transects established: three within the ROW, one at the crossing centerline, and at least one each in upstream and downstream study areas.
- Physical assessments completed at two study areas (400 m upstream and downstream) around each crossing.
- Discharge measured at or near the proposed crossing in a straight section of the channel, free of obstructions.
- Substrate composition visually estimated at each transect.
- Channel bank parameters collected at each transect: bank materials, shape, and stability.
- Stream gradient measured using a clinometer.
- Percent composition of habitat types and fish cover visually assessed.
- Fish sampling involved backpack electrofishing to confirm fish presence and determine species use.

Wildlife

A detailed description of the methodologies employed during desktop and field investigations is provided in the Joro Consultants 2018 Project 6: Existing Environment Wildlife Report, included as Appendix D of the EIS. As part of baseline monitoring to map wildlife distribution, characterize habitat use, and understand movement patterns within the RAA, various methods were employed to record species of ungulates, predators, furbearers, birds, and herptiles. The habitat evaluation was conducted using the national Land Cover Classification of Canada (LCC), a spatial database standardized across major federal departments. Analysis for the Project area was performed using ALCES (A Land and Cumulative Effects Simulator), which integrates LCC data to assess land use and cumulative effects (ALCES, n.d.).

Detailed GPS collaring of woodland caribou and eastern migratory caribou provided telemetry data on their distribution and seasonal occupation. This method was chosen for its precision in tracking movements over time, allowing year-round monitoring, and assessment of habitat use. Trail camera studies were designed to monitor the occupancy of ungulates, predators, and furbearers, focusing on detecting larger prey and predator species such as caribou, moose, wolves, and bears. Trail camera site selection was based on a hexagonal sampling grid overlain over the RAA. Aerial multispecies distribution surveys during winter periods recorded tracks and observations of various species, allowing for large-scale and rapid assessment of wildlife distribution. Incidental wildlife observations were also recorded during all aerial and ground surveys.

Specific caribou populations were studied in more detail, with eight Pen Islands caribou collared in 2011 and 61 Norway House caribou collared between 2011 and 2016 to provide baseline data on the general distribution. Additionally, winter surveys involved flying transects spaced 5 km apart using a helicopter, with biologists recording track observations and habitat types, which helped

assess the occupancy of large and small carnivores as well as ungulates. The data collected were then analyzed using GIS to map areas of relative occupancy near the ASR alignment.

For a number of bird species, models developed by the Boreal Avian Modelling Project (BAM, 2012) were provided to Joro for use in the P6 Project. The BAM dataset was selected for its scientifically validated, model-based habitat associations. It compiles extensive boreal bird data from inventory, monitoring, and research projects across Canada and the United States, ensuring a comprehensive and reliable representation of species-habitat relationships. The BAM dataset was also integrated with the ALCES model to assess cumulative effects on bird populations. For further details on these methods, including their uncertainties, refer to IR1-56 C.

Additionally, ARUs were deployed in selected habitat types in spring 2016 to detect vocalizations from a variety of bird and amphibian species. This method was chosen for its ability to monitor species presence over extended periods and various times of day, supplementing on-site surveys. Aerial waterfowl surveys were conducted during the breeding and staging periods in spring and fall 2016 to record species presence, utilizing helicopter surveys for wide coverage and detailed observations. The Manitoba Breeding Bird Atlas (2014) carried out point-count surveys to determine species abundance and breeding locations, providing a precise measure of bird populations in the area. Reconnaissance surveys in October 2016 documented general areas of migratory waterfowl staging, further informing the understanding of bird presence and movements.

Species of special interest to communities were identified through Traditional Knowledge workshops and interviews with community members in 2016, gathering valuable insights into wildlife movement and distribution, focusing on species of interest like beaver and marten. The trapper program (2016-2017) also collected furbearer baseline data and promoted collaboration.

i) Overall, the EIS used relevant literature and proven methodologies to accurately reflect current environmental and cultural conditions. High-resolution imagery, ecological frameworks, and traditional knowledge supported comprehensive baseline data. Additionally, the baseline study methodologies were chosen because they are replicable, so that the same models and methods can be used during monitoring or future project phases. This consistency makes it easier to assess environmental impacts over time and compare results across different stages of the project. Furthermore, these methodologies have been used in other similar projects, allowing for comparisons across different developments and helping to identify trends or broader environmental patterns. For instance, these methods were validated in prior federally approved projects (Project 1: All-season road from PR304 to Berens River First Nation (P1) and Project 4: All-Season Road Connecting Berens River First Nation to Poplar River First Nation (P4)), demonstrating their reliability and applicability for similar developments. .References cited in the EIS to describe existing environmental conditions were focused studies conducted specifically for the purpose of environmental assessment for the Project. These studies were conducted over multiple

years and included consideration of Indigenous knowledge, e.g., through resource use workshops. As such, they represent the existing environment and the natural range of variability that exists in the Project area. This natural range of variability is anticipated to continue to best represent the existing environment in the Project area for the duration of the Project lifecycle.

ii) Methodologies employed to sample, survey or characterize the existing environment is representative of commonly accepted scientific methodology, and using input and information provided by local Indigenous Nations. The methods used for Project-related studies is similar to those used for other federally approved environmental assessments in Manitoba, including the P4. The P4 EIS, and the baseline studies (i.e. technical reports) used to perform the assessment are publicly available on the Impact Assessment Agency of Canada's project registry.

b) Traditional Knowledge (TK) Studies were conducted with east side Lake Winnipeg communities in 2010 as part of the Large Area Transportation Network Study (SNC, 2011) to inform all-season road corridor planning for the region as described in the response to IR1-01. Project specific TK studies were conducted with the communities of Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and the God's Lake Narrows Northern Affairs Community as outlined in Chapter 5 of the EIS. A TK workshop was also conducted in God's Lake Narrows NAC on June 22, 2016. The following provides a summary of TK workshops performed with each Nation:

Bunibonibee Cree Nation:

- An Introductory Traditional Knowledge Workshop (February 3, 2016);
- One-on-one Traditional Knowledge Interviews (March 29 to April 3, 2016);
- A Final Verification Workshop (June 8, 2016).

God's Lake First Nation:

- An Introductory Traditional Knowledge Workshop (October 6, 2015);
- One-on-one Traditional Knowledge Interviews (November 18 to March 22, 2016);
- A Final Verification Workshop (March 22, 2016).

Manto Sipi Cree Nation:

- An Introductory Traditional Knowledge Workshop (September 25, 2015);
- One-on-one Traditional Knowledge Interviews (January 13 to January 18, 2016);
- A Final Verification Workshop (April 26, 2016).

God's Lake Narrows Northern Affairs Community:

- An Introductory Traditional Knowledge Workshop (October 5, 2015)
- One-on-one Traditional Knowledge Interviews (June 22, 2016)

The broad purpose of the studies was to document and apply the traditional knowledge, comments and perspectives of the community members to the planning and assessment of the proposed all-season road. The project aimed to document traditional knowledge and land use in areas surrounding the road alignment including knowledge of vegetation, wildlife and fish habitats; land use by community members; and areas that are particularly important or sensitive for cultural, historical, or other reasons.

The project was designed to provide a comprehensive overview and scoping of knowledge relevant to environmental assessment and road development. Workshop and interview discussions covered knowledge of wildlife, furbearers, fish, small game, plants, earthen materials, travel, overnight sights, cultural sites, gathering places, community history, and place names. Efforts were made to begin interviews with the topics with which participants were most knowledgeable, to capture as much information as feasible.

Community involvement was an important part of the studies. The following specific activities helped to ensure that community members were informed and engaged in the research:

- Local Community Coordinators were hired to lead the study in each community;
- Community Leadership was informed and updated about the project by the local Community Coordinator on a regular basis;
- When possible, researchers tried to meet with Chief and/or Council in person to answer any questions about the Traditional Knowledge study;
- A local translator was hired to assist in interviews with Cree-speakers;
- Local drivers were hired to provide transportation, and ensure that all interested knowledge-holders could attend workshops and interviews; and
- Local elders, resource users, and other knowledge-holders were invited to take part in workshops and one-on-one interviews.

The study utilized a workshop and interview-based methodology, with all research conducted in the community. This methodology allowed the study to include a wide range of participants, consider a large spatial area, discuss both past and current land use/conditions, and consider harvest in all seasons. Community members participated in group mapping exercises to identify land use activities and important areas within the study area. Once divided into groups, participants were

facilitated by a lead interviewer and a note taker who recorded both spatial and non-spatial information, such as concerns about the road, local history, and Cree place names. Information mapped included fishing, hunting, trapping, plants and materials, overnight sites, travel routes, cultural sites, and wildlife.

After the initial information was collected a Traditional Knowledge Verification Workshop was held to ensure completeness and accuracy before finalizing and returning the maps and information to the communities. A complete set of maps was provided to each of the respective Nations along with digital files containing the detailed information documented during the Project, including reports produced.

Despite more than 165 participant-hours in workshops and interviews (where participants shared their knowledge with project researchers), it is recognized that the information collected was not exhaustive. Many of the participants exhibited a wealth of detailed knowledge of conditions, activities and changes in the areas that they frequented; it is possible that they may not have had time to share some of this information in workshops or in an interview.

The confidential information contained in Maps 8a to 8c was regrettably not removed before it was posted to IAAC's registry for the project. MTI has acknowledged its error, discussed with IAAC and implemented corrective actions to remove the original version of the report and replace with a revised version without the confidential data.

A respectful process, based on informed consent, is essential to Traditional Knowledge research. ESRA and the research team committed to honoring a process that leaves ownership of the information gathered through the TK studies with the individual participants and the community (with the participant's consent). Commitments were made to protect the confidentiality of individuals within reports, unless the participants gave written permission for their names to be used. A copy of the commitments given by ESRA and the Research Team to workshop and interview participants in advance of the workshops and one on one interviews to permit the collection and use of TK in the Environmental Assessment report and project planning is included in Appendix IR1-21-1. MTI remains committed to honoring this. MTI is treating information collected from the TK studies as confidential for use only to inform the design, construction and environmental approvals for the all-season road network and future discussion with respective communities.

Local traditional knowledge was also collected as part of baseline wildlife studies as described in Joro Consultants 2018 Project 6: Existing Environment Wildlife Report. These workshops, conducted with the communities of God's Lake First Nation, God's Lake Narrows Northern Affairs Community, Bunibonibee Cree Nation and Manto Sipi Cree Nation were conducted to better understand local resource use, hunting, trapping and rare species and were used to guide wildlife studies, the identification of valued components and the assessment of effects where appropriate.

Further information on MTI's Indigenous and Public Engagement Program for the Project is provided in Chapter 5 of the EIS.

c) The selection of Valued Components (VCs) is described in Chapter 4, Appendix 4-2 of the EIS, and was guided by specific direction provided by CEAA for the Project 6 Environmental Impact Assessment.

VC selection considered the cultural importance to First Nations, as well as regulatory and environmental significance. Traditional Knowledge, wildlife, aquatics, and vegetation baseline studies were completed for P6 and are described in Responses A and B above. Heritage resource studies (baseline desktop, flyover and Heritage Resource Impact Assessment) were also conducted for the project as noted in Table 4.2 of the EIS. Data collection for these studies was collected during several years. For instance, wildlife data was collected between 2010 and 2016, utilizing GPS collar data, aerial multispecies track surveys, and trail camera studies. Similarly, TK studies began in 2010 for the Large Area Transportation Study (SNC, 2011), with project specific TK workshops and interviews conducted between 2015 and 2016.

Additionally, two GHG assessment were conducted and are applicable to this and other segments of the LATNS, including one GHG assessment, two verification/follow-up reports, and GHG calculation and mitigation reports. The data collection and methodologies employed for this project are consistent with those used in other federally approved projects (P1 and P4).

Data collection to characterise the existing environment for identified VCs, was performed over multiple years, and/or considered input from Indigenous Nation members with and understanding of natural variation in the region. As a result, the data used to conduct the environmental assessment represents conditions and/or natural variability of the regional and is still considered appropriate for use in environmental assessment. Similarly, use of information from other federally reviewed projects in similar environmental settings (i.e. Project 4 All-Season Road Connecting Berens River First Nation and Poplar River First Nation) is also considered appropriate, as even though the setting for Project 4 is located in a separate ecoregions, both occur within the same ecozone and are anticipated to experience the same, or similar, potential effects from project development.

Therefore, data collection methods used in the EIS provided an accurate and representative assessment of baseline environmental conditions within the Project Footprint, LAA, and RAA by capturing long-term environmental variability through multi-year studies, using standardized, scientifically accepted methodologies for vegetation, wildlife, and aquatic assessments, and TK studies.

Additionally, the use of high-resolution spatial datasets and validated classification systems (e.g., LCC, ALCES) ensured that vegetation, habitat, and hydrological features were mapped accurately.

Wildlife assessments were strengthened by GPS collaring, aerial surveys, and autonomous recording units, while aquatic studies employed field sampling, and hydrographic modeling to ensure comprehensive data collection.

As described in the response to IR1-19, MTI will conduct selective review(s) of data validity 1-2 years before all-season road construction begins. The review will focus on key topics where legislative changes (e.g. updates to species at risk listings) occur. This process will verify that related key predictions made in the EIS remain accurate and that proposed mitigation and management measures remain applicable and appropriate.

As also mentioned in the response to IR1-19, MTI will develop monitoring plans for terrestrial and aquatic components which would be applicable to all Project phases prior to the start of construction. The table of contents for both monitoring plans are included as part of the response to IR1-73. The development of these plans will include input and engagement from provincial and federal regulators as well as Indigenous Nations.

d) As identified earlier in this response, the data collected for environmental assessment of the Project characterized the existing environment of the region, through sampling over multiple years and through input and consideration of information and knowledge provided by local Indigenous Nations. As a result, the existing environment has been properly characterized so as to assess potential effects of the Project. No further study is proposed at this time.

Appendix IR1-21-1

East Side Roat Authority's (ESRA) Commitment for Project 6 Traditional Knowledge Studies

MANITOBA East Side Road AUTHORITY

OUR COMMITMENT:

OWNERSHIP, CONFIDENTIALITY AND USE OF INFORMATION

Our Commitment: Ownership and Use of Information

You and your community own the information recorded during the Traditional Knowledge study. It will be treated as confidential by ESRA and its consultants and used ONLY to inform the design, construction and environmental approvals for the all season road network and future discussion with your community.

Our consultants will provide all traditional knowledge (TK) information to ESRA and will ensure that all original materials (maps, and notes) are returned to the community with the permission of the people interviewed. The information will be used to develop maps for each individual and maps showing information from the community as a whole.

Hard copies and electronic copies of maps will be provided to the community, along with digital shapefiles of the information collected. A final study report on the study will be prepared and provided to the community for review before it is finalized. As much as possible, the information will be presented in a manner that can be readily used by the community for other studies (such as land use planning).

When the East Side Road project is complete, ESRA will destroy copies of the TK survey and mapping information. Information relevant to ongoing maintenance activities will be retained on file.

Our Commitment: Protecting Confidential Information

Confidential information that is collected for the study will be held in confidence and will not be published, revealed or disclosed to those not involved in the course of conducting the project. Information that is provided may only be used by ESRA, its employees, and agents to complete the road project, including the preparation of maps, analysis, and summary reports. The final study report will not present information in enough detail to reveal specific personal or proprietary information and individuals' opinions will be presented anonymously, where requested. .

Given the nature of group workshops, it is not possible to protect your anonymity within the group, where others may know or recognize you. However, as a member of the group, you and your fellow participants will be expected to treat the information discussed as confidential.

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QUESTION IAAC IR1-22

EIS Guideline Reference	• Part 1, Section 4.4
EIS Reference	• Chapter 4, Section 4.3.3
Category	Baseline

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe the spatial boundaries, including local and regional study areas, of each VC to be used in assessing the potential adverse effects of the project and provide a rationale for each boundary.

It is unclear why or how the proponent chose the size of the LAA and RAA for certain VCs, particularly wildlife. MSCN noted that other wildlife species, such as wolves and bears, can have very large home ranges that may not be captured by the LAA selected for non-ungulate wildlife species. MSCN also noted that it is unclear why the LAA for wildlife species other than ungulates does not include the reserve lands of MSCN, Bunibonibee Cree Nation (BCN), and God's Lake First Nation (GLFN), or why the Indigenous RAA does not capture some of the most frequently used areas by MSCN for traditional activities, specifically areas to the east and northeast of the current RAA.

Supplementary information is required to support the characterization of the methodologies used in baseline studies and to determine whether the methods used were adequate to provide an accurate representation of the baseline environment of the Project footprint, LAA, and RAA and to assess potential effects to VC's and impacts to Indigenous groups.

INFORMATION REQUEST

a) Provide a rationale for why and how MI chose the extent of the each of the LAAs and RAAs for the Project.
b) Further address:

i. why the LAA for wildlife other than ungulates was set at a smaller radius than the LAA for moose and caribou and why the LAA for non-ungulate wildlife species does not include the reserve lands of MSCN, BCN, and GLFN; and
ii. why important areas for current traditional use by MSCN and potentially other Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines were not included in the Indigenous RAA. If this exclusion was an oversight, revise the extent of the Indigenous RAA and revise all effects assessments presented in the EIS that were based on this study area.

RESPONSE

a) Spatial and temporal boundaries are described in Chapter 4, Section 4.3.3 in the Environmental Impact Statement (EIS). The selection criteria for Regional Assessment Areas (RAAs) and Local Assessment Areas (LAAs) were developed using scientific data and/or literature regarding species home ranges, as well as professional judgment of the EA practitioner, incorporating input from technical specialists completing the baseline fieldwork and considering both biophysical and social factors. Maps showing LAA and RAA can be found in Appendix IR1-22-1 (Figure IR1-22-1 and Figure IR1-22-2) and is similar to the methodology employed for other federally reviewed environmental assessments (e.g. Project 4 All-Season Road connecting Berens River First Nation and Poplar River First Nation).

The LAA is defined as the area within which project effects are measurable and extend beyond the Project Footprint. For vegetation, this area extends 1 km on either side of the ASR, and includes rock quarries, borrow areas, and access roads. The Indigenous LAA considers the area within a 10 km corridor centered on the road alignment, which includes local communities and areas where measurable changes to land use are primarily expected to occur.

The wildlife LAA generally considers the area within a 10km corridor centred on the all-season road alignment (i.e. 5km to either side). For large mammals such as moose and caribou, the LAA is extended to a 10 km buffer the Project alignment to account for larger movement patterns. This extension ensures that areas of traditional use and home ranges of species like moose are considered.

The aquatic environment LAA includes areas upstream and downstream of the alignment crossings that may be affected by the all-season road crossings. Project effects are expected to be limited to a short distance (1 km from the road center line) for small streams, but for larger streams like God's River, a 5 km buffer (i.e. 10km corridor) was more appropriate and is therefore applied to the full length of the road as described in the Project 6 – All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation, Aquatic Environment Report – Effects Assessment found in Appendix C-2 of the EIS (NSC, 2017).

The spatial areas for the assessment of Project effects on archaeological and heritage resources differ from those identified for Indigenous Peoples and Human Environment. Project effects for archaeological and heritage resources are expected to be restricted to a relatively short distance from the all-season road. As such the Heritage LAA is a two km corridor centred on the all-season road alignment.

The RAA is defined as the area beyond the LAA within which most potential indirect and cumulative effects are expected to occur. The boundaries of the RAA will vary depending on the Valued Component (VC), as they are designed to consider the maximum anticipated regional extent of potential direct, indirect, and cumulative effects that may extend beyond the LAA. The extent of the Indigenous RAA boundary that encompasses the Traditional Territories of Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community as identified by traditional knowledge, as shown in Appendix IR1-22-1 (Figure IR1-22-3). The Indigenous RAA boundary considers changes to the environment that may affect traditional and resource use areas of local communities and people in the region.

For wildlife, the extent of the RAA boundary was chosen to ensure home ranges of large species and areas of traditional use were considered. The resulting RAA extends approximately 20 km beyond the alignment (Joro, 2018).

As described in the Project 6 – All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation, Aquatic Environment Report – Effects Assessment found in Appendix C-2 of the EIS (NSC, 2017), the RAA for the aquatic environment is the area beyond the LAA within which most indirect and cumulative effects would occur. This includes areas upstream or downstream of the LAA connected to watercourses affected by the project footprint, such as headwater areas and downstream receiving waterbodies like the Hayes River and God's Lake. The project is located within the Hayes River Watershed Basin. This area would encompass most potential indirect and cumulative effects.

As described in chapter 6 of the EIS, Manitoba Historic Resources Branch (HRB) catalogues heritage resources and archaeological sites by National Topographic System (NTS) map sheets. Therefore, the Heritage RAA was based on the NTS map sheet boundaries within which the all-season road alignment is located or were near the alignment and contain a sample to compare newly discovered sites to the baseline data.

b) The LAA and RAA boundaries for wildlife are described in Response A above, but further information on the variances for the wildlife LAA, and further information on traditional land use areas of Indigenous Nations are provided below:

i. Instead of applying a single LAA based on the largest-ranging species, different LAAs were used. For example, a larger area was applied for moose and caribou, while a smaller one was used for furbearers and other non-ungulate species. The LAA for

wildlife species other than ungulates was set at a smaller radius (5 km) encompassing an area of 1,327 km^2, compared to the 10 km radius for caribou and moose. Larger-ranging species like caribou and moose require more extensive assessment areas because of their typically larger home ranges (Joro, 2018), and therefore the potential spatial reach that project-related impacts of the project may have on their behaviors and use of habitats. In addition, woodland caribou are highly mobile, with migratory populations covering vast ranges (Pond et al., 2016), such as the Pen Islands herd spanning from northeastern Manitoba to northwestern Ontario (Magoun et al., 2005; Gunn et al., 2011; Abraham et al., 2012). Similarly, caribou in southeastern Manitoba utilize diverse winter habitats, influenced by snow conditions, while moose also exhibit broad habitat use during seasonal transitions (Stardom, 1977). Additionally, the LAA for moose was determined after consultation with Manitoba Natural Resources and Indigenous Futures (formerly Manitoba Sustainable Development), incorporating professional insights on species-specific habitat requirements.

In contrast, although individuals may disperse over long distances, smaller wildlife typically have more localized home ranges. For instance, Poole et al. (2011) found that American marten exhibit small, localized home ranges, with males averaging 3.3 km^2 and females 2.0 km^2 in British Columbia. As a result, a 5 km radius was considered more appropriate for evaluating potential effects to smaller wildlife species.

While some non-ungulate species of cultural importance to Indigenous peoples have larger home ranges (e.g., grey wolves, wolverines, lynx, and black bears), they do not have localized home ranges in the same way as smaller species like marten. Unlike caribou, these species do not exhibit the same long-range migratory behaviour, nor are they listed as VCs.

Marten were selected as the representative VC terrestrial furbearer due to their importance to commercial harvest for First Nations and others, their role as a top-level predator in upland terrestrial environments, and their significance as a predator-prey species (Chapter 4, Appendix 4-2 of the EIS). Additionally, their habitat use and home range size align with the 5 km LAA, providing a practical and scientifically supported scale for assessing localized project effects.

For species with larger home ranges, the RAA provides a broader spatial context, allowing for an evaluation of cumulative effects, habitat connectivity, and potential impacts that could influence these species over larger geographic scales. The selection of these areas was determined by a multi-disciplinary approach, incorporating biophysical and social factors, including workshops and discussions with resource users, to ensure that traditional land use and culturally significant species were considered in the assessment.

ii. The RAA represents the area of maximum anticipated direct, indirect and cumulative effects of the Project. Spatial boundaries, in the RAA, are centered to the proposed Project alignment because the Project itself is considered the source of potential effects that may impact Indigenous Nations. Therefore, important areas utilised by Manto Sipi Cree Nation, or other Indigenous Nations, which fall beyond the identified area are not anticipated to experience potential direct, indirect or cumulative Project effects and are therefore not included in the assessment.

Manitoba Transportation and Infrastructure (MTI) is committed to ongoing engagement with Indigenous Nations. Should new information become available through this process, including scientific data or input from Indigenous Nations, it will be shared with regulators and the respective Indigenous communities.

APPENDIX IR1-22-1

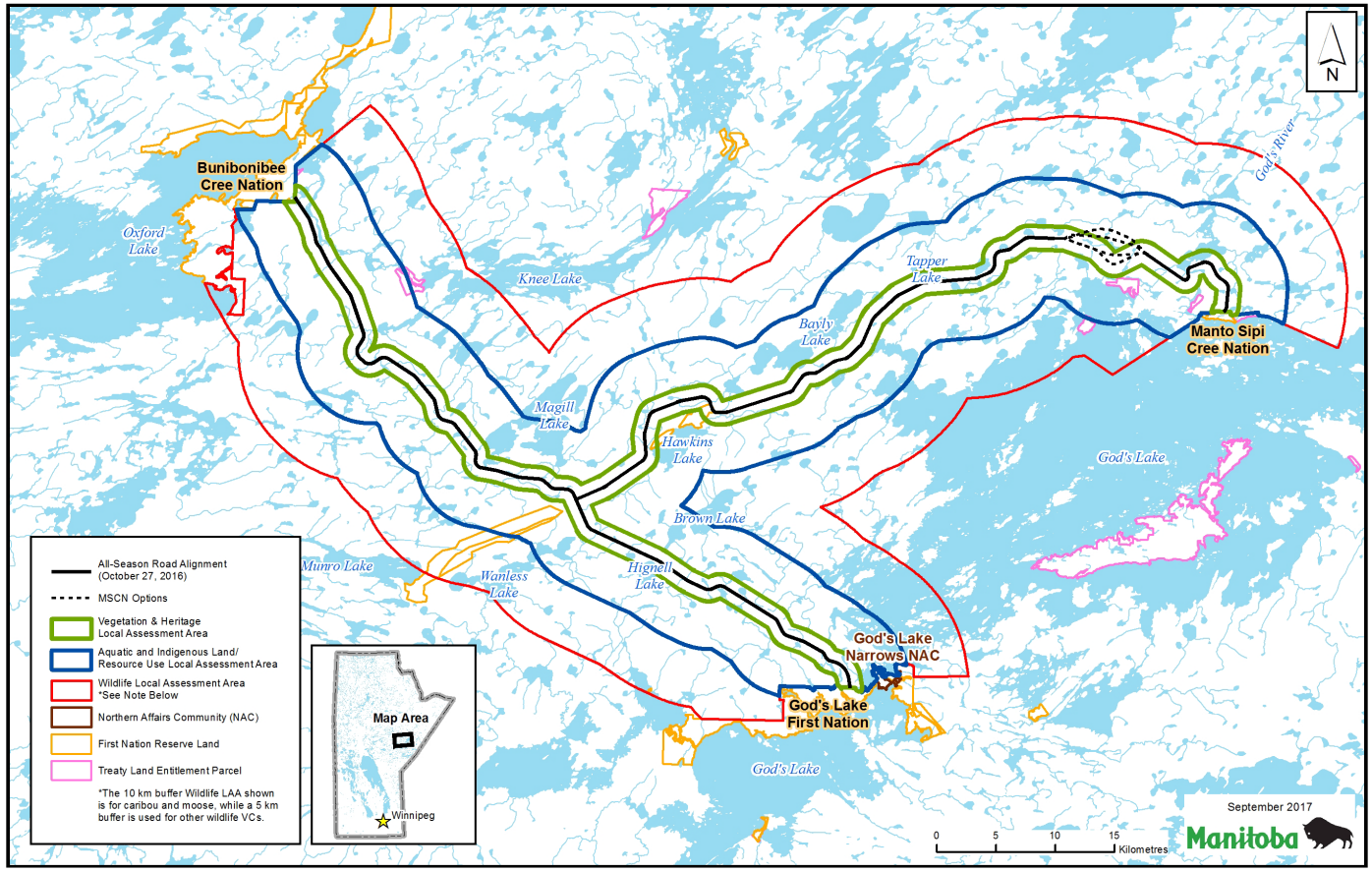


Figure IR1-22-1. Local Assessment Areas of proposed Project 6 (Figure 4-1 of Project 6 EIS)

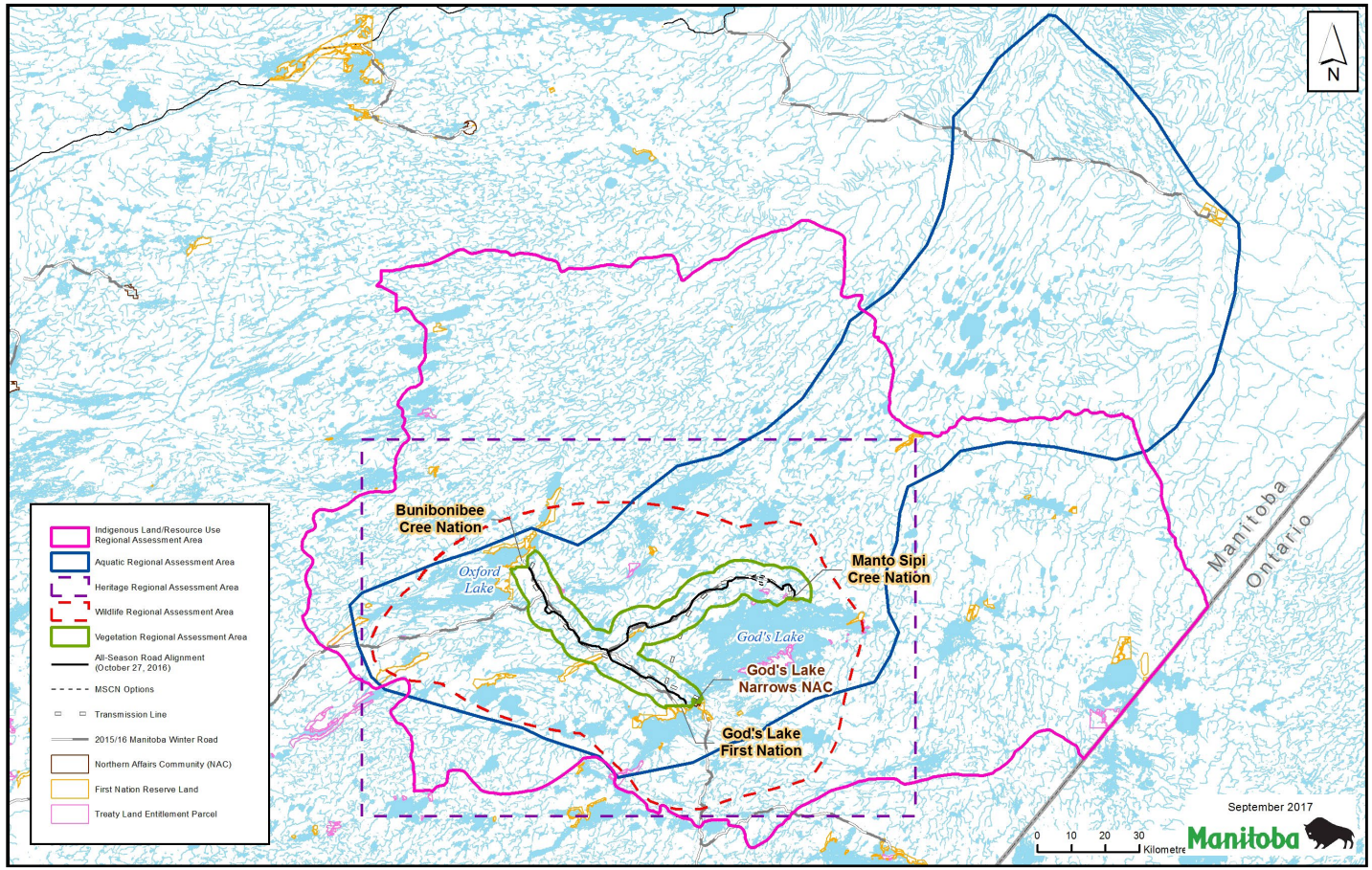


Figure IR1-22-2. Regional Assessment Areas of proposed Project 6 (Figure 4-2 of Project 6 EIS)

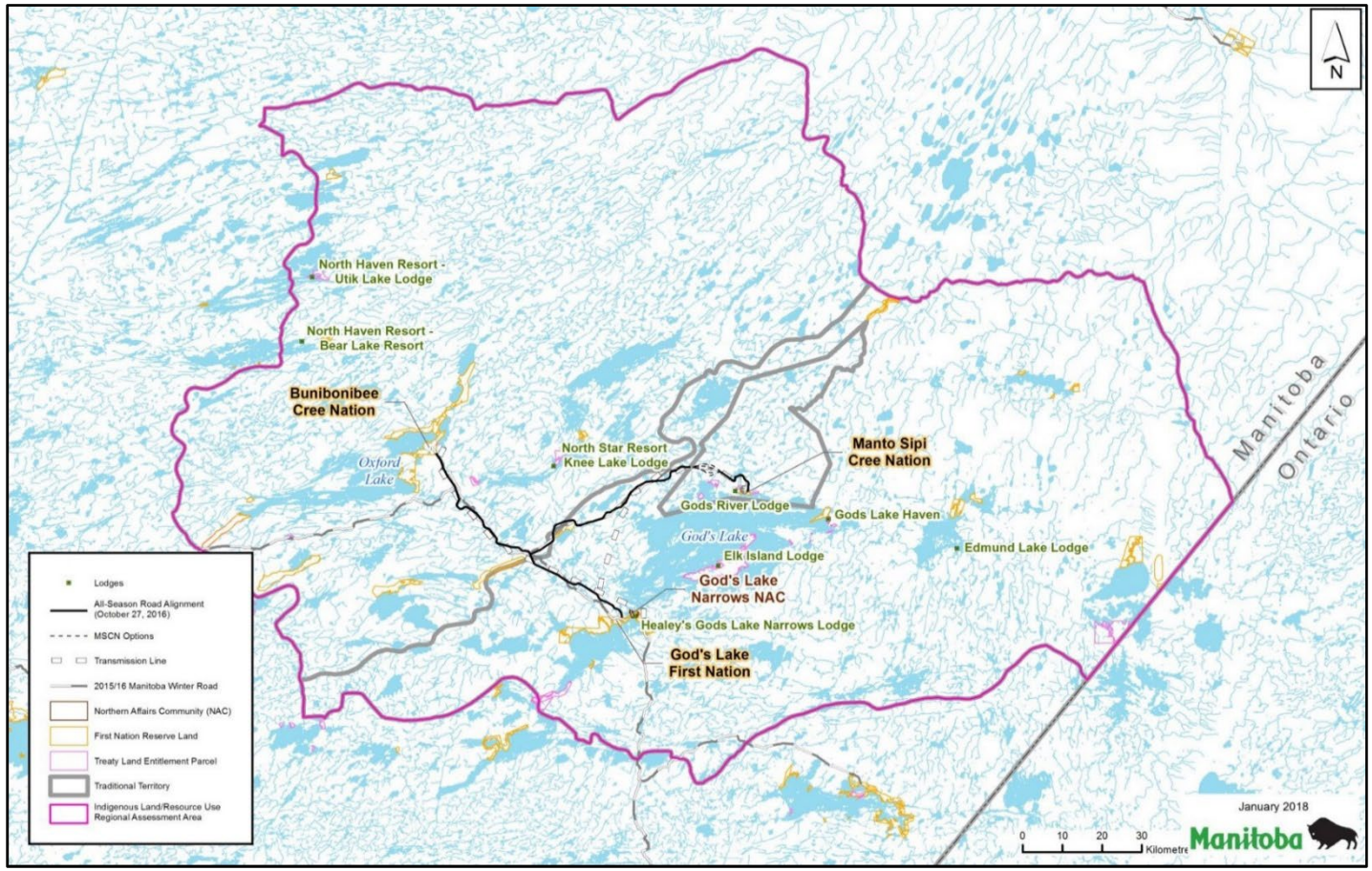


Figure IR1-22-3. Traditional Territories of Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation (Figure 6-16 of Project 6 EIS)

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QUESTION IAAC IR1-23

EIS Guideline Reference	• Part 1, Section 3.2.2 • Part 2, Section 5.1 and 6.1.9
EIS Reference	• Chapter 6, Section 6.1.4.1.6 and 6.1.4.5 • Chapter 6, Table 6.11 • Appendix B-2, Section 4.6.1
Category	Baseline

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to identify baseline information regarding species of fish, wildlife, birds, plants, or other natural resources of importance for traditional use by Indigenous peoples. The EIS Guidelines also require the proponent to reflect in the EIS the knowledge acquired through engagement with Indigenous groups.

With respect to the selection of VCs, the EIS indicates that a preliminary list of VCs was presented at community meetings to verify their appropriateness and to revise the VC list, as needed, based on input from community members. It is unclear whether all Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines were invited to participate in these meetings to verify the list of VCs.

The EIS indicates that plant and wildlife species of importance to Indigenous peoples were identified through traditional knowledge studies, workshops, and community discussions with MSCN, BCN, and GLFN. It is unclear whether the proponent engaged with or made attempts to engage with all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines, other than BCN, MSCN, and GLFN, or whether species of importance and traditional use areas of these groups were considered in the EIS and the selection of study areas. MSCN also expressed concerns regarding the methodology of the trapper program used to collect information for the Project, noting that no traplines held by MSCN were used to collect data and no explanation for this omission is provided.

Table 6.11 of the EIS presents a list of mammal species of importance that were observed by GLFN, MSCN, and BCN. No information is provided regarding the exact or approximate locations where these individuals were observed. As some potential effects of the Project are dependent upon

wildlife species' proximity to the Project, this information is required to understand and assess potential Project effects to wildlife species of importance to Indigenous peoples.

Supplementary information is required to support the proponent's characterization of potential Project effects to species of importance to Indigenous peoples for traditional purposes and how knowledge acquired through engagement with Indigenous groups is reflected in the EIS.

INFORMATION REQUEST

a) Indicate whether Manitoba Infrastructure (MI) engaged with or made attempts to engage with all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines to identify plant and wildlife species of importance and to verify and/or revise the preliminary list of VCs identified by MI.
    i. If so, describe how MI considered and incorporated input from these groups into the description of baseline information, selection of Project study areas, selection of VCs, and the assessment of potential Project effects, residual effects, and cumulative effects for Indigenous peoples presented in the EIS. If this information was not included and considered in the EIS, revise all relevant sections of the EIS, including the selection of study areas and VCs, to include this information.
    ii. ii. If not, describe how and when MI plans to engage with each of the communities listed in Part 2, Section 5.1 of the EIS Guidelines to collect the information described and how MI will incorporate this information into the EIS. If MI does not plan to engage with these groups, provide a clear rationale for this decision.
b) Provide a rationale for why traplines of MSCN were not included in the scope of the trapper program. Clarify whether trappers from MSCN were interviewed and/or involved in data collection related to the trapper program.
    i. If trappers from MSCN were interviewed and/or involved in data collection related to trapper program, revise the information and assessments presented in the EIS to reflect this.
c) For the wildlife species listed in Table 6.11, indicate the exact or approximate location in which Indigenous community members observed these individuals.

RESPONSE

a) As described in Chapter 5, Section 5.2.2 of the Environmental Impact Statement (EIS), the initial engagement activities were conducted during the East Side of Lake Winnipeg Feasibility Study. This study assessed transportation needs and explored interest in an all-season road network. A community engagement program was initiated, involving visits to numerous communities potentially affected by future road development. These included: Bloodvein First Nation, Berens

River First Nation, Poplar River First Nation, Little Grand Rapids First Nation, Pauingassi First Nation, St. Theresa Point First Nation, Wasagamack First Nation, Garden Hill First Nation, Bunibonibee Cree Nation (BCN), Manto Sipi Cree Nation (MSCN), God's Lake Narrows Northern Affairs Community (GLN NAC), and Red Sucker Lake First Nation. These engagements aimed to share information and gather community input on the development of an all-season road network.

For the Project 6 EIS, Manitoba Transportation and Infrastructure (MTI) conducted three targeted rounds of engagement, rounds 4, 5, and 6, with the Indigenous communities most directly affected by the Project, specifically Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation (GLFN), and God's Lake Narrows NAC. As outlined in Chapter 5, Section 5.3 and further detailed in Section 5.4.1, these engagements focused on providing project updates, identifying Valued Components (VCs), discussing potential environmental effects and mitigation measures, and presenting the results of the environmental assessment.

With respect to the inclusion of other Indigenous Nations, MTI issued formal notifications and invitations to all Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines, inviting them to participate in the environmental assessment process and to provide input on potential project effects (see Chapter 5, Appendix 5-9 of the EIS). With the exception of a letter received from the MMF (Chapter 5, Appendix 5-10 of the EIS), no other communities responded to MTI's specific request. Draft chapters of the EIS were also distributed to all Indigenous prior to formal submission to support early review and feedback (Chapter 5, Section 5.4.1 of the EIS). The full draft EIS was sent out on July 24, 2018, with accompanying cover letters included in Chapter 5, Appendix 5-6 of the EIS, to facilitate review during the public comment period.

Regarding the identification of species of importance, Chapter 6, Section 6.3 and Chapter 7, Sections 7.2.3 and 7.2.4 of the EIS describe how species of traditional use value to Indigenous peoples were identified through traditional knowledge studies, community workshops, and discussions with MSCN, BCN, GLFN, and GLNAC. These inputs contributed to the selection of VCs and informed the definition of study areas and mitigation strategies.

In addition, Manitoba Transportation and Infrastructure (MTI) will conduct a reassessment of data validity during the immediate preconstruction phase (1-2 years before construction begins). This process will verify that predictions made in the EIS remain accurate and that proposed mitigations and monitoring remain relevant and applicable. Data verification will include a desktop exercise incorporating detailed design, newly collected data available to MTI, and may be followed by necessary field studies if required. Should there be significant changes in baseline data, a reassessment of potential effects will also be conducted.

MTI provided copies of draft chapters of this EIS as they became available to Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community to allow further time for review and comment, prior to the formal submission to regulators and other stakeholders.

As outlined in Chapter 5, Section 5.7 of the EIS, the Indigenous and Public Engagement Program will continue throughout the project's development, ensuring ongoing opportunities for Indigenous Nations and other stakeholders to provide input. Additionally, as described in response to IR1-25, an Engagement and Consultation Plan has been developed to facilitate continued engagement with all Indigenous Nations identified in Part 2, Section 5.1 of the EIS Guidelines.

MTI is committed to ongoing engagement efforts through and beyond the completion of the Project, providing regular updates, consultation meetings, and open channels for feedback. Any new information obtained through these activities will be documented and shared with regulators. Planned engagement activities include in-community meetings, public open houses, and a structured communications plan to maintain collaboration. Furthermore, additional socio-economic information will be gathered through a socio-economic study, which is currently under consideration for funding.

b) As outlined in Chapter 5, Section 5.1.2 of the EIS, all Project 6 communities, including Manto Sipi Cree Nation (MSCN), were invited to participate in the environmental baseline data collection program. This included opportunities to contribute to the wildlife baseline through the trapper program. A Community Coordinator (CC) was appointed by Chief and Council within each community to identify active trappers for potential participation, coordinate logistics, assist with field activities, and liaise between trappers and the project team.

The selection of trappers was based on community input, specifically considering the location of Registered Traplines (RTLs), recent harvesting activity, and willingness to participate. Participation was voluntary, and trappers were required to comply with humane trapping standards and the use of approved equipment. An honorarium was provided as compensation for time and expertise contributed to the program.

As described in Chapter 6, Section 6.1.9 of the EIS, members of MSCN actively trap in RTLs 10 to 13, 15, 18, 20, 33, and 50, areas located to the north and east of God’s Lake. While MSCN shares the God’s Lake RTL District with God’s Lake First Nation, the trapper program ultimately reflects the participation of individuals who responded to the invitation and were identified by their respective communities. According to the record of engagement, the results of the program are based on those trappers who chose to participate, which in 2016–2017 were located in the Oxford House and God’s Lake sections (Joro, 2018).

Therefore, while MSCN was invited to participate and had the opportunity to contribute, no trappers from MSCN were ultimately involved in the trapper program during the relevant study period. The scope of the program reflects voluntary participation and decisions made at the community level, not the exclusion of any specific RTLs or communities.

c) The exact or approximate locations of wildlife species observations listed in Table 6.11 cannot be disclosed, as this information was shared through Traditional Knowledge under conditions of confidentiality. As stated in the EIS, the research process was based on informed consent, and MTI is committed to protecting participant privacy and community ownership of knowledge. As such, location details remain confidential and are not part of the public record unless formal consent has been provided by the individuals and communities involved.

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QUESTION IAAC IR1-24

EIS Guideline Reference	• Part 2, Section 5.1
EIS Reference	• Chapter 5, Section 5.2.4 and 5.4.1.1 • Chapter 5, Appendix 5-12 • Chapter 6, Section 6.1.9.2 and 6.1.9.3 • Chapter 6, Figure 6-16
Category	Baseline

CONTEXT AND RATIONALE

The EIS Guidelines list Indigenous groups with which the proponent is expected to strive towards developing a productive and constructive relationship in order to support information gathering and the effects assessment.

The EIS indicates that the boundaries of the traditional territories of MSCN, GLFN, and BCN are shown in Figure 6-16. It is not apparent from Figure 6-16 which areas constitute the traditional territories of these groups. Further, the asserted traditional territories of other Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines are not described in the EIS or presented in a figure.

The EIS indicates that the communities of Norway House Cree Nation, Pimicikamak Okimawin, Garden Hill First Nation, Red Sucker Lake First Nation, St. Theresa Point First Nation, and Wasagamack First Nation are not expected to be adversely affected by the Project as none of these communities have reserve lands or Treaty Land Entitlements (TLEs) within the Indigenous RAA and the Indigenous RAA is not within the Resource Management Areas or Registered Trapline Districts (RTLs) of these communities.

The Agency notes that the First Nations communities listed above have Aboriginal and Treaty rights in areas outside of the boundaries of reserve lands/TLEs and may practice traditional use activities within the Project footprint, LAA, and/or RAA. Additionally, RTLs may not be representative of Indigenous groups' asserted traditional territory. GLFN notes that RTL boundaries were created by the Government of Manitoba for management purposes, not by Indigenous communities themselves, and Indigenous traditional territory and traditional use areas do not have prescribed boundaries. Pimicikamak Okimawin indicated that their asserted traditional territory extends into

the Indigenous RAA and MSCN noted that the conceptual boundaries of their ancestral lands are greater than the boundaries indicated in the EIS. Further, GLFN noted that although there may be limited activity on the land in certain areas or at certain times, the land is considered sacred and a lack of current traditional use of an area or resource should not be considered an indication that GLFN does not have an interest in the land or resources in that area.

The EIS indicates that the Government of Manitoba and the Manitoba Metis Federation (MMF) signed a Métis Harvesting Agreement, which designated a Métis Natural Resource Harvesting Zone; the Indigenous RAA for the proposed Project is located outside of this designated zone. The MMF asserts that their members exercise their Aboriginal rights within the Project footprint, LAA, and RAA. Further, the Métis Harvesting Agreement sets out a process by which research may be undertaken in areas of Manitoba outside of the Métis Natural Resource Harvesting Zone. It is unclear whether research has been undertaken or is in the process of being undertaken with respect to Métis current use of lands and resources for traditional purposes, which may inform the assessment of potential Project effects to Métis peoples. Additionally, it is unclear whether the traditional territories of other Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines were considered in delineating the boundaries of the Indigenous RAA.

Supplementary information is required to support the proponent's characterization of potential Project effects to Indigenous peoples, including all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines.

See Annex I for related advice.

INFORMATION REQUEST

a) Provide figures showing the extent of the asserted traditional territory of each Indigenous group listed in Part 2, Section 5.1 of the EIS Guidelines in a manner and at a spatial scale that clearly shows the boundaries of each groups' asserted traditional territory. Clearly describe engagement activities that have taken place with Indigenous groups to validate MI's understanding of the extent of each group's asserted traditional territory. If these engagement activities have not taken place, describe how and when MI will conduct these activities.
    i. If MI has made reasonable efforts to engage with Indigenous groups to collect this information but these efforts have been unsuccessful, provide a record of all attempts to engage with Indigenous groups on this topic.
b) Based on the extent of each Indigenous group's asserted traditional territory, the results of the engagement activities referred to in a), and MI's understanding of the extent of anticipated project effects, revise the effects assessments presented in the EIS for all Indigenous groups whose traditional territory differs from what was originally presented in the EIS.

i. If, after the effects assessments presented in the EIS are revised to include the information referred to in a), MI does not anticipate effects to some or all Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines, verify this conclusion with the Indigenous groups in question. If these Indigenous groups indicate that there will be project effects to their communities, present the views and assessment(s) of effects of these Indigenous groups in the EIS alongside MI's assessment of effects.

ii. If adverse effects are identified that were not previously considered in the EIS, describe proposed mitigation or accommodation measures that will be implemented to address these effects.

c) Indicate whether any data are available or if research has been or is planned to be undertaken with respect to Métis current use of lands and resources for traditional purposes within or near the Project footprint, LAA, or RAA. If MI is in possession or has access to the results of any such research/data (e.g. from the MMF) as it relates to the Project and its potential effects, this information must be considered in the EIS.

RESPONSE

a) Figures illustrating the extent of the asserted traditional territories of Manto Sipi Cree Nation (MSCN), Bunibonibee Cree Nation (BCN), God's Lake First Nation (GLFN), and God's Lake Narrows Northern Affairs Community (GLNAC) are provided in Chapter 6, Figure 6-16 of the Environmental Impact Statement (EIS) and has been included in Appendix IR1-24-1 (Figure IR1-24-1). This figure presents the traditional territory boundaries of these three communities within the Indigenous Regional Assessment Area (RAA) alongside associated lodge locations. The Reserve boundaries are also found in Chapter 3, Appendix 3-7 of the EIS. An additional figure showing the traditional territories of all the Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines has also been provided in Appendix IR1-24-2 (Figure IR1-24-2).

As described in Chapter 4, Section 4.3.3 of the EIS, the Traditional Territories of MSCN, BCN, and GLFN were identified by Traditional Knowledge (TK) studies. These boundaries were informed through collaborative engagement with each of the communities, including community-specific TK studies, mapping workshops, and follow-up verification meetings.

As mentioned in response to IR-23, MTI conducted three targeted rounds of engagement, rounds 4, 5, and 6, with the Indigenous communities most directly affected by the Project. As outlined in Chapter 5, Section 5.3 and further detailed in Section 5.4.1 of the EIS, these engagements focused on providing project updates, identifying Valued Components (VCs), discussing potential environmental effects and mitigation measures, and presenting the results of the environmental assessment.

As described in Chapter 5, Section 5.2.4 of the EIS, the communities of Norway House Cree Nation, Cross Lake Band of Indians/Pimicikamak Okimawin, Garden Hill First Nation, Red Sucker Lake First

Nation, St. Theresa Point First Nation and Wasagamack First Nation are not expected to be adversely affected by the proposed Project. The proposed Project will not connect to these communities. In addition, none of these communities have Reserve Lands or Treaty Land Entitlements (TLEs) in the Indigenous Land/Resource Use RAA (Indigenous RAA) and the Indigenous RAA is not within the Resource Management Areas or Registered Trapline (RTL) Districts of these communities. Métis in the Province of Manitoba have constitutional rights to hunt for food for subsistence use. In 2012, the Government of Manitoba and the MMF signed a Métis Harvesting Agreement which designated a Métis Natural Resource Harvesting Zone. The Indigenous RAA for the proposed Project is far removed from the Métis Natural Resource Harvesting Zone. Due to these reasons, engagement with these Indigenous groups was more limited.

However, MTI issued formal notifications and invitations to all Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines, inviting them to participate in the environmental assessment process and to provide input on potential project effects (see Chapter 5, Appendix 5-9 of the EIS). With the exception of a letter received from the MMF (Chapter 5, Appendix 5-10 of the EIS), no other communities responded to MTI's specific request. Draft chapters of the EIS were also distributed to all Indigenous prior to formal submission to support early review and feedback (Chapter 5, Section 5.4.1 of the EIS). The full draft EIS was sent out on July 24, 2018, with accompanying cover letters included in Chapter 5, Appendix 5-6 of the EIS, to facilitate review during the public comment period.

MTI remains committed to ongoing engagement with Indigenous Nations, including all those listed in Part 2, Section 5.1 of the EIS Guidelines. Engagement efforts will continue under the Project 6 Engagement and Consultation Plan, which will remain in effect through and beyond August 2026. This plan has been developed to ensure continued engagement with Indigenous Nations through regular updates, consultation meetings, and open channels for feedback. MTI is committed to sharing relevant project information with regulators and Indigenous communities, and any new information gathered during this period will be documented and made available to stakeholders as appropriate.

b) At this time, MTI does not anticipate effects to some or all Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines. The boundaries of traditional territories established and reflected in the EIS were informed by traditional knowledge studies and direct engagement with Bunibonibee Cree Nation (BCN), Manto Sipi Cree Nation (MSCN), God's Lake First Nation (GLFN), and God's Lake Narrows Northern Affairs Community (GLNAC) and is not believed to require modification or update. The effects assessment presented in the EIS therefore does not require update or revision.

As outlined in the response to part (a), MTI is committed to continued engagement with all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines. Through this process, MTI will further validate its understanding of the extent of each group's asserted traditional territory and potential project effects. If additional Indigenous groups identify interests or use within or near the

Project area that differ from what was previously understood or presented in the EIS, MTI will update its assessment of effects accordingly.

c) With respect to the MMF specifically, MTI notes that despite requests for information made during the initial EIS preparation, no supporting data regarding traditional land use or territory within the Project area was provided by the MMF at the time. MTI understands from the advice of the provincial consultation team and legal counsel that the MMF did not have a legally recognized harvesting claim in the Project region, and that their Harvesting Zone is generally situated in the southern and western portions of the province. Consequently, MMF was treated as a stakeholder in the process, and engagement was carried out accordingly. At present, MTI has limited resources to undertake additional engagement work with the MMF, but is actively seeking assistance from KTC Grand Chief and Canada to determine an appropriate path forward.

APPENDIX IR1-24-1

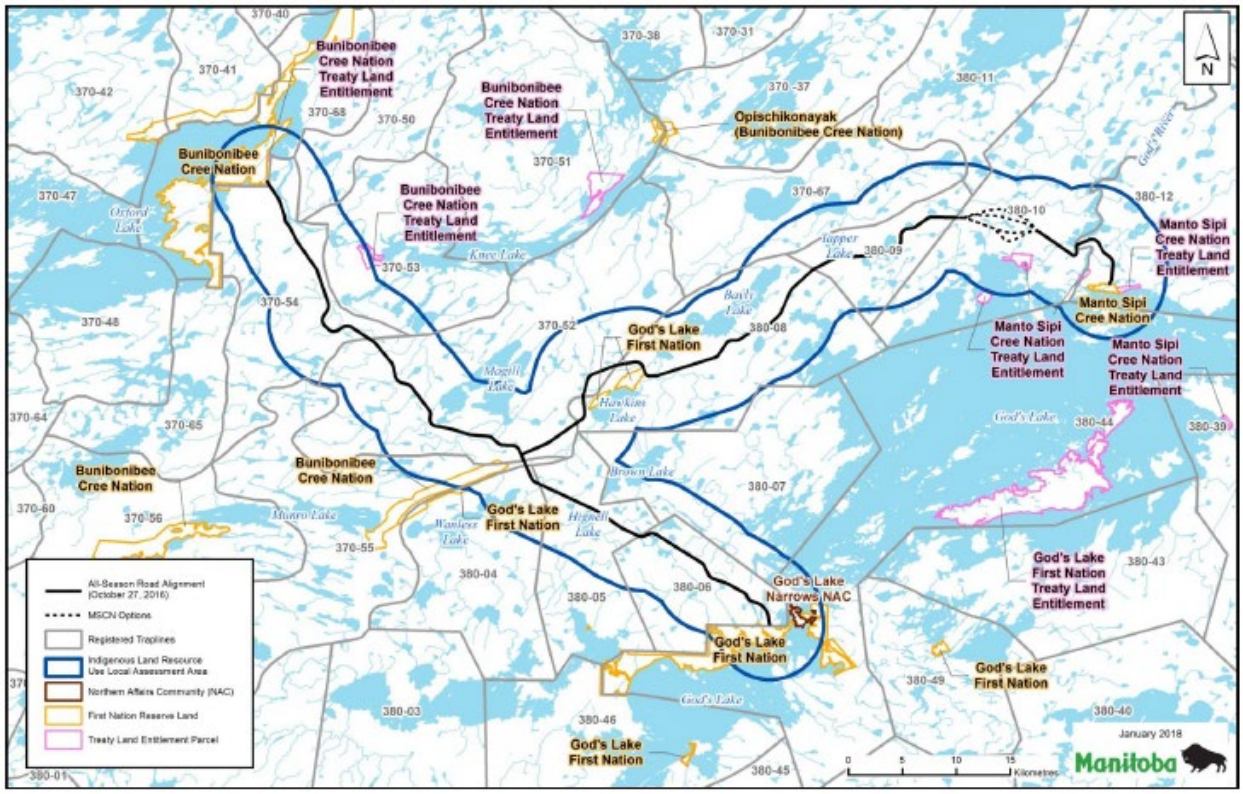


Figure IR1-24-1. First Nation Reserve land, TLEs, and Registered Traplines in the vicinity of the proposed Project. (Figure 6-17 of the Project 6 EIS).

APPENDIX IR1-24-2

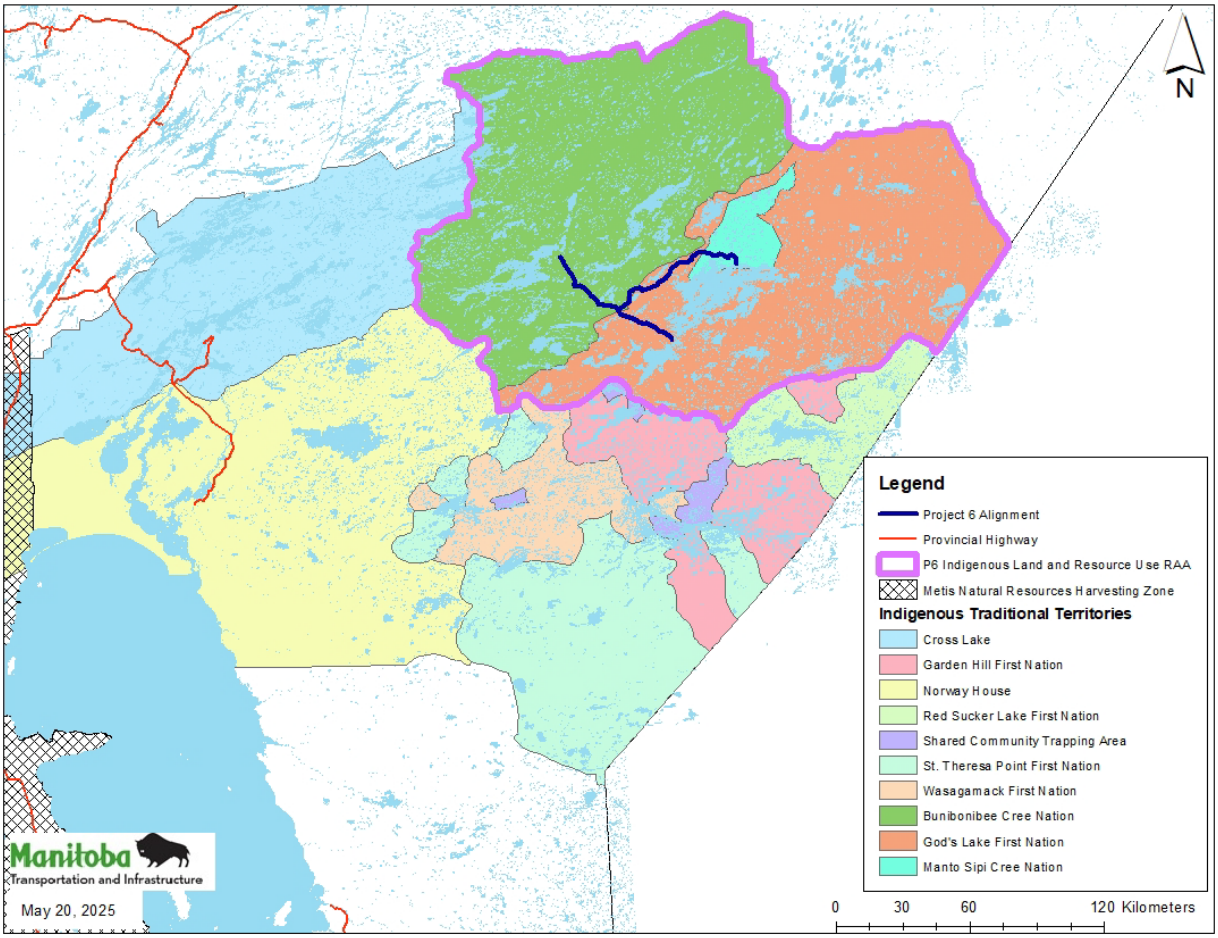


Figure IR1-24-2. Traditional Territories of all the Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-25

EIS Guideline Reference	• Part 2, Section 5.1, 6.1.9, and 6.3.4
EIS Reference	• Chapter 6, Section 6.1.9.2 and 6.1.9.3
Category	Baseline

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe baseline information and potential Project effects to the health and socioeconomic conditions of Indigenous peoples.

The EIS does not present baseline information on the health and socioeconomic conditions of Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines other than MSCN, BCN, and GLFN. As noted above (see IR1-24) Indigenous groups other than MSCN, BCN, and GLFN may use lands and resources within the Project footprint, LAA, and RAA for traditional purposes. As such, the Project may result in adverse effects to the health and socioeconomic conditions of members of these communities; baseline data are required to understand the context and potential significance of these effects. The EIS also does not describe whether engagement activities were conducted with MSCN, BCN, and GLFN to verify the accuracy of the baseline data presented with regard to the health and socioeconomic conditions of their communities.

Supplementary information is required to support the proponent's characterization of potential Project effects to the health and socioeconomic conditions of Indigenous peoples.

INFORMATION REQUEST

a) Should Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines other than MSCN, BCN, and GLFN also use the Project footprint, LAA, or RAA for traditional purposes, describe the baseline health and socioeconomic conditions for these Indigenous groups.
b) Describe engagement activities that have taken place with GLFN, BCN, and MSCN to verify the accuracy of the baseline data presented on the health and socioeconomic conditions of their communities. If these engagement activities have not taken place, provide a rationale for this or describe when and how these engagement activities will occur.

RESPONSE

a) The Indigenous Regional Assessment Area (RAA) is not expected to be used by members of other First Nations in the region as it only intersects the traditional territories of Bunibonibee Cree Nation, God's Lake First Nation and Manto Sipi Cree Nation (Figure IR1-25-1). Norway House, Cross Lake, Garden Hill, Red Sucker Lake, St. Theresa point, and Wasagamack are located outside of the RAA but situated in north-eastern Manitoba. Garden Hill, Wasagamack, St. Theresa Point, and Red Sucker Lake were part of a single First Nation until 1969 (Four Arrows Regional Health Authority Inc., 2017), and as such, they share the Island Lake Registered Trapline (RTL) District. The proposed Project will not connect to these communities and is not located within their RTL. Additionally, none of these communities have Reserve Lands or Treaty Land Entitlements (TLEs) within the Indigenous Land/Resource Use RAA (Indigenous RAA), and the Indigenous RAA does not fall within their Resource Management Areas or RTL Districts (Figure IR1-25-2).

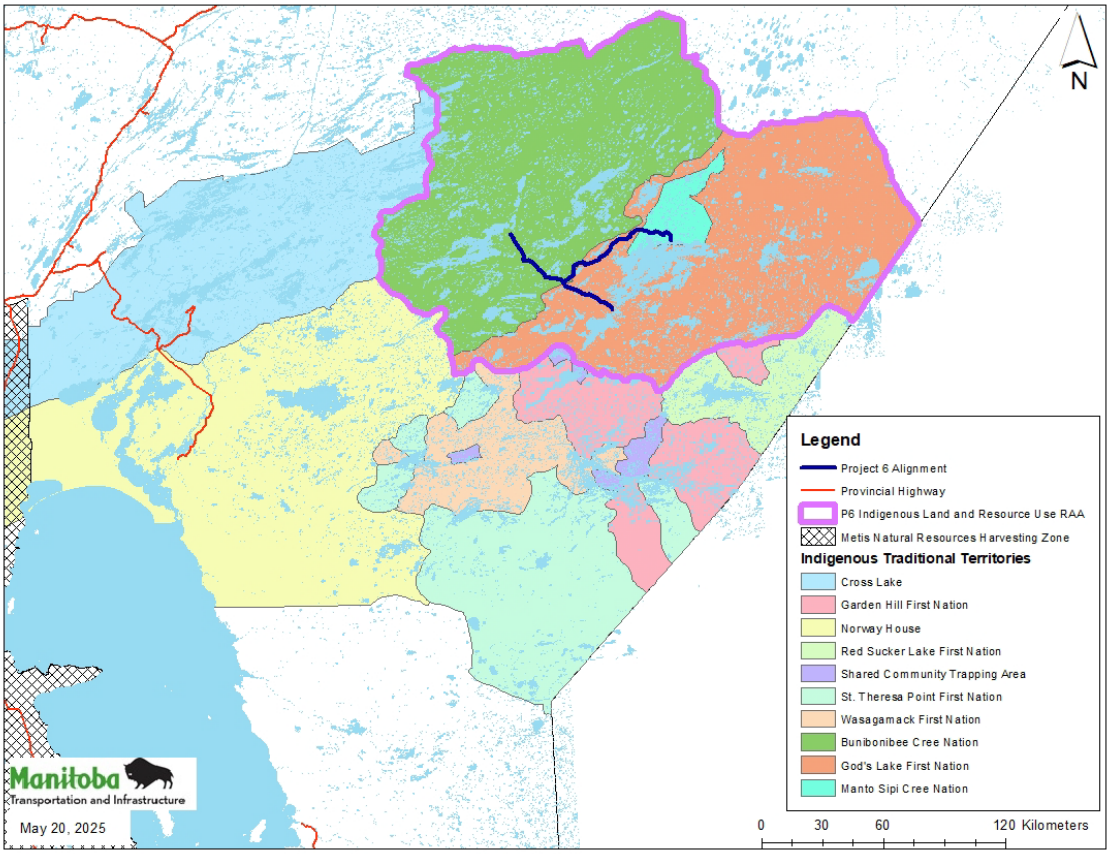


Figure IR1-25-1. Traditional territories of all the Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines.

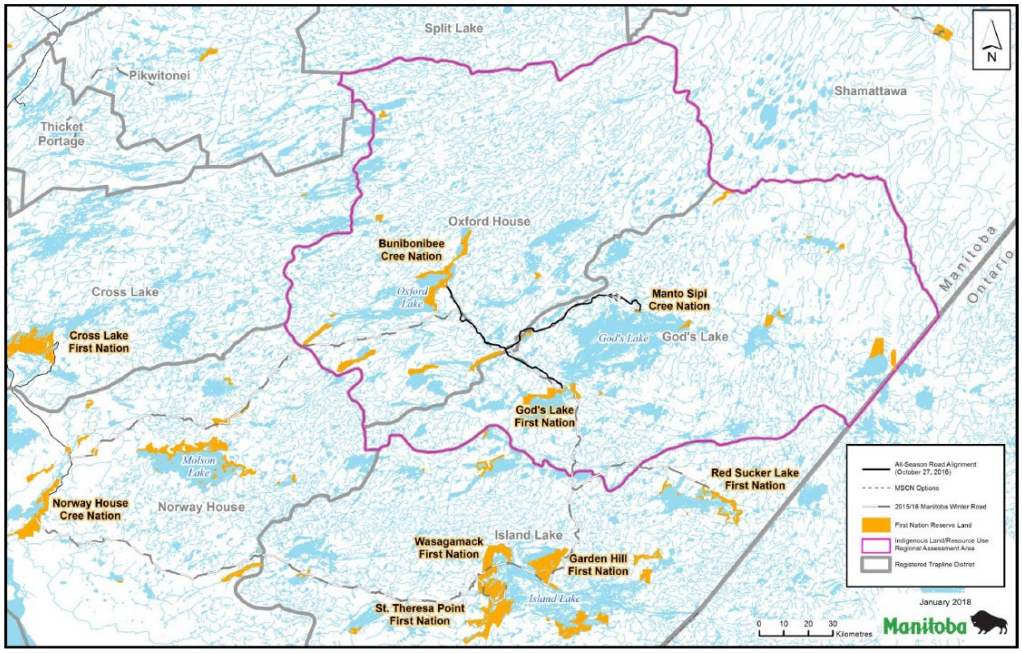


Figure IR1-25-2. Registered Trapline Districts in relation to the Indigenous Land/Resource Use RAA.

RTLs provide an indication of regions of significant resource use for a particular community as of the date when they were established in the 1940s. When an RTL District was created by the Chief and Council of the First Nations and their trappers, it represented the traditional lands used by a community and defined those boundaries legally for the first time (Manitoba Sustainable Development 2017).

Regarding the Métis community in Manitoba, they have constitutional rights to hunt for food for subsistence use. In 2012, the Government of Manitoba and the Manitoba Métis Federation (MMF) signed a Métis Harvesting Agreement, which designated a Métis Natural Resource Harvesting Zone. The Indigenous RAA for the proposed Project is significantly distant from the Métis Natural Resource Harvesting Zone.

During the engagement process, in addition to in-community meetings with Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community, Manitoba Transportation and Infrastructure (MTI) also engaged with the communities listed in Part 2, Section 5.1 of the Environmental Impact Statement (EIS) Guidelines. As detailed in Chapter 5, Section 5.4.1 of the EIS, MTI notified each of those communities about the EIS and made efforts to further engage them and receive their input on the Project and Environmental Assessment (EA) through specific invitation to identify and describe potential effects of the Project on the environment and on their community.

Despite these efforts, the only formal response received was a letter from the Manitoba Métis Federation (MMF) (Chapter 5, Appendix 5-10 of the EIS). As noted in Chapter 5 of the EIS, MTI sent a second letter to MMF requesting information to support MMF's assertion of Métis use within the Project area. MMF's response letter did not supply information to support Métis use within the Project area. Copies of these letters were included in Appendix 5-11 and Appendix 5-12 of the EIS. MTI's responses to the comments received are summarized in Chapter 5, Section 5.6 of the EIS.

No other communities provided feedback in response to MTI's outreach. In compliance with the guidelines, MTI distributed copies of the final EIS to each of these communities for their review and comments during the designated public comment periods.

Furthermore, two Public Open Houses were held in Winnipeg to engage community members living off-reserve, as well as various stakeholder groups and the general public. These included representatives from the Canadian Environmental Assessment Agency, Manitoba Trappers Association, Mining Association of Manitoba, Manitoba Wildlife Society, among others (Chapter 5, Section 5.4 of the EIS).

An Engagement Plan has been developed to continue engagement with Indigenous Nations, including all those listed in Part 2, Section 5.1 of the EIS Guidelines throughout the environmental assessment process. MTI is committed to ongoing engagement efforts through and beyond August 2026, ensuring that relevant project information is shared with regulators and Indigenous communities. This plan includes regular updates, meetings, and open channels for dialogue and feedback. If any new information is obtained through these efforts, it will be documented and shared with regulators.

b) As part of the engagement process, MTI conducted six rounds of consultations from 2009 to 2017. In addition to these rounds, MTI provided draft chapters of the EIS to Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community as they became available. This allowed additional time for review and feedback before the formal submission to regulators and other stakeholders. The first draft of the compiled EIS was sent out for review to each of the communities listed in Part 2, Section 5.1 of the EIS Guidelines on July 24th, 2018.

As described in Chapter 5, Table 5.1 and 5.7 of the EIS, throughout the engagement process, invitation letters were sent to each community and other stakeholders with potential interest in the proposed project, inviting them to attend public open houses. These letters outlined the meeting agenda, date, time, location, purpose, and proposed discussion topics. Leadership and Elders meetings were held to introduce the proposed project and discuss potential benefits and opportunities with community leadership (Chief and Council) and Elders. These meetings preceded in-community meetings to facilitate planning and focused on introducing MTI as the project

proponent, presenting the study team, outlining the proposed project and anticipated work, providing project updates, and gathering feedback.

The first three rounds of in-community meetings were associated with the East Side Lake Winnipeg Large Area Transportation Network Study (SNC-Lavalin et al. 2011), focusing on the all-season road network and the proposed project corridor. The subsequent three rounds of meetings were specific to the Project Environmental Assessment (EA) with Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community.

One or more community members were hired to assist with conducting field work and the delivery of services as part of the environmental baseline studies completed for wildlife, fisheries, vegetation and heritage resources. Trappers from the communities participated in the Trappers Participation Program (TPP) to collect baseline data on furbearers (Chapter 5, Section 5.3.4 of the EIS).

Traditional Knowledge (TK) workshops and interviews were conducted to gather insights on traditional land uses, resource use patterns, cultural and spiritual implications, local biophysical aspects, and sites of cultural, ecological, and archaeological importance. Participants were also encouraged to express their views on the proposed project and its potential impacts on their communities and the natural environment. As holistic thinkers, community members were not restricted to the conventional categories of regulatory environmental assessment; they shared rich accounts of the interconnected physical, natural, historical, social, and cultural environments of the Bunibonibee, Manto Sipi and God's Lake areas. They gave equal consideration to the possible effects of an all-season road on wildlife and waterways, as to the social, cultural and economic changes that a road could bring to the community. As outlined in Chapter 5, Section 5.2.4.2 of the EIS, a TK verification workshop was conducted to review and confirm the collected information. Comments, opinions, and spatial data recorded during earlier workshops and interviews were digitized, analyzed, and mapped to ensure accuracy. Verification workshops with MSCN, GLFN, and BCN took place in 2016.

In response to feedback from Rounds 4 and 5, which emphasized the need for greater youth involvement, MTI held youth-specific meetings in Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community. However, at the request of Manto Sipi Cree Nation's Community Coordinator, no separate youth meeting was held in that community. Round 6 of the engagement process specifically focused on identifying and confirming design criteria, potential effects, and mitigation measures for the Environmental Assessment. Discussions covered all valued components, including health and socioeconomic conditions. Participants were encouraged to give personal feedback by marking their preferred mitigation measures directly onto display boards. These poster boards allowed community members to indicate whether they supported the proposed mitigation measures, were uncertain about them, or preferred not to implement them. Minutes from Round 4 and 5 meetings were shared with respective communities

and each meeting began with a recap of past discussions to verify MTI's understanding of community feedback received.

Beyond these six engagement rounds, additional public engagement activities were conducted. Two Public Open Houses were held in Winnipeg to engage off-reserve community members, stakeholder groups, and the general public. The first open house, held in May 2017, combined discussions from Rounds 4 and 5. An attendee from the Mining Association of Manitoba expressed support for investment in northern transportation infrastructure, including the proposed road. The second open house, held in November 2017, saw participation from several lodge owners, including Elk Island Lodge, Edmund Lake Lodge, God's River Lodge, and Healy's God's Lake Narrows Lodge. While the owner of Elk Island Lodge and Edmund Lake Lodge had no operational concerns, he raised issues regarding the potential increase in drugs and alcohol entering the communities. Owners of God's River Lodge and Healy's God's Lake Narrows Lodge requested additional information, which MTI provided via email. No further comments were received.

Additionally, a newsletter was available at each community meeting and open house, providing information on the Project background, purpose of the assessment, assessment steps, and opportunities for community input. Copies of the presentations, storyboards, and handouts were also posted on MTI's website for broader accessibility.

To assist IAAC and EAB in their regulatory review within the environmental assessment process and to inform both the federal and provincial consultation processes being undertaken for the proposed Project, MTI has developed a draft questionnaire based on the questions it received from IAAC in Round 1 packages 1 & 2. MTI intends to share this questionnaire with the Indigenous groups listed in Part 2, Section 5.1 as a starting point to co-developing the questionnaire that will be used to obtain and verify community views and responses to IAAC's questions. MTI will share updates with IAAC and EAB throughout this process. Results will be used by MTI to inform IR responses and project planning and by regulators to inform their regulatory reviews of the project and subsequent consultations with individual communities.

MTI remains committed to ongoing engagement with Indigenous Nations, including all those listed in Part 2, Section 5.1 of the EIS Guidelines. Engagement efforts will continue through and beyond August 2026 and will consist of regular updates, meetings, and open channels for dialogue and feedback. MTI is committed to sharing relevant project information with regulators and Indigenous communities, and any new information gathered during this period will be documented and made available to stakeholders as appropriate.

REFERENCES

Four Arrows Regional Health Authority Inc. 2017. Garden Hill First Nation, Wasagamack First Nation, Red Sucker Lake First Nation and St. Theresa Point First Nation. Retrieved from: http://www.fourarrowsrha.ca/profiles/

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac aeic.gc.ca/050/evaluations/proj/80138

Manitoba Sustainable Development. 2017. Manitoba Trapping Guide. Available at: http://www.gov.mb.ca/sd/wildlife/trapping/index.html

SNC Lavalin. 2011. East Side of Lake Winnipeg (ESLW) Large Area Transportation Network Study. https://www.gov.mb.ca/mti/hpd/environment/pdf/project6/baseline/final_report.pdf. Accessed November 29, 2024.

QUESTION IAAC IR1-26

EIS Guideline Reference	• Part 2, Section 6.3.5
EIS Reference	• Chapter 1, Section 1.2.2 • Chapter 3, Section 3.2.4, 3.3.8, and 3.4.1.7 • Chapter 5, Table 5.10 • Chapter 6, Section 6.1.9.1.2.6 • Chapter 6, Figure 6-18 to 6-20 • Appendix D-1, Section 3.7.3
Category	Federal Lands

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe any potential environmental effects on federal lands as a result of the Project.

The EIS indicates that no federal lands will be used for carrying out the Project. However, the EIS also describes how wastewater, domestic waste, and solid waste from work camps and construction sites will be treated/disposed of at existing wastewater treatment plants and landfills located on the BCN, MSCN, and GLFN reserves or treaty land entitlement areas, which are considered federal lands. The EIS also describes how existing winter road maintenance yards located on the reserves of BCN, MSCN, and GLFN may be repurposed for maintenance of the ASR. The Agency notes that transportation of waste materials and storage/repair of maintenance equipment associated with the Project have the potential to result in adverse effects to federal lands from, for example, combustion emissions, dust and particulate matter generation, vibrations, noise, and accidental spills from equipment or of waste materials. As such, Project activities and components located on federal lands may result in adverse environmental effects to VCs including caribou, a species federally listed as “Threatened” under the Species at Risk Act (SARA) and observed migrating through reserve lands by members of BCN and MSCN.

The EIS describes how the ASR will connect to an existing on-reserve access road at the BCN reserve boundary and that construction is anticipated to begin at this boundary and extend eastward. It is unclear whether use of BCN’s on-reserve access road will be required for construction and operation of the Project. As no on-reserve community access roads currently

exist on the MSCN and GLFN reserves to connect the Project to community road networks, it is unclear how Manitoba Infrastructure (MI) plans to access facilities located on these reserves.

Supplementary information is required to support the characterization of potential Project effects to federal lands, species at risk, and Indigenous peoples.

INFORMATION REQUEST

a) Describe all Project components or activities, maintenance facilities, and waste disposal/treatment that will be located or occur on federal lands, specifically Indigenous reserve lands or treaty land entitlement areas.
    i. Should use of the existing on-reserve access road on BCN's reserve be required, indicate whether any upgrades to this road will be required and who will be responsible for these upgrades.
b) For all Project activities and components to be located on reserve lands and/or treaty land entitlement areas:
    i. describe potential environmental effects to VCs, mitigation measures to address those effects, and any residual adverse effects;
    ii. assess potential impacts to Aboriginal or Treaty rights anticipated from on-reserve Project components/activities; and
    iii. confirm with the applicable Indigenous communities and Indigenous Services Canada (ISC):
        - the compatibility of the Project activity/component with community land use plans,
        - whether Indian Act permits under section 58(4) of the Indian Act or under the Indian Mining Regulations, Indian Timber Harvesting Regulations, or Indian Reserve Waste Disposal Regulations are required, and
        - requirements of all other applicable legislation such as the Canadian Environmental Protection Act, 1999.
c) Update the list of regulatory requirements and mitigation commitments in the EIS as needed.
d) If construction of an on-reserve community access road is required to support Project activities and it will be constructed by MI, describe both the long-term maintenance plan and the potential effects to VCs. If MI is not the responsible party, identify the authority and indicate how MI will coordinate with that party and what implications are for the Project, should the on-reserve community access road not proceed.
e) Present revised effects assessments, including residual and cumulative effects assessments, for all VCs, including federal lands, to include all on-reserve Project components and activities and any associated adverse effects.

f) Present a revised assessment of effects associated with potential accidents and malfunctions, including worst case scenarios, to consider Project components and activities on federal lands.
g) Describe any areas of uncertainty, including those identified by Indigenous groups, and proposed follow-up and monitoring activities that will occur with respect to Project components and activities on federal lands.

RESPONSE

a) As stated in Chapter 1, Section 1.3 of the Environmental Impact Statement (EIS), three all season road sections that make up Project 6 will begin at the Reserve boundaries and extend generally west and southwest: 71.9 km from Manto Sipi Cree Nation (MSCN), 39.5 km southeast from Bunibonibee Cree Nation (BCN), and 29.6 km northwest from God's Lake First Nation (GLFN), where the three sections intersect, as shown in Figure IR1-26-1 below. Additionally, Chapter 3, Section 3.0 of the EIS identifies that the Project will be constructed solely on provincial Crown land. The Project will not use federal land, nor will it involve the granting of interest in federal land through easement, right-of-way, or transfer of ownership. A crown reservation for the All-Season Road alignment right of way has already been secured with Manitoba Crown Lands.

While no Project components will be located on federal lands or Treaty Land Entitlement areas, the proposed Project may use resources and services provided by the Indigenous Nation such as labour and existing waste treatment services (sewage treatment and landfills) where facilities are located on-reserve. Small quantities of domestic solid waste and domestic wastewater from work camps and construction areas will be collected in appropriate on-site containment for transport to the closest landfill and lagoon in BCN, MSCN and/or GLFN. MTI will work with these First Nations for approval and agreements to dispose of domestic solid waste and wastewater within the community facilities.

As noted by Indigenous Services Canada (ISC), God's Lake, Manto Sipi, and Bunibonibee all have newly constructed landfill sites (A. Bidinosti, *personal communication,* May 20, 2025). All three of the facilities have been designed to include areas for waste diversion, so fees for diverting waste could be included as well. Any construction waste generated as part of the proposed All-Season Road project must be disposed of at an off-reserve facility. Construction wastes will likely be stored and transported to Thompson when winter roads are open; construction contractors will be responsible for disposal of construction waste generated at an approved facility.

As noted in Environmental Protection Procedure EP5 and 130.9.2.3 Domestic Sewage and Grey Water of General Environmental Requirements in Appendices 8-2 and 8-3 in Chapter 8 of the EIS, sewage shall be collected through the provision of an outside toilet facility in compliance with the *Onsite Wastewater Management Systems Regulation No. 83/2003*. Collected sewage shall be removed from the site by a registered sewage hauler, as defined in section 21(1) of the *Onsite*

Wastewater Management Systems Regulation No. 83/2003 and disposed of at a wastewater treatment facility licenced under The Environment Act or otherwise federally regulated.

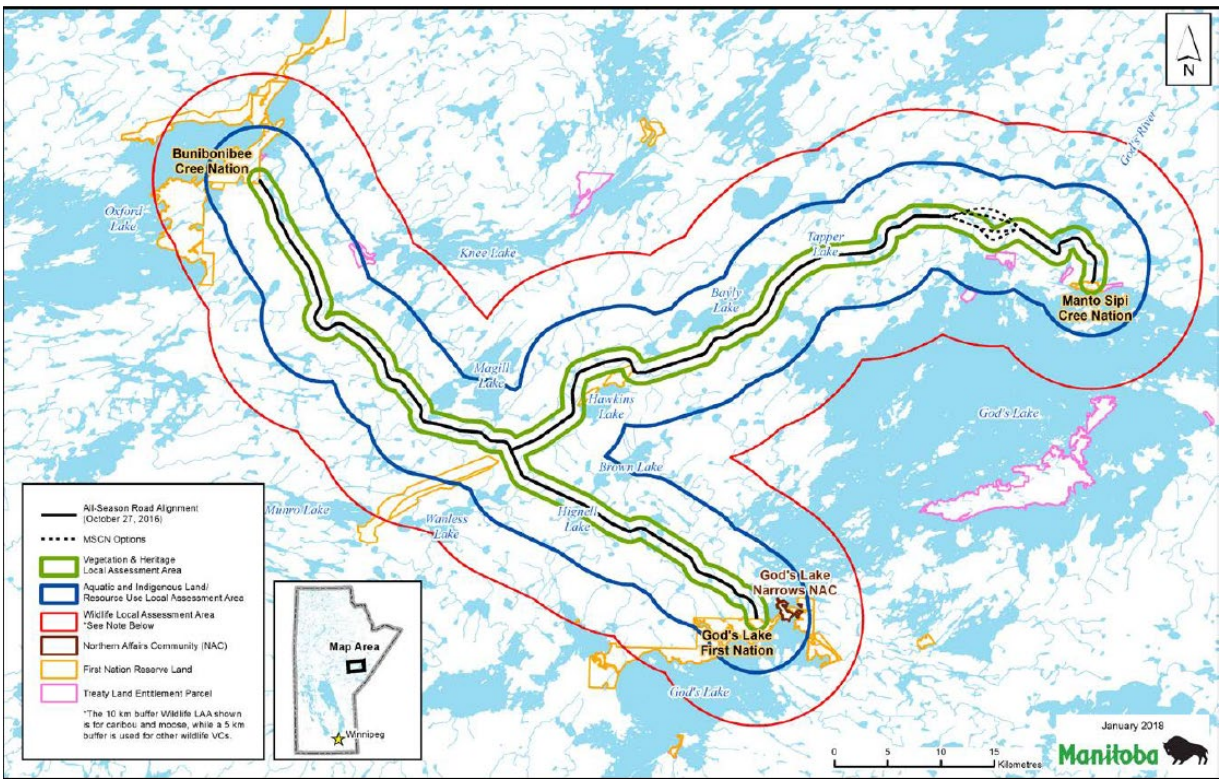


Figure IR1-26-1. Local Assessment Areas for the Proposed Project.

Waste petroleum products (ex: lubricants, oils, greases) from construction vehicles and equipment will be collected and stored in designated areas and containers until they can be removed from site for recycling or disposal through a licensed waste disposal/treatment company. Petroleum will be handled and stored in accordance with Environmental Protection Procedure EP2 found in Chapter 8, Appendix 8-2 of the EIS and provisions of the Environmental Protection Specifications section 130.9.2.5 found in Chapter 8, Appendix 8-3 of the EIS to mitigate risk of potential effects to the environment and VCs.

The use of the existing on-reserve access roads on BCN's and MSCN's reserve for transporting the Project's solid and liquid domestic wastes to approved facilities may require approval from ISC, the Indigenous Nations themselves, and/or other relevant authorities. Permissions, if required, will be obtained prior to use. Load restrictions will be implemented to avoid the need for additional upgrades. Upgrades to on-reserve roads are not currently anticipated to be needed.

Should use of on-reserve access roads be required to access services located on First Nation reserve lands (i.e. contractor transporting domestic waste to approved facilities) during

construction or maintenance activities, MTI anticipates it would conduct road condition assessments with the contractor and a representative from the Indigenous Nation prior to and after construction of the proposed Project to assess their current condition and degree of wear and tear attributable to the proposed Project. It would be the construction contractor's responsibility to repair any damages caused to the municipal or reserve roads due to the contractor's construction activities. While MTI currently does not anticipate providing funding to maintain or improve federally owned infrastructure (i.e. infrastructure located on federal reserve lands), MTI could supply expertise to facilitate maintenance planning.

The transportation of wastewater and solid waste will adhere to applicable regulations outlined in Response to B (iii), which will prevent potential effects on federal lands.

b) The response to this question considers that Project components will not be located on reserve lands or treaty land entitlement areas as described above.

i. Use of existing First Nation services (i.e. waste disposal services) is possible (as described in Response A) and has been standard practice for construction of similar all-season road projects in remote eastern and northern Manitoba. The use of on-reserve services, where required, is not anticipated to significantly increase the need for expansion of existing facilities. Therefore, no significant environmental effects on valued components (VCs) are anticipated. As facilities are pre-existing, located near developed communities, and currently actively utilised, proposed Project use of these facilities is not anticipated to result in new or measurable effects to valued components. As such, the conclusions of the EIS regarding VCs does not change.

ii. The risk for impacting Aboriginal or Treaty rights from MTI's use of the Indigenous Nation's services to construct and operate the proposed Project is negligible with a low probability of occurring. There will be no Project components located on reserve lands or treaty land entitlement areas, and significant expansion of existing waste disposal services is not anticipated. As per Response B.i. above, facilities are pre-existing, and currently actively utilised. Proposed Project-related use of these facilities is not anticipated to result in new or measurable effects to Indigenous Peoples or Aboriginal Treaty Rights.

iii. MTI is aware that Bunibonibee Cree Nation, Manto Sipi Cree Nation and God's Lake First Nation are working to develop land use plans. MTI has carried out an extensive engagement program with these communities and God's Lake Narrows Northern Affairs Community to develop acceptable alignments for the proposed Project. These communities and the Keewatin Council Grand Chief support this proposed Project. MTI will carry out future engagement through the Indigenous and Public Engagement Program (IPEP) that will provide opportunities for Indigenous communities to share concerns, provide additional information, and be part of the decision-making process where possible. MTI is responsible

> for the IPEP and will provide communities with regular updates and open channels for feedback throughout the construction, operation, and maintenance phases of the proposed Project. Any new information obtained through these activities will be documented and incorporated into environmental planning when feasible.
>
> While proposed Project components will not be located on federal lands or Treaty Land Entitlement areas, MTI will work with the applicable Indigenous Nations and Indigenous Services Canada to obtain necessary permissions for the use of existing on reserve landfill and wastewater facilities and associated existing on-reserve accesses, if required. Permits under section 58(4) of the Indian Act, Indian Mining Regulations, Indian Timber Harvesting Regulations, Indian Reserve Waste Disposal Regulations are not anticipated to be required. Additionally, solid and liquid hazardous wastes from the proposed Project will be collected, stored, transported, disposed of and/or treated in accordance with the following provincial legislation: *The Environment Act* (*Waste Disposal Grounds Regulation*); *The Dangerous Goods Handling and Transportation Act* (*Dangerous Goods Handling and Transportation Regulation*, *Environmental Accident Reporting Regulation*, and *Storage and Handling of Petroleum Products and Allied Products Regulations*); and *The Transportation of Dangerous Goods Act*.

c) There have been no changes in legislation that could impact Federal Lands. Regarding the transportation of wastes to community facilities, the EIS does specify that this process will require approval from the ISC and the relevant Indigenous Nations, in accordance with the regulations outlined in Response B (iii) above and included in the EIS. As part of the mitigation commitments, the contractor must provide a waste management plan at the start of the contract, before any work begins.

While there have been no changes to federal legislation, species listings under the Species At Risk Act (SARA) have changed. For example, Lake sturgeon (*Acipenser fulvescens*), Southern Hudson Bay - James Bay populations were added to Schedule 1 on August 8, 2019, after their COSEWIC status was re-examined and confirmed in April 2017. The potential presence of lake sturgeon was assessed in the EIS in consideration of this potential future listing under SARA.

Bank swallow (*Riparia riparia*) proposed recovery strategy dated 2021 identified critical habitat for this species, however, no critical habitat was located within the RAA. There have been no changes to the status of boreal woodland caribou (*Rangifer tarandus caribou*) or to the eastern migratory caribou. Other species at risk have seen their COSEWIC status downgraded from threatened to special concern and include Canada warbler (*Cardellina canadensis*), common nighthawk (*Chordeiles minor*) and olive-sided flycatcher (*Contopus virens*). Canada warbler and common nighthawk status under Schedule 1 of SARA are under consideration for change to reflect the status

under COSEWIC. Peregrine falcon (*Falco peregrinus*) was downgraded from Special Concern to Not at Risk under COSEWIC only, in 2017.

These regulatory changes do not result in any new impacts that have not already been addressed in the EIS, therefore, MTI's commitments, including proposed mitigation measures remain appropriate and applicable.

d) The proposed alignment reflects considerable involvement and feedback from local Indigenous Nations as described in response to IR1-01. As described above in Response A and B, the Project EIS identified that the proposed Project components will end at the reserve boundaries of the three First Nations and will be wholly located on provincial crown lands. As indicated in Chapter 3, Section 3.4.1.7 of the EIS, connecting community infrastructure to the all-season road will be the responsibility of the First Nation as the work would occur on federal reserve lands and would be federally owned; however, MTI could provide technical advice to assist in the development of a community access road if requested. On-reserve works require approval through the ISC (formerly Indigenous and Northern Affairs Canada) Environmental Review Process, and was discussed with Bunibonibee Cree Nation, Manto Sipi Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community throughout the planning of the proposed Project. This was communicated to those communities that IAAC has scoped into the federal environmental assessment process for the proposed Project through the Request for Community Engagement package included in Chapter 5, Appendix 5-9 of the EIS.

When the EIS was submitted, Bunibonibee Cree Nation was the only community that had a pre-existing on-reserve community access road that could connect to the proposed Project. In the years since the EIS was submitted, Manto Sipi Cree Nation now has an on-reserve community access that will connect to the proposed Project as evidenced by the Google Earth map provided below as Figure IR1-26-2. Although a winter access road currently exists, God's Lake First Nation does not have an all-season on-reserve access road that would connect to the proposed alignment (Figures IR1-26-3 and IR1-26-4). If a community access were built, it would also provide God's Lake Narrows Northern Affairs Community access to the proposed Project (through God's Lake First Nation).



Figure IR1-26-2. Manto Sipi Cree Nation Reserve Boundary in Relation to the Proposed Project 6 Alignment and New Community Access Road.

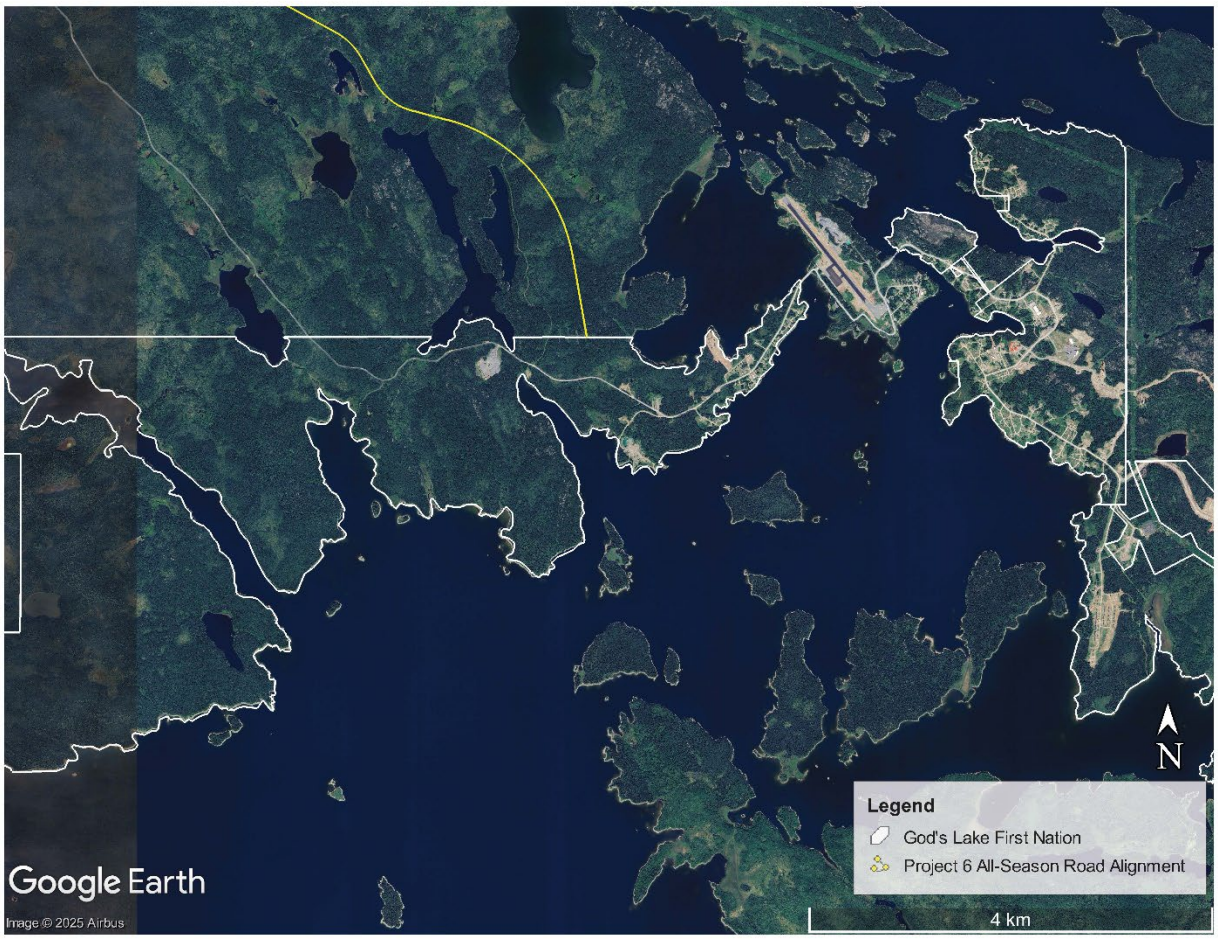


Figure IR1-26-3. God's Lake Nation Reserve Boundary in Relation to the Proposed Project 6 Alignment.

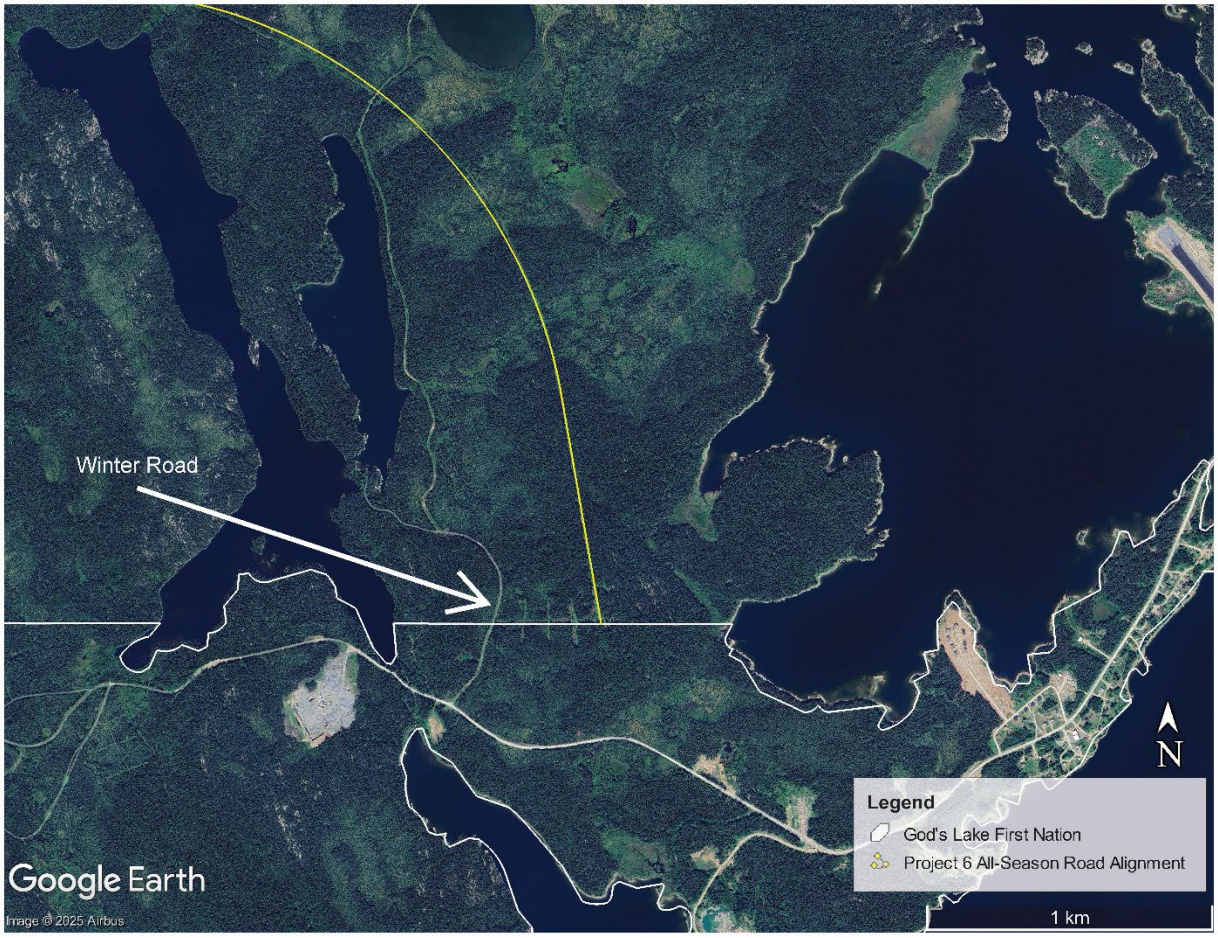


Figure IR1-26-4. Figure Showing God's Lake Nation Reserve Boundary in Relation to the Proposed Project 6 Alignment and the Existing Winter Access Road Exiting the Community and Intersecting the Proposed Alignment.

e) A revised effects assessment is not required as there are no on-reserve Project components and use of existing First Nation services (i.e. waste disposal services) is not anticipated to significantly increase the need for expansion of existing facilities. Therefore, no significant environmental effects on valued components (VCs) are anticipated. As facilities are pre-existing, located near developed communities, and currently actively utilised, Project use of these facilities is not anticipated to result in new or measurable effects to valued components.

f) As noted in Chapter 6 of the EIS, there are no expected changes to the environment on federal lands. Regarding potential accidents and malfunctions, the worst case scenario for the use of GLFN, MSCN, and or BCN waste disposal services would be a collision involving a waste transport vehicle for which spill measures outlined in Chapter 8, Environmental Provision (EP) 3 (Appendix 8-2), and Environmental Specification (ES) 130.10 Spills, Remediation and Emergency Response (Appendix 8-3) in the EIS would be applied as applicable to mitigate for potential effects to federal lands and VCs. As shown in Table 6.43 in Chapter 6 of the EIS, potential accidents and malfunctions have already been assessed and considered. A revised effects assessment is not required. In addition, Table IR1-67-1, included as part of response to IR1-67-1, presents a detailed assessment of potential accidents and/or malfunctions, effects, mitigation measures, probability of occurrence, emergency response procedures, and magnitude.

g) It is uncertain whether contractors will propose to use waste disposal services in GLFN, MSCN, and/or BCN, and a decision to do so will depend on several factors including the desires of the individual Indigenous Nation, the condition of the waste disposal facilities and protocols of Indigenous Services Canada.

REFERENCES

Indian Reserve Waste Disposal Regulations (C.R.C., C.960) .2024. Section 5 (b). Available at: https://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._960/page-1.html#h-599828

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QUESTION IAAC IR1-27

EIS Guideline Reference	• Part 2, Section 6.2.2, 6.6.1, and 8.0
EIS Reference	• Chapter 6, Section 6.3.1.1 and 6.4.4 • Chapter 6, Section 6.3.4, 6.5.4, and 6.5.6.1
Category	Surface Water Quality

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential changes to surface water quality, any effects associated with potential accidental spills, and the follow-up and monitoring program(s) that will be implemented to verify predictions and the effectiveness of mitigation measures.

The EIS indicates that any effects due to spills occurring in surface water would be limited to the Project footprint as they would be contained and remediated. It is unclear how MI will ensure that they will be informed/made aware of all spills that occur on the Project footprint throughout the life of the Project to ensure that spills are contained and remediated immediately, thereby preventing migration of spilled materials.

The EIS indicates that the Project may result in adverse effects to surface water quality and fish from explosives, specifically related to the potential release of nitrates into waterbodies/watercourses. The EIS does not describe mitigation measures that will be implemented to address the introduction of explosives into nearby waterbodies/watercourses.

It is also unclear whether potential adverse effects to the health of Indigenous peoples resulting from the potential introduction of nitrates and nitrites into drinking water sources or to downstream receiving waterbodies were considered in the assessment of potential Project effects. For instance, the addition of nitrates into lakes, ponds, and wetlands can result in eutrophication and/or increases in the severity and extent of algal blooms. Maintaining the quality of water within lakes, ponds, and wetlands used for drinking water and traditional purposes within the Project footprint, LAA, and RAA, including God's Lake and Semens Lake, was noted as a priority for BCN and MSCN.

Supplementary information is required to support the characterization of potential Project effects to surface water quality and related VCs. This information is also required to determine whether further mitigation may be required to address potential adverse effects to surface water quality.

Information Request

a) Describe how MI will monitor for spills of harmful substances within the Project footprint during all phases of the Project, and the mitigation measures that will be implemented, specifically in the event of a spill in or near fish-bearing watercourses/waterbodies, tributaries to fish bearing watercourses/waterbodies, and sensitive terrestrial habitats (e.g. calving grounds, nesting sites, gathering areas, etc.). Describe the following:
    i. How MI will be informed of all spills and the standard response time for spill response crews. Compare response time to typical migration rates for contaminants that may be accidentally spilled from the Project; and
    ii. describe the potential effects to VCs from unreported spills and instances where response time exceeds the migration rate of contaminants to key receptors. Revise the assessments of potential Project effects for all VCs, including the residual and cumulative effects assessments, to include any potential effects identified. Ensure that potential effects to God's Lake and Semens Lake are described including connected wetlands and watercourses.

b) Describe measures that will be implemented to mitigate the introduction of explosives into nearby waterbodies/watercourses and to mitigate adverse Project effects to surface water quality, including the quality of drinking water sources and downstream receiving waterbodies, should explosives or blasting residues be introduced into waterbodies/watercourses.

c) Describe follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation and response measures, and monitor for any unanticipated effects.

Response

a) Chapter 8 of the Environmental Impact Statement (EIS) identifies that Manitoba Transportation and Infrastructure (MTI) is committed to performing inspections and audits of its construction and maintenance contracts to ensure adherence to environmental specifications. As part of this regular and ongoing inspection and audit process, spills and releases of hazardous substances will be documented and tracked. This process will enable MTI to follow-up on spills and releases by making sure that they are reported to regulators as required and remediated prior to contractor demobilization.

i) All contractors must follow Manitoba Transportation and Infrastructure's (MTI) Environmental Protection Specifications (ES) as part of their contract. The ES were included in Chapter 8, Appendix8-3 of the Environmental Impact Statement (EIS), but were also included as Appendix IR1-19-1 in the response to information request IR1-19. The intention of the ES is for spills to be prevented, contained, and addressed before they can migrate.

Prevention

The ES identifies that the contractor must submit details regarding proposed designated areas for review and approval before the start of work. Designated areas include locations in which contaminants may be used or stored over the course of construction operations, such as:

- Laydown and storage areas;
- Waste storage areas;
- Fuel storage and refuelling areas;
- Equipment servicing areas;
- Work camps;
- Parking areas;
- Cement batch plants; and,
- Cement washout areas.

Typical contaminants that may be spilled during construction/operation include fluids used for the operation of equipment, such as petroleum hydrocarbons (gasoline and diesel fuel) and other fluids (hydraulic oil, antifreeze). The ES require that fuel storage and handling, equipment cleaning, refueling and services be carried out in designated areas that are located at least 100 m away from any waterbody or wetland. The designated areas must be kept clear for routine inspection and leak detection. The ES require daily inspection of leaks and spillage of fuel storage containers and tank vehicles. All spills are required to be reported to the Project Manager and the contractor must maintain an updated list of key contacts and telephone numbers for reporting spills. MTI's team includes staff with technical expertise in environmental sciences, who are able to provide support for containment, assessment and clean up spills and contaminated sites.

Containment

A contractor field staff trained in spill containment and management must always be on site during construction to respond to spills. The person must be familiar with the on-site response and containment plan. The ES also require the contracts to have a spill kit or sufficient supply of materials for clean-up and/or spill containment available when working near water. All mobile equipment that is not is use must be parked within the above-mentioned designated areas. Machinery must be maintained free of fluid leaks.

Addressing Spills

Potential effects to Values Components (VCs) and mitigation measures that would be implemented in the event of a spill or release of hazardous materials is described in the response to information request IR1-67 (Table IR1-67-1). This table describes potential accidents and malfunctions, including the risk of accidental release of hazardous substances (including fuel, oil, or pesticides), and its effects on fish and fish habitat, wildlife and wildlife habitat, vegetation, human health, etc. Similarly, the response to information request IR1-15 also includes a description of the characteristics of hazardous materials that may be associated with the Project and how these could interact with VCs should and accident or malfunction occur.

As described above, MTI undertakes regular inspections and audit of work sites to ensure that activities comply with requirements set out in the ES and contract document. As part of these inspections and audits, MTI will not only document and track leaks, spills or releases, but ask that the contractor address such issues in a timely manner. Failure to address spills, leak and releases may result in MTI issuing stop work orders. This process is described in Section 130.7 of the ES. Section 130.7 of the ES goes on to indicate that as work sites are decommissioned a third party independent consultant will assess the area and that the contractor will be required to remediate the area as necessary before demobilizing.

MTI also works closely with Manitoba Environment and Climate Change (MECC) to ensure that spills are addressed in accordance with Manitoba legislation. Mandatory reporting of environmental accidents to MECC is required by regulation. MECC maintains a 24-hour reporting line for environmental emergencies, including spills. The number, (204) 944-4888, is included in federal and provincial spill reporting regulations. This regulation refers to essentially the same reportable quantities of regulated, listed, products as the Federal Transportation of Dangerous Goods Act, and The Canadian Environmental Protection Act, (with some more stringent variations).

Staff from MECC and MTI communicate directly when spills occur on property under the care and control of MTI. MECC also shares the daily issue sheets with MTI that provides details of issues reported to the 24-hour reporting line.

MECC's Manitoba Environmental Emergency Response Team operates under the authority of The Dangerous Goods Handling and Transportation Act. This Act gives Environment Officers and Inspectors special powers in emergencies to take any emergency actions required to protect persons, property, and the environment, including the control and clean up of spills. Environment Officers located throughout the province are trained to be part of the MECC's response system. When necessary, specialized expertise from any of the MECC's program areas may be called out to assist in the response to an environmental accident. The response team has access to all of the resources of the provincial government and, through agreement, the resources of the federal government as well.

In the event of a spill or release of hazardous materials, MTI will adhere to the procedures mentioned above. As described in Chapter 6, Section 6.6.1.1 of the EIS, soil affected by hydrocarbon spills would be assessed and any soil determined to have contaminant concentrations above acceptable criteria would be managed on-site and removed to an approved treatment site. This process is also applicable in the event that unreported spills are discovered. Environmental inspections will be conducted during construction activities. As described in Chapter 8 of the EIS, MTI's inspectors and Contract Administrators will oversee the construction activities of the tendered contracts, and environmental inspections and monitor for compliance with the construction specifications and regulatory requirements.

As also mentioned in response to IR1-67 and IR1-15, in the event of potential release of hazardous substances, the emergency response procedure will include the implementation of the Environmental Protection Procedures and Environmental Protection Specifications (Appendices 8-2 and 8-3 in Chapter 8 of the EIS) including EP3 Spill Response, ES130.10 Spills, Remediation and Emergency Response. Additionally, the implementation of the applicable contractor's own environmental emergency plan(s).

Migration Rates

The migration rates of contaminants may depend on slope, soils/geology and the properties of the contaminants. Contaminants can migrate both vertically (downward due to gravity, and upward due to buoyancy) and laterally (horizontally, often following pathways of higher permeability). The relative importance of vertical and lateral migration can depend on factors such as the geological structure of the aquifer and the properties of the rock. Higher permeability facilitates faster migration, while lower permeability restricts it.

For petroleum hydrocarbons, which is the most commonly spilled fluid at construction sites, migration can occur through both dissolved and free-phase pathways. Dissolved hydrocarbons move with groundwater flow, while free-phase hydrocarbons can migrate as light non-aqueous phase liquids (LNAPLs) or dense non-aqueous phase liquids (DNAPLs).

Factors influencing migration rate of petroleum hydrocarbons (and also applicable to other types of potential contaminants):

- **Soil Type:** Coarser soils (e.g., sand) tend to allow for faster downward migration of hydrocarbons compared to finer soils (e.g., clay).
- **Water Saturation:** The amount of water in the soil affects the movement of both dissolved and free-phase hydrocarbons. In saturated soils, migration is primarily driven by groundwater flow (hydraulic gradient), while in unsaturated soils, processes like volatilization and advection play a role.
- **Hydrocarbon Type:** Different hydrocarbons have varying solubilities and densities, which can influence their migration behavior. For example, lighter hydrocarbons are more prone to volatilization and migration as vapors.

- **Biodegradation:** Microbial activity can break down some hydrocarbons, reducing their concentration and migration potential. Aerobic biodegradation is generally faster than anaerobic biodegradation.
- **Temperature:** Temperature can affect the viscosity of hydrocarbons and the rate of biodegradation, impacting migration.
- **Permafrost:** In permafrost regions, the slow diffusion of hydrocarbons through unfrozen water in frozen soils can limit their migration.

There are also several possible migration pathways:

- **Groundwater:** Petroleum hydrocarbons can dissolve in groundwater and move with the flow, potentially contaminating subsurface water resources.
- **Vadose Zone:** In the unsaturated zone (vadose zone), hydrocarbons can migrate through soil pores, influenced by factors like air pressure, temperature, and the presence of other fluids.
- **Vapor Phase:** Volatile hydrocarbons can evaporate and migrate as vapors, potentially causing vapor intrusion into buildings and homes.
- **Soil Surface:** Hydrocarbons can be adsorbed onto soil particles and move with soil erosion, potentially contaminating surface water.

The Canadian Council of Ministers of the Environment (CCME) National Classification System for Contaminated Sites (CCME 2008a) includes migration potential assessment for contaminants of concern. The relative mobility of a contaminant in groundwater can be estimated based on the Koc (Soil Adsorption Coefficient), which is a measure of how much a chemical binds to the organic matter in soil or sediment. It essentially quantifies a chemical's ability to be retained in the soil or sediment, impacting its movement and potential exposure in the environment. A higher Koc value indicates stronger adsorption, meaning the chemical is less likely to leach through the soil and into groundwater or partition into aquatic systems.

It should be noted that the Koc cannot be relied on solely as a measure of mobility. An evaluation of other factors such as containment, thickness of confining layer, hydraulic conductivities and infiltration rate are still useful in predicting potential for groundwater migration, even if a contaminant is expected to have insignificant mobility based on its chemistry alone (CCME 2008a).

For the primary compounds associated with petroleum hydrocarbon contamination, which include benzene, toluene, ethylbenzene, xylenes (BTEX) and petroleum hydrocarbon (PHC) fractions F1 to F4 the CCME (2008a) guidance indicates that BTEX would have high relative mobility and PHC fractions F1-F4 would have insignificant to moderate relative mobility.

Of the typical contaminants that may be spilled during construction/operation, including petroleum hydrocarbons (gasoline and diesel fuel) and other fluids (hydraulic oil, antifreeze), it is anticipated that gasoline, which typically includes high levels of BTEX, would have the highest mobility.

As discussed, the determination of migration rates is quite complicated and dependant on many site-specific factors. If we take a more simplistic approach and make some assumptions considering saturated soils and dissolved contaminants in groundwater, the hydraulic conductivity (which indicates the rate at which a fluid, usually water, can move through the pore spaces of a medium) would be the main factor influencing migration. Although this does not account for other factors such as attenuation and biodegradation which would be occurring to reduce contaminant levels over time. The default hydraulic conductivity used by the CCME in the derivation of the Canada-wide Standards for Petroleum Hydrocarbons (PHC) in Soil (CCME 2008b) are 320 meters per year (m/y) for coarse grained soils and 32 m/y for fine grained soils. Thus, under these assumptions to would take 114 days for contaminated groundwater to travel 100 m in coarse grained soils and 1,140 days to travel 100 m in fine grained soils.

It should be noted that an American Petroleum Institute research summary (Newell, 1998) found that approximately 75% of dissolved petroleum hydrocarbon plumes in groundwater are less than 61 m (200 feet) in length, the maximum length identified was 920 m (3020 feet) in length. This overall length is limited by factors such as attenuation and biodegradation that reduce contaminant levels to acceptable levels prior to them traveling greater distances.

Thus, with the ES that require that fuel storage and handling, equipment cleaning, refueling and services be carried out in designated areas that are located at least 100 m away from any waterbody or wetland, should be effective in ensuring that most spills that occur do not migrate to any waterbody or wetland even if left un-remediated. However, as a spill could have effects to terrestrial organisms and effect soil and groundwater quality, cleanup and remediation in accordance with the ES and Manitoba regulations would be implemented immediately upon occurrence to mitigate impacts and prevent potential migration to any sensitive receptors.

b) To minimize potential effects to environment from blasting activities, blasting activities, including transport, set up, and detonation will be carried out by appropriately trained, licensed, and authorized personnel only and will follow blasting regulations and safety protocols under the supervision of the prime contractor. Transport of explosives throughout the Project will be undertaken by the contractor using dedicated trucks operated by properly trained and authorized personnel, and in accordance with applicable laws, regulations, and conditions of approval.

Blast plans will be developed by the blasting contractor and reviewed by the prime contractor and submitted to MTI for review and approval. Prior to preparatory work for each blast, the contractor shall submit a blast plan to the Contract Administrator including such information as:

- The location, depth and area of each blast.
- Diameter, depth, pattern and inclination of blast holes.
- The type, strength, amount, column load and distribution of explosives to be used per hole, per delay and per blast.

- The sequence and pattern of delays and the description and purposes of any special methods to be adopted.

Following the blast, the blaster will conduct a post blast inspection and clean up and develop a post blast report for submission to the Contract Administrator.

As noted in Environmental Procedure (EP12- Blasting Near a Watercourse) in Chapter 8, Appendix 8-2 of the EIS, blasting plans developed by the contractor shall comply with blasting regulations and reflect the appropriate timing of life cycle events as they relate to critical life functions of fish and wildlife species (i.e. migration, calving, nesting and spawning). Therefore, to reduce impacts to birds and other wildlife, blasting activities shall be restricted to outside the most sensitive breeding and brood rearing months (i.e. May to late-July) as much as possible. Blasting in watercourses classified as fish habitat is prohibited between April 15 and July 15 of any year, or during periods of high stream flow or identified spawning periods. Where applicable, blasting shall be undertaken during winter months to minimize permafrost degradation. Reference shall be made to DFO's document *Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters* (1998). Blasting plans shall be submitted to and approved by DFO prior to commencement of blasting in areas that could affect fish habitat. The blasting contractor shall possess all required permits/certificates. Notification shall be given to affected parties including site employees and the local general public prior to each blasting event.

Section 130.15.11 of the ES found in Chapter 8, Appendix 8-3 of the EIS transforms elements of the EP-12 procedure into the following provisions to be included in the construction contract documents:

- The Contractor may be requested by the Contract Administrator to modify the timing of blasts to respect key life cycle events to critical life functions of fish and wildlife.
- Blasting near watercourses classified as fish habitat shall adhere to set back and weight of explosive charge guidelines as referenced in Fisheries and Oceans Canada document. Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters 1998. Where these guidelines cannot be met, blasting plans shall be submitted to the Contract Administrator for MTI's application to Fisheries and Oceans Canada to obtain necessary approvals prior to commencement of blasting in areas that could affect fish habitat.

Given mitigation measures described above, it is unlikely that explosives or blasting residues would be introduced into waterbodies/watercourses. However, to address risk of accidental spill, provisions in the construction contract will require the contractor to develop a spill response plan in accordance with applicable contract specifications, environmental legislation, permits and authorizations. Information is to be available on-site at all times includes an updated list of key contacts and telephone numbers for reporting spills and problems and WHMIS documents for all hazardous materials at the work area. Material Safety Data Sheets (MSDS) would be submitted to

MTI prior to any hazardous materials being brought to site. Spill containment and clean up supplies for spills of dangerous goods or hazardous wastes would be available at all sites where construction related activities occur. An on-site emergency response coordinator would be designated.

If there was an accidental spill of explosives into water, the contractor will undertake the following measures:

- Notify the Contract Administrator and Manitoba Environment and Climate spill to comply with EP3 (Spill Response) described in Chapter 8, Appendix 8-2 of EIS, ES 130.10 (Spills, Remediation and Emergency Response) described in Chapter 8, Appendix 8.3 of EIS, and Manitoba Regulation 439/87 respecting Environmental Accident Reporting.
    - Major spills of petroleum products or other hazardous substances with significant effect on the environment and threat to human health and safety (as defined in Table 1 of EP2) or any spill in a waterbody or watercourse would be reported to Manitoba Environment and Climate immediately by calling the 24-hour emergency spill number.
- Spill response and remediation would be completed in accordance with EP3 (Spill Response) and ES 130.10 (Spills, Remediation and Emergency Response) described in Chapter 8, Appendices 8.2 and 8.3 respectively.
    - Implement spill response plan and measures immediately to isolate the spill site and affected waters.
    - Collect contaminated waters (and soils if applicable) and store, transport and dispose of contaminated materials at an approved facility and in compliance with regulations.

- Water quality monitoring
    - As per EP 130.15.8 Water quality monitoring shall be required for in-water work in fish-bearing watercourses and may be required when working near fish-bearing watercourses or tributaries to fish bearing watercourses to demonstrate that deleterious substances are not entering into the watercourse. Water quality monitoring shall also occur when working upstream and within 5km of a water treatment plant intake.
- Create and maintain records, and document and provide relevant information and/or significant events to Contract Administrator in a timely fashion
    - Accidents, spills, leaks, and releases and the reporting and clean-up procedures used as required by ES 130.5.1 (Chapter 8, Appendix 8-3 of EIS).
    - Records of waste hauled from the site for disposal, including the location, name and description of the disposal facility and waybills/manifests as required by ES 130.5.6 (Chapter 8, Appendix 8-3 of EIS).

- Records of actions taken to remove deleterious substances and debris from watercourses as required by ES 130.5.11 (Chapter 8, Appendix 8-3 of EIS).

c) Following individual blasts, the blaster will conduct a post blast inspection and clean up and develop a post blast report for submission to Contract Administrator. The contractor will develop and maintain the following relevant records for submission to and review by the Contract Administrator:

- Accidents, spills, leaks, and releases and the reporting and clean-up procedures used as required by ES 130.5.1 (Chapter 8, Appendix 8-3 of EIS),
- Waste hauled from the site for disposal, including the location, name and description of the disposal facility and waybills/manifests as required by ES 130.5.6 (Chapter 8, Appendix 8-3 of EIS),-
- Actions taken to remove deleterious substances and debris from watercourses as required by ES 130.5.11 (Chapter 8, Appendix 8-3 of EIS).

The Contract Administrator will review these reports to confirm predictions, assess the effectiveness of mitigation and response measures, and determine if additional monitoring is required or if adaptive measures need to be applied to the specific occurrence and whether procedures need to be updated to address any unanticipated effects. The Contract Administrator will provide updates in annual report to MTI (or other mutually agreeable frequency) for submission to appropriate regulators.

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QUESTION IAAC IR1-28

EIS Guideline Reference	• Part 2, Section 5.1, 6.2, 6.3, and 6.4
EIS Reference	• Appendix C-2, Section 4.2.2.4 and 4.3.1
Category	Surface Water Quality

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe predicted changes to the physical environment and VCs as a result of the Project, including changes to: groundwater and surface water; riparian, wetland, and terrestrial environments; fish and fish habitat; migratory birds; species at risk; and Indigenous peoples. The EIS Guidelines also require the proponent to describe potential direct and indirect Project effects to migratory birds, including any effects related to the deposit of harmful substances in waters that are frequented by migratory birds. The proponent is also required to describe mitigation measures to address potential adverse effects.

The EIS indicates that stormwater runoff from impermeable surfaces, such as bridge decks and approaches, can contain a number of pollutants, including suspended solids, hydrocarbons, metals, nutrients, and road salts. The EIS also describes that during and after rainfall events, stormwater runoff into waterbodies/watercourses can result in physical impacts, such as bank and channel erosion and increased sediment inputs. Potential adverse effects associated with stormwater runoff inputs from the Project into waterbodies/watercourses and terrestrial environments are not included in the residual effects assessments for surface water; groundwater; riparian, wetland, and terrestrial environments; fish and fish habitat; migratory birds; species at risk; or Indigenous peoples.

The EIS notes that culvert and bridge crossings will be designed to direct stormwater runoff into vegetated areas or small retention ponds to decrease the velocity and volume of runoff, and to encourage settling of sediments and contaminants prior to discharge to nearby watercourses. No information is provided regarding the size and how the location of retention ponds will be selected, where stormwater runoff will be directed to, the relationship of these locations to VCs and important habitat areas, and the potential effects thereof. It is also unclear what adverse environmental effects may result from runoff storage in these locations and how MI will ensure that discharge water meets water quality guidelines.

Supplementary information is required to understand and assess potential adverse effects of the Project to VCs as a result of stormwater runoff and retention, and to determine whether further mitigation may be required.

INFORMATION REQUEST

a) Describe the parameters that will be used to determine if a retention pond will be required and where release of stormwater to vegetated areas is acceptable. Characterize the potential effects of the stormwater management options on each VC and the relationship to Indigenous peoples and their rights. Identify locations where stormwater management may be particularly sensitive.
b) With respect to potential retention ponds/vegetated areas where stormwater runoff may be directed to, describe:
    i. the area of vegetated regions that may be affected by stormwater runoff and/or the area and maximum storage volume of retention ponds;
    ii. where and how water will be discharged following settling in vegetated areas/retention ponds;
    iii. how MI will ensure that the quality of water to be discharged meets applicable federal and provincial water quality guidelines; and
    iv. potential effects to VCs should the capacity to store water in vegetated areas and/or retention ponds be exceed (i.e. overflow events).
c) Revise the assessment of potential Project effects, residual effects, and cumulative effects for migratory birds, bird species at risk, bird species of importance to Indigenous peoples, and Indigenous peoples to include potential effects resulting from the potential deposit of harmful substances in waters frequented by birds and in the event that birds use the stormwater retention areas as habitat.
d) Describe mitigation measures that will be implemented to address any adverse effects identified above and follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.

RESPONSE

a) The need for retention ponds along the proposed All-Season Road will be determined based on site-specific conditions. While retention ponds are not currently planned, they could be utilized to address a site-specific risk of acid rock drainage (ARD) or metal leaching (ML), if identified through the detailed design stage but not for general stormwater management. As described in response to IR1-09, during the preliminary design stage, Manitoba Transportation and Infrastructure (MTI) will conduct geotechnical investigations and material assessments using standard sampling

procedures and analytical criteria. Materials with high metal leaching potential will be identified. Disturbance of these materials will be minimized and/or avoided where possible.

If avoidance is not possible, runoff from this material will be collected (e.g., in engineered ponds), tested and treated (e.g. passive or active, addition of alkaline materials to neutralize the acidity, enhanced wetlands) prior to discharge as required to meet applicable Canadian Water Quality Guidelines (CWQG) and Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOG) surface water quality guidelines. Should ARD/ML potential exist and settling ponds be required to mitigate this potential, baseline conditions of receiving waterways would be assessed at the detailed design stage of the project so that initial conditions are known prior to construction. This would then permit monitoring and sampling results to be compared to baseline values so as to monitor for changes in the chemistry of the water runoff and receiving waterbodies. An upstream downstream sampling approach may also be used making it possible to directly compare changes in water quality by reducing variations due to seasonality, and other uncontrollable external factors. If baseline conditions exceed applicable CWQG and MWQSOG surface water quality guidelines, then the development of site-specific guidelines based on baseline conditions may be required. An upstream downstream sampling approach may also be used making it possible to directly compare changes in water quality by reducing variations due to seasonality, and other uncontrollable external factors.

To reduce long-term risks of ARD/ ML, exposed soils will be covered with topsoil or other non-acid generating cover materials and re-vegetated. Borrow pits will be decommissioned following the completion of extraction activities, in accordance with protocols described in Chapter 8 of the EIS, and Appendix IR1-19-1 of the response to IR1-19. Where necessary, additional mitigation measures may include: lime blending with cut surfaces, capping acid-generating rock, creating water or dry covers, or diverting water away from vulnerable materials (Maloney & Carson, 2018; Mining Watch Canada, 2001).

Standard roadway design and construction mitigations, including appropriate sloping of roadway surfaces and ditching, sediment and erosion controls and revegetation of disturbed areas, will be applied to manage stormwater to avoid or minimize effects on Valued Components (VCs). Potential environmental effects of unmanaged stormwater include degradation of surface water quality, altered aquatic habitats, and impacts on culturally important plant and animal species.

However, the implementation of mitigations such as preserving vegetation cover for as long as possible; halting construction during heavy rainstorms, inspecting erosion and sediment control measures regularly and after every major rain or spring melt event; making necessary repairs immediately after damage has been discovered as noted in EP16 (Appendix 8-2 of the EIS) and monitoring programs are expected to minimize or eliminate risks. For instance, baseline surface water quality data will be collected prior to construction to allow for comparison during future monitoring, enabling detection of changes caused by runoff. Where baseline values already exceed water quality guidelines, site-specific criteria may be developed.

The risk for high concentrations of pollutants to be released during the operation phase from stormwater runoff from impermeable surfaces of the proposed road, such as bridge decks and approaches, is low. While stormwater runoff can contain a number of pollutants, including suspended solids, hydrocarbons, metals, nutrients and salt, the traffic numbers are anticipated to be low, less than 300 vehicles per day. Sand would be primarily used to provide ice and traction control during operation of the proposed Project. While salt is effective in melting snow and ice particularly when road surface temperatures are between 0 and -10°C, and the temperature is not expected to go lower; sand is particularly useful in very cold conditions where salt may not be effective or when there is a lot of compacted snow or ice that plows can't remove.

From a social and cultural perspective, the road alignment, as discussed in the EIS, was selected based on feedback from Indigenous Nations during the Large Area Transportation Network Study (LATNS, 2011) study and the Indigenous and Public Engagement Program (IPEP) for the proposed Project, and measures are in place to protect areas important to Indigenous peoples. Any unanticipated impacts will be addressed through adaptive management and further engagement.

In conclusion, while retention ponds are not planned as a standard component of the proposed Project, they could be implemented where necessary to mitigate ARD/ML risks. The proposed Project's low anticipated traffic volume, use of standard mitigation practices, and site-specific geochemical investigations will minimize any risks. Comprehensive monitoring, adaptive management, and ongoing engagement with Indigenous communities will ensure that stormwater management does not result in significant adverse effects on VCs or on the exercise of Aboriginal or Treaty rights.

b) As mentioned above, potential retention ponds would only be implemented where there is a confirmed risk of acid rock drainage (ARD) or metal leaching (ML), as determined through specific assessment for ARD/ML during detailed design as discussed in IR1-19.

i. The area of vegetated regions that may be affected by stormwater runoff from the proposed Project has not yet been determined, as it will depend on preliminary and detailed design considerations including terrain, slope, and site-specific characteristics. However, most of these areas will consist of natural or re-vegetated areas adjacent to the road, where runoff can infiltrate or be filtered by soils and vegetation. These vegetation areas will be selected to avoid direct discharge from road surfaces to waterbodies and to promote adequate infiltration.

ii. In vegetated areas, stormwater from construction work sites of the proposed Project will be discharged diffusely over land, allowing it to infiltrate or be filtered through surface vegetation and soils. This gradual discharge will minimize erosion and promote natural attenuation of pollutants. In the event that a retention pond is required, water would be

held in the basin to allow for settling of suspended solids, which will help retain contaminants in place as microbial action produces oxygen-free conditions to help prevent further sulphuric acid formation. Following treatment, water will be discharged in a controlled manner via vegetated discharge channels designed to prevent scouring, flooding, or direct flow into sensitive aquatic environments.

iii. MTI will ensure that water discharged from vegetated areas or retention ponds used for ARD/ML mitigation meets applicable federal and provincial water quality guidelines, including CWQG and MWQSOG during construction and 1 year construction warrantee period. This will allow MTI to confirm appropriate mitigation measures are in place and effective for construction and operation phases. Measures will be inspected and maintained as required through MTI's standard maintenance practices during the operation phase. As mentioned in response to IR1-09, baseline sampling of receiving water bodies will be conducted prior to construction to establish existing conditions. In areas where water treatment is required, monitoring programs will be implemented to confirm that mitigation measures are effective and to detect any exceedances. If baseline conditions already exceed applicable guidelines, site-specific discharge criteria may be developed in consultation with regulatory authorities.

iv. If the capacity of retention ponds or vegetated areas is exceeded during high-intensity rainfall or snowmelt events, there is a potential for overflow, which may lead to temporary discharges of stormwater into surrounding areas. This could result in the transport of suspended sediments, nutrients, salts, or metals into nearby waterbodies, with potential short-term effects such as increased turbidity, degradation of aquatic habitat, or erosion of adjacent areas. However, the likelihood of such events is relatively low. As described in Chapter 6, Section 6.1.1 of the EIS, long-term data from the Island Lake climate station (approximately 75km south of the Project) indicate a mean annual rainfall of 400.8 mm, with precipitation occurring on about 151 days per year. This suggests that rainfall does not occur continuously throughout the year, limiting potential exposure to overflow conditions. To further reduce risk, vegetated areas and any required retention ponds will be designed with adequate capacity and overflow control features.

c) Stormwater runoff from impermeable surfaces, such as bridge decks and approaches, can contain a number of pollutants, including suspended solids, hydrocarbons, metals, nutrients, and road salts. During and following rainfall events, these substances may be transported into nearby waterbodies or watercourses. Potential physical impacts from stormwater runoff may also include sedimentation and bank erosion. These conditions could degrade habitat quality in areas

frequented by migratory birds, bird species at risk, and birds of cultural importance to Indigenous peoples.

While stormwater retention areas are not expected to be preferred habitat, if birds were to use the stormwater retention areas opportunistically, exposure to contaminants in the retained water could result in adverse effects. Jeganathan Pandiyan et al. (2022) highlight that exposure to pollutants such as heavy metals and hydrocarbons has been associated with reduced breeding success and health complications in waterbird populations. Similarly, Sparling et al. (2004) found that red-winged blackbirds nesting in stormwater wetlands exhibited elevated concentrations of zinc and copper in tissues. These levels were negatively correlated with hatching success, clutch size and fledging success, suggesting that the exposure to these metals could directly or indirectly impair reproductive success and development in birds.

The EIS outlines a series of mitigation measures that are specifically designed to avoid adverse effects to water quality and protect aquatic and avian species (Chapter 6- Appendix 6-4, Chapter 7-Appendix 7-1). These include the implementation of erosion and sediment control measures, and compliance with the Environmental Protection Procedures (EPP). For instance, EP20 notes that the Contractor is responsible for maintaining the site and promoting surface water runoff to minimize ponding after rainfall events. In the event that ponding does occur, it shall be discharged or removed using effective erosion and sediment control measures and pumps (if required).

MTI is committed to ensuring that the quality of water discharged from stormwater retention areas meets applicable federal and provincial water quality guidelines. It is also important to note that stormwater-related impacts are episodic. As described in Chapter 6, Section 6.1.1 of the EIS, based on long-term data from the Island Lake climate station (located 75 km south of the Project), the mean annual rainfall is 400.8 mm, with precipitation occurring on approximately 151 days per year. This suggests that rainfall, and hence stormwater runoff, does not occur persistently throughout the year, further limiting potential exposure.

As noted in Chapter 6 of the EIS, effects can result in short-term changes in water quality. The extent of potential effects from stormwater runoff from the proposed Project would be limited to the immediate vicinity of project infrastructure, such as bridge decks, approaches, and stormwater retention areas, and would occur sporadically during and shortly after rainfall events. The residual effect is readily reversible, and any accumulation of contaminants would be managed through routine monitoring and maintenance. No adverse effects on bird populations, including migratory birds or bird species of importance to Indigenous peoples, are anticipated. Based on the assessment of adversity and the application of mitigation measures, and consistent with the defined significance criteria, the residual effects are considered not significant.

Similarly, availability of birds as safe country foods for traditional harvesting or ceremonial uses could be affected if ponds are required, and these are used by waterbirds. Although such impacts would be localized and episodic, occurring primarily during and shortly after rainfall events,

perceived degradation or concerns of habitat or wildlife quality may affect Indigenous peoples' confidence in the health of traditionally used areas and disrupt related activities. To address these concerns, MTI is committed to implementing mitigation measures that include treatment and monitoring of retention ponds if needed, under the Aquatic Effects Monitoring Plan (AEMP), as well as ongoing engagement through the Indigenous and Public Engagement Program (IPEP).

d) In the event that birds use the stormwater retention areas as habitat, MTI will continue to monitor the water quality and will implement additional mitigation measures as required. These measures, combined with the existing design and management controls, are expected to effectively avoid or minimize residual and cumulative adverse effects on birds and Indigenous peoples.

Water quality monitoring will be conducted under the Aquatic Effects Monitoring Plan (AEMP), which includes site-specific assessment of potential adverse effects from construction-related sediment and contaminant inputs to watercourses. A Total Suspended Solids (TSS) and turbidity sampling program will be implemented prior to construction to establish a relationship between these parameters, allowing turbidity to be used as a rapid, real-time proxy for TSS during construction. Other sampling may occur to monitor for other water quality properties, as appropriate.

During instream construction, a turbidity monitoring program will be used to evaluate the spatial extent and magnitude of water quality changes. This program will follow an upstream-downstream monitoring approach, enabling the comparison of downstream impacts to upstream background conditions. If turbidity or TSS levels exceed Manitoba Water Quality Standards, appropriate mitigation measures, such applying additional sediment controls, will be implemented to ensure compliance before any water is returned to the watercourse.

In addition, MTI is committed to ongoing engagement with Indigenous peoples through the Indigenous and Public Engagement Program (IPEP) program. Monitoring results, including exceedances of water quality guidelines, will be shared with Indigenous communities. If monitoring identifies unanticipated effects that could impact birds or Indigenous uses of the area, MTI will work with regulators and Indigenous Nations to revise mitigation measures and implement adaptive management approaches.

REFERENCES

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QUESTION IAAC IR1-29

EIS Guideline Reference	• Part 2, Section 6.2.2 and 6.3.4
EIS Reference	• Chapter 6, Section 6.2.4, 6.3.4, and 6.5.4
Category	Surface Water Quality

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential changes to surface water quality, including any changes to turbidity. The proponent is also required to describe how changes to the environment caused by the Project may affect Indigenous peoples, drinking water quality, and the current use of lands and resources for traditional purposes.

The EIS indicates that following the implementation of mitigation measures, increased sediment inputs from Project activities are not expected to result in sediment concentrations in surface water in exceedance of applicable regulations and that no adverse effects are anticipated beyond the defined mixing zones. No quantitative information or evidence is presented to support this conclusion and it is unclear what the defined mixing zone represents. As increased sediment concentrations may adversely affect surface and drinking water quality and other VCs. The MMF and MSCN expressed concerns that the EIS did not consider potential effects of increased sediment inputs to receiving waterbodies downstream of watercourse crossings required for the Project.

Supplementary information is required to support the characterization of potential effects to VCs and to determine whether further mitigation and/or follow-up and monitoring protocols may be required.

INFORMATION REQUEST

a) Describe the area or region represented by the defined mixing zone and provide quantitative information, estimates, and/or evidence to support the conclusion that increased sediment inputs are not expected to result in contaminant concentrations in surface water outside of applicable regulations. Refer to Health Canada's Guidance for Evaluating Human Health Impacts in Environmental Assessment: Drinking and Recreational Water Quality (2016) for additional information.

b) If the defined mixing zone includes downstream waterbodies and/or elevated sediment concentrations may result from the Project in areas used for drinking water or used by other VCs, revise the assessment of potential Project effects, residual effects, and cumulative effects for all VCs to include potential effects related to increased sediment inputs to receiving waterbodies/watercourses, including lakes, ponds, and wetlands downstream of watercourse crossings required for the Project.
c) Describe mitigation measures that will be implemented to address any adverse effects to receiving waterbodies identified above and follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.

RESPONSE

a) Design flows for culvert crossings will be determined during the detailed design phase. The characteristics of potential mixing zones of sediment inputs from Project activities, will be defined following the detailed design phase.

According to Health Canada's Guidance for Evaluating Human Health Impacts in Environmental Assessment: Drinking and Recreational Water Quality (2016), three components must be present for a "risk" to human health exist: 1. a hazard (for example, a chemical or a radionuclide) 2. a receptor (individuals or communities) and 3. an exposure pathway (a means by which people are exposed to the contaminant). If the EA demonstrates that a project will not result in any exceedances of applicable water quality guidelines or standards at the point of human consumption or exposure, it is reasonable to conclude that negative impacts on human health are not expected from exposure to drinking or recreational water.

Without mitigation, culvert installations can result in sediment concentration that exceed guidelines in the immediate and downstream areas. As described in the Project EIS, without mitigation, Project-induced changes to the quality of tributary watercourses that flow into God's Lake and Oxford Lake could present a potential indirect risk to the health of local community members and the construction work force during Project construction, maintenance and operation.

God's Lake and Oxford Lake are used as a water source for the on-reserve and in community water treatment plants located on the reserves of Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and within God's Lake Narrows Northern Affairs Community. However, the water treatment plants filter the source water prior to treatment and distribution. During the TK interviews there was no indication of other seasonal, periodic or temporary water sources for drinking water. The approximate distances between the nearest and most directly connected watercourse crossing for the proposed Project and each local First Nation community's water treatment plant, using measurements that follow the watercourse and not overland, are:

- Bunibonibee Cree Nation: ~13.9km from crossing P6a-X002
- God's Lake First Nation: ~ 8km from crossing P6a-X038
- Manto Sipi Cree Nation: ~16.3km from P6b-X012
- God's Lake Narrows Northern Affairs Community: ~7.7km from P6a-X038

Manitoba Transportation and Infrastructure (MTI) has proposed many Environmental Protection Procedures to avoid or minimize Project effects to water quality and avoid or eliminate risk of point source contamination as described in Chapter 8, Appendix 8-2 including:

- EP1 Clearing & Grubbing
- EP2 Petroleum Handling and Storage
- EP3 Spill Response
- EP5 Materials Handling and Storage
- EP6 Working Within or Near Fish Bearing Waters
- EP7 Stream Crossings
- EP8 Temporary Stream Diversions
- EP9 Fish Passage
- EP11 Culvert Maintenance and Replacement
- EP12 Blasting Near a Watercourse
- EP16 Erosion & Sediment Control
- EP17 Concrete Washout Management Practices
- EP20 Quarry Site Selection and Development Requirements
- EP24 Water Quality Monitoring

MTI has proposed many Environmental Protection Specification it intends to include in construction contracts for the proposed Project to avoid or minimize Project effects to water quality and avoid or eliminate risk of point source contamination as described in Chapter 8, Appendix 8-3 including:

- 130.3 Submittals (e.g. Water Quality & Fish Protection Plan)
- 130.8 Designated Areas and Access
- 130.9 Materials Handling, Storage and Disposal
- 130.10 Spills, Remediation and Emergency Response
- 130.15 Working Within or Near Fish Bearing Waters
- 130.16 Erosion and Sediment Control
- 130.17 Clearing and Grubbing
- 130.21 Cement Batch Plant and Concrete Washout Area

MTI's preference is to install culvert crossings under frozen conditions (i.e. frozen to bottom), where this isn't possible, it's secondary preference is to conduct watercourse works during periods of low flow to further reduce risk for sediment suspension during construction and maintenance. MTI also

intends to install riprap to protect stream banks and the stream bed at culvert openings to minimize risk of erosion and subsequent sediment suspension at the activity source.

Given the mitigation measures MTI has proposed for Project, the large distances between the nearest proposed watercourse crossing for the Project the proposed Project is not result in any exceedances of applicable water quality guidelines or standards at the point of human consumption or exposure.

b) As mentioned above, mixing zones will be defined following the detailed design phase. Site specific data to be collected during the detailed design phase, including flow rates, sediment concentrations, and water characteristics will be used in modeling to determine the extent of the mixing zone and assess whether it intersects any new drinking water sources, if identified through ongoing engagement with local communities. If the modeling indicates that such receptors may be affected, the effects assessment will be revised accordingly, and updated mitigation measures will be developed and shared with regulators, Indigenous Nations, and other stakeholders.

c) Regardless of the results of modeling and mixing zone mentioned above, the EIS has already presented various mitigation measures, described in Chapter 6, Appendix 6-4, and Chapter 7, Appendix 7-1, and Chapter 8, Appendices 8-1 and 8-2. These measures include controlling erosion and sedimentation on the project by implementing and maintaining effective erosion control measures, such as:

- Minimize clearing and soil disturbance
- Limit vehicle/equipment use to ROW
- Install erosion and sediment control measures (EP16 and ES 130.16, ex: silt fencing, erosion control blanket, straw wattle, geotextile)
- Maintain natural drainage and re-grade disturbed areas to limit erosion
- Conduct clearing during winter months (ES 130.17)
- Preserve vegetation buffers at watercourses (ES 130.15.1)
- Suspend construction activities during extreme weather events (EP6)
- Energy dissipation controls (ex: ditching, rip-rap, collection ponds)
- Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7)

Spills are not expected to result in adverse effects beyond the area immediately downstream of the construction activities. Preventative measures include:

- Designated re-fuelling areas and fuel handling procedures (EP2 and ES130.9.2.5 ex: at least 100 m from water bodies, secondary containment, approved storage tanks, maintain spill control and clean-up equipment, emergency response plan with spill containment/clean-up procedures)

- Equipment and vehicles will be clean and free of leaks upon arrival to site and kept in good repair (EP6 and ES 130.15.3)
- Improved road conditions, sight lines and approaches will reduce likelihood and frequency of accidents and improve access for spill response crews
- Soil remediation to CCME guidelines (EP3 and ES 130.10)

Construction compliance monitoring and reporting as described in Chapter 8 will be completed during construction and maintenance activities to confirm mitigation measures are effective and EIS predictions are valid.

REFERENCES

Health Canada. 2016. Guidance for Evaluating Human Health Effects in Impact Assessment: Drinking and Recreational Water Quality. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. Available at: H129-54-2-2017-eng.pdf

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-30

EIS Guideline Reference	• Part 2, Section 3.1, 5.1, and 6.1.5
EIS Reference	• Chapter 6, Section 6.1.5.1.5, 6.3.4.5.3, and 6.3.9.3 • Appendix C-1
Category	Surface Water Quality

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe seasonal surface water quality and the location and use of any local and regional potable water resources, including any water sources used for drinking and recreational use by Indigenous peoples. The proponent is also required to describe the drinking and industrial water requirements for the Project.

The EIS describes how drinking water for the communities of MSCN, BCN, and GLFN is sourced from surface water within the RAA. No data are provided regarding the location of drinking water sources or the quality of water at these sources. The EIS also does not describe the location and quality of drinking water sources for all other Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines. Without this information, potential Project effects to drinking water of Indigenous peoples cannot be assessed.

The EIS indicates that GLFN, MSCN, and BCN did not describe any other seasonal, periodic, or temporary water sources, other than the main drinking water sources for their communities. It is unclear whether information regarding seasonal, periodic, or temporary water sources was specifically requested. Given that GLFN has been under an ongoing “Do Not Consume” advisory since 2005, as noted in the EIS, GLFN members may use local surface water sources other than their main drinking water supply. Members of GLFN and other Indigenous communities may also use surface water sources other than the main supply for their reserves during traditional land use activities conducted away from reserve lands.

The EIS also notes that potable water for construction camps will be transported from existing sources in nearby Indigenous communities. No details are provided regarding the quantity of water that will be required, whether potable water sources within nearby Indigenous communities will

have the capacity to support construction camp needs, the potential effects that this extra demand on potable water will have on the communities in question, or whether Indigenous groups have agreed to the use of their community's water supply for the Project.

Supplementary information is required to support the proponent's description of baseline information for Indigenous peoples and the characterization of potential Project effects to the health of Indigenous peoples due to potential effects to drinking water quality and quantity.

INFORMATION REQUEST

a) Describe and include in a figure(s) the locations of identified drinking water sources within the RAA for all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines, including both on-reserve and off-reserve drinking water sources, if known. The locations of drinking water sources should be overlain with the location of Project components and activities, and should include current and any planned future drinking water sources.
b) Describe the current baseline water quality of the drinking water sources identified in a). If water quality data has already been presented for these waterbodies or watercourses as part of the Aquatic Environment Report (Appendix C-1), provide references to these data for each drinking water source.
c) Describe and analyze potential effects to Indigenous peoples from water quality deterioration for receptors that may use water within the Project footprint and downstream of the Project for drinking and recreational purposes, including any seasonal, periodic, or temporary water sources. Refer to Health Canada's Guidance for Evaluating Human Health Impacts in Environmental Assessment: Drinking and Recreational Water Quality (2016)5.
d) With regard to potential use of potable water supplies from existing sources in nearby Indigenous communities for construction camps and any other project activities, describe:
    i. the quantity of water that will be required and how this water will be transported to construction sites or other areas within the Project footprint where it may be required (e.g. water pipeline, trucks, etc.);
    ii. which Indigenous communities potable water will be sourced from;
    iii. whether potable water sources from these Indigenous communities will have the capacity to support construction camp needs;
    iv. the potential effects of an increase in demand for potable water supplies and the potential effects on Indigenous communities if this increased demand results in a water shortage;
    v. proposed mitigation/accommodation measures to address increased demands on water resources and/or potential water shortages; and

vi. whether Indigenous groups were engaged with and agreed to the use of their community's water supply for the Project.

e) Should the proposed method to transport water from nearby Indigenous communities to the Project require construction of new infrastructure on Indigenous reserve lands (i.e. federal lands) or, for example, the use of trucks on reserve to transport water, include this as a project component/activity discussed in the response to IR1-26, question a).

f) If Indigenous groups were engaged regarding the use of their community's potable water supply for the Project, summarize those engagement activities and their outcome. If not, describe when these engagement activities will take place and potential contingency potable water sources if potable water cannot be sourced from nearby Indigenous communities.

g) Revise the assessment of potential Project effects, residual effects, and cumulative effects for Indigenous peoples to include any potential effects identified in c).

RESPONSE

a) The locations of identified drinking water sources within the RAA are listed below for Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community. As described in Chapter 6 of EIS and response to IR1-77, the Indigenous RAA encompasses the Traditional Territories of Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community as identified by traditional knowledge studies and aligns with the trapline areas held by those communities. The remaining Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines are located outside the RAA boundaries and therefore are not anticipated to be affected by the proposed Project in relation to drinking water sources. For this reason, information regarding their drinking water systems is not included.

While specific questions on drinking water (i.e. if individuals drank water other than that provided by the in-community water treatment plants, and if so, what were the locations of those water sources) were not asked in the Traditional Knowledge (TK) studies conducted, participants did not indicate use of other seasonal, periodic or temporary water sources.

Manto Sipi Cree Nation:

The community water treatment plant for Manto Sipi Cree Nation sources water from God's Lake. The plant was built in 1999 (Manto Sipi Cree Nation, 2024) at latitude 54.835538°, longitude -94.063028°. The location of the water treatment plant in relation to other community services and the closest project component is noted on Figure 6-18 of the Environmental Impact Statement (EIS), which is shown in Appendix IR1-30-1, Figure IR1-30-1. The closest project component is the all-season road located approximately 1.2 km northeast of the water treatment plant.

During the TK interviews there was no indication of other seasonal, periodic or temporary water sources. During the Traditional Knowledge (TK) interviews there was no indication of other seasonal, periodic or temporary water sources. There are no groundwater wells in the vicinity of Manto Sipi Cree Nation.

Bunibonibee Cree Nation:
The community water treatment plan for Bunibonibee Cree Nation sources water from Oxford Lake. The plant is located at latitude 54.932814°, longitude -95.313186°. The location of the water treatment plant in relation to other community services and the closest project component is noted on Figure 6-19 of the EIS, which is reproduced in Appendix IR1-30-1, Figure IR1-30-2. The closest project component is the all-season road located approximately 3.7 km southeast of the water treatment plant.

In addition to the community water treatment plant, the Manitoba Office of Drinking Water (ODW) has indicated that The Northern Store operates a semi-public water system that consists of an in-store water bottle dispenser to fill water bottles typically utilized on water coolers (Lundmark, 2024). The Northern Store is located at 54.952176, -95.267295.

During the TK interviews there was no indication of other seasonal, periodic or temporary water sources. There are no groundwater wells in the vicinity of Bunibonibee Cree Nation.

God's Lake First Nation:
The community water treatment plan for God's Lake First Nation sources water from God's Lake. The plant is located at latitude 54.550243°, longitude -94.501547°. The location of the water treatment plant, labelled Band Water Treatment Plant, in relation to other community services and the closest project component is noted on Figure 6-20 of the EIS, which is reproduced in Appendix IR1-30-1, Figure IR1-30-3. The closest project component is the all-season road located approximately 1.6 km west of the water treatment plant.

During the TK interviews there was no indication of other seasonal, periodic or temporary water sources. There are no groundwater wells in the vicinity of God's Lake First Nation.

God's Lake Narrows NAC:
The God's Lake Narrows NAC has a public water system owned by Manitoba Municipal and Northern Relations, Northern Affairs Division and is operated by God's Lake Narrows Community Council (Lundmark, 2024). This community water treatment plant for God's Lake Narrows NAC sources water from God's Lake. The plant is located at latitude 54.552323°, longitude -94.480181°. The location of the water treatment plant, labelled Water Treatment Plant, in relation to other community services and the closest project component is noted on Figure 6-20 of the EIS, which is reproduced in Appendix IR1-30-1, Figure IR1-30-3. The closest project component is the all-season road located approximately 3.0 km west of the water treatment plant.

During the TK workshop there was no indication of other seasonal, periodic or temporary water sources. There are no groundwater wells in the vicinity of God's Lake Narrows NAC.

b) During the environmental assessment phase, MTI will seek permission from Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation for Indigenous Services Canada to release pre-treatment, baseline water quality data collected for each water treatment system to MTI; MTI will share this data with IAAC when received.

Manitoba's Office of Drinking Water (ODW) endeavours to collect general water chemistries including metals concentrations of the raw/untreated water on an annual basis from the God's Lake Narrows public water system. ODW is scheduled to obtain similar water chemistries from Oxford House Northern Store (Lundmark, 2024). MTI will request this data from God's Lake Narrows Northern Affairs Community during the environmental assessment phase and share with IAAC when received.

c) As per the response provided in IR1-16, the majority of the potential contaminants of concern associated with the nearest Project component (i.e. the all-season road) are petroleum hydrocarbon related. Numerous studies (reviewed in USGS, 2006) demonstrate that degradation of petroleum hydrocarbons occurs under most subsurface conditions at a rate that means that dissolved phase plumes reach a steadystate (i.e. the plume stops expanding) within a relatively short distance from the source. This is typically found to be within about 100 m for a release of a few thousand litres (or less). The smallest distance between the nearest project component and community water treatment plant is 1.2 km. Therefore, given these distances and the use of site-specific mitigations in the Environmental Management Plan (EMP), the impacts to Indigenous peoples from water quality deterioration are anticipated to be negligible.

Additionally, as described in the response to IR1-09, while a pathway exists for potential effects to surface water and drinking water from acid rock drainage/metal leaching (ARD/ML), MTI has included mitigation and monitoring to minimize potential for effects from the Project. The primary mitigation measure for ARD/ML is avoidance. If an existing or potential quarry is found to have high ARD/ML potential, the quarry will not be used or developed. Before the start of construction, the bedrock and construction materials will be sampled and assessed for ARD/ML using the sampling procedures, analytical methods and criteria described in the response to IR1-09. Materials with high ARD/ML potential will be identified and delineated. Disturbance of these materials will be minimized and/or avoided where possible. Exposure of bedrock with high ARD/ML potential would be limited to active construction areas, and runoff from this material would be collected (e.g., in ponds), tested and treated prior to discharge if required per Manitoba Water Quality Standards, Objectives and Guidelines and in accordance with Canadian Council of Ministers of the Environment (CCME) guidelines.

If there is an area of high ARD/ML potential and avoidance is not possible, such as along the road alignment where blasting is required, additional adaptive measures, such as engineered covers, will be considered to mitigate potential negative effects of rock with high ARD/ML potential on surface and groundwater. In addition, if monitoring indicates that acid rock drainage is being generated, additional mitigation measures will be implemented to limit or eliminate potential adverse environmental effects to receptors and valued components.

In addition, MTI intends to conduct additional engagement with Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines during the environmental assessment phase as noted in response to IR1-82. Environmental assessment related topics that MTI currently does not have information on and/or specific inquiries from IAAC or EAB will be discussed. Responses received during discussions will be recorded and used to support MTI in project planning and in providing meaningful feedback to provincial and federal regulatory bodies to meet environmental regulatory requirements and support consultation processes.

d) As identified in the response to IR1-19, selective review(s) of data validity will be conducted prior to construction of the all-season road. The review will focus on key topics where legislative changes (e.g. updates to species at risk listings) occur and may consider updated information such as engineering design, scientific data or indigenous Nation input available at that time. This may include consideration of potable water sources and supplies. The reassessment process will be used to verify whether key predictions of the environmental assessment remain relevant and accurate, and whether proposed mitigation and monitoring remains applicable and appropriate.

i. Assuming that the Project will be broken down into 13 smaller road construction contracts (measuring approximately 10-13 km each) and 1 to 2 bridge construction contracts, an estimated 65,000 m^3 of potable water will be required and about 280,000 kg of solid waste will be generated at construction camps. Water will be transported by trucks. Non-potable water required for construction activities will be drawn from existing creeks, and ponds in the area with the appropriate approvals in place from MECC.

i. Potable water will be sourced from Bunibonibee Cree Nation, Manto Sipi Cree Nation, and God's Lake First Nation's respective community water treatment plants. Water will be hauled in via truck from the nearest of the above-listed communities based on distance and construction sequencing.

ii. Whether potable water for construction will rely upon community infrastructure and whether these sources will have the capacity to support construction camp needs will depend on the construction schedule and sequencing; and assuming 2 smaller road projects are completed per year; an estimated 8,700 m3 of potable water is required per

year, which equates to approximately 30 m3 per day (i.e. two truck loads). Community water treatment plants will likely have the capacity to meet these daily potable water requirements.

If community water supplies can not accommodate construction camp potable water requirements, camps may source water from alternative sources such as groundwater well or other surface water sources. Should camps not utilise community water sources and obtain water by other means, water use will abide by applicable provincial and/or federal legislation or guidance, such as but not limited to, The Water Rights Act (Manitoba), The Public Health Act (Manitoba) and the DFO Freshwater Intake End-of-Pipe Fish Screen Guideline.

iii. The requirement for 2 truck loads of water per day should not be an overwhelming demand on a community water treatment plant. However, as per Section 6.3.4.5.3 of the EIS, if trucked water is not available, potable water could be sourced from groundwater with the appropriate approvals in place from Manitoba Environment and Climate Change (MECC).

iv. In order to decrease demand on the community water treatment plants, construction can be sequenced in such a way so as to not be concentrated in one area at the same time. Should the demand on the community water treatment plant become unacceptable and trucked water is no longer available, potable water could be sourced from groundwater with the appropriate approvals in place from MECC.

v. Indigenous communities will be approached to negotiate sourcing of potable water from their community water treatment plant. Contracts to supply and haul potable water represent an economic opportunity to local communities in support of this project.

e) Water transport trucks are anticipated to utilize existing infrastructure and the project components identified to transport potable water.

f) Specific discussions regarding use of communities' potable water supply for the proposed Project have not occurred yet. These discussions with communities and Indigenous Services Canada will take place once detailed construction plans are developed and more accurate estimates can be calculated. Necessary approvals and permits will be acquired as needed.

As a contingency, potable water could also be sourced from God's Lake Northern Affairs Community, trucked in on the winter road from other communities, and/or potentially sourced from

new groundwater or surface water sources which would require licencing, sampling, analysis and reporting under the Drinking Water Safety Act for each system, and adherence to applicable provincial and federal legislation and guidance.

g) Given the distances between project components and community water treatment plants, and the use of site-specific mitigations and monitoring planned for the proposed Project, the impacts to Indigenous peoples from water quality deterioration are negligible. As mentioned in response C above, MTI intends to conduct additional engagement with Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines during the environmental assessment phase. Environmental assessment related topics that MTI currently does not have information on and/or specific inquiries from IAAC or EAB such as effects to Indigenous people's health will be discussed. Responses received during discussions will be recorded and used to support MTI in project planning and providing meaningful feedback to provincial and federal regulatory bodies to meet environmental regulatory requirements and support consultation processes.

If communities identify potential effects not considered in the EIS and/or associated mitigation measures, these will be discussed with regulators. Appropriate mitigations will be selected and implemented to minimize or avoid impacts. Environmental Management Plans (EMPs) and monitoring plans (see Chapter 8 of the EIS) will be updated accordingly to account for changes to legislation and environmental protections.

APPENDIX IR1-30-1

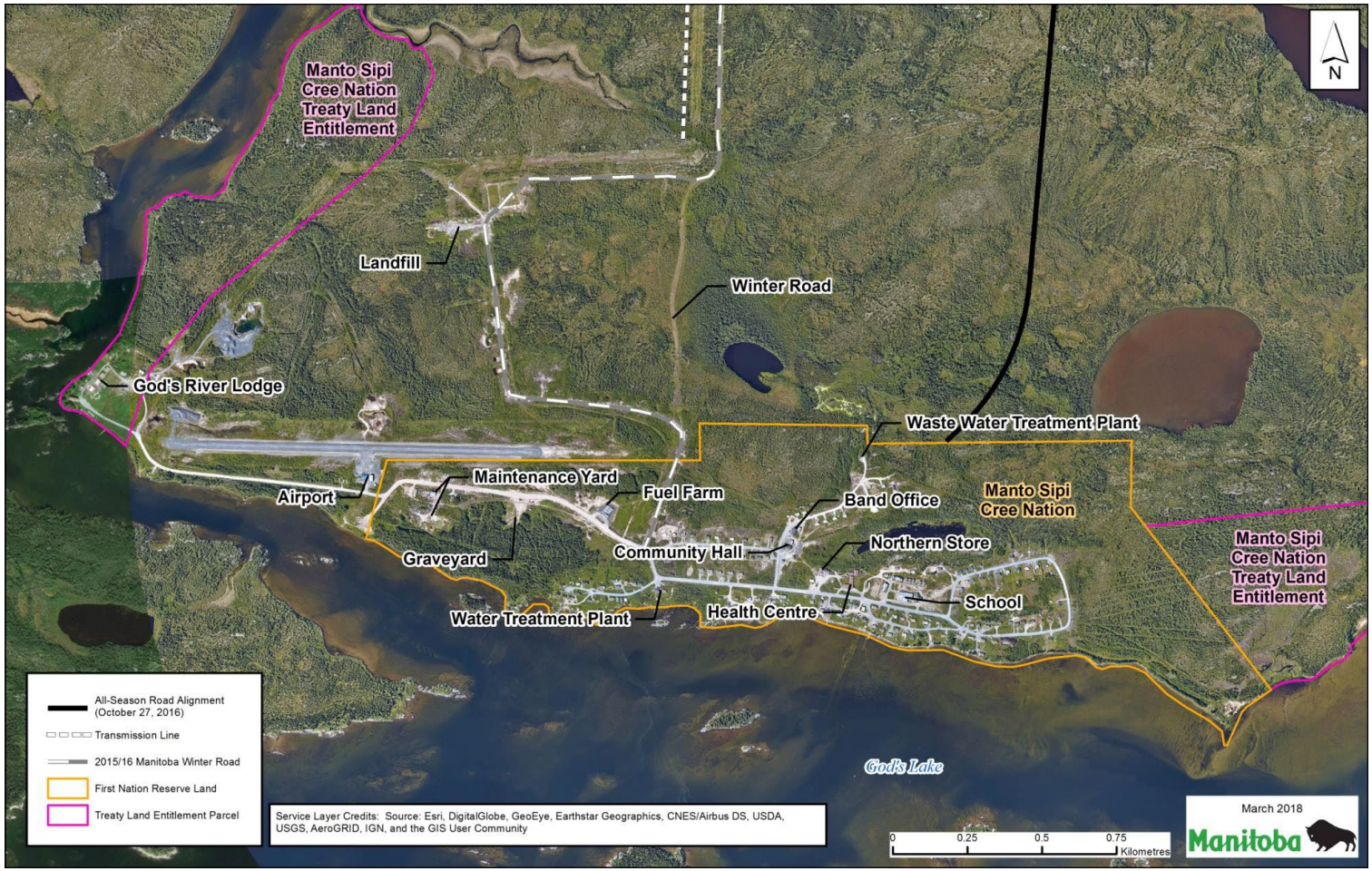


Figure IR1-30-1. Manto Sipi Cree Nation businesses, services, infrastructure and utilities (Figure 6-18 of the Project 6 EIS)



Figure IR1-30-2. Bunibonibee Cree Nation businesses, services, infrastructure and utilities (Figure 6-19 of the Project 6 EIS)

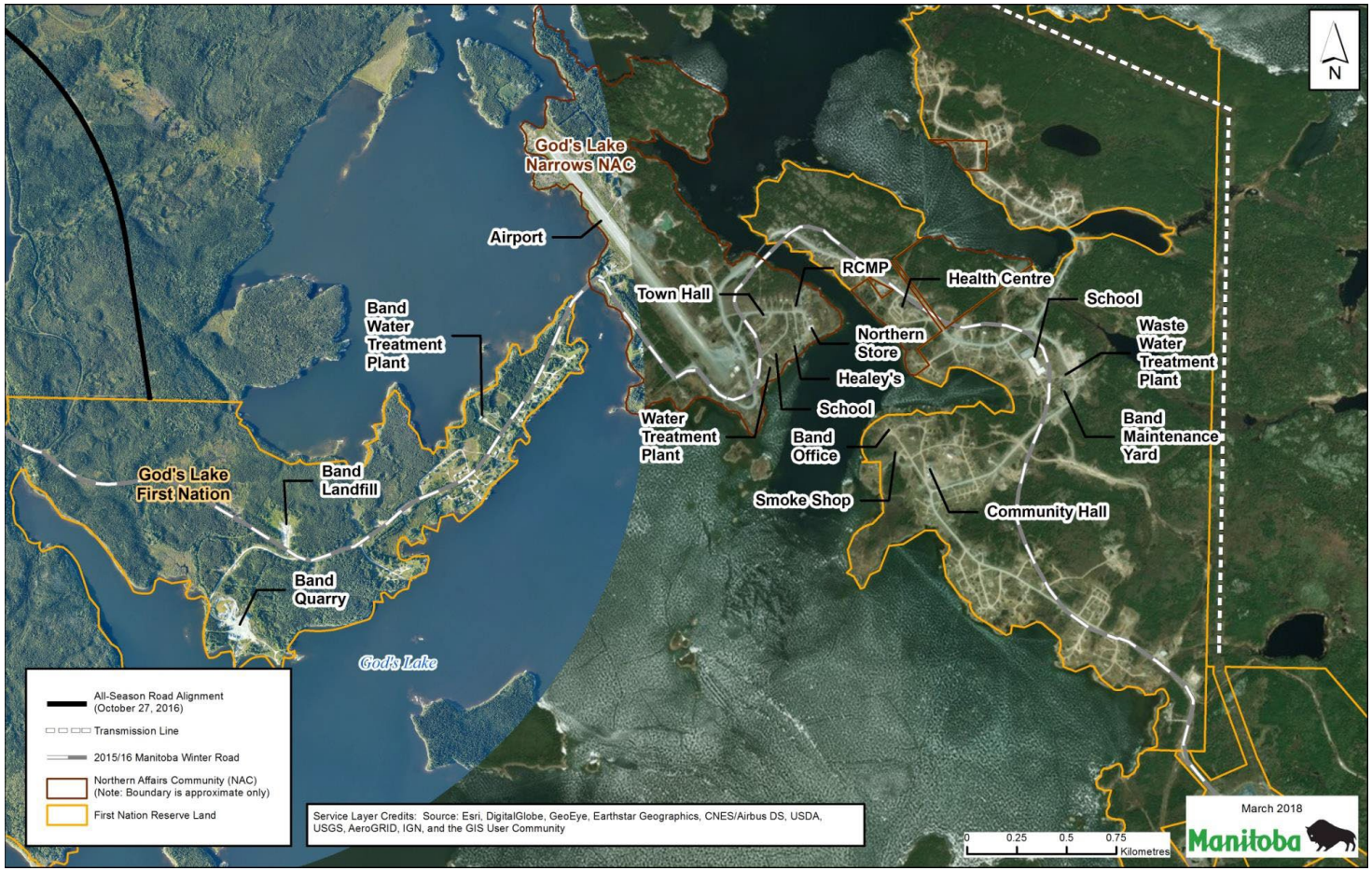


Figure IR1-30-3. God's Lake First Nation and Narrows Northern Affairs Community businesses, services, infrastructure and utilities (Figure 6-20 of the Project 6 EIS)

REFERENCES

Manto Sipi Creen Nation. 2024. Public Services. Available at: https://mantosipicree.ca/public-services/

United States Geological Survey (USGS). 2006. Description, Properties, and Degradation of Selected Volatile Organic Compounds Detected in Ground Water— A Review of Selected Literature. Available at: https://pubs.usgs.gov/of/2006/1338/pdf/ofr2006-1338.pdf

Personal Communications

Lundmark, B. 2024. Office of Drinking Water. Personnal Communication. September 13, 2024.

QUESTION IAAC IR1-31

EIS Guideline Reference	• EIS Guidelines Part 2, Section 6.2.2, 8.1, and 8.2
EIS Reference	• EIS Appendix C-2, Section 5.2.2.1 and 5.2.2.2
Category	Surface Water Quality

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential changes to surface water quality, including any changes to turbidity and/or total suspended solids (TSS), and to present a preliminary follow-up and monitoring program for all phases of the Project.

The EIS indicates that in-stream Project activities and activities conducted near watercourses/waterbodies may increase the potential for erosion and sedimentation (i.e. an increase in TSS). The EIS notes plans to use turbidity measurements as a surrogate for TSS. ECCC notes that while in situ turbidity measurements can be a useful surrogate for TSS, TSS-turbidity relationships are site-specific. As such, in order to adequately characterize the relationship, it is necessary to obtain sufficient sampling data specific to the waterbody/watercourse and the sediment in question to establish the unique relationship between TSS and turbidity. It is unclear whether the proponent is proposing to create one Project-wide TSS-turbidity relationship or will create site-specific TSS-turbidity relationships for each crossing location.

As the TSS-turbidity relationship may change over time, it is important to periodically collect and analyze TSS samples in a laboratory to validate and, if necessary, update the relationship. It is unclear whether this periodic validation will be conducted.

With respect to TSS/turbidity monitoring, the EIS indicates that if exceedances of the *Manitoba Water Quality Standards, Objectives, and Guidelines* (MWQSOG) for the protection of aquatic life are detected, corrective actions will be taken. It is unclear how often monitoring for TSS will occur and what corrective actions will be taken to mitigate any exceedances of the MWQSOG for the protection of aquatic life. ECCC also noted that in terms of monitoring TSS concentrations, the TSS-turbidity relationship approach proposed by MI requires more frequent in situ measurements of

turbidity to estimate TSS concentrations. This requirement must be considered when determining sampling frequency for monitoring of TSS concentrations.

The EIS also notes that dewatering of cofferdams can result in discharges of water with excessively high TSS or pH at locations such as culvert placements or pier placements, respectively, due to contact with concrete. Any water pumped from cofferdams will be monitored to determine if it meets MWQSOG and if guidelines are exceeded, appropriate mitigation measures will be implemented to treat the water before it re-enters the watercourse. The EIS does not provide details regarding the mitigation measures to be implemented should exceedances of the MWQSOG be detected, how often monitoring will be conducted, or whether the *Canadian Water Quality Guidelines* for the Protection of Aquatic Life will also be adhered to.

Supplementary information is required to assess the adequacy of the proposed follow-up and monitoring plan with respect to potential effects to surface water quality from turbidity and pH and to determine whether further mitigation or contingency measures may be required.

INFORMATION REQUEST

a) Clarify whether MI plans to create one Project-wide TSS-turbidity relationship or will be creating site-specific TSS-turbidity relationships for each crossing location. If the former, provide a clear rationale for how one Project-wide TSS-turbidity relationship would accurately capture the site-specific, unique characteristics of each individual waterbody/watercourse where crossings may be required.
b) Indicate whether MI plans to periodically validate and, if necessary, update the TSS-turbidity relationship for each crossing location by collecting and analyzing TSS samples in a laboratory.
    i. If so, describe how often samples will be collected to validate the TSS-turbidity relationship.
    ii. If not, describe how MI will ensure that the TSS-turbidity relationship(s) used to monitor sediment inputs into waterbodies/watercourses is accurate and representative of actual conditions.
c) Quantitatively indicate the frequency with which monitoring for TSS and monitoring of cofferdam water for TSS and pH will be conducted.
d) Describe in detail the corrective actions, including mitigation and/or contingency measures, that will be implemented should monitoring data indicate that the MWQSOG for the protection of aquatic life have been exceeded. Indicate whether MI will adhere to the Canadian Water Quality Guidelines for the Protection of Aquatic Life. If not, provide a clear rationale why these guidelines will not be complied with.

RESPONSE

a) Manitoba Transportation and Infrastructure (MTI) will establish site-specific relationships between turbidity and total suspended solids (TSS). That is, if turbidity is a known variable, measured in the field, and TSS is unknown, one can calculate the existence of the TSS using the turbidity levels. The watercourse(s) at each in-water work shall have a TSS-turbidity relationship established prior to the start of construction as per the Conversion Relationship between Nephelometric Turbidity Units (NTU) into mg/L for Alberta Transportations' Turbidity Specification (Government of Alberta, undated).

b) The relationship between turbidity and TSS should be reviewed overtime as a water body changes (Government of Alberta, 2022). Should construction at a crossing location span multiple seasons, the TSS-turbidity relationship would require validation. MTI suggests reestablishing the TSS-relationship approximately every 90 days or whenever significant natural changes to the water body are noted.

c) Unless otherwise stipulated in approvals or authorizations for in-water work, MTI plans to adhere to the following guidance provided in Alberta's Turbidity Monitoring for In-stream Construction Activities (Government of Alberta, 2022):

i. Measure suspended solids in Nephelometric Turbidity Units (NTUs) both upstream and downstream of the construction area a minimum of once every hour. Sampling will occur from 30 minutes prior to daily construction activities to 30 minutes after daily construction activities have been completed.
ii. If an exceedance or plume is observed, additional sampling shall be done within the plume until TSS levels have returned to acceptable background levels for two consecutive sampling events.

Similarly, unless approvals or authorizations stipulate other requirements, monitoring of cofferdam or otherwise isolated areas will adhere to the following guidance provided in Alberta's Turbidity Monitoring for In-stream Construction Activities (Government of Alberta, 2022):

i. Sample measurements for turbidity and pH at three-hour intervals, during construction hours.
ii. If after conversion of NTUs to mg/L using the turbidity-TSS relationship established, sample results have not exceeded 5 mg/L above background levels for five consecutive active construction days, a reduction in sampling frequency for turbidity may be considered in consultation with an environmental professional.

iii. If pH exceedances are not noted for five consecutive active construction days, a reduction in sampling frequency for turbidity may be considered in consultation with an environmental professional.

d) Where monitoring results demonstrate changes above either Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOGs) or the Canadian Water Quality Guidelines for the Protection of Aquatic Life, the activity shall cease until effective mitigative measures are taken, and two consecutive sampling evens indicate that TSS has returned to acceptable background levels. Where an isolated work area is being dewatered and discharge exceeds guidelines, mitigative measures may include diverting waters to splash pads or settling ponds prior to water re-entering a watercourse or diverting to the top of bank where the water will not run back into the watercourse.

REFERENCES

Government of Alberta. 2022. Updated 2023. Turbidity Monitoring for In-Stream Construction Activities – Guideline. Construction Activities Creating Turbidity in Waterbodies Guideline. Available at: https://open.alberta.ca/publications/construction-activities-creating-turbidity-in-waterbodies-guideline

Government of Alberta (undated). Conversion Relationship between Nephelometric Turbidity Units (NTU) into mg/l for Alberta Transportations' Turbidity specification. Available at: https://www.alberta.ca/system/files/custom_downloaded_images/tr-conversion-of-nephelometric-turbidity-units.pdf

QUESTION IAAC IR1-32

EIS Guideline Reference	• Part 2, Section 6.1.1, 6.2.1, and 6.5
EIS Reference	• Chapter 3, Section 3.3.2.1 and 3.4.1.11 • Chapter 6, Section 6.1.1.2, 6.2.1, 6.2.1.1.1.1, 6.3.4.5.4, 6.4.1.1.1, and 6.5.9.5.4 • Chapter 8, Section 8.4.2.2
Category	Atmospheric Environment

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe baseline ambient air quality in the Project area and airshed likely to be affected and any changes in air quality resulting from the Project, including sulfur oxides (SOx), nitrous oxides (NOx), total suspended particulates, fine particulates smaller than 2.5 microns (PM2.5), respirable particulates less than 10 microns (PM10), and diesel particulates. The EIS Guidelines also require the proponent to describe any residual effects to the atmospheric environment following the implementation of mitigation measures and provide a characterization of the significance of those effects in terms of their magnitude, geographic extent, timing, duration, frequency, reversibility, and ecological and social context.

The EIS indicates that the Project may result in an increase in particulates and vehicle emissions (i.e. SOx, NOx, diesel particulates, and volatile organic compounds [VOCs]) during construction, operation, and maintenance but does not describe the anticipated emissions rate or increase in concentration for each type of contaminant associated with each Project phase, with the exception of particulate matter emissions during construction of the ASR. Additionally, assessment of potential Project effects on the atmospheric environment and other VCs from concrete batching, blasting activities, and emissions from generators at construction camps is not demonstrated nor are mitigations provided.

With respect to predicted Project effects to air quality, emissions estimates presented are based on a single literature source (Roberts et al. 2010) which is limited to emissions of PM10 and PM2.5 and does not include SOx, NOx, CO, VOCs, or diesel particulates, as required by the EIS guidelines.

Further, it is not clear whether the road widening project referenced in Roberts et. al. (2010) included activities such as blasting at quarries and borrow areas, temporary construction camps, bridge construction, or other activities that may result in particulate matter emissions. It is also unclear where air emissions values were measured in this study, either in relation to the location of receptors or the source of emissions, and under which meteorological conditions.

The EIS also indicates that the Project has the potential to increase dust and other atmospheric emissions levels by 10 to 20 percent of baseline conditions prior to the implementation of mitigation measures and by 10 percent or less following mitigation. However, the EIS does not provide quantitative data regarding the baseline air quality for the Project footprint, LAA, or RAA with which to compare project emissions levels. Comparing predicted emissions rates associated with the Project to the Canadian Ambient Air Quality Standards and the Manitoba Ambient Air Quality Criteria is a more appropriate method for assessing the significance of Project effects to air quality.

With regard to particulate matter and NOx, the EIS indicates that, following the implementation of mitigation measures, exceedance of the Manitoba Ambient Air Quality Criteria and Canadian Ambient Air Quality Standards is not expected. As particulate matter and NOx are non-threshold air contaminants, non-exceedance of air quality guidelines does not imply that there are no health risks. Further mitigation may be warranted to reduce levels of these contaminants as much as possible.

Supplementary information is required to support the characterization of potential Project effects to the atmospheric environment, which may adversely affect other VCs, such as species at risk, migratory birds, federal lands, and Indigenous peoples' health and socioeconomic conditions. This information is also required to determine whether further measures may be required to mitigate adverse environmental effects.

Information Request

a) Characterize the types and quantity of atmospheric contaminant emissions that may be associated with blasting, concrete batching, generators, and the transportation and handling of materials required for concrete production. Describe the potential adverse effects that may be associated with these contaminants and at the levels described.
b) Describe the anticipated emissions rate or increase in concentration of atmospheric contaminants associated with activities and components during all Project phases. Anticipated increases in emissions rates and/or contaminant concentration must be provided for PM10, PM2.5, SOx, NOx, diesel particulates, VOCs, and any contaminants associated with blasting, concrete batching, generators, and the transportation and handling of materials required for concrete production, in concentration values comparable to guidelines7 (i.e. µg/m3).

c) Provide a rationale to support the conclusion that construction related PM10 and PM2.5 emissions estimates outlined in the study by Roberts et al. (2010) are applicable to the Project.
    i. Include consideration of how the location, timing, and meteorological conditions compare between the project and Roberts et al. (2010).
    ii. Discuss the uncertainties and limitations in using data from this study as a surrogate for Project emissions estimates for PM10 and PM2.5.
d) Describe the relationship of Project emissions sources to key receptors, including the distance between the Project and key receptors, the concentration of receptors at these locations, etc.
e) Describe measures that will be implemented to mitigate contaminant emissions from blasting, rock crushing, concrete batching, generators, and the transportation and handling of materials required for concrete production.
f) Revise the assessment of potential Project effects, the residual effects assessment, and the cumulative effects assessment for the atmospheric environment and for all other VCs to include emissions from blasting, concrete batching, generators, and the transportation and handling of materials required for concrete production.
g) Compare the predicted increase in atmospheric emissions from Project components/activities during all phases to the most current Canadian Ambient Air Quality Standards and the Manitoba Ambient Air Quality Criteria. Include the numerical thresholds defined in these regulations.
    i. Alternatively, provide quantitative baseline data for the ambient air quality in the Project area and airshed likely to be affected by the Project, identifying and quantifying emissions sources for total suspended particulates, PM2.5, PM10, diesel particulates, carbon monoxide (CO), SOx, NOx, and VOCs.
h) Compare the anticipated emissions levels of non-threshold air contaminants, including particulate matter and NOx, to levels associated with adverse health effects in humans and wildlife. Describe measures that will be implemented to further mitigate emissions of non-threshold air contaminants to the greatest extent possible.
i) Describe the air quality monitoring and follow-up program that will be implemented to monitor Project air emissions and any exceedances of provincial and federal air quality criteria.
    i. Explain how the follow-up and monitoring program will account for the absence of quantitative baseline data for the current air quality conditions in the area of the Project, if this quantitative baseline data is not provided in response to g).
    ii. Describe mitigation and contingency measures that will be implemented should exceedances of provincial and federal air quality criteria be detected.

RESPONSE

a) Atmospheric emissions that may be emitted as part of the Project can be generally characterized as dust which may result from blasting, earth moving and equipment use, and Carbon Dioxide equivalent (CO_{2e}) greenhouse gases emitted through the operation of fossil fuel powered equipment. Individual examples of CO_{2e} gases include nitrogen trifluoride (NF_3), sulphur hexafluoride (SF_6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrous oxide (N_2O), and methane (CH_4) (Dillon, 2017). Concrete batching will utilise pre-manufactured cement mix transported to site for mixture with aggregates and water. Cement (i.e. the powdered binding agent used to make concrete) manufacturing will not occur on site, and therefore emissions associated with cement manufacturing processes are not project-related emissions.

Baseline estimates of equipment related emissions were included in the Dillon Consulting GHG Emissions Assessment which was provided as Appendix A in the Project's Environmental Impact Statement (EIS). The previously developed estimates of predicted emissions outline the potential emissions for construction equipment that would most likely be required to construct an all-season road. These estimates were based on actual data for construction of another all-season road in eastern Manitoba (Project 1 All-Season Road from PR304 to Berens River First Nation), and are therefore anticipated to be reflective of the type and age of equipment to be used to construct the proposed Project.

b) Per the Green House Gas (GHG) Assessment completed by Dillon Consulting in 2017, there will be a predicted increase in GHG emissions over the course of the proposed all-season road construction phase over the Baseline Scenario estimates. However, the increase is considered to be temporary, and occurring during the construction phase of the proposed project. The predicated GHG emissions during the operational phase of the proposed project are predicted to be equal or lower to the Baseline Scenario (Dillon, 2017).

While the exact sequencing of construction along the length of the proposed alignment is not known at this time, it is generally anticipated that emission rates and contaminant concentrations will be evenly distributed over time as a constant over the course of the construction phase.

c) The study by Roberts et al. (2010) presents a comprehensive field investigation of construction-related emissions during a road-widening project along SR 92 in southeastern Arizona. The project involved expanding a two-lane rural highway to five lanes over a four-mile stretch, including roadway paving, installation of curbs and gutters, and intersection improvements. Air quality impacts, particularly from particulate matter (PM10 and PM2.5), were measured using monitoring trailers positioned adjacent to the construction zone, and emissions were linked to specific equipment activity and meteorological conditions using GPS and fuel log data.

Both the SR 92 Study and Project 6 follow a segmented construction approach (i.e. sequential development) along a linear corridor in relatively remote areas. Construction activities in both cases involve similar equipment and fuel types, including heavy diesel-powered machinery such as excavators, dozers, graders, dump trucks, and rock crushers. The study includes a focused case study on emissions from rock crushing, a key activity in Project 6, which also involves blasting at multiple quarry sites. While blasting emissions were not directly measured in Roberts et al. (2010), emissions from subsequent crushing and handling of blasted rock are captured and provide a basis for estimation. It also captured emissions during defined working hours over full daily and weekly cycles, which align with the anticipated daytime construction schedule for Project 6.

i. The applicability of this study to Project 6 is supported by several shared construction characteristics, but differences in environmental context must also be considered. The Roberts et al. (2010) study was conducted in a dry, arid region of Arizona with conditions that enhance fugitive dust generation. In contrast, Project 6 is located in the boreal ecozone of northern Manitoba, where higher soil moisture, seasonal snow cover, and vegetative ground cover may reduce the release and transport of particulates.

   Both projects involve extensive ground disturbance, material transport, and the use of particulate-generating equipment. Therefore, despite climatic differences, the Roberts et al. (2010) study provides relevant insight into emission patterns from construction machinery and activities common to both contexts. However, Roberts et al. (2010) incorporated seasonal variability and meteorological conditions into their analysis through multiple case studies that captured changes in wind direction, humidity, and precipitation. In both projects, construction activities include extensive clearing, earthworks, and material hauling, as well as the use of rock crushers and heavy diesel equipment. Project 6 will also include blasting at multiple quarry sites, which aligns with operations observed in the supplemental case study of crusher activity in the Roberts report.

   Although climate and terrain differ, the Roberts et al. (2010) study provides a reliable assessment of potential emissions from similar construction activities under different environmental conditions, with local factors to be accounted for in final emissions modeling and mitigation measures.

ii. There are some uncertainties in applying emissions data from the Roberts et al. (2010) study as the Project 6 ASR includes a wider range of activities, such as construction of new bridges, culverts, and temporary construction camps, as well as blasting at quarry sites and borrow areas. While the Roberts study

> measured emissions associated with on-site rock crushing and other heavy equipment, it did not specifically analyze emissions from blasting or batch concrete operations. Furthermore, the topography and vegetative cover in Manitoba differ from the more open, arid setting in Arizona, potentially influencing particulate dispersion and deposition. Despite these differences, the Roberts et al. (2010) study remains one of the few research papers linking construction equipment activity with measured near-field PM10 and PM2.5 concentrations. It provides valuable real-world estimates of particulate emissions from diesel equipment and dust-generating activities. These estimates are especially useful in the context of Project 6, where baseline air quality data are currently limited. While absolute PM concentrations from Roberts et al. (2010) will not be directly used for P6, the study's methodology and emission profiles offer a reasonable surrogate for informing preliminary assessments. The use of these data is considered appropriate, given that the uncertainties are acknowledged and supplemented with Project-specific air monitoring during construction to validate and adjust the assumptions used.

d) As described in Chapter 6, Section 6.1.1 of the EIS, there are no known residences or cabins in immediate proximity to the proposed all-season road alignment. Based on a mapping exercise conducted as part of the confidential Traditional Knowledge (TK) studies, the nearest cabin is approximately 400 m from the proposed alignment (HTFC Planning & Design, 2017). The nearest residences are located approximately 250 m from the alignment in Manto Sipi Cree Nation, 1.5 km in Bunibonibee Cree Nation and God's Lake First Nation, and 3 km in God's Lake Narrows Northern Affairs Community. While the increase in particulates may have the potential to exceed the Manitoba Ambient Air Quality Criteria, and Canadian Ambient Air Quality Standards (CCME, 2012) at the active construction site, it is important to note that there would be no increase in particulates in the communities. The nearest residences to the proposed all-season road are approximately 250 m in Manto Sipi Cree Nation, 1.5 km in Bunibonibee Cree Nation and God's Lake First Nation and 3 km in God's Lake Narrows Northern Affairs Community. As the road does not enter federal reserve lands this is the nearest it would be to the communities (receptors) (Section 6.2.1.1, Chapter 6 of the EIS).

In terms of other emission sources, the minimum distance from a potential quarry site to the closest residence is 1.5 km. As a result, the effect on surrounding communities is considered negligible due to the combination of this separation distance and the natural attenuation provided by dense forest. Additional mitigation measures are discussed in Chapter 6, Section 6.4.1.3 of the EIS.

Regarding ecological receptors, mitigation measures will also be implemented to protect wildlife. In accordance with EP14 (Wildlife), no blasting will be permitted within close proximity to sensitive wildlife habitat during critical lifecycle periods (e.g., no blasting within 2 km of known caribou

calving areas). Construction traffic will be restricted to the site, existing roads, or approved access routes (ES 130.6). Furthermore, construction activities will be staged to ensure that sensory disturbance is confined to defined contract areas, rather than occurring across the entire Project Footprint at once.

As outlined in Chapter 5, Section 5.7 of the EIS, MTI has committed to ongoing engagement with Indigenous communities through the Indigenous and Public Engagement Program (IPEP). The IPEP will continue throughout the remaining development of the Project. The future engagement will provide updated information and opportunities for interested parties to continue commenting on the Project throughout detailed design and construction. Under the IPEP, MTI will ensure that appropriate contact information is provided to Indigenous communities, regulators, and other stakeholders to report concerns related to air emissions, lighting, noise, or other construction-related issues. MTI will ensure that communication mechanisms are in place and that concerns raised by Indigenous communities or others will be acknowledged and addressed in a timely and coordinated manner.

e) To mitigate contaminant emissions from blasting, rock crushing, concrete batching, generators, and the transportation and handling of materials required for concrete production, a combination of standard construction practices, regulatory compliance, and project-specific management plans will be implemented.
Standard construction mitigation measures applicable to these activities are outlined in Chapters 3 and 8 of the Environmental Impact Statement (EIS), with additional mitigation details provided in Chapter 7 and Appendix 7-1. These measures will be incorporated into the Environmental Management Plans, supported by the Environmental Protection Procedures (EPPs) and Best Management Practices (BMPs). Contractors will be required to prepare and submit an Explosives and Blasting Management Plan prior to initiating any blasting activities. This plan will address best practices and regulatory requirements for the safe transportation, handling, storage, and use of explosives. Storage facilities at quarry sites will comply with the federal Explosives Regulations under the Explosives Act and the provincial Operation of Mines Regulation under The Workplace Safety and Health Act of Manitoba. Blasting activities will also be scheduled in accordance with timing restrictions (“blasting windows”) designed to protect sensitive aquatic and terrestrial species, as described in Chapter 6 of the EIS.

Fugitive dust emissions from rock crushing, quarrying, grading, and other construction activities will be addressed through a Dust Control Plan, as outlined in Chapter 8, Section 8.4.2.2 of the EIS. This plan may include measures such as water sprays, enclosures, and traffic surface stabilization to minimize airborne particulates. While it is possible that more efficient equipment could be used during Project construction, equipment for Project construction is anticipated to be in line with those included by Dillon (2017) for the Project’s GHG assessment. The GHG assessment conducted by Dillon (2017) utilised actual emissions data from construction of a similar all-season road in eastern Manitoba (Project 1 all-season road connecting PR304 to Berens River First Nation)

and therefore is reflective of the type of equipment that is expected to be used for Project construction. Because detailed construction planning and contract awards are still pending, and because it is anticipated that local equipment owned and operated be First Nations will be used, full Tier 4 compliance cannot be guaranteed. Regular maintenance and idling reduction protocols will be implemented to further reduce emissions from construction equipment.

f) Baseline estimates of equipment related emissions were estimated in the Dillon Consulting GHG Emissions Assessment (2017) included as Appendix A in the Project EIS. The previously developed estimates of predicted emissions outline the potential emissions for construction equipment that would most likely be required to construct an all-season road. At this time, the provided estimates are thought to be representative of anticipated Project emissions, and reassessment at this time has not been conducted. As described in responses A and E above these estimates were based on actual data for construction of another all-season road in eastern Manitoba (Project 1 all-season road from PR304 to Berens River First Nation) and are therefore anticipated to be reflective of the type and age of equipment to be used to construct the proposed Project.

g) In the absence of existing quantitative baseline air quality data for the Project 6 RAA, MTI is proposing to utilise data from a representative site. The representative site will characterize existing air quality conditions for key parameters, including fine and coarse particulate matter ($PM_{2.5}$ and PM_{10}), diesel particulates, carbon monoxide (CO), SOx, NOx, and VOCs.

These baseline measurements will serve as a reference point against which future project-related emissions and any exceedances of provincial and/or federal air quality criteria can be assessed. The results of the survey will inform the follow-up and monitoring program and will allow for the verification of predictions and support the implementation of adaptive management measures, if monitoring indicate that mitigation efforts are not sufficient.

This data will be shared with Indigenous Nations and with appropriate federal and provincial authorities prior to construction to facilitate opportunities for input.

h) Section 6.2.1.1.1 in Chapter 6 of the EIS presents the potential changes to the atmospheric environment from increases in particulates for all Project phases. Section 6.3.4.5.4 in Chapter 6 of the EIS considers potential effects of changes in air quality on Indigenous Peoples and Land Use. While the EIS identifies that the generation of dust and particulates may originate from blasting, rock crushing, clearing, burning, and other construction related activities, decreased air quality is readily reversed when the sources of contaminants are controlled. Measures to control or mitigate dust and particulate are identified in the Environmental Protection Procedures and Environmental Protection Specifications include as Appendices 8-2 and 8-3 in Chapter 8 of the EIS, and

specifically EP18 – Dust Suppression Procedures and ES130.11 - Dust and Particulate Control. These procedures and specifications include measures for the application of dust control products, controlling potentially erodible soil stockpiles, covering of loads during transportation, and general planning to minimize dust on the worksite.

Section 6.2.1.1.2 in Chapter 6 of the EIS presents the potential changes to the atmospheric environment from increases in vehicle emissions and includes consideration of NO_x. The EIS identifies that as there are no current industrial activities in the region, the potential increase in concentrations of SO_x, NO_x and diesel particulates are not expected to measurably affect air quality in the RAA. Additionally, emissions of NO_x and SO_x are mitigated at the fuel production stage. Section 6.4.1.1.2 in Chapter 6 of the EIS identifies that the proposed measures to mitigate the potential environmental effect of an increase in vehicle emissions (ex: SO_x, NO_x, diesel particulates) to the atmosphere include using low sulphur fuels, requiring a high standard of maintenance for equipment and vehicles and limiting unnecessary long-term idling. Additionally, quarries, borrow areas, construction laydown areas and camps would be located as close to the road corridor and active construction areas as conditions allow reducing the driving distances.

i) A follow-up program will be developed prior to construction, in consultation with Indigenous groups, Health Canada, and Environment and Climate Change Canada, to verify the accuracy of the environmental assessment as it pertains to adverse environmental effects on air quality and potential human health outcomes. The follow-up program will also address noise and vibration and will include review of community concerns. During construction, concerns from Indigenous Nations regarding potential air quality concerns can be raised to MTI through ongoing engagement, in regular update meetings or through community contacts so that these can be address as best possible.

As presented in Chapter 8 of the EIS, an adaptive management approach will be used so as to apply and vary appropriate mitigation to reduce ambient concentrations of fugitive dust based upon visually observed levels of dust, stakeholder complaints and the presence of meteorological conditions associated with higher potential for dust such as hot, dry and windy conditions. MTI will develop a process to manage air quality (e.g., dust) impacts during construction including, as appropriate, stakeholder/ resident communication, proactive notifications of nearby intensive construction activities, complaint logging and initial response, complaint investigation, and complaint resolution and adaptive mitigation.

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QUESTION IAAC IR1-33

EIS Guideline Reference	• Part 2, Section 6.2.1 and 6.3.5
EIS Reference	• Chapter 3, Section 3.4.2.4 • Chapter 6, Section 6.2.1, 6.3.4.5.4, and 6.3.5
Category	Atmospheric Environment

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe any changes to air quality and any potential environmental effects on federal lands resulting from the Project.

The EIS indicates that there may be an increase in particulate matter as a result of the Project that may exceed the Manitoba Ambient Air Quality Criteria and Canadian Ambient Air Quality Standards. The EIS also states that an increase in particulates in local Indigenous communities, including BCN, MSCN, and GLFN, is not expected as the road does not enter federal reserve lands, receptors are located at least 250 metres from the reserve boundaries, and prevailing winds in the area of the Project blow from the west and northwest, directing the majority of dust away from communities. While prevailing winds may blow from the west and northwest, this does not preclude winds from blowing in other directions, including towards communities and other receptors. Further, humans, while not in the communities themselves, and wildlife receptors may come within the predicted range of particulate matter while on reserve lands.

The EIS indicates that chemical dust suppressants may be used if required and lists approved products. Should use of chemical dust suppressants be required, the EIS indicates that these chemicals will not be applied within 100 metres of a stream crossing or beyond the road surface, and are not expected to have negative effects on soils, surface water, vegetation, wildlife health, or human health. The EIS does not provide further detail regarding the specific risks or potential effects to VCs associated with the use of chemical dust suppressants, should these products migrate from the area of application or contaminate the environment within the Project footprint, LAA, or RAA.

Supplementary information is required to support the characterization of potential Project effects to the atmospheric environment and related potential adverse effects to other VCs.

INFORMATION REQUEST

a) Provide a frequency range in which dust and particulates may be transported towards the reserves of GLFN, BCN, and MSCN and, when this occurs:
   i. describe the maximum distance that dust and particulates may be transported based on wind speed and direction; and
   ii. characterize the receptors that are or may be present within the distance describe in i), including the location of receptors and the density of receptors at each location.

b) Revise the assessment of potential Project effects, residual effects, and cumulative effects for all VCs to include:
   i. any potential risks/effects associated with the use of chemical dust suppressants, particularly if these products were to migrate from the area of application; and
   ii. potential effects associated with elevated concentrations of dust and particulate matter on federal lands, including to the receptors identified in a).

c) Describe mitigation measures that will be implemented to address any potential adverse effects identified in b).

RESPONSE

a) Under unmitigated conditions, dust and particulate matter generated during construction and operation could be transported by wind towards nearby communities. Figure 6-3 of the Environmental Impact Statement (Figure IR1-33-1 in this response) shows that the prevailing winds predominantly blow from the west and northwest. This indicates that winds blowing from the road alignment toward the communities of God's Lake First Nation, Bunibonibee Cree Nation, and Manto Sipi Cree Nation occur only a limited portion of the time, with Bunibonibee Cree Nation expected to be least likely to experience wind-driven dust and particulates into the community as a result of its geographic position relative to prevailing winds.

As mentioned in response to IR1-32, data from a representative site will act as baseline ambient air quality information to characterize existing $PM_{2.5}$, PM_{10}, and NO_2 concentrations and help establish reference conditions. Revised estimates of dust dispersion may be provided at a later stage once those data are available. The application of dust suppression and other standard mitigation measures is expected to further reduce the potential for off-site dust transport.

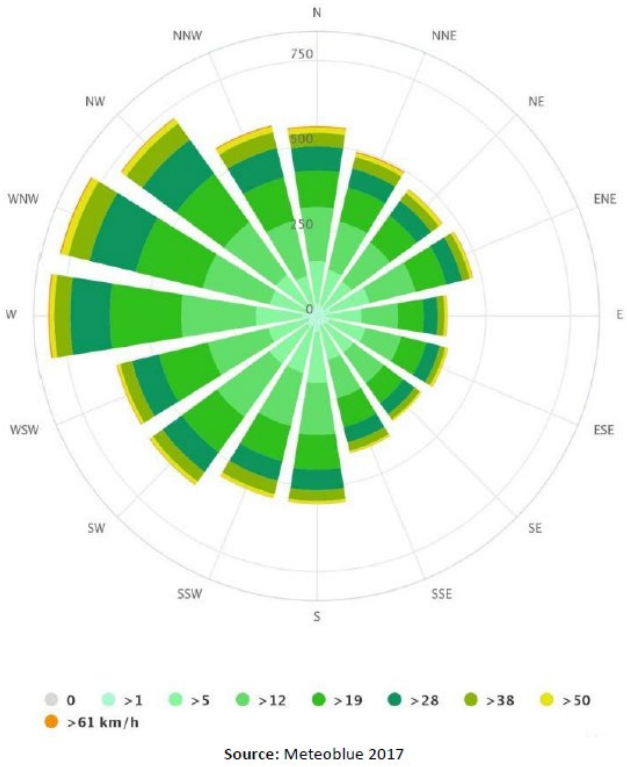


Figure IR1-33-1. Wind rose for the God's Lake Narrows Airport

b) No revision to the assessment is required, as the use of dust suppressants is subject to the Project's Environmental Protection Procedures (EP18 – Dust Suppression Procedures included in Chapter 8 Appendix 8-2, and as Appendix IR1-19-1 in the response to information request IR1-19) and Environmental Specification ES 130.11 (Dust and Particulate Control included in Chapter 8 Appendix 8-3, and as Appendix IR1-19-1 in the response to information request IR1-19). As described in Chapter 6, Section 6.4.1.1.1 of the EIS, EP18 outlines best management practices for the implementation and use of dust suppression on roadways. These include adhering to manufacturer specifications, limiting application to roadways, monitoring application rates to ensure adequate coverage, and ensuring there is no pooling or runoff. Dust suppressants are not to be applied in areas prone to flooding or when precipitation is occurring or forecast before the product has cured.

Additional mitigation under ES 130.11 includes:

- Use of only approved commercial suppressants (explicit exclusion of waste petroleum or petroleum by-products);
- Mandatory covering of loads with tarps during transport;

- Maintenance of spoil or stockpiles to minimize wind erosion.

Water is the primary dust suppressant to be used during Project construction. As such, potential effects of chemical suppressants on Valued Components (VCs) were not individually described in the EIS, as use will be unlikely, infrequent, limited to roadways, and adhered to the above protocols. In the unlikely event of runoff or overapplication, magnesium chloride-based suppressants could accumulate in roadside soils or water and alter local pH or salinity levels. However, such effects would be localized, short in duration, and not anticipated to occur given the preventative measures. Therefore, residual or cumulative adverse effects associated with dust suppressant use are not expected, and no revision to the residual or cumulative effects assessments is necessary.

c) As described in Chapter 8, Section 8.4.2.2 of the EIS, a Dust Control Plan may be developed to establish detailed procedures for the control of dust during Project construction. This plan will include mitigation measures to address any potential adverse environmental effects. Measures will include:

- Dust suppressants will only be applied when wind speeds do not exceed 15 to 20 km/h, to avoid ponding, runoff, drifting, or tracking of the material beyond the intended area of application.
- Application rates will be carefully monitored to ensure adequate coverage without overapplication. The total amount of suppressant used will not exceed the minimum required to achieve effective dust suppression.
- Suppressant application will not occur during rainfall, on saturated surfaces, or in areas with standing water or prone to flooding. The surface must be dry to ensure the suppressant binds effectively.
- When there is a high probability of precipitation, only water will be used as a dust suppressant to prevent loss of chemical product and unintended dispersion outside the treatment area.

Additionally, MTI is committed to implementing adaptive management measures. For instance, if extended dry conditions occur and additional dust suppressant applications are required, MTI will ensure that affected Indigenous communities are informed in advance of these activities. MTI will also be responsible for monitoring dust conditions throughout construction to evaluate the effectiveness of mitigation measures and make adjustments as necessary to prevent adverse effects.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-34

EIS Guideline Reference	• Part 2, Section 6.3.4
EIS Reference	• Chapter 6, Section 6.3.4.5.4
Category	Atmospheric Environment

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe how changes to the environment caused by the Project may affect the health of Indigenous peoples, including potential effects related to changes in air quality.

The EIS indicates that potential effects to Indigenous peoples' health due to dust generated from the Project would likely not be significant as use of the Project footprint and adjacent areas would be limited in duration and plant collection would typically be conducted only under favourable conditions where dust dispersion would be minimal. No rationale or evidence is presented to support this conclusion and it is unclear whether this assumption was confirmed with Indigenous peoples who may use the area.

Supplementary information is required to support the proponent's characterization of potential Project effects to Indigenous health.

INFORMATION REQUEST

a) Provide a clear rationale to support the conclusion that potential effects to Indigenous peoples' health due to dust generated from the Project would not be significant, including evidence to support the assertion that individual use of the Project footprint and adjacent areas by Indigenous peoples would be limited in duration and conducted under conditions of minimal dispersion potential.
    i. Describe engagement activities that have taken place with Indigenous peoples who may use the Project footprint to confirm the assertions above. If these engagement activities have not taken place, describe when and how these activities will take place.

b) Should engagement with Indigenous groups indicate that use of the Project footprint and adjacent areas is not limited in duration and/or takes place in conditions favouring the generation of dust, describe potential effects to the health of Indigenous peoples, proposed measures that will be implemented to mitigate adverse effects.
c) Revise the assessment of potential Project effects, residual effects, and cumulative effects for Indigenous peoples to include any potential adverse effects identified in b).

RESPONSE

a) As identified in the Environmental Impact Statement (EIS), Manitoba Transportation and Infrastructure (MTI) concludes that potential effects to Indigenous peoples' health due to dust generated by the Project are unlikely to be significant. This conclusion is supported by traditional knowledge (TK), site-specific environmental conditions, and the implementation of mitigation strategies.
Community-specific Traditional Knowledge (TK) studies with Bunibonibee Cree Nation (BCN), Manto Sipi Cree Nation (MSCN), and God's Lake First Nation (GLFN) confirmed that traditional land use (e.g., plant harvesting, berry picking) typically occurs during favourable environmental conditions, usually under moist or calm weather conditions that reduce dust dispersion. This aligns with the assumption that dust-generating activities during construction and operation phases will not coincide with peak land use by Indigenous peoples.

However, as mentioned in Chapter 6, Section 6.3.4.5 of the EIS, fugitive dust and vehicle emissions during construction could deposit contaminants such as polycyclic aromatic hydrocarbons (PAHs), metals, and trace elements onto vegetation or soil. These contaminants could, in theory, enter the food chain via bioaccumulation in plants and country foods. While such deposition could have a temporary physical effect (e.g., dust smothering on vegetation), it is not considered likely to change the quality of country foods. As noted in Chapter 6, Section 6.3.4.1 of the EIS, washing foods prior to ingestion further reduces potential health risks. In line with Health Canada's guidance for evaluating human health impacts in environmental assessment (2018), MTI acknowledges that plant rinsing does not eliminate all exposure pathways, but risk is mitigated by the short exposure duration and limited area of impact. Additionally, the harvested species are widely distributed, so harvesting can shift to other locations nearby. The nearest residences to the All-Season Road are located approximately 250 m in MSCN, 1.5 km in BCN and GLFN, and 3 km in God's Lake Narrows Northern Affairs Community. Wind data from the God's Lake Narrows Airport (see EIS Figure 6-3) indicates prevailing winds from the west and northwest. Very high wind events and very dry, unfrozen conditions would be necessary for dust to reach the nearest residences. These conditions are rare, and planned mitigation would further reduce dust generation and dispersal.

The potential for exposure is mitigated by the distance between the road and Indigenous communities, the nature of the exposure, and dust control measures.

The EIS includes a detailed dust management plan within the Environmental Protection Procedure EP18 and Specification ES 130.11 (included in Chapter 8, Appendices 8-2 and 8-3, and in Appendix IR1-19-1 in the response to IR1-19). These measures include:

- No dust-generating activities during high winds (e.g., blasting, burning);
- Use of approved, non-petroleum-based dust suppressants;
- Controlled aggregate size selection to reduce fine particulate release;
- Regular vehicle maintenance and use of low-sulphur fuels;
- Covered loads and well-maintained spoil piles.

Additionally, MTI will notify First Nations and Northern Affairs Communities of the timing and location of construction activities through the Indigenous and Public Engagement Program (IPEP). This communication will allow community members to temporarily avoid specific areas where dust levels may be elevated. It should also be noted that construction will occur in segments, and not along the full length of the alignment at the same time. Areas of potential dust emission will likely be in close proximity to active construction areas.

A Draft Construction Phase Environmental Management Plan (EMP) and Operation Phase EMP are being developed by MTI. These will be shared with Indigenous groups for input prior to finalization. Community input will directly inform updates to the EMPs, ensuring that site-specific concerns related to health, air quality, and land use are incorporated into mitigation and monitoring strategies.

b) MTI maintains the conclusion presented in the EIS that the Project is not anticipated to result in significant adverse effects to Indigenous peoples' health from dust exposure. Traditional Knowledge (TK) studies conducted through the Aboriginal and Public Engagement Program with Manto Sipi Cree Nation, God's Lake First Nation, Bunibonibee Cree Nation, and God's Lake Narrows Northern Affairs Community provided valuable insights on local practices such as trapping, fishing, berry picking, and the location of special spiritual and burial areas. These TK studies were key to the design and routing of the Project 6 alignment within the corridor identified by the Larger Area Transportation Network Study (LATNS), helping to avoid sensitive areas and minimize adverse effects. TK studies focused on understanding vegetation, wildlife, and fish habitats, as well as identifying culturally or historically sensitive areas. This information directly informed environmental assessments and mitigation planning.

The conclusions and assumptions derived from the TK studies were subject to community verification processes. As described in Section 5.2.4.2 of the EIS, a verification workshop was

conducted, and draft chapters of the EIS were distributed to all Indigenous groups prior to formal submission to support early review and comment (see Chapter 5, Section 5.4.1 of the EIS). The full draft EIS was sent out on July 24, 2018, with cover letters included in Chapter 5, Appendix 5-6, to facilitate input during the public comment period. These early engagement efforts allowed communities the opportunity to confirm or correct MTI's understanding of land use, VCs, and impact pathways, including those related to air quality and dust exposure.

However, should ongoing or future engagement with Indigenous groups indicate that land use in the Project footprint or adjacent areas occurs more frequently or during conditions favourable to dust generation (e.g., dry and windy weather), MTI will reassess the associated potential effects to Indigenous peoples' health and current use of lands and resources. This includes consideration of direct health impacts (e.g., inhalation or ingestion of contaminated dust), perceived or spiritual contamination of harvesting areas, and the possible disruption of traditional activities such as berry picking, plant gathering, or hunting.

c) At this time, MTI does not consider revisions necessary to the EIS conclusions. Chapter 6, Section 6.3.4.1 and response to IR-88 already assess the effects of dust on country foods (berries, moose, fish, furbearers, waterfowl) and concludes that effects are minimal, short-term, and mitigable. Similarly, effects on air quality are addressed in Chapter 6, Section 6.4.1.1of the EIS. Effects on health are considered unlikely given mitigation, spatial separation, and Indigenous adaptability in harvesting locations.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

Health Canada's Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods (2018). Available at: https://publications.gc.ca/collections/collection_2018/sc-hc/H129-54-5-2018-eng.pdf

QUESTION IAAC IR1-35

EIS Guideline Reference	• Part 2, Section 6.2.1 and 6.4
EIS Reference	• Chapter 6.2.1.4 and 6.4.1.4
Category	Light, Noise and Sensory Disturbance

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential changes in night-time light levels associated with the Project during construction, operation, and maintenance, and to describe measures to mitigate any potential adverse effects.

The EIS describes that there will be no lighting associated with construction, maintenance, and operation of the ASR and therefore no potential Project effects to baseline day-time or night-time light levels. It is unclear whether construction and maintenance activities will occur only during the day or if activities will also occur at night, requiring the use of mobile lighting or equipment headlights. Additionally the EIS must also consider potential effects to night-time lights levels associated with operation of the Project, a potential increase in the duration of use annually (i.e. as opposed to only seasonal winter road use), and a potential increase in the volume of traffic.

Supplementary information is required to support the characterization of potential Project effects to ambient light levels in the Project footprint, LAA, and RAA, which may adversely affect VCs.

INFORMATION REQUEST

a) Describe whether any Project activities during all Project phases, will or may occur outside of daylight hours or in conditions that may require the use of lighting equipment or equipment/vehicle headlights.
    i. If so, quantify the potential increase in ambient light levels associated with the Project at key receptor locations. Provide a rationale for how receptors were chosen and indicate the distance of the Project components or activities that may act as light sources to receptors. Consideration must be given to a potential increase in the duration of use of the Project area by traffic annually and a potential increase in traffic volume.

b) Revise the assessment of potential Project effects, residual effects, and cumulative effects for all VCs to include potential adverse effects resulting from changes to the current night-time light levels in the Project footprint, LAA, and RAA at key receptor locations.
c) Describe measures that will be implemented to mitigate adverse effects to VCs associated with potential Project effects to night-time light levels during construction or maintenance.

RESPONSE

a) As per Chapter 6 (Sections 6.2.1.4, 6.4.1.4, and 6.5.1.4) of the Environmental Impact Statement (EIS), there is no proposed lighting associated with the construction, maintenance or operation of the Project. However, the potential need for lighting will be further evaluated during the detailed design phase, which will be incorporated into the Project's Environmental Management Plan (as necessary) and upon review of the Contractor's work plan. These processes may identify specific activities or phases where lighting is required to safely and effectively complete the work outside of daylight hours. Should lighting be required for work outside of daylight hours, a number of potential mitigation measures for lighting may be applied. These may include:

- Lighting will be located so that the lights are not directed toward oncoming traffic on nearby roads on or off-site.
- Lights will be turned off when they are not required.
- There will be adherence to lighting design guidelines and the lighting requirements for workspaces as enforced by Labour Canada.
- Full cut-off luminaire will be used wherever possible to reduce glare, light trespass, and sky glow.
- As much as is possible, lighting will be located such that it does not impact receptors outside of the work limits.

i) Should lighting be require for work outside of daylight hours, it would be concentrated to specific work areas and/or to complete specific construction or maintenance related tasks. Lighting would originate from equipment headlights or from small portable light towers often seen on construction sites. As described above in Response A, lighting would only be used to illuminate specific portions of work areas and would not be used when not needed. Furthermore, full-cutoff illumination would be used and placed so as to not impact receptors outside of the work limits. Given the application of these mitigations, and the fact that lighting may only be temporarily utilized for specific tasks, it is not anticipated that ambient light levels will change as a result of the proposed Project. Light emitted from equipment or portable light towers would not be anticipated to illuminate areas beyond 30-50m of the light source (based on coverage of 8,000m^2 as identified by Optraffic (2024)).

Receptors considered include, migratory birds, nocturnal wildlife such as bats, construction crews and Indigenous peoples. As described in Chapter 6, Section 6.1.1 of the EIS, there are no known residences or cabins in immediate proximity to the proposed all-season road alignment. Based on a mapping exercise done as part of the confidential Traditional Knowledge (TK) studies, the nearest cabin is approximately 400 m from the proposed all-season road alignment (HTFC Planning & Design, 2017). The nearest residences to the proposed all-season road are approximately 250 m in Manto Sipi Cree Nation, 1.5 km in Bunibonibee Cree Nation and God's Lake First Nation and 3 km in God's Lake Narrows Northern Affairs Community.

Additionally, in spring, summer and fall, the project region experiences long days with many hours of sunlight (see EIS Chapter 6, Section 6.1.1.5) and more than adequate to accommodate a full construction shift without the need for additional lighting. Use of lighting in spring, summer or fall would likely only occur if requested by the contractor to prolong working hours in order to meet critical schedule milestones.

In winter, however, daylight hours reduce to as few as approximately 7.25 (Chapter 6, Section 6.1.1.5 of the EIS). Due to much shorter daylight hours, if lighting is needed it is most likely to be required in winter months. Winter also corresponds to the time in which migratory birds are not present, and bats have migrated outside the LAA or moved into hibernacula. Similarly, it would be expected that Indigenous people exercising treaty rights, practicing traditional activities, or simply travelling out on the landscape would also be utilizing localized lighting (e.g. flashlights, mechanical equipment fitting with lighting, etc.) outside of daylight hours. As a result, potential receptors are either not present (i.e. migratory birds), hibernating (i.e. species at risk such as bats), avoiding areas of active construction (i.e. furbearers, ungulates and other wildlife, or also utilizing lighting (i.e. Indigenous peoples) when lights are most likely to be used for construction or maintenance activities.

The region supports species such as moose, black bear, wolves, and furbearers, many of which are active during crepuscular or nocturnal periods. Research shows that artificial light can act as both an attractant and a deterrent to wildlife, depending on the species and context. For instance, ungulates have been shown to avoid well-lit areas, likely due to a perceived increase in predation risk or human activity (Beier, 2006). Wolves, like many large carnivores, also tend to avoid well-lit areas, particularly when those areas are associated with human presence and infrastructure. Similarly, small mammals and nocturnal birds may be disoriented or attracted to lights, increasing their vulnerability (Gaston et al., 2015). Common nighthawks forage for flying insects in open areas during crepuscular periods and sometimes forage during the day. Foraging habitat needs are met in a wide range of habitats, but open water and artificial lighting are favoured, attracting flocks as large as several hundreds of individuals (Joro, 2018). Amphibians and bats, if present, are often sensitive to light pollution, with documented reductions in foraging and reproductive success due to altered photoperiod cues (Longcore & Rich, 2004). While artificial lighting can attract a large number of insects, forming localized prey aggregations, the *Myotis* species of bats showed strong avoidance

of artificially lit areas despite increased prey availability (Russo et al., 2019). Given that most species present during winter are not attracted to artificial light, and many avoid it, lighting associated with construction or maintenance activities is not expected to result in significant effects on wildlife. If lighting is determined to be necessary during the detailed design phase or through the Contractor's work plan, appropriate mitigation measures will be implemented as part of the Environmental Management Plan. These may include directional lighting, limiting duration and intensity, or restricting lighting near sensitive habitats.

The proposed all-season road will serve to connect Bunibonibee Cree Nation, God's Lake First Nation, God's Lake Narrows Norther Affairs Community and Manto Sipi Cree Nation, but does not provide connections to the remainder of Manitoba's provincial highway network. Access to the area would still require travel along the winter road in winter, or by air in summer. The all-season road will generally follow a path similar to the existing winter road and therefore will increase the duration of vehicular use from winter-only to year-round. However, traffic volumes are anticipated to remain low. As presented in Table 3.1 and Appendix 3-1 in Chapter 3 of the EIS, the proposed Project is being designed based on a rural collector highway classification which is meant to accommodate a projected traffic volume of <300 vehicles per day. The proposed all-season road will not include roadway lighting, and therefore any lighting associated with road use will be limited to vehicle headlights, which would be moving along the alignment and at such a low density as to cause negligible or immeasurable changes to ambient lighting in the area.

b) Revisions to the assessment of potential Project effects, residual effects, and cumulative effects for all VCs to include potential adverse effects resulting from changes to the current night-time light levels in the proposed Project footprint, LAA, and RAA at key receptor locations is not needed. As stated in Chapter 6 (Sections 6.2.1.4, 6.4.1.4, and 6.5.1.4) of the EIS, lighting is not anticipated to be required. If lighting is used, it is expected that it would only be needed in winter months where daylight hours are reduced, and only for temporary durations.

As outlined in Response A, potential receptors are not anticipated to interact with temporary lighting. Wildlife present in the area during winter (when lighting is most likely to be required) are unlikely to be attracted to artificial lighting as it will be located in areas of active construction. Species including ungulates and wolves have demonstrated avoidance behaviors in response to lit areas (Beier, 2006 and Gaston et al., 2015), and migratory birds and bats are not present, or are hibernating during this season. Given the temporary and site-specific nature of any potential construction lighting, its seasonal timing, and the distance or presence of receptors, the current EIS determination of no significant adverse effect remains unchanged.

c) Measures used to mitigate potential effects to VCs associated with potential night-time lighting that may be used during construction or maintenance are presented in the response to A, and include:

- Lighting will be located so that the lights are not directed toward oncoming traffic on nearby roads on or off-site.
- Lights will be turned off when they are not required.
- There will be adherence to lighting design guidelines and the lighting requirements for workspaces as enforced by Labour Canada.
- Full cut-off luminaire will be used wherever possible to reduce glare, light trespass, and sky glow.

As much as is possible, lighting will be located such that it does not impact receptors outside of the work limits. In addition to these measures, as described in response B, MTI will evaluate any changes to lighting that may arise through the detailed design phase or as a result of site-specific requests from the Contractor. Should localized lighting be proposed near communities or sensitive areas, MTI will consider additional measures as appropriate, which may include restricting construction activities involving lighting to earlier evening hours (e.g., limiting work to 1900 hrs), based on community input or site-specific constraints.

As outlined in Chapter 5, Section 5.7 of the EIS, MTI has committed to ongoing engagement with Indigenous communities through the Indigenous and Public Engagement Program (IPEP). The IPEP will continue throughout the remaining development of the Project. Future engagements will provide updated information and opportunities for interested parties to continue commenting on the Project throughout detailed design and construction. Under the IPEP, MTI will ensure that appropriate contact information is provided to Indigenous communities, regulators, and other stakeholders to report concerns related to lighting, noise, or other construction-related issues. MTI will establish communication mechanisms and concerns raised by Indigenous communities or others will be acknowledged and addressed in a timely and coordinated manner.

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QUESTION IAAC IR1-36

EIS Guideline Reference	• Part 2, Section 6.2.1 and 6.4
EIS Reference	• Chapter 6, Section 6.2.1.3
Category	Light, Noise and Sensory Disturbance

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential changes in ambient daytime and night-time noise levels at key receptor points as a result of the Project during all phases and to describe measures to mitigate any potential adverse effects.

The EIS does not provide noise level estimates for blasting activities and vehicular traffic associated with Project construction and operation. The EIS indicates that, based on the noise assessment conducted for the environmental assessment of the Project 4 – All-Season Road Connecting Berens River to Poplar River First Nation (Project 4), the effect of construction noise on receptors is not expected to occur beyond 300 metres of construction activities and beyond 500 metres of blast sites. Although the nearest residence to the Project is located approximately 250 metres from construction activities, the EIS concludes that effects to surrounding communities from the Project are considered to be negligible due to the distance of receptors and noise attenuation provided by dense forest. Project activities will extend at least to the reserve boundaries of BCN, MSCN, and GLFN, and potentially onto reserves (see IR1-26 above).

With regard to noise levels, the EIS describes the attenuation of noise in decibels (including dense forest) and frequently compares anticipated Project noise levels to a threshold of 70 decibels. The EIS indicates that noise levels are expected to remain below guidelines. It is unclear which guidelines are being referenced or the significance of the 70 decibel threshold.

Potential long-term noise exposure (i.e. greater than one year) also has not been adequately assessed and Health Canada recommends using the change in percent highly annoyed (%HA) as an indicator of noise-induced human health effects from exposure to long-term construction noise. Further details on the %HA method can be found in Health Canada's *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise* (2017)[8].

Supplementary information is required to support the characterization of potential Project effects to ambient daytime and night-time noise levels, which may affect VCs.

INFORMATION REQUEST

a) Describe noise levels associated with blasting during Project construction and operation and vehicular traffic during operation associated with the ASR, in decibels. The noise level estimate for vehicular traffic must consider a potential annual increase in both the duration of ASR use and volume of traffic, as well as seasonality of potential effects related to Project noise.

b) Describe the relationship of all key receptors to Project components and activities that may generate noise during all Project phases, including the distance of key receptors from the Project, the density of receptors at each location, etc.

c) Describe which guidelines Project noise levels are anticipated to remain compliant with and the significance of the 70 decibel threshold referenced throughout the assessment of potential Project effects to ambient noise levels. If both provincial and federal guidelines exist, discuss whether the Project will be compliant with both or, if compliance with only one set of guidelines is discussed, provide a clear rationale for why the other guidelines will not be complied with.

d) Compare the noise profile for each Project activity/component to the distance required to attenuate sound levels to below applicable guideline thresholds, as discussed in c), in relation to the distance from each receptor.

   i. Describe the amount of dense forest between Project activities/components and key receptors and asses if this amount is sufficient to attenuate noise levels to an appropriate level for key receptors. Revise the conclusions presented with respect to the anticipated magnitude of noise effects to key receptors if enough dense forest to appropriately attenuate elevated noise levels is not present.

   ii. Where adverse effects to noise levels in the Project footprint, LAA, and/or RAA are likely, describe measures that will be implemented to further mitigate potential effects and follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures and monitor for any unanticipated effects.

e) Indicate whether key receptors, including traditional land users, could be exposed to construction noise for a period greater than one year.

   i. If so, complete a full %HA analysis which clearly identifies the change in %HA with and without all applicable adjustments, as per Health Canada's Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise. A rationale must be included to defend the use and the magnitude of any applicable adjustment, or the absence of adjustments.

   ii. If not, refer to Health Canada's guidance on mitigating short-term construction noise exposure, which can be found in the *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise*. Identify any applicable mitigation measures in this guidance and describe how, where, and when those measures will be implemented.

f) Revise the assessment of potential Project effects, residual effects, and cumulative effects for ambient daytime and night-time noise levels at key receptors and to VCs which may be affected by changes in noise levels, to include the results of the %HA analysis, the analysis above with respect to noise attenuation by distance and forests, and any further mitigation measures that will be implemented.

RESPONSE

a) As identified in Section 6.2.1.3 of Chapter 6 in the Environmental Impact Statement (EIS), noise levels were recorded during construction of the Project 1 all-season road from PR304 to Berens River First Nation in eastern Manitoba. Recorded noise levels for drilling activities, which are associated with aggregate blasting were recorded as reaching 110 decibels (dB), while heavy equipment noise levels ranged from 83 to 100db for Project 1. Blasting noise levels may depend on the size of the blast including the size and type of explosives being used, how deep the explosives are placed in drilled holes, and whether the area is covered with blast mats. Generally however, noise levels have been found to range from 89-96 dB as presented below. Noise levels associated with blasting have been reported in various studies. Jones & Stokes (2002) estimated noise levels of approximately 94 dBA at a distance of 16 meters from the source. According to the EIS, human receptors in the area are limited; however, the nearest potential residential construction could occur within approximately 250 meters, where noise levels are estimated to be around 68 dBA. Similarly, Lee et al. (2018) conducted full-scale test blasting using various methods, recording noise levels of 89.50 dB(A) at a distance of 29 meters, chosen to provide a representative measurement at a moderate range from the blast source. Predictions using the most accurate model (ONECRC) indicated noise levels could reach 96.40 dB(A). The study also found that noise levels are influenced by factors such as charge weight, distance, and atmospheric conditions, with sound decreasing by approximately 6 dB for every doubling of distance.

On the other hand, based on the expected traffic characteristics described in Chapter 3 of the EIS (<300 vehicles per day and a posted speed limit of 70km) noise levels from vehicular traffic during the operational phase are expected to be low and within exposure thresholds.

Research by Leipus et al. (2010) in rural environments with similar road conditions, provide a strong basis for estimating these noise levels. The study recorded maximum noise levels of approximately 72 to 74 dBA at 7.5 meters from gravel roads when light vehicles traveled at 70 km/h during summer. Gravel surfaces consistently produced 2–3 dBA more noise than asphalt, and increases in vehicle speed from 50 km/h to 70 km/h raised noise levels by about 5 dBA. Additionally, the study also recorded substantial attenuation with distance, noise levels decreased by 12 to 17 dBA between 7.5 and 50 meters from the road, and forested environments provided an additional 6 dBA of reduction due to sound absorption by vegetation.

Given that most of the ASR alignment passes through forested areas, where vegetation helps absorb and scatter sound, traffic noise at 50 metres from the road is expected to fall within the range of 49-54 dBA. In winter, the presence of snow and ice is expected to reduce tire-road noise by a further 2–3 dBA. These levels fall below exposure thresholds commonly associated with adverse health effects, such as the 55 dBA day–night sound level (Ldn) identified by Health Canada (2017) as a point where the risk of high annoyance begins to increase in quiet rural areas. Although traffic volumes may vary seasonally, for example, during community resupply periods, the overall intensity of use is expected to remain low. These projections are consistent with the assessment from Project 4 (All-Season Road Connecting Berens River and Poplar River First Nation), which concluded that construction noise would attenuate to background levels of approximately 45 dBA within the Local Assessment Area due to a combination of factors such as distance, terrain, and forest cover.

b) Key noise receptors identified in Chapter 6 Section 6.2.1.3 of the EIS are wildlife and people. Project activities that may generate noise are identified in Chapter 6 Section 6.3.4.5.5 of the EIS as being construction activities and in particular drilling, blasting, and heavy equipment usage.

Distances between noise emitting activities and human receptors are provided in Chapter 6, Section 6.3.4.5.5 of the EIS. As identified, there are few human receptors nearby, but the nearest known residence to construction is located at a distance of approximately 250 metres and is located in Manto Sipi Cree Nation. The nearest residences in Bunibonibee Cree Nation and God's Lake Narrows First Nation are approximately 1.5 kilometres (km) from construction activities and 3 km from construction activities in the God's Lake Narrows Northern Affairs Community. Impacts of noise on human receptors can include adverse effects to human health, adverse effects to traditional land and resource use that may arise from reduced availability of wild game (which may have been displaced from sensory disturbance) and adverse effects to cultural value or importance of place for inter-generational teaching, community gatherings, or the integrity of preferred traditional practice areas.

Specific distances between wildlife and noise generating Project activities are difficult to predict given that construction will continually progress along the proposed alignment, and that wildlife are generally mobile and may be temporarily displaced by the disturbance. The degree that sensory disturbance may displace wildlife may also vary by species. However, it is possible that the distances between noise generating activities and wildlife could be less than 100m.

To reduce potential impacts of project-related noise on receptors, MTI has identified a number of mitigation measures. These are included in the summarized assessment of potential project effects in Appendices 6-4 and 6-5 in Chapter 6 of the EIS, and described in further detail in the Environmental Protection Procedures (EP) and Environmental Protection Specifications (ES) presented in Appendices 8-2 and 8-3 in Chapter 8 of the EIS, and also included as Appendix IR1-19-

1 in the response to information request IR1-19. Specific measures meant to minimize effects of Project-related noise on receptors include:

- The application of typical noise suppression techniques as described in EP4 and ES 130.12, such as:
    - All plant and equipment supplied by the Contractor for use on the project shall be effectively sound-reduced by means of proper silencers, mufflers, acoustic linings, acoustic shields or acoustic shields
    - The Contractor shall comply with the nose by-laws of the adjacent First Nations, communities and municipal authorities and any noise related clauses incorporated in the project's Environment Act License
    - Any operation of plant or equipment outside the hours as regulated by the adjacent First Nations, communities or municipal authorities shall require an exemption in writing. The Contractor shall provide a copy of such an exemption to the Contract Administrator
    - The Contract Administrator may impose requirements on the Contractor to minimize noise nuisance at their discretion
- Retaining forest buffers (unless clearing is required for safety reasons) around quarries to reduce noise through attenuation by vegetation
- Staging construction activities to limit the extent of noise disturbance during critical calving times (for ungulates) to defined areas
- Follow blasting timelines and restrictions to avoid critical calving times for ungulates, denning or rearing times for aquatic and terrestrial furbearers, and critical breeding and nesting times for migratory birds (EP14, ES130.19), such as:
    - No blasting shall be permitted within close proximity to sensitive wildlife habitat during critical lifecycle periods
    - No temporary roadbed borrow operations shall occur within 2 km of known caribou calving areas along access roads from May 7 to July 1 of any given year
- Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1)

c) As described throughout Chapter 6 of the EIS, the anticipated 70 dB noise level is based on expected attenuation of sound approximately 50m away from construction areas (except drilling), with no noise disturbance expected beyond 300m of construction sites and 500m from a blast site.

Anticipated noise levels of 70 dB at 50m from construction areas would be compliant with occupational exposure limits of 85 dBA as identified with the Canadian Centre for Occupational Health and Safety (CCOHS, 2024) and hearing conservation and noise control by the Manitoba Safety and Health Regulation (Government of Manitoba, 2022).

d) Noise profiles for different Project activities including Project operation were presented in Response A above. As described in Response C above, the anticipate noise level of 70dBA at a distance of 50m from construction activities adheres to occupational safety and health requirements for noise exposure. Since the nearest residences to the Project are located 250m away in Manto Sipi Cree Nation, 1.5km away in Bunibonibee Cree Nation and God's Lake First Nation, and 3km away in God's Lake Narrows, and since no noise disturbance is anticipated beyond 300m of construction activities noise levels at nearest possible receptors are not anticipated to exceed day–night sound level (Ldn) identified by Health Canada (2017) as a point where the risk of high annoyance begins to increase in quiet rural areas.

e) As described in Response C above, noise levels are anticipated to attenuate with distance, and be below 70 dB at 50 meters for most construction activities with the exception of drilling. While the overall construction schedule is expected to take multiple years construction activities will steadily progress along the alignment over time, and are not anticipated to remain constant at any particular location for more than 1 year. The only exception to this might be for quarries and camps, where activities could persist for more than 1 year. However, as identified in Chapter 6, Section 6.2.1.3. of the EIS the minimum distance from a potential quarry to the nearest residence is 1.5km.

Overall, without mitigation or planning it is possible that traditional land users be exposed to construction noise for periods of 1 year or more, but noise levels would be low (70 dB or less). With application of MTI's proposed mitigation (as described in Response B), however, and based on current understanding of traditional land uses near the Project, it is not anticipated that noise would impact traditional land users for a period of 1 year or more. Should further information on traditional land use identify that receptors may be at risk of noise exposure, further mitigation measures may be developed in accordance with ES130.12 which states the Contract Administrator my impose requirements on the Contractor to minimize noise nuisance at their discretion.

Health Canada's guidance on short-term noise exposure (Health Canada, 2017) indicates that there is no known risk of permanent hearing loss from exposure to noise levels below 70 dBA, which (as indicated in the guidance document) is generally representative of a busy urban environment. Nonetheless, Health Canada's guidance suggests that low-levels of noise may still impact an individual's sleep if indoor noise levels exceed 30 dBA for sources or 45 dBA for discrete events. Based on assumed noise attenuation of 15 dBA from outdoor to indoor environments this would be representative of outdoor noise levels of 45 dBA or 60dB max.

Suggested mitigation of short-term construction related noise exposure by Health Canada (2017) so as to avoid noise-related complaints is a mitigation noise level (MNL) of 47 dBA and assumes that noise is impulsive or tonal and that receptors are located in a rural or suburban area. To attain this noise level, Health Canada suggests the use of quieter technology and mitigation rather than prolonging construction duration by reducing the number of simultaneously operating equipment.

Health Canada (2017) provides further examples of quiet technology including provision or measures to reduce or prevent the use of backup alarms which sound when equipment reverses.

The arguably simple noise mitigation measure of preventing the sounding of backup alarms by planning for turning circles, and side loading or unloading of trucks is one that could be implemented to the degree possible by MTI, if possible or necessary. Not only does fluid equipment movement reduce potential noise levels, but reducing the need for equipment to backup can also be an important work site safety consideration. Staging areas, camps, quarries and borrow areas are specific locations in which multiple pieces of heavy equipment are often operating, congregating or travelling to and from construction sites. As a means of controlling equipment movement through, to or from staging areas, camps, quarries and borrow sites, MTI's Environmental Protection Specifications (Chapter 8 Appendix 8-3 and Appendix IR1-19 in the response to IR1-19) requires that contractors develop and submit proposals for designated sites such as those mentioned. These submittals are to include drawings, coordinates, and identify access and other details, and must be approved by MTI before the site is developed. Through this process, mitigation measures such as those suggested by Health Canada (2017) may be implemented by promoting proper flow of equipment throughout work areas.

f) As per the response to question e above, a %HA analysis was not performed. As such, a revised assessment was not performed.

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QUESTION IAAC IR1-37

EIS Guideline Reference	• Part 2, Section 5.1 and 6.3.4
EIS Reference	• Chapter 6, Section 6.3.4.5
Category	Light, Noise and Sensory Disturbance

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe how changes to the environment caused by the Project may affect the health of Indigenous peoples.

The EIS indicates that Indigenous peoples and people visiting the area of the Project would not be exposed to an increase in noise from construction activities as noise levels would be less than 70 decibels, construction and maintenance activities would not occur within the boundaries of local reserves, and the nearest residences within communities are located 250 metres away from the ASR alignment. The only exception would be if individuals were to travel outside of local communities and/or within proximity to the ASR. As outlined in IR1-26, certain Project activities may occur on reserve lands. As such, Indigenous peoples may be exposed to elevated noise and vibration levels on reserve that may result in adverse health effects that were not considered in the EIS. The EIS also does not describe potential Project effects to Indigenous peoples associated with elevated noise and vibration levels during Project operation that may result in adverse health effects.

Supplementary information is required to support the proponent's characterization of potential Project effects to the health of Indigenous peoples.

See Annex 1 for related advice.

INFORMATION REQUEST

a) Describe potential effects to the health of Indigenous peoples from noise and vibrations resulting from any Project activities and components occurring both on and off reserve lands.

i. Describe measures that will be implemented to mitigate any adverse effects identified.

b) Revise the assessment of potential Project effects, residual effects, and cumulative effects to Indigenous peoples to include any adverse effects and mitigation measures identified in a).

RESPONSE

a) As described in the response to information request IR1-26, Chapter 1, Section 1.3 of the Environmental Impact Statement (EIS) identifies that all three all-season road sections that make up Project 6 will begin at the Reserve boundaries and extend generally west and southwest: 71.9 km from Manto Sipi Cree Nation (MSCN), 39.5 km southeast from Bunibonibee Cree Nation (BCN), and 29.6 km northwest from God's Lake First Nation (GLFN), where the three sections intersect. Chapter 3, Section 3.0 of the EIS goes on to describe that the Project will be constructed solely on provincial Crown land. The Project will not use federal land, nor will it involve the granting of interest in federal land through easement, right-of-way, or transfer of ownership. In summary, no Project components will be located on federal or reserve land.

While no Project components will be located on federal lands or Treaty Land Entitlement areas, the Project may use resources and services provided by the Indigenous Nation such as labour and existing waste treatment services (sewage treatment and landfills) where facilities are located on-reserve. Small quantities of domestic solid waste and wastewater from work camps and construction will be collected in appropriate on-site containment for transport to the closest landfill and lagoon in BCN, MSCN and/or GLFN. MTI will work with the First Nations for approval and agreements to dispose of domestic solid waste and wastewater within the community facilities. As noted by Indigenous Services Canada on May 20, 2025, God's Lake, Manto Sipi, and Bunibonibee all have newly constructed landfill sites. All three of the facilities have been designed to include areas for waste diversion, so fees for diverting waste could be included as well. Any construction waste generated as part of the All-Season Road project must be disposed of at an off-reserve facility. Construction wastes will likely be stored and transported to Thompson when winter roads open; construction contractors will be responsible for disposal of construction waste generated at an approved facility.

Health effects to indigenous peoples resulting from Project use of on-reserve facilities would be limited to effects resulting from use of vehicles to transport small quantities of wastewater and/or solid waste to community disposal facilities. This includes operation of a wastewater or solid waste disposal truck through a portion of the community to the disposal facility at an estimated frequency of twice monthly. At this frequency, it is anticipated that incremental noise or vibration effects related to operation of wastewater or solid waste disposal vehicles would be negligent or

imperceivable by people living on-reserve as transport of wastewater and solid waste presently occurs regularly within each community.

Potential effects to the health of Indigenous peoples from noise and vibrations resulting from Project activities and components occurring off-reserve lands have potential to be of greater magnitude due to the nature of the activities. However, potential Project effects to indigenous peoples off-reserve are also generally anticipated to be less likely due to the location of the works, and planned continuous engagement to communicate Project operations with each community as construction progresses.

Should interaction between Project-generated noise and receptors such as Indigenous peoples occur, the following describes the potential effects.

Noise and vibrations from project activities can impact the health of Indigenous peoples in various ways. According to Health Canada (2017), noise exposure can cause sleep disturbances and long-term high annoyance, especially when the noise interferes with sensitive times, such as night-time or during Indigenous spiritual ceremonies. Research by Mir et al. (2023) indicates that noise pollution, particularly from construction activities, has statistically significant adverse effects on human health. Construction noise can lead to increased heart rate (HR), respiratory rate (RR), and electrodermal activity (EDA), which are indicators of stress and autonomic nervous system (ANS) activity.

Different types of construction noise, including saws, jackhammers, pile drivers, and bulldozers, were used in the research and indicated physiological responses depending on their intensity and exposure duration (Mir et al., 2023). Prolonged exposure to high levels of noise can disrupt homeostasis, leading to increased risks of cardiovascular diseases such as hypertension and myocardial infarction. The subjective stress reported by individuals exposed to such noise also correlates with these physiological changes, suggesting that noise not only affects physical health but also psychological well-being. Additionally, Li et al. (2022) observed that people experiencing frequent noise from both loud traffic and airplanes/trains/industry had particularly poor mental health.

Besides mental and physical effects, resource use activities of Indigenous communities can also be affected. Anthropogenic noise can impact wildlife, leading to reactions such as increased movement, and stress levels, while reducing foraging behaviors (Cox et al., 2018). These behavioral changes are energetically costly and can lead to exhaustion and even death in species with complex mating strategies. Increased hearing thresholds and cortisol levels suggest both immediate and long-term physiological effects, potentially impairing auditory cortex development in affected species (Cox et al., 2018). Further information regarding the assessment of sensory disturbance on wildlife is provided in the response to information request IR1-42.

Ultimately, sensory disturbance of wildlife, and their possible displacement or avoidance of habitat near the proposed alignment could lead to adverse effects on Indigenous peoples' traditional practices, food sources, and overall quality of life.

To reduce potential impacts of project-related noise on receptors including both indigenous peoples and wildlife, MTI has identified a number of mitigation measures. These are included in the summarized assessment of potential project effects in Appendices 6-4 and 6-5 in Chapter 6 of the EIS, and described in further detail in the Environmental Protection Procedures (EP) and Environmental Protection Specifications (ES) presented in Appendices 8-2 and 8-3 in Chapter 8 of the EIS, and also included as Appendix IR1-19-1 in the response to information request IR1-19. Specific measures meant to minimize effects of Project-related noise on receptors include:

- The application of typical noise suppression techniques as described in EP4 and ES 130.12, such as:
    - All plant and equipment supplied by the Contractor for use on the project shall be effectively sound-reduced by means of proper silencers, mufflers, acoustic linings, acoustic shields or acoustic shields
    - The Contractor shall comply with the nose by-laws of the adjacent First Nations, communities and municipal authorities and any noise related clauses incorporated in the project's Environment Act License
    - Any operation of plant or equipment outside the hours as regulated by the adjacent First Nations, communities or municipal authorities shall require an exemption in writing. The Contractor shall provide a copy of such an exemption to the Contract Administrator
    - The Contract Administrator may impose requirements on the Contractor to minimize noise nuisance at their discretion
- Retaining forest buffers (unless clearing is required for safety reasons) around quarries to reduce noise through attenuation by vegetation
- Staging construction activities to limit the extent of noise disturbance during critical calving times (for ungulates) to defined areas
- Follow blasting timelines and restrictions to avoid critical calving times for ungulates, denning or rearing times for aquatic and terrestrial furbearers, and critical breeding and nesting times for migratory birds (EP14, ES130.19), such as:
    - No blasting shall be permitted within close proximity to sensitive wildlife habitat during critical lifecycle periods
    - No temporary roadbed borrow operations shall occur within 2 km of known caribou calving areas along access roads from May 7 to July 1 of any given year
- Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1)

b) Reassessment of potential Project effects based on text presented in response A above is not required. As presented in Chapter 6, Appendix 6-4 in the Project EIS, potential impacts to land and resource use including those from reductions in the availability of important food sources and culturally important species have already been considered.

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QUESTION IAAC IR1-38

EIS Guideline Reference	• Part 2, Section 6.1.5
EIS Reference	• Chapter 6, Section 6.1.5.1.5, 6.1.5.2, 6.2.4.2.1, and 6.5.4.2.1
Category	Hydrogeology

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe groundwater flow patterns and rates, temporal changes in groundwater flow, groundwater quality, groundwater-surface water interactions (i.e. locations of groundwater discharge to surface water and surface water recharge to groundwater), and maps outlining the extent of aquifers, groundwater levels, potentiometric contours, flow directions, groundwater divides, and areas of recharge and discharge.

The EIS indicates that as surface water is abundant and the demand for groundwater in the area of the Project is low, there is little information available about the distribution of aquifers, their yield, or water quality. Therefore, no baseline information regarding groundwater resources in the Project footprint, LAA, or RAA is provided. The Agency notes that although surface water is abundant and is the primary source of drinking water for Indigenous communities in the area of the Project, surface water resources may be fed by or otherwise interact with groundwater. An understanding of how and where these interactions occur and the characteristics of groundwater reserves in the area of the Project is required to characterize potential Project effects to groundwater, surface water, and VCs dependent on these resources. For instance, if the Project were to cut off or reduce the flow rate of a groundwater seep that feeds a fish-bearing watercourse, water levels in that watercourse may recede, potentially resulting in adverse effects to fish and fish habitat.

When describing potential Project effects to groundwater quantity, both with and without mitigation measures, the EIS predicts a potential change in groundwater levels of less than 15 percent of seasonal variation as a result of the Project. Without baseline data on groundwater quantity and its interaction with surface water resources, it is not possible to assess whether a 15 percent change in groundwater quantity would have significant adverse effects or whether the mitigation measures proposed would be sufficient to address any adverse effects.

Supplementary information is required to support the characterization of baseline surface water and groundwater reserves, surface-groundwater interactions in the area of the Project, potential Project effects to surface water and groundwater quality and quantity, and potential Project effects to VCs that may be affected by changes to these resources.

Information Request

a) Describe the interaction of groundwater and surface water resources in the Project footprint, LAA, and RAA. Identify the location of areas of groundwater discharge and recharge and the discharge/recharge rate (i.e. rate of flow) at these locations. Demonstrate consideration of temporal or seasonal changes in groundwater flow.
b) For each location of groundwater discharge or recharge, describe the characteristics of the surface waterbody/watercourse in question and its relationship to key receptors and Indigenous peoples' navigation routes that may be affected by changes in surface water quantity. With regard to fish and fish habitat, demonstrate a consideration of fish-bearing watercourses/waterbodies and non-fish-bearing watercourses/waterbodies that may interact with fish-bearing waters.
c) Provide maps, at an appropriate scale, showing the extent of aquifers, groundwater levels, potentiometric contours, flow directions, groundwater divides, and areas of recharge and discharge in the Project footprint, LAA, and RAA.
d) Describe the quality and quantity of groundwater reserves in the Project footprint, LAA, and RAA.
e) Revise the assessment of potential Project effects, residual effects, and cumulative effects for all VCs to include any potential effects to surface water quality and quantity that may result should the Project adversely affect groundwater.
f) Describe measures that will be implemented to mitigate any adverse effects identified in e).
g) Include potential groundwater-surface water interactions and any potential Project effects to surface water quality and quantity as a result of effects to groundwater in the follow-up and monitoring plan(s) proposed for the Project.

Response

a) The demand for groundwater in the physiographic region is low as surface water is abundant and consequently, there is little information known about the distribution of aquifers, their yield, or water quality. No regional information is available on aquifers and aquitards, fractures, fault locations, areas of recharge and discharge, groundwater levels, flow regime and quality and springs in the vicinity of the proposed Project (Project 6 EIS Chapter 6, Section 6.2.5.2).

The proposed Project is located predominately within the God's Lake Ecodistrict (#365), within the Hayes River Upland Ecoregion of the Boreal Shield Ecozone, although a portion of the alignment to Manto Sipi Cree Nation, east of Tapper Lake, falls within the Knee Lake Ecodistrict (#360; Smith et al., 1998).

The God's Lake Ecodistrict has well to imperfectly drained, mineral soils comprising eluviated eutric brunisols and grey luvisols, which can be found on upland clayey glaciolacustrine deposits. Peat-filled depressions form poorly drained bogs and fens. Soils within bogs consist of deep slightly decomposed sphagnum and feather moss peat (fibrosols), moderately decomposed moss and forest peat (mesisols) and areas of permafrost (organic cryosols). Deeper layers of peat are generally more decomposed than those closer to the surface. Clayey subsoils are found beneath most organic soils (Smith et al., 1998).

The Hayes River Upland Ecoregion is characterized by undulating granite bedrock outcrops covered with large but thin layers of sandy till, sandy to loamy cobbly glacial till (Smith et al., 1998). Granite bedrock is typically much less permeable or porous than sandstone or limestone bedrock areas (Simpson et al., 2021), such as those more commonly found in southern Manitoba. Figure IR1-38-1 and Figure IR1-38-2 illustrate the bedrock and surficial geology of the proposed Project area, respectively.

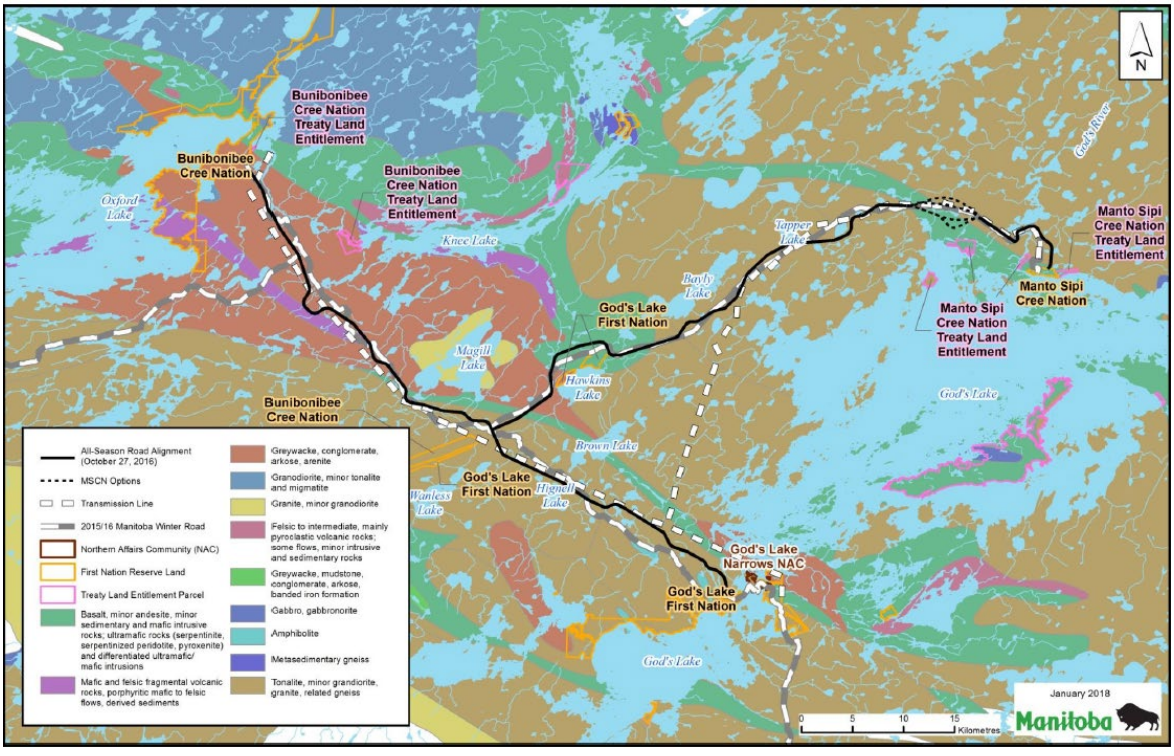


Figure IR1-38-1. Bedrock geology in the vicinity of the proposed Project

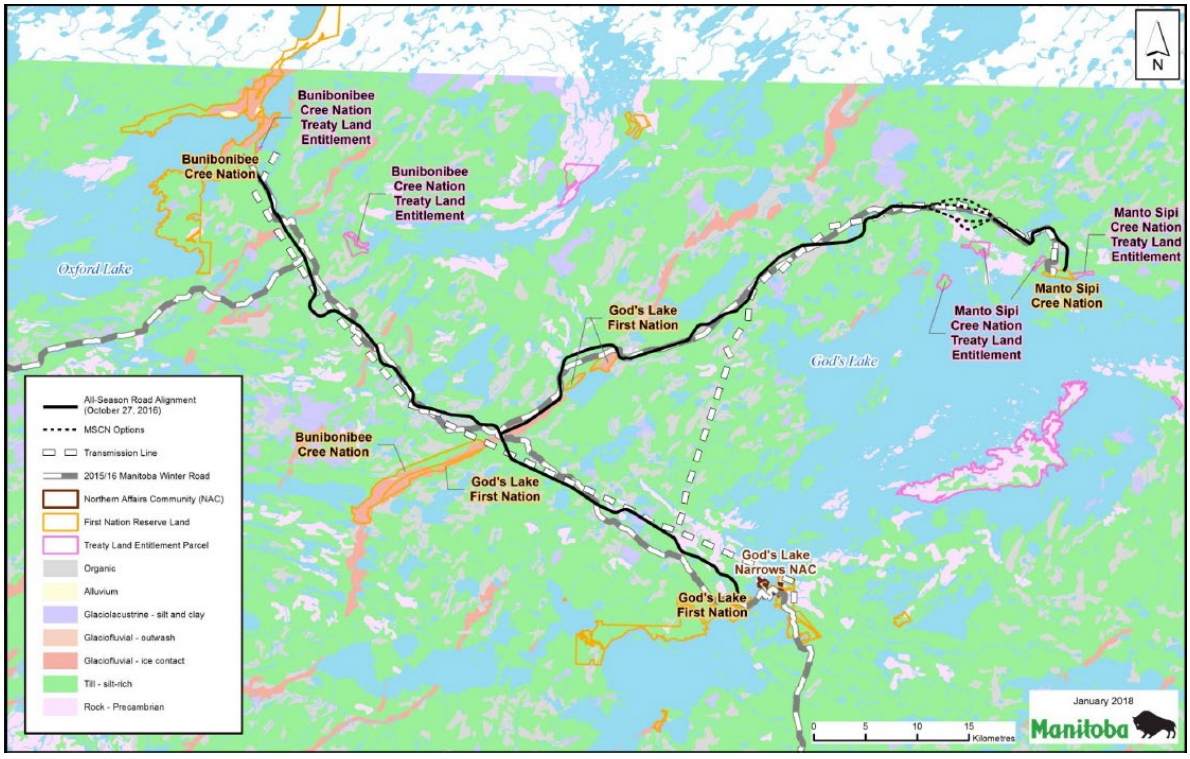


Figure IR1-38-2. Surficial geology in the vicinity of the proposed Project

The low permeability of granite bedrock significantly impacts the region's drainage, leading to the formation of numerous lakes, bogs, and fens. When it rains, water infiltrates the soil until saturation occurs, after which infiltration slows and surface runoff begins (Earle, 2023). This runoff creates small channels that eventually form streams, channeling water from higher to lower elevations. Additionally, some infiltrated water moves downslope as interflow, just above the bedrock. While some of this water becomes groundwater, most is confined to fractures in the granite. As a result, the water present in organic soils or bedrock fractures remains unconfined, allowing for frequent interactions with surface water and precipitation (Earle, 2023).

The zone of groundwater circulation is thought to occur in the upper 60 to 150 m of bedrock where some features (joints) are more common (Project 6 EIS Chapter 6, Section 6.1.5.2). This condition is assumed to be consistent throughout the proposed Project Footprint, Local Assessment Area (LAA) and Regional Assessment Area (RAA).

Because the groundwater aquifer is assumed to be unconfined, there are no known specific recharge or discharge sites. It is believed that groundwater perched within organic soil layers and above the low permeability granite outcrop is subject to continuous interaction with surface water. Predominant interaction locations are believed to include areas where bogs and fens meet streams, rivers, and lakes. Although the exact rate of flow through perched groundwater in this area

is not known, flow through bogs and fens are believed to have little to no horizontal flow, similar to other boreal bog and fen environments in undulating terrain.

Temporal or seasonal variability in perched groundwater flow is anticipated to be most impacted by climatic conditions. The Hayes River Upland Ecoregion of the Boreal Shield Ecozone experiences short and cool summers with long and very cold winters typical of northern environments, and mean annual temperatures range from -0.8°C to -4.1°C (Smith et al., 1998), with local climate records showing an annual mean temperature of -0.7°C (Project 6 EIS Chapter 6, Section 6.1.1.1).

Freezing of shallow perched groundwater sources in winter months would limit or stop groundwater recharge, movement and outflows to surface water sources in areas where perched groundwater sits above the frost depth. In spring and summer thawing of seasonally frozen groundwater sources, including permafrost, would allow for resumed groundwater inflow to surface water sources.

b) As described in Response A above, the groundwater aquifer is assumed to be unconfined and there are no known specific recharge or discharge sites. It is believed that groundwater perched within organic soil layers and above the low permeability granite outcrop is subject to continuous interaction with surface water. Predominant interaction locations are believed to include areas where bogs and fens meet streams, rivers, and lakes. Although the exact rate of flow through perched groundwater in this area is not known, flow through bogs and fens are believed to have little to no horizontal flow, similar to other boreal bog and fen environments in undulating terrain. Due to the undulating granite bedrock throughout the region and its low permeability, the proposed Project is not anticipated to impact the unconfined nature of groundwater nor its interaction with surface water. There is therefore no anticipated impact to the quantity of surface water or groundwater resulting from the proposed Project and therefore no anticipated impact to Indigenous people's navigation in the area. Similarly, because the proposed Project is not expected to inhibit interactions between surface water and groundwater, it is not anticipated that the proposed Project would result in impacts to fish and fish habitat from changes to non fish-bearing waters (i.e. groundwater) which may influence fish-bearing waters.

c) Mapping of groundwater details as requested is not currently available. However, as per the description provided in Response A above, the region is underlain by granite bedrock with low permeability that has led to the formation of many lakes, bogs and fens. Bogs and Fens in particular can be sources of perched groundwater located in organic layers which slowly flow towards and into surface water sources such as lakes, rivers and streams. As presented in Table 6.3 and Figure 6-9 in Chapter 6 of the EIS (included as Appendix IR1-38-1), poor drainage created by low permeability granite bedrock has resulted in large areas of wetlands (treed, shrub and herb) and surface water totalling 16% and 19.8% of the Regional Assessment Area respectively.

d) As described in the response to A above, the demand for groundwater in the physiographic region is low as surface water is abundant and consequently, there is little information known about the distribution of aquifers, their yield, or water quality. No regional information is available on aquifers and aquitards, fractures, fault locations, areas of recharge and discharge, groundwater levels, flow regime and quality and springs in the vicinity of the proposed Project (Project 6 EIS Chapter 6, Section 6.2.5.2).

Where records exist in the south-eastern Precambrian Shield, more than 80% of wells indicate yields less than 1.0 litre per second. An estimate of the groundwater recharge rate in granitic bedrock is less than 5 mm per year (Betcher et al., 1995). In bedrock terrain, groundwater generally contains solutions of low dissolved solids, developed from unequal dissolution of aluminosilicate minerals. Dominant dissolved constituents typically include sodium, calcium, magnesium and bicarbonate; chloride and sulphate have lower concentrations (Betcher et al., 1995; EIS Chapter 6 Section 6.1.5.2) As described in Response A, the low permeability of the granite bedrock likely contributes to the poor drainage of the region which contributes to the formation of the many lakes, bogs and fens in the area. As a result, water present below surface in organic soils, or bedrock fractures is likely unconfined and subject to frequent or continuous interaction with surface water (i.e. lakes, rivers, streams) and precipitation.

e) Potential project effects to groundwater, and subsequently to surface water is presented in Section 6.2.4 in Chapter 6 of the Project EIS. Predicted effects to surface water include potential changes to drainage and flow patterns, erosion and sedimentation effects, effects from spills and hazardous materials, and potential for acid rock drainage. Predicted effects to groundwater include potential changes to groundwater availability and groundwater quality.

As described in Section 6.2.4.2 in Chapter 6 of the Project EIS, interactions between potential groundwater effects and surface water have been considered. Potential effects to valued components (VC) included consideration of potential changes to the physical environment where such interactions were relevant, and therefore potential impacts to VCs resulting from changes in surface water and groundwater have already been considered. Revisions to the assessment of potential project effects, residual effects, and cumulative effects for VCs related to adverse effects to groundwater are not required.

f) Measures to mitigate potential project effects to groundwater are presented in Section 6.4.4 in Chapter 6 of the Project EIS. No revisions to the assessment or potential mitigation measures are required at this time as these are anticipated to effectively address potential effects as presented in Appendix 6-4 and 6-5 in Chapter 6 of the EIS.

g) Proposed approaches for follow-up and monitoring are presented in Chapter 9, Section 9.1 of the EIS. As described in that section, plans for environmental monitoring to verify the accuracy of predictions made in the EIS will be developed at a later date. However, construction compliance inspections are described in Chapter 9 Section 9.1.1 of the EIS and will be conducted to ensure that project requirements and commitments are implemented and complied with.

Potential project interactions are described as including localized changes to groundwater levels and/or potential groundwater quality impacts resulting from accidental spills or releases. Since borrow and quarry development and operation and accidental spills or releases of contaminants such as hydrocarbons relate to construction and maintenance operations, these would be subject to compliance inspections by MTI. As a result, any potential impact to groundwater would be noted and addressed as, or if, it occurred. Groundwater monitoring is therefore already included in MTI's proposed follow-up and monitoring program.

As identified in Chapter 9, Section 9.1.1 of the EIS, regular reporting on compliance inspections would be provided to regulatory authorities and would include notification of issues or emergency situations.

APPENDIX IR1-38-1 – Figure 6-9 and Table 6.3 from the Project 6 Environmental Impact Statement

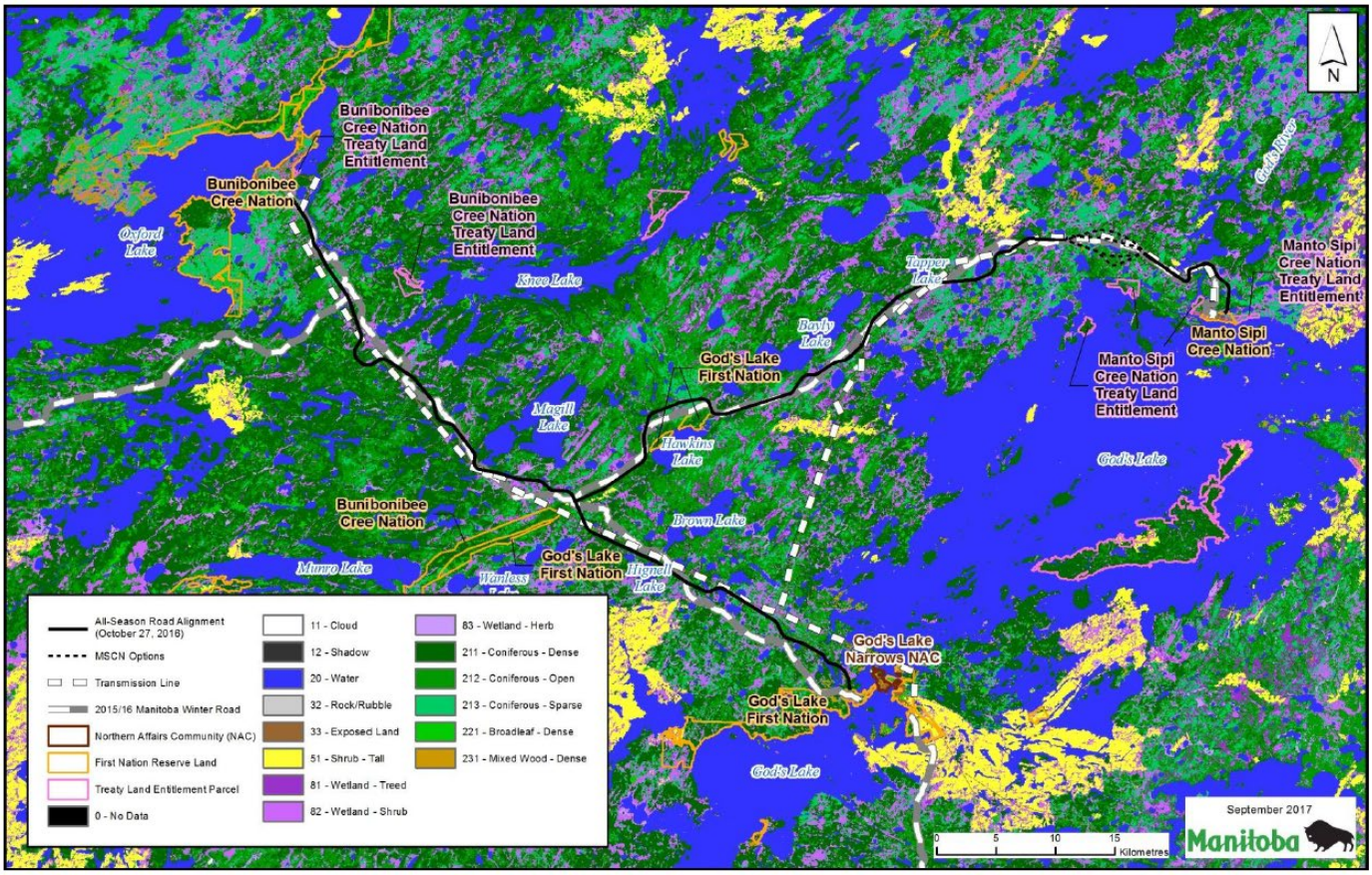


Figure 6-9: Land cover in the vicinity of the proposed Project

Table 6.3. Vegetation Cover Classes among Vegetation Assessment Areas

Land Cover Classification	Project Footprint		Local Assessment Area		Regional Assessment Area	
	Area (km^2)	Proportion (%)	Area (km^2)	Proportion (%)	Area (km^2)	Proportion (%)
Water	0.2	0.6	25.3	8.9	283.9	19.8
Exposed land	0.7	2.5	7.3	2.6	16.9	1.2
Shrub tall	-	-	0.8	0.3	23.0	1.6
Wetland treed	0.4	1.3	5.4	1.9	24.9	1.7
Wetland shrub	3.0	10.6	46.2	16.3	193.5	13.5
Wetland herb	0.2	0.5	2.8	1.0	12.1	0.8
Coniferous dense	10.7	38.1	82.6	29.1	382.4	26.7
Coniferous open	9.0	31.8	81.8	28.8	351.4	24.6
Coniferous sparse	3.6	12.9	29.4	10.4	126.1	8.8
Broadleaf dense	0.4	1.2	1.7	0.6	9.2	0.6
Mixedwood dense	<0.1	0.2	0.4	0.1	6.8	0.5
Unclassified	0.1	0.3	0.2	0.1	0.4	<0.1

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QUESTION IAAC IR1-39

EIS Guideline Reference	• Part 2, Section 5.1, 6.2.3, and 6.5
EIS Reference	• Chapter 6, Section 6.2.5 • Appendix B-1 • Appendix B-2, Section 5.3.1
Category	Vegetation and Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe predicted changes to the habitat of migratory and non-migratory birds, species at risk, and species of importance to Indigenous peoples as a result of the Project during all Project phases. The proponent is also required to describe any residual effects to the habitat of VCs and the significance of those effects, following the implementation of mitigation measures.

The EIS describes potential Project effects to vegetation, including plant species important for wildlife habitat and for traditional use by Indigenous peoples. The effects assessment and assessment of the significance of potential effects does not consider potential adverse effects to vegetation from dust deposition, increased access to remote areas, or increased flooding as a result of the Project.

Supplementary information is required to support the characterization of potential Project effects, and the significance of those effects, to vegetation and habitat, which may support VCs.

INFORMATION REQUEST

a) Describe potential effects to vegetation communities due to:

   i. dust deposition from project activities;

   ii. increased access to previously remote or inaccessible areas; and

   iii. flooding, including the location of these vegetation communities relative to the Project.

b) Based on the effects described in a), identify potential effects to other VCs that may rely on these areas for habitat or other uses.

c) Based on the effects described in a), identify potential effects to Indigenous peoples that may utilize the potentially affected vegetation communities for traditional purposes. Ensure that potential effects to all Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines are considered.
d) Describe mitigation measures to address potential effects and follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects. Revise the assessment of potential residual Project effects and cumulative effects to consider the effects and mitigation measures identified.

RESPONSE

a)

i. Dust deposition from project activities:

Road construction, maintenance and operation activities have the potential to affect vegetation communities through the generation of fugitive dust and other particulates from blasting, rock crushing, clearing, burning of woody debris and other construction-related activities and through dust and emissions from vehicle and equipment operations (Chapter 6, Section 6.2 of the EIS).

As described in Appendix B-2, Section 5.3.1 of the EIS, impairment of vegetation in the project assessment area from dust during road construction, operation, and maintenance is anticipated. Dust can have a potential negative effect on the environment, causing stress to adjacent vegetation. A covering of dust on leaf surfaces increases solar heat absorption and decreases transpiration rates, resulting in a reduction of carbon uptake (Succarieh,1992). Brown (2009) found that fugitive dust in forested roadsides influenced plant species, with the greatest effect closest to the roadway. Road dust affects vegetation by covering plant surfaces, impacting photosynthesis, respiration, and transpiration, and resulting in decreased productivity (Farmer, 1993).

Supporting this, research by Sarma et al. (2017) found that roadside plant species exposed to dust showed reductions in chlorophyll content, including chlorophyll a, b, and total chlorophyll, which directly affects plant productivity. Dust particles physically block sunlight and can obstruct stomatal pores, thereby hampering photosynthetic activity (Nicholson et al., 1989; Keller & Lamprecht, 1995; Hope et al., 1999; Manno et al., 2006). This reduction in chlorophyll and blockage of stomata decreases the plant's ability to photosynthesize, resulting in lowered growth rates and yield in sensitive species (Kameswaran et al., 2019).

Additionally, air pollutants within dust can enter plant tissues through the stomata, causing chloroplast damage and reducing pigment concentrations, which further impacts photosynthesis and growth (Kameswaran et al., 2019). The shading effect of dust, along with the alkaline conditions created when dust particles dissolve in cell sap, degrades leaf pigment concentration and

contributes to chlorophyll loss (Prajapati & Tripathi, 2008). Reduced leaf area due to dust deposition decreases light absorption, which in turn reduces the photosynthetic rate.

The shading effect of dust also impacts stomatal conductance, reducing the stomatal index and decreasing the dry matter content in leaves (Khan et al., 2015). However, the severity of dust deposition effects can be species-dependent, as some plants demonstrate a higher tolerance to dust-related stress than others (Kameswaran et al., 2019).

The effects from dust deposition on vegetation, prior to the implementation of mitigation measures, from the generation of fugitive dust and other particulates from blasting, rock crushing, clearing, burning of woody debris are considered negative. However, the potential effects would be limited to the construction phase of the project, therefore it would be short-term and limited to the Project Footprint (Table IR1-39-1). Similarly, effects from dust generated through vehicle and equipment use during construction, maintenance and operation are considered negative. Vehicle emissions during construction and discrete maintenance activities would only occur for a short time, however, emission from public and commercial vehicle traffic during operation would occur throughout the life of the Project. The emission sources would be limited to the Project Footprint and given the lack of other emission sources in the area it is expected that a change in parameter concentrations would not be measurable beyond the Project Footprint. Active construction would be spread out over 1 to 4 km at any given time therefore emissions do not have a localized point source. Vehicle emissions would be regular and frequent during construction, maintenance and operation as all construction vehicles and equipment, maintenance equipment and public vehicles have emissions. The effect is readily reversible. No adverse ecosystem and social effects are anticipated (Table IR1-39-1).

ii. Increased access to previously remote or inaccessible areas

Potential key effects to vegetation communities as a result of increased access to previously remote or inaccessible areas include the introduction and spread of invasive species, increased risk of fires, and disturbance of culturally important species (e.g medicinal plants). As outlined in Chapter 6, Section 6.1.11.3.4 of the EIS, Tradition Knowledge (TK) studies have identified more than 17 plant species important for sustenance and cultural practices, such as blueberry, raspberry, and cherry, along with over six medicinal plants, including Labrador tea, black spruce, and sweet flag.

Increased human access through use of vehicles, equipment, or travel by foot can potentially transport invasive plant seeds into new areas, where they may establish and spread. The boreal shield ecozone already has a relatively high number of invasive plants compared to other Canadian ecozones (CFIA, 2008), with species such as Common Burdock *(Arctium minus)* and Field Sow-thistle *(Sonchus arvensis)* identified by the Invasive Species Council of Manitoba as invasive and capable of further spread (ISCM, 2016).

Additionally, disturbance and vegetation loss could impact the gathering of medicinal plants, such as Labrador tea, which hold cultural and medicinal significance. Previous TK studies have identified and mapped important medicinal and cultural plants and harvesting areas, which would be implemented for Project planning and design.

Increased access also increases the likelihood of human-caused fires, posing an additional risk to vegetation. However, in terms of harvesting, there is expected to be a change in the location of harvesting areas with construction of the new road in the region but since access to the area during the non-frozen growing season will not change no significant change in the level of harvest is anticipated. Therefore, increased access is expected to simply redistribute where people gather wild plants for food or medicine rather than increase the overall amount harvested.

On the other hand, the Project will lead to the removal of approximately 8.9 km^2 of locally valued vegetation (medicinal and cultural) due to road construction (Szwaluk Environmental Consulting Ltd, 2017). Therefore, the increased access provided by the Project could offer a potential benefit, as it would open up new areas for local community members to access additional botanical resources.

iii. Flooding, including the location of these vegetation communities relative to the Project.

As outlined in Chapter 6, Section 6.2.5.1.2 of the EIS, the Project Footprint includes approximately 3.6 km^2 of wetland vegetation, with nearly half being bog-fen complexes. These wetland areas, particularly low-lying regions, riparian zones along stream crossings, and wetlands within the Project Footprint, are highly sensitive to hydrological changes. Without mitigation, road structures may alter natural drainage patterns, increasing water retention and leading to potential flooding. For example, an insufficient number or improper placement of equalization culverts could result in water impoundments on one side of the road. Such flooding can cause shifts in plant community composition, favoring flood-tolerant species while reducing those less adapted to prolonged water exposure.

Altered water balances in wetlands due to flooding can lead to either increased drainage, creating a drier moisture regime, or sustained flooding, both of which may significantly impact species abundance and composition (Ecological Land Surveys Ltd., 1999). As described in Appendix B-2, Section 5.3.1 of the EIS, road development has the potential to impede water flow, resulting in long-term vegetation changes (Ducks Unlimited Canada et al., 2014).

To address these concerns, the Project design incorporates standard flood management measures, as detailed in Chapter 3 of the EIS. These measures include a 1:50 year flood event design standard for stream crossings, which is expected to mitigate the effects of typical and severe weather events within the Local Assessment Areas (LAAs). Other measures include, for example, optimizing the number, size, and placement of culverts to better equalize water levels on both sides of the road,

particularly in wetland areas and locations where the road intercepts significant surface water flows.

b) The potential effects to vegetation from dust deposition, increased access, and flooding may have secondary impacts on other Valued Components (VCs) that rely on these plants.

Dust deposition

Dust could impair plant health, indirectly affecting species that depend on those plants for nesting, food, and shelter. Coniferous trees in particular, are more likely to be impacted by dust deposition since conifers have a higher dust retention capacity than deciduous trees. Conifer needles are more efficient at capturing and retaining fine particulate matter (PM) due to their shape, abundance of waxes on their surfaces, and surface structure (Pace & Grote, 2020). In contrast, deciduous forests, characterized by trees that shed their leaves seasonally, exhibit lower dust capturing capacities. The broad, flat leaves of deciduous trees can trap dust particles; however, the overall structure and seasonal leaf loss result in less effective dust accumulation compared to the year-round foliage of coniferous trees (Arika Bridhikitti et al., 2024). Therefore, the coniferous communities evaluated in Appendix B-2 of the EIS, including jack pine, black spruce, as well as labrador tea, and sphagnum, are at a higher risk of experiencing adverse effects from dust deposition. Prior to the implementation of mitigation measures, dust deposition may indirectly affect wildlife species that rely on those plant communities. For instance, caribou *(Rangifer tarandus)* and marten *(Martes americana)* rely on mature coniferous forest habitats, including black spruce and jack pine stands (Joro, 2018). Dust accumulation on vegetation may limit photosynthesis and reduce the availability and quality of lichens and vegetation that serve as important forage for caribou, particularly during winter. Similarly, marten, which prefer structurally complex, old growth forests (Joro, 2018), may experience reduced habitat suitability if vegetation structure and density are affected. Moose *(Alces alces)* and beaver *(Castor canadensis)* rely heavily on broadleaf woody vegetation, such as riparian shrubs and browse species including willow and birch (Joro, 2018). They are therefore less likely to be directly sensitive to dust deposition; however, indirect effects could occur if dust reduces the health or abundance of these plants.

Similarly, bird species such as barn swallow (*Hirundo rustica*), eastern wood-pewee (*Contopus virens*), and common nighthawk (*Chordeiles minor*) may be affected by reduced availability of insect prey associated with dust-impacted vegetation. Species at risk such as Canada warbler (*Cardellina canadensis*) and olive-sided flycatcher (*Contopus cooperi*), which utilize dense forest understorey and edge habitats, may be indirectly affected through loss of foraging and nesting suitability in coniferous and mixedwood stands. However, anticipated dust levels are expected to remain low given the limited traffic volume of the Project.

Additionally, dust deposition may impair culturally significant plants such as labrador tea, black spruce, and sweet flag. Dust may reduce the quality of these species and therefore impact the medicinal compounds.

However, with the application of mitigation measures, such as MTI's EP (Dust Suppression Procedures) and ES 130.11 (Dust and Particulate Control), residual effects are anticipated to be low in magnitude, localized, and not significant. Additionally, as mentioned in Chapter 6 of the EIS, there are no expected changes to the environment on federal lands. Since the proposed all-season road is intended to serve a small population (Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation), the overall dust deposition is not expected to be significant.

Increased access

Increased access to previously remote areas may shift harvesting locations, but it is unlikely to impact other VCs significantly, as the overall harvest levels are not expected to increase. Harvesting is anticipated to occur in new areas due to all-season road access, meaning wildlife would still have access to vegetation and comparable plant communities and habitats in nearby areas.

Therefore, no indirect effects to VCs including species at risk, migratory birds, species of importance to Indigenous communities, or federal lands are anticipated.

Flooding

While changes to surface water flows, such as localized flooding, could alter plant composition in wetland areas, mitigations like flood event design standards for stream crossings will prevent the effects on vegetation, and subsequent impacts on other VCs should be minimal, allowing continued availability of these resources. As described in Response A above, water crossings will be designed to accommodate a 1:50 flood event. This will prevent altering natural drainage patterns and will prevent concentrating flows which could otherwise cause localized flooding that may be caused by typical or severe storm events. As this mitigation measure will be implemented as part of Project design, there is no anticipated pathway of effects to vegetation, and no subsequent effects for other VCs

c) The potential effects on Indigenous peoples who rely on these vegetation communities for traditional purposes may include localized impacts, such as reduced access to culturally significant plants or changes in the quality and availability of these resources, as identified by TK studies (Chapter 6 of the EIS). For instance, dust deposition could affect plant health, potentially reducing the quality and quantity of medicinal plants, food sources, and resources used in traditional practices. Similarly, changes to surface water drainage could alter the composition of vegetation in wetlands, possibly influencing the abundance of important species.

However, it is important to note that these impacts are unlikely to have a significant effect with the implementation of mitigation measures and therefore are not anticipated to impact Indigenous practices. While dust and changes to surface water drainage (e.g. flooding) could pose challenges,

the availability of these resources is not limited to specific areas; they are widely distributed across the region, and there was no overlap among the communities for the areas that were harvested (Chapter 6, Section 6.3.4.1.3 of the EIS). Moreover, as mentioned above, increased access resulting from the Project could provide new opportunities for harvesting, as previously remote areas become available. Because access to the area during the growing season will not change, the expanded access is not anticipated to increase harvesting pressure but instead shift it to new locations.

Even if these scenarios were to occur, such as flooding affecting vegetation in certain areas, or dust reducing vegetation abundance, the region as a whole remains abundant in resources. Mitigation measures are designed to minimize these effects, further ensuring that Indigenous communities can continue their traditional harvesting activities without disruption.

These conclusions will be shared with First Nation communities and verified during the engagement to occur before August 2026, and any specifics beyond those reported in Chapter 6 of the EIS will be shared with the regulators.

d) **Dust mitigation measures**

As described in Chapter 6, Appendix 6-4 of the EIS, proposed measures to mitigate potential adverse environmental effects of dust during the Project construction, maintenance and operation include implementing dust suppression measures and restricting vehicle speed limits. Additionally, aggregate size control and use of granitic material instead of limestone reduces dust generation from the roadbed. MTI's Environmental Protection Procedure (EP) EP18 (Dust Suppression Procedures) and Environmental Protection Specification (ES) ES 130.11 (Dust and Particulate Control) would be adhered to (both the Environmental Protection Procedures and Environmental Protection Specifications are available in Chapter 8, Appendix 8-2 and Appendix 8-3 of the EIS and in Appendix IR1-19-1).

Additional mitigation measures listed in ES 130.11 (Chapter 8, Appendix 8-2 of the EIS; Appendix IR1-19-1) include using only approved suppressants (no use of waste petroleum or petroleum by-products) and covering of loads with tarps during transport. Stockpiles or spoil piles are to be maintained as to minimize the potential for wind erosion.

As part of the follow-up program described in Chapter 9 of the EIS, environmental inspections will be conducted to ensure compliance with license and permit conditions, as well as adherence to the Environmental Protection Specifications (ES 130s) and Environmental Protection Procedures (EPs) mentioned above. Additionally, inspections during the construction phase will assess and monitor particulate levels and determine the need for wetting or other adaptive management strategies. MTI will continue collaborating with Indigenous Nations to identify unanticipated impacts and adjust mitigation measures accordingly.

Increased access measures

Increased access to previously remote or inaccessible areas may lead to the introduction of invasive species, increased fire risks, and provide positive opportunities for new harvesting areas. To mitigate these potential effects, access during construction will be restricted to necessary areas only, minimizing unintended disturbances. Construction equipment and vehicles will be clean before being brought to the site, in accordance with EP25 and ES 130.8.7, to prevent the spread of invasive species. Combustible materials and explosives will be stored and handled safely following EP2 and ES 130.9, reducing fire risks in newly remote accessible areas. Additionally. MTI requires the Contractor to prepare Emergency Response Plan(s) for fires and explosives as set out in ES130.3.2.

Flood mitigation measures

The Project design, as detailed in Chapter 3 of the Project 6 EIS, has incorporated standard design measures (e.g: design standard of 1:50 year flood event for stream crossings) that are expected to mitigate potential effects of typical and predictable weather events and severe/extreme weather events expected to occur in the LAAs. Sufficient depth of rock base layer in the roadbed design coupled with the placement of large-diameter (greater than or equal to 900 mm) culverts for stream crossing and appropriately spaced equalization culverts in fen and bog complexes are key elements in the road design that are expected to mitigate the probability of washout/erosion and sedimentation events. The porous nature of rock base layers used in road construction is also anticipated to prevent interrupting surficial flows. Should changes to surface water flows such as localized flooding, or natural flooding events occur, contingency procedures will be coordinated with Indigenous Nations in communication with the RCMP regarding RCMP's decisions to close roads due to unsafe conditions. Additional information regarding coordination with Indigenous Nations and emergency services in the event of flooding can be found in the response to IR1-68.

Table IR1-39-1. Assessment of potential, residual and cumulative Project Effects for Vegetation communities.

Potential, residual and cumulative Project Effects for Vegetation Communities												
Factor	**Project Activity**	**Potential Effects**	**Proposed Mitigation**	**Residual Effects**	**Key criteria for determining significance[1]**							**Significance of Residual Effect**
					Duration	**Magnitude**	**Timing**	**Extent**	**Frequency**	**Reversibility**	**Ecological and Social Context**	
Vegetation	Construction, operation and maintenance	Impairment of vegetation in the project assessment area from dust deposition	• Dust Suppression Procedures (EP18) and Dust and Particulate Control (ES 130.11) • Undertake initial construction clearing activities during winter months.	Minimal risk of vegetation mortality	Long-Term, life of Project	Effect considered minor	Critical life stages would be avoided	Localized to construction areas within Project Footprint	Sporadic	Readily reversible	No adverse ecosystem effects	Not Significant
					Level III	Level I	Level I	Level I	Level II	Level I	Level I	
	Construction, operation and maintenance, which may provide increased access to previously remote or inaccessible areas	Introduction of invasive species, increase fire risk, and positively provide new harvesting opportunities	• Limit access during construction • Clean construction equipment and vehicles prior to bringing them to site to control spread of invasive species (EP25 and ES 130.8.7) • Combustible materials and explosives will be stored and handled in a safe manner (EP2 and ES 130.9)	Minimal risk of vegetation mortality, with positive opportunities for new harvesting areas	Long-Term, life of Project	Effect considered minor	N/A	Localized to construction areas within Project Footprint	Sporadic	Reversible over a long period	No adverse ecosystem effects	Not Significant
					Level III	Level I	N/A	Level I	Level II	Level II	Level I	
	Construction, operation and maintenance	Changes to surface water flow (including localised flooding events), which may alter species abundance and composition	• Project designed to withstand 1:50 year flood events. • Prepare Emergency Response Plan for road operation that includes flooding. • Coordinate contingency procedures with Indigenous communities in communication with the RCMP regarding RCMP's decisions to close roads due to unsafe conditions. • Inspect and repair Project components as required after flood events.	Minimal risk of vegetation mortality	Long-Term, life of Project	Effect considered minor	N/A	Localized to construction areas within Project Footprint	Infrequent	Reversible – short-term	No adverse ecosystem effects	Not Significant
					Level III	Level I	N/A	Level I	Level I	Level I	Level I	

[1] The description of assessment criteria and levels of potential environmental effects were provided in Chapter 4 Table 4.4 of the Environmental Impact Statement, but are also included in Appendix IR1-39-1 of this response.

APPENDIX IR1-39-1

Description of assessment criteria and levels of potential environmental effects

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
Direction of Change (type of effect)	Neutral or Negligible	No measurable change on the VC.
	Negative	Net loss (adverse or undesirable change) on the VC.
	Positive	Net benefit (or desirable change) on the VC.
Duration (period of time the effect occurs)	Short-Term	**Level I** - The potential effect results from short-term events or activities such as the time required to complete a discrete component during construction, maintenance, or rehabilitation activities (i.e., a timeframe of several months up to one year).
	Medium-Term	**Level II** - The potential effect is likely to persist until the completion of construction and rehabilitation activities (i.e., > 1 year to 10 years).
	Long-Term	**Level III** -The potential effect is likely to persist beyond the completion of construction and rehabilitation activities into the operations and maintenance phase of the Project (i.e., a timeframe of greater than 10 years).
Magnitude (degree or intensity of the change)	Negligible or Low	**Level I** - A change that is not likely to have a definable, detectable or measurable potential effect above baseline (i.e., potential effect is within a normal range of variation) or is below established thresholds of acceptable change (e.g., water quality guideline). See **Table 4.5** for VC specific criteria.
	Moderate	**Level II** – A change that will have a potential measurable effect that can be detected with a well-designed monitoring program; but is only marginally beyond standards/guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
	High	**Level III** – A change that will have potential effects that are easily observed, measured, and described (i.e., readily detectable without a monitoring program) and are well beyond guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
Timing[3]	No Sensitivity	**Level I** – Effect does not occur during critical life stage.
	Moderate Sensitivity	**Level II** – Effect occurs at the start or end of a critical life stage.
	High Sensitivity	**Level III** – Effect occurs during a critical life stage.
	Project Footprint	**Level I** - The physical space or directly affected area on which Project components or activities are located and/or immediately adjacent area which is within the defined limits of the P6 all-season road ROW (i.e., 100

[2] **Chapter 6** of the Environmental Impact Statement outlines VC specific definitions for the three level ranking system.

[3] In terms of **Timing**, the critical life stages include things such as nesting, breeding, spawning and calving which will vary by VC and will vary annually depending on seasonal conditions. For example, it is clear that winter is outside of bird nesting and breeding period and that spring is fully within this critical time period, whereas early spring and late fall is a transitional period that depending on the seasonal conditions may or may not affect the life stage.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
Extent (Spatial Boundary)[4]		m) and permanent and temporary facilities (e.g., temporary access routes and quarries) within which potential effects are likely to be measurable.
	LAA	**Level II** - Area within which potential Project effects are measurable and extending beyond the Project Footprint to, but not beyond, the LAA (either a 2 km or 10 km corridor centred on the all-season road alignment depending on the VC (**Figure 4-1**).
	RAA	**Level III** - The maximum anticipated regional extent of potential direct, indirect and cumulative effects that may extend beyond the LAA. The boundaries of the RAA will vary depending on the VC.
Frequency (how often the effect occurs)	Infrequent	**Level I** - The potential effect occurs once or seldom during the life of the Project (e.g., initial clearing of the ROW).
	Sporadic/Intermittent	**Level II** - The potential effect occurs only occasionally and without any predictable pattern during the life of the Project (e.g., blasting at quarries; site-specific construction equipment noise; potential wildlife-vehicle collisions).
	Regular/Continuous	**Level III** – The potential effect occurs at regular and frequent intervals during the Project phase in which they occur or over the life of the Project (e.g., construction traffic; operations traffic).
Reversibility (the degree of permanence)	Reversible (short-term)	**Level I** – Potential effect is readily reversible over a relatively short period (< than eight years).
	Reversible (long-term)	**Level II** - Potential effect is potentially reversible but over a long period (> than eight years).
	Irreversible	**Level III** - Project-specific potential effects are permanent and irreversible.
Ecological and Social Context (resilience of a VC to adapt to changes as a result of the project)	Low	**Level I** – The VC is not rare or unique and is resilient to imposed change.
	Moderate	**Level II** – The VC is moderately/seasonally fragile and has some capacity to adapt to imposed change.
	High	**Level III** – The VC is a protected/designated species under MESEA, SARA and species listed by COSEWIC and by the MBCDC as very rare (S1) to rare (S2) or fragile with low resistance to imposed change or part of a very fragile ecosystem.

[4] Environmental Impact Statement **Figures 4-1** and **4-2** illustrate the VC specific spatial boundaries of the LAA and RAA, which are discussed in greater detail in **Chapter 6**.

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QUESTION IAAC IR1-40

EIS Guideline Reference	• Part 2, Section 6.2.3 and 6.5
EIS Reference	• Chapter 1, Section 1.2.2 • Chapter 6, Section 6.2.5.1.2, 6.2.5.1.4, 6.5.5.1.1, and 6.5.5.1.4 • Appendix B-1, Section 4.3 • Appendix B-2, Section 5.3.1
Category	Vegetation and Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe the predicted changes to the habitat of migratory and non-migratory birds, species at risk, and species of importance to Indigenous peoples as a result of the Project during all Project phases. The proponent is also required to describe any residual effects to the habitat of VCs and the significance of those effects following the implementation of mitigation measures.

The EIS concludes that the effects of vegetation clearing and wetland disturbance/loss are reversible over a long period as native vegetation would grow back. However, as there are no plans to decommission the ASR and other Project components, vegetation would only grow back and wetlands may only be restored in areas to be reclaimed following construction and not in areas where Project components are to be permanent. This factor must be considered in the assessment of significance of potential residual Project effects. The proponent must also describe potential effects to wetland function and connectivity resulting from the permanent loss of wetlands or portions of wetlands.

The EIS also notes that three environmentally sensitive sites, each supporting old growth forest stands, were identified along the ASR alignment and indicates that certain species of importance to Indigenous peoples, such as marten, utilize old growth forests as habitat. MSCN and the MMF expressed concerns that potential Project effects to old growth forests are not described.

Supplementary information is required to support the characterization of potential Project effects to vegetation communities and related VCs.

INFORMATION REQUEST

a) Revise the assessment of potential Project effects, residual effects, and cumulative effects for vegetation, wetlands, and other related VCs to consider that only vegetation and wetlands in areas of temporary disturbance may recover following Project construction.
b) Demonstrate that potential effects to wetland function and connectivity due to the permanent loss and/or alteration of wetlands or portions of wetlands is considered in the EIS.
c) Describe potential Project effects to old growth forests, the area of old growth forest that may be disturbed or removed, the nature of the disturbance, and potential effects to species that may utilize old growth forests.
    i. Compare the area of old growth forest that may be disturbed or removed to the area of old growth forest available in the LAA and RAA.
    ii. Describe mitigation measures for adverse effects to old growth forests.
    iii. Provide an assessment of potential Project effects, residual effects, and cumulative effects for old growth forests species that may utilize these areas.

RESPONSE

a) As described in Chapter 3, Section 3.2.5 of the Environmental Impact Statement (EIS), there are no plans to decommission or abandon the Project as it will provide all-season road access among Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation for the foreseeable future (> 50 years). The effects of the road footprint were considered in perpetuity, with the determination of effects already addressing temporary works separately. Therefore, there is no need to reassess. The EIS analysis regarded the road footprint as a long-term irreversible effect, while "decommissioning" only pertains to the closure, cleaning, and restoration of temporary works associated with construction. This is reflected in Appendices 6-4 and 6-5 in Chapter 6 of the EIS which present the assessment of potential project effects both before and after the application of mitigation. As presented in these tables, loss of vegetation is shown as being long-term (i.e. lasting for the duration of the Project life).

As mentioned in Chapter 3, Section 3.3 of the EIS, the total permanent footprint of the Project, including the all-season road, bridges, culverts, and quarries required for ongoing maintenance, will be approximately 924 hectares (9.24 km^2) within the cleared right-of-way (ROW). The footprint of temporary components and activities during construction, such as construction camps, equipment laydown areas, borrow areas, and most quarries, is estimated to be less than 545 hectares (5.45 km^2). In total, the Project will result in a permanent and temporary footprint of approximately 1,469 hectares (14.7 km^2). The footprint of temporary components will be

rehabilitated through natural re-vegetation and seeding/planting. Since the EIS has already accounted for these effects, there is no need to revise them.

As described in Section 6.2.5.1.1. in Chapter 6 of the EIS, effects to vegetation were deemed reversible on the basis that vegetation removed as part of initial clearing may re-establish within the right-of-way, and particularly in areas where sightlines do not need to be maintained.

b) The EIS acknowledges the potential effects to wetland function and connectivity resulting from the permanent loss of wetlands or portions of wetlands. As described in Chapter 6, Section 6.2.5.1.2 of the EIS. Approximately 3.6 km^2 of the Project Footprint consists of wetland vegetation with nearly half of the wetland types being bog-fen complexes. Wetlands in the boreal forest are highly connected systems that transport water and nutrients across the landscape. The EIS acknowledges that road development has the potential to impede water flow, leading to long-term changes in vegetation changes (Ducks Unlimited Canada et al., 2014). Alterations in water balance could result in increased drainage (drier conditions) or flooding, which may affect species abundance and composition (Ecological Land Surveys Ltd., 1999). These effects could measurably impact vegetation species or communities, especially during critical life stages of species dependent on these habitats.

To address these potential effects, several mitigation measures have been proposed to reduce disturbance to wetland function and connectivity, as described in Chapter 6, Section 6.4.5.1.2 of the EIS. The alignment was selected to avoid low-lying wetland areas where feasible, and construction camps, temporary access roads, and other facilities will also be located outside of wetlands. Quarries site selection will also require that quarries be located a minimum of 100 meters of waterbodies or sensitive wildlife habitats (EIS Chapter 8, Appendix 9-2, EP20; Appendix IR1-19-1). In unavoidable wetland areas, and if feasible, construction activities would be conducted during winter months when the ground is frozen to minimize disturbance, with additional construction practices recommended by Ducks Unlimited Canada being applied if needed (Ducks Unlimited Canada et al., 2014).

To maintain hydrological connectivity, equalization culverts will be installed and appropriately spaced to maintain local landscape hydrology. Crossings will be designed to accommodate 1:50-year flood events. Regular maintenance of culverts, as outlined in Chapter 6, Section 6.4.4.1.1 of the EIS and in accordance with Appendix 9-2 EP11 and ES 130.15.9, will prevent blockages in order to not impede water flow or disrupt connectivity. Additionally, the removal of culvert blockages, such as debris or beaver dams, will follow MTI's Nuisance Beaver Management Program (EIS Chapter 3, Appendix 3-6) to limit additional hydrological disruptions.

The EIS concludes that although the disturbance and loss of wetlands within the Project Footprint are considered negative, these effects are mitigated through a well-designed planning phase. This phase ensures the proper placement, design, and availability of sufficient culverts, in addition to

the other measures previously mentioned. Wetland disturbance is largely limited to the construction phase, and the impact on wetland function and connectivity is expected to be moderate and localized. As outlined in Chapter 6, Section 6.2.5.1.2 of the EIS, these effects are reversible over the long term in areas of temporary disturbance. Additionally, Chapter 6, Section 6.4.4.1.1 of the EIS considers potential effects on surface water drainage and flow patterns. The design and maintenance of culverts and bridges ensure that downstream flows and hydrological connectivity are maintained.

c) Old growth forests are classified as environmentally sensitive sites; they are relatively uninfluenced by human activity and serve as natural reservoirs of genetic diversity and remain important to a balanced ecosystem (Issekutz, 2020). During field assessments, three environmentally sensitive sites were identified as supporting older-growth black spruce forests aged over 120 years (Chapter 6, Section 6.1.4.1.6 of the EIS).

Potential project effects on old-growth forests, prior to mitigation measures, include a reduction in habitat quality, disruption of predator-prey dynamics, and disturbance to species reliant on these habitats. Fragmentation of forests and reduced forest cover can impact ecosystem dynamics. For example, marten prefer old-growth forests for denning (Appendix E- Table E-1 of the EIS). Studies also indicate that marten rely on structural features of old-growth forests, such as coarse woody debris, for predator avoidance, accessing winter prey, and thermoregulation during rest. Although they can survive in other habitats, these environments lack the abundance and diversity of structural features critical for optimal marten habitat (VNRC, 2005).

Bird species such as Olive-sided Flycatcher and Canada Warbler are associated with these types of forests (Joro, 2018). Similarly, bald eagles also depend on mature and old-growth forests for suitable nesting and roosting habitats (Joro, 2018). Boreal woodland caribou belonging to the Norway House herd also rely on these habitats, as they provide an abundance of lichens along with the undisturbed conditions essential for their survival (Appendix D-2 of the EIS).

i. As described in the Project 6 botanical and vegetation resource survey report (Szwaluk Environmental Consulting 2017) native vegetation survey methodology was based on use of five 2.5m by 2.5 m quadrats and 1m by 1m nested quadrats spaced at 5m increments along 30m transects. The composition of tree cover over 2.5m tall was determined using 20m by 30m plots centered on each transect. The tallest tree of each species was aged based on growth rings from cores taken at breast height. As documented in the report, surveys identified 3 environmentally sensitive sites in which old growth black spruce forest (>120 years old) were identified.

Because vegetation surveys employed transect and plot-based methodology to catalogue the existing environment, a complete delineation of all old growth forest stands was not conducted and is not available through other publicly available information sources. Therefore, MTI cannot delineate or quantify the exact area of old growth forest that may be removed for construction of the proposed Project, nor can MTI quantify the availability of old growth forest throughout the remainder of the Local or Regional Assessment Area. However, based on publicly available fire history data as shown in Figure IR1-40-1, and as corroborated in the Szwaluk Environmental Consulting (2017), much of the forest within the LAA and RAA have potential to be quite old as much of the vegetation LAA and RAA show no recorded fires since 1928. It is therefore not anticipated that old growth forest is limiting and areas removed for the Project are not anticipated to result in significant effects to other valued components that utilise or rely on these areas.

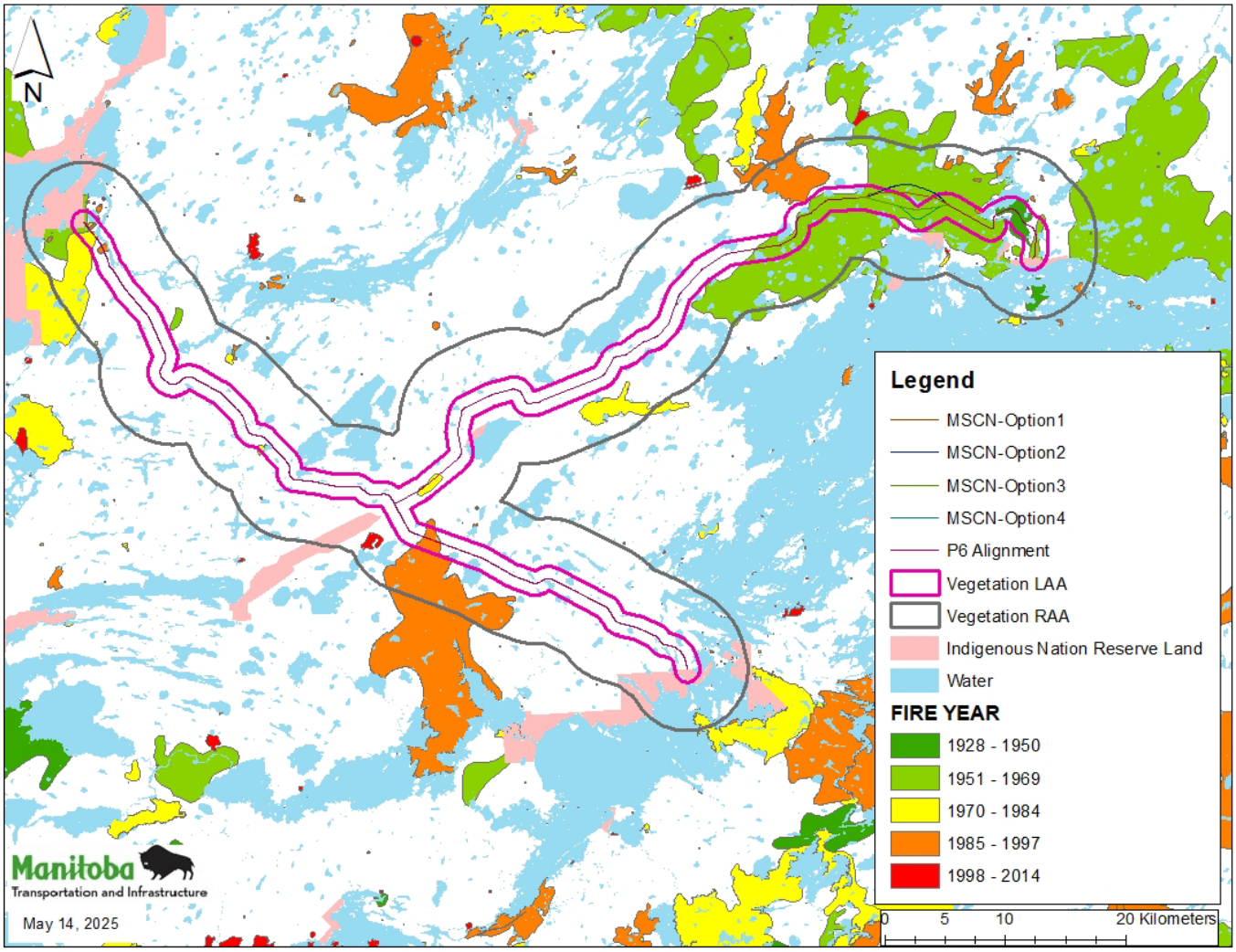


Figure IR1-40-1. Recorded Fire History within the Vegetation Local and Regional Assessment Areas.

ii. Mitigations applicable to adverse effects in old growth forests include (and are further described in Appendices 8-2 and 8-3 in Chapter 8 of the EIS; as well as in Appendix IR1-19-1 in the response to information request IR1-19-1):

- Limit clearing to designated areas within the ROW (EP1 and ES 130.17.1).
- Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1).
- Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7).

- Follow clearing and grubbing timelines and restrictions (EP1 and ES 130.17.1).
- Re-vegetation will use locally and regionally compatible species (native) (ES130.16.13).
- If old-growth forests cannot be entirely avoided, construction activities should be restricted during critical periods for wildlife that depend on these habitats.
- Specific measures applicable to environmentally sensitive sites:
    - Herbicide application would be prohibited near identified environmentally sensitive sites.

iii. The Project EIS included consideration and assessment of potential effects to vegetation such as the disturbance or loss of plant communities, including old-growth forest. This assessment is presented in Appendix 6-4 (before mitigation) and Appendix 6-5 (after mitigation) in Chapter 6 of the EIS. Based on the assessment of adversity for the criteria after implementation of mitigation measures and the defined significance criteria, the residual effects are not significant.

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QUESTION IAAC IR1-41

EIS Guideline Reference	• Part 2, Section 6.2.3 and 6.5
EIS Reference	• Chapter 3, Appendix 3-6 • Chapter 6, Section 6.2.5.1.2
Category	Vegetation and Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe predicted changes to the habitat of migratory and non-migratory birds, species at risk, and species of importance to Indigenous peoples as a result of the Project during all Project phases. The proponent is also required to describe any residual effects to the habitat of VCs and the significance of those effects following the implementation of mitigation measures.

The EIS describes MI's Nuisance Beaver Management Program, which includes measures for removal of nuisance beavers and dams in the event that beaver activity compromises culvert flow or fish passage, or otherwise threatens the safety or functionality of the Project. The proponent indicates that culvert cones will be used as a standard approach to mitigate the blockage of culverts by beaver activity. If further problems are observed related to beavers, the next step would be to trap the beavers and remove dams. Pimicikamak Okimawin noted that pond levelers or beaver deceivers may be potentially less expensive and more effective options for managing the Project's relationship with beavers, without the need for removal of beavers, destruction of dams, or habitat alteration and fragmentation. It is unclear whether these options were considered as potential mitigation measures for nuisance beavers. The EIS states that MI will involve local trappers in road maintenance activities within their registered trap line areas as part of the Nuisance Beaver Management Program. It is unclear how and in what capacity local trappers would participate in the Nuisance Beaver Management Program.

It is unclear whether the proponent considered potential Project effects to wetlands due to removal of beaver dams or removal of nuisance beavers in the EIS. According to Pimicikamak Okimawin, beaver activity, including both active and abandoned dams, can influence existing wetland sites or create beaver meadows (i.e. a successional wetland type following abandonment of former ponds) that may be mistaken for fens. Beaver meadows, in addition to shallow water, swamp, and marsh wetlands created by beavers, may act as important habitat for many species of plants and wildlife.

Therefore, long-term efforts to remove beaver dams, drain beaver ponds, and remove/relocate nuisance beavers may adversely affect wetlands, and plant and wildlife species that may use these areas for habitat.

Supplementary information is required to support the characterization of potential Project effects to vegetation communities and beavers, which are a wildlife species of importance to Indigenous peoples for traditional purposes, and to assess whether mitigation measures proposed may be adequate to address potential adverse effects.

Information Request

a) Describe alternative measures that may be technically and economically feasible to manage culvert blockage from beaver activity and provide clear rationale for the selected mitigation measures.
b) Provide details regarding how MI plans to involve local trappers in the Nuisance Beaver Management Program, what local trappers may assist with, and whether Indigenous groups were engaged to determine their interest and capacity to aid MI with this program.
c) Describe potential Project effects to beaver-influenced wetlands and VCs that may utilize these areas due to nuisance beaver management employed for the Project and include these effects in the assessment of potential Project effects, residual effects, and cumulative effects for wetlands and other VCs.
d) Describe measures that will be implemented to mitigate adverse effects to wetlands resulting from the removal of beaver dams, drainage of beaver ponds, and removal/relocation of nuisance beavers and follow-up and monitoring that will be conducted including for any unanticipated effects.

Response

a) As stated in Chapter 6, Section 6.6.2.2 of the Environmental Impact Statement (EIS), to manage culvert blockage from beaver activity, large diameter culverts (≥ 900 mm) and beaver cones will be used. Regular inspections and maintenance activities, such as culvert clean-outs, clearing of vegetation, branches, mud, ice, snow, or other debris from the inlets, barrels and outlets, would minimize the potential for damage to the road and culvert crossings. Although the EIS only mentions beaver cones as a control measure, Manitoba Transportation and Infrastructure's (MTI) design process typically includes working with maintenance staff to select the best approach. Local recommendations that could supplement beaver cones, such as pond levelers of beaver deceivers as suggested by Pimicikamak Okimawin may be considered where or if appropriate. However, beaver cones have proven effective when used on other all-season road projects (e.g. Project 1 all-season road from PR304 to Berens River) and are relatively easy to maintain. if beaver control structures are ineffective, the Nuisance Beaver Management Plan (Project 6 EIS, Appendix

3-6) will be implemented. This plan aims to involve local trappers to assist MTI staff in road maintenance activities within their registered trap line areas. Nuisance beaver areas will be identified by MTI staff or contractors during construction or maintenance works or during routine road inspections, typically done twice a year in spring and fall, or by community members or others that raise the issue.

b) The Nuisance Beaver Management Plan (Project 6 EIS, Appendix 3-6) states that eligible trappers must have a valid trapping license. They must also be registered as the line holder or helper for a Registered Trap Line (RTL) intersecting the P6-ASR. If the primary trapper or helper declines, an alternate must be designated to remove nuisance beavers.

Priority will be given to existing RTL line holders. MTI will maintain an up-to-date listing of designated trappers for all RTLs intersecting the P6-ASR alignment, and they will be contacted by MTI and asked to partake in the removal of nuisance beavers within their RTL and community line limits as required.

As described in Chapter 3, Appendix 3-6 of the EIS, payment will be made to designated trappers who successfully remove pre-designated nuisance beavers. When the EIS was filed in 2017, a total of $50.00 was the value to be paid for each pre-approved beaver tail returned to MTI for the arranged time and location. However, to ensure fair market prices, this value may be adjusted based on current trends. The remainder of the carcass, including the pelt, meat, and castor glands will remain the property of the trapper. This process was also used for construction of the Project 1 all-season road from PR304 to Berens River First Nation and proved successful for that particular project.

Although beaver removal is an effective option, the preferred method is to remove the beaver dams whenever possible. MTI will identify locations requiring beaver dam removal (if any) and will obtain required provincial permits or further authorization prior to conducting the work.

c) Primary beaver habitats are found in small patches near water within the LAA, with larger concentrations in the eastern RAA, as shown in Figure IR1-41-1 (Joro, 2018). Surveys conducted from 2014 to 2016 observed beaver lodges and dams distributed across the RAA, with counts ranging from 131 lodges in 2014 to 41 in 2016.

Joro (2018) reported that results from multispecies surveys, the trapper program, Traditional Knowledge, and incidental trail camera data confirm general occupancy of beavers within the LAA and the RAA. Habitat loss in the RAA was minimal, with only 0.008% of available modeled high-quality habitat for beaver, indicating that habitat availability is not a limiting factor. Additionally, trappers have reported an abundance of beavers within the area. Although the lethal removal of beavers associated with a dam will typically be required prior to the commencement of beaver dam

removal activities, if the habitat remains suitable, more beavers are likely to move into the area and will construct new dams (Province of Manitoba, 2022)

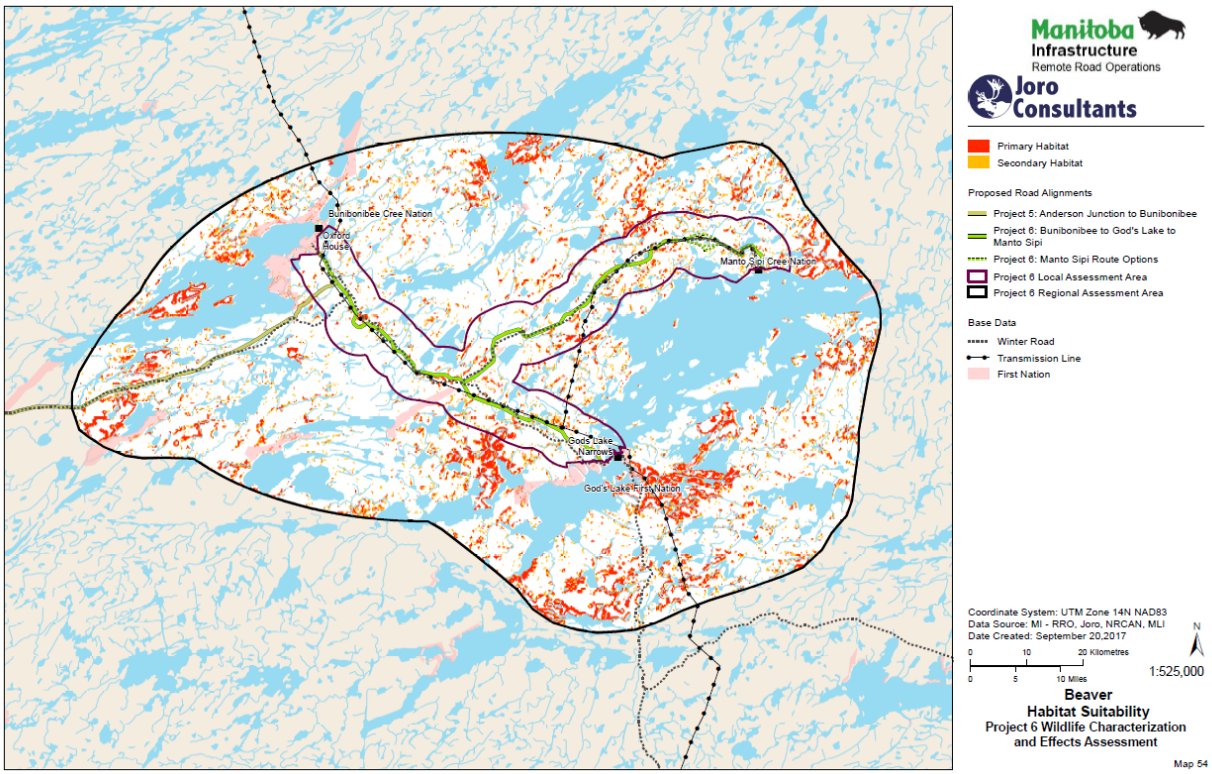


Figure IR1-41-1. Beaver habitat characterization (Joro, 2018)

Beaver influenced wetlands identified as part of field surveys are shown below, highlighted in yellow (Figure IR1-41-2, Figure IR1-41- 3) and can be found in Appendix 4 and 5 of the North/ South Consultants Technical Report (NSC, 2017).

- P6a-X009
- P6a-X010
- P6a-X011
- P6a-X012
- P6a-X013
- P6a-X014
- P6a-X017
- P6a-X035
- P6b-X005
- P6a-X002
- P6a-X005
- P6a-X008
- P6a-X018
- P6a-X019
- P6a-X020
- P6a-X027
- P6a-X028
- P6a-X029
- P6a-X032
- P6a-X033
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- P6b-X009

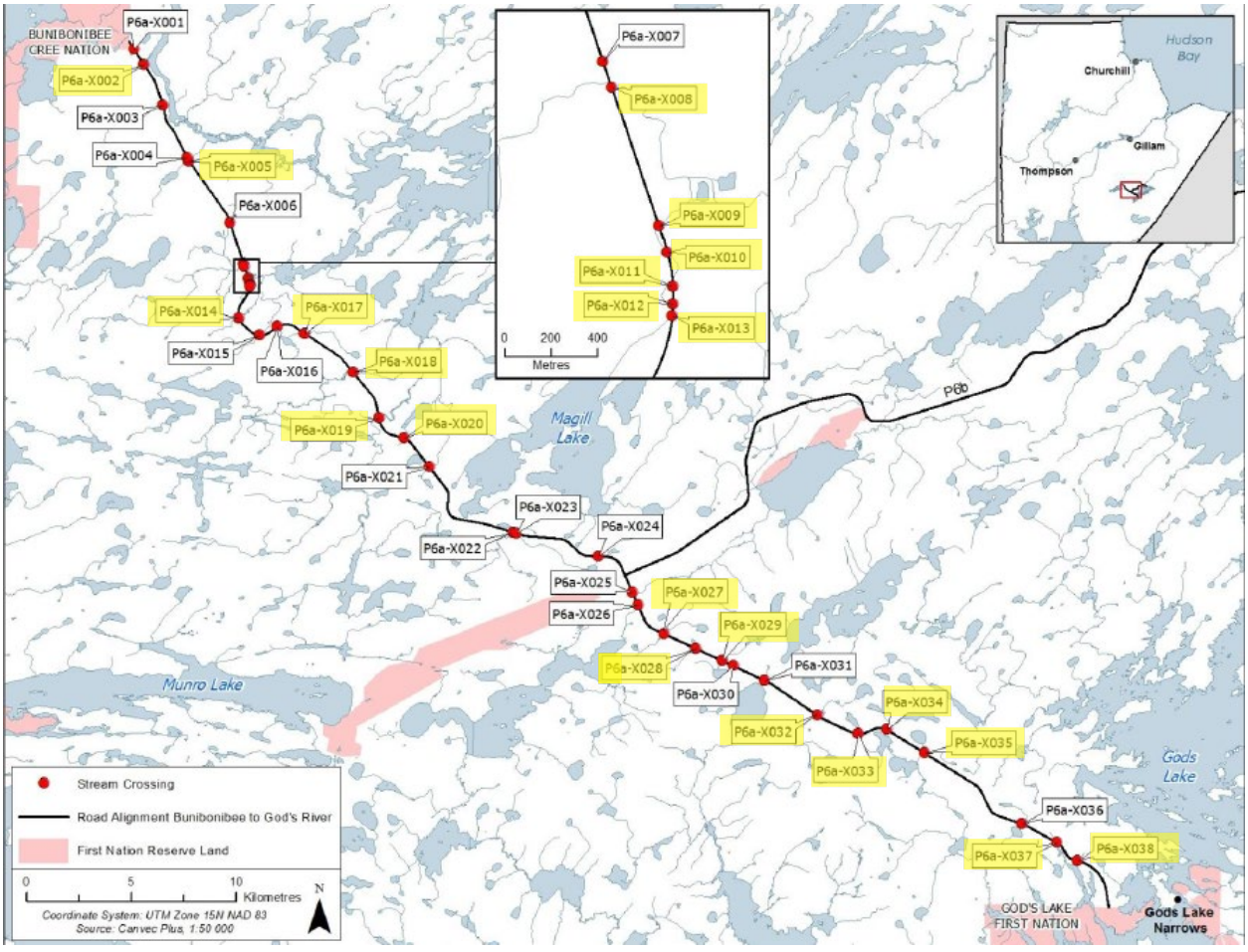


Figure IR1-41-2. Figure adapted from Project 6a- Bunibonibee Cree Nation to God's Lake First Nation All Season Road watercourse crossing locations. (NSC, 2017)

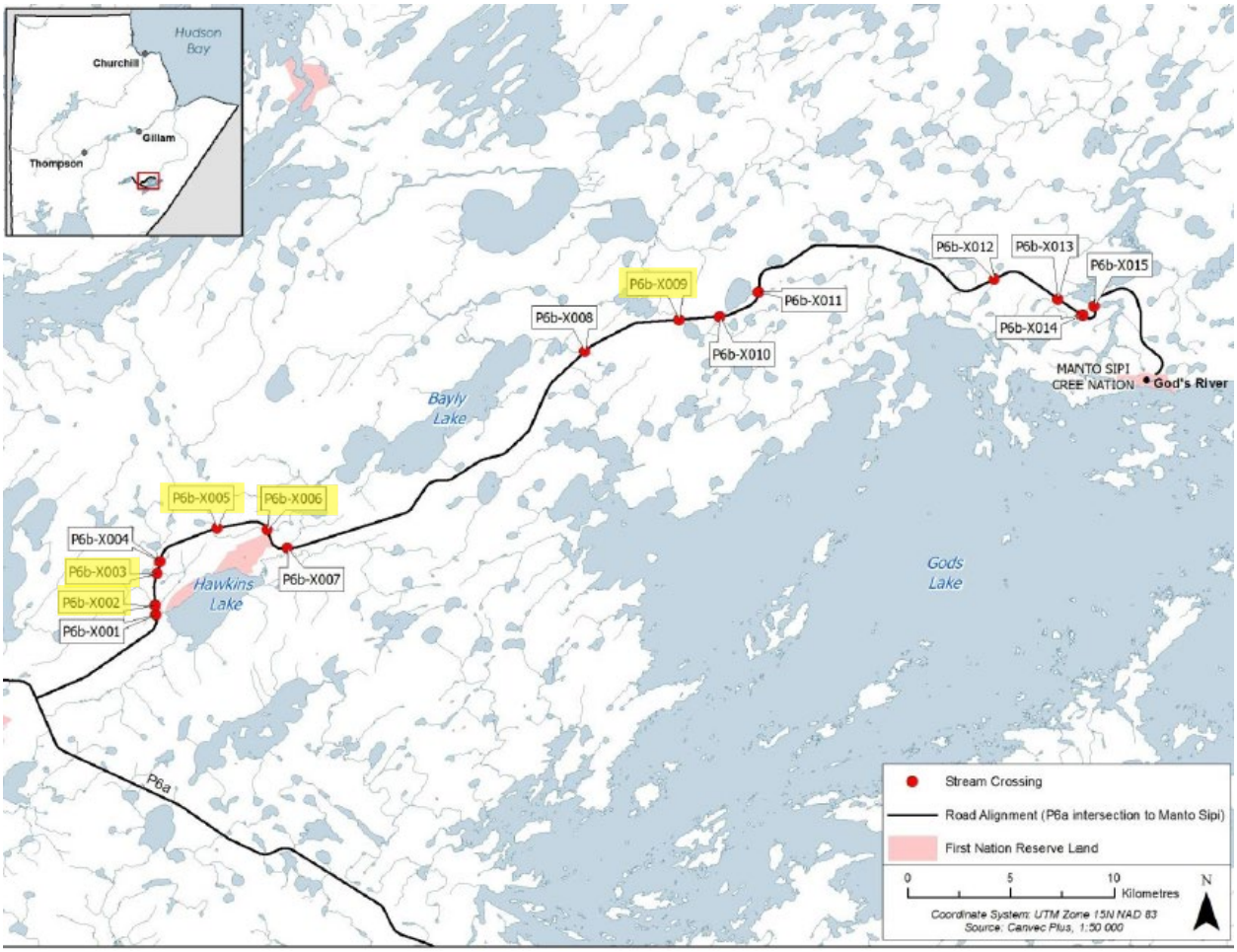


Figure IR1-41-3. Figure adapted from Project 6b- Manto Sipi Cree Nation to the P6a junction All Season Road watercourse crossing locations. (NSC,2017)

For suitable habitat, beavers require a reliable water source and forage. They prefer to build dams on smaller streams where dam construction is feasible at low flow levels and stable during typical high flows (2-year flood). Ideal building habitats are small to medium streams (less than 20 meters wide) with low gradients (less than 3%); beavers can also build on steeper channels, floodplains, side channels of wider rivers, and hillside springs and seeps (Scamardo et al., 2022). Beavers will construct dams on both perennial and intermittent streams as long as a woody riparian corridor is present (Gibson & Olden, 2014). These findings suggest that the loss of certain beaver dams due to nuisance beaver management would not adversely affect other valued components (VCs). Since

habitat availability is not a limiting factor in the area, the removal of beaver dams is expected to result in a shift of activity to other areas rather than a loss. As long as the habitat remains suitable, beavers are likely to relocate successfully. According to Żurowski (1992) beavers consistently attempted to rebuild dams at sites where they were destroyed; however, frequent disturbances often forced beavers to relocate.

d) As described in Response C, removing beaver dams, draining ponds, and relocating nuisance beavers is not expected to have significant adverse effects. Beavers typically relocate to new areas with high-quality, available habitat, which is present in this project area. If relocation is successful, habitat availability for other species that rely on beaver dams will remain unchanged.

However, MTI will implement applicable mitigation measures and follow best management practices for beaver dam removal such as those identified in the Environmental Protection Procedures (EPs) and Environmental Protection Specifications (ES) available in Appendices 8-2 and 8-3 in Chapter 8 of the EIS, as well as in Appendix IR1-19-1 in the response to information request IR1-19.

- EP11 – Culvert maintenance and replacement
    - When removing beaver dams and associated debris for culvert maintenance, the Contractor shall:
        - Time work to avoid harm to spawning fish, eggs, and larval fish.
        - Install effective sediment and erosion control measures before starting work. Erosion and sediment control is to be inspected regularly to ensure proper function and repaired immediately if found damaged.
        - Operate machinery from outside from outside the water that minimizes the disturbance to the banks and bed of the watercourse.
        - Remove dam gradually to allow water to release slowly and prevent sediment at the bottom of the pond from being released downstream.
        - Not create a breach in the dam exceeding the width of the original stream.
        - Not use explosives without MI and DFO approval.
        - Safely return any stranded fish to the main channel.
        - Stabilize any waste material above the ordinary high water mark. Spoil piles shall be removed or contained within appropriate erosion and sediment control measures.
        - Minimize removal of riparian vegetation.
        - Re-vegetate any disturbed area.
        - Maintain erosion and sediment control until such time as the as re-vegetation is complete.
- ES 130.15.1 Working withing or near water

- ES130.15.1.6 Whenever it is necessary to remove existing beaver dams, the Contractor shall adhere to the 130.15.10. Work plans for beaver dam removal shall be provided to the Contract Administrator 10 business days prior to the start of dam removal for application of a beaver dam removal permit from Manitoba Sustainable Development.
- ES130.15.10 Beaver Dam Removal
    - Beaver Dams to be removed shall be identified in consultation with and as approved by the Contract Administrator. Beaver dams may not be removed without first obtaining authorization from Manitoba Sustainable Development.
    - Removal of the dam shall not adversely affect a fishery, or recreational property uses that depend on the dam's existence, both upstream and downstream.
    - Removal activities shall be restricted to removal or breaching of the dam itself and shall not involve channel or shoreline modification downstream of the dam.
    - Beaver dam removal is not to be conducted in the winter as this may result in loss of fish habitat.
    - Whenever possible remove beaver dams by hand.
    - Remove the dam gradually to allow a slow release of water to prevent sediment release and potential flooding downstream.
    - if explosives are to be used in dam removal, individual detonations shall not exceed one kilogram of explosives, diesel fuel and fertilizer are not to be used as explosives.
    - Removals are not to be completed on beaver dams directly connected to a culvert or bridge.

Additionally, MTI will adhere to the DFO's Timing Windows for Avoidance of In-Water Work.

During routine road inspections, these areas will be evaluated for any unanticipated effects, and mitigation measures will be revised and updated as necessary.

REFERENCES

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QUESTION IAAC IR1-42

EIS Guideline Reference	• Part 2, Section 6.3
EIS Reference	• Chapter 6, Section 6.2.1.3, 6.2.5.5.1.2 to 6.2.5.5.1.6, 6.2.5.5.2.2, 6.2.5.5.2.3, 6.3.2.1 to 6.3.2.4, and 6.3.3 • Appendix D-2, Table 8
Category	Wildlife

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential adverse effects of the Project from sensory disturbance and mortality to migratory birds, species at risk, and species of importance to Indigenous peoples.

The EIS indicates that moose, aquatic and terrestrial furbearers, migratory and non-migratory birds, and species at risk may be adversely affected by sensory disturbance and avoidance of high quality habitat near the ASR right-of-way (ROW) during construction and operation. The proponent considers the amount of habitat potentially affected to be small relative to habitat availability. No data are provided regarding the amount of habitat that may be potentially affected by sensory disturbance and no numerical comparison is made to the amount of habitat available in the wildlife RAA for each species. Without this information, conclusions with respect to the significance of indirect habitat loss due to avoidance cannot be verified. Additionally, although the description of potential sources of sensory disturbance includes a consideration of a variety of Project activities, the assessment of the significance of potential effects due to sensory disturbance to wildlife species only considers effects related to vehicle and equipment noise and only discusses potential habitat avoidance. The Agency notes that sensory disturbance can result from other Project activities, such as blasting, and can result in adverse effects to wildlife other than habitat avoidance, such as reduced fitness due to stress or altered behaviour.

With respect to the description of potential Project effects to caribou as a result of sensory disturbance, the EIS indicates that as no Norway House caribou calved within the Wildlife RAA, the effect of sensory disturbance and displacement is predicted to be low. A lack of calving within the RAA is not an adequate rationale for the prediction that sensory disturbance effects will be low as sensory disturbance may result in habitat avoidance or other potential effects outside of calving

periods or to individuals that are not calving. Furthermore, according to the EIS, a number of Norway House caribou were observed within the Wildlife LAA from March 1, 2016 to August 15, 2017. As such, while recorded instances of calving within the Wildlife RAA may be low, this does not preclude the presence or use of the Project footprint, LAA, or RAA by caribou.

The EIS also describes how an increase in hunting pressure, vehicular collisions, and predation (i.e. only in the case of moose and caribou) may result in increased mortality of moose, aquatic and terrestrial furbearers, migratory and non-migratory birds, and species at risk. No quantitative data are presented regarding the anticipated number of individuals of each species or the proportion of each species' population that may be lost as a result of Project-related mortality. Pimicikamak Okimawin expressed concerns regarding potential increases in wildlife mortality resulting from potential illegal hunting and illegal dumping of waste. As poaching and illegal dumping may increase due to increased access to the area facilitated by the Project, this factor must be considered in the assessment of potential Project effects to wildlife.

Supplementary information is required to support the characterization of potential Project effects and to verify conclusions with respect to the significance of effects to VCs as a result of sensory disturbance and mortality.

Information Request

a) Indicate the amount of habitat that may be avoided by moose, aquatic and terrestrial furbearers, migratory and non-migratory birds, and species at risk as a result of sensory disturbance from the Project during all Project phases.
b) Provide quantitative data regarding the anticipated number of individuals or proportion of moose, aquatic and terrestrial furbearers, migratory and non-migratory birds, and species at risk populations that may be lost as a result of direct and indirect mortality.
c) Revise the assessment of potential Project effects, residual effects, and cumulative effects for caribou to include factors in addition to the calving rate in the Wildlife RAA, including the number of individuals observed, when caribou are present in the Project footprint, LAA, and RAA, and where caribou are likely to be located in relation to Project components and activities.
d) Revise the assessment of potential Project effects, residual effects, and cumulative effects for moose, aquatic and terrestrial furbearers, migratory and non-migratory birds, and species at risk to include:
    i. potential adverse effects of an increase in hunting pressure;
    ii. potential effects of sensory disturbance from Project components/activities other than vehicle and equipment noise and vibrations; and
    iii. effects of sensory disturbance other than habitat displacement.

RESPONSE

a) Sensory disturbances from the Project during all phases may lead to localized habitat avoidance by various wildlife species. However, given the Project's low traffic volumes, existing regional road densities, and extensive available habitat, the amount of habitat avoided by moose, furbearers, migratory birds, non-migratory birds, and species at risk is expected to be minimal. The following assessment discusses potential habitat avoidance for each species group and provides supporting evidence from studies, modeling, and past federally approved all-season road projects.

Moose

As described in Joro (2018b), moose (*Alces alces)* in the Regional Assessment Area (RAA) have coexisted with the winter road network for several decades and are likely accustomed to the present level of activity associated with winter road traffic and hunting. Sensory disturbances from the Project during construction and operation phases may lead to moose avoiding high-quality habitats near the right-of-way (ROW). However, due to low moose densities observed in the RAA during winter and the minimal displacement expected, sensory disturbances from winter clearing activities are anticipated to potentially affect a low number of individuals and have negligible effects on moose populations. Similarly, sensory disturbance from operation is also anticipated to be low as traffic volumes are generally anticipated to remain the same, with peak traffic volumes occurring in winter when winter road connections open (Joro, 2018b).

Scientific literature suggests that moose may respond to linear features in a variety of ways and to varying degrees (Bartzke et al. 2015). Joro (2018b) cites a number of scientific papers indicating that moose may avoid, but also use roads, and continue to regularly cross roads. Shanley & Pyare (2011) however, suggest that male moose may experience disturbances up to 500 meters from rural roads, while female moose, being more sensitive due to calf protection, may avoid areas over 1,000 meters away. Therefore, considering results from Shanley & Pyare (2011) as a worst-case scenario, should moose fully avoid the use of any habitat within 1,000m of the road a maximum of 282km^2 (1km to either side of the full 141km alignment) may be avoided by moose, representing approximately 9.6% of the Local Assessment Area (LAA) and only 3.1% of the RAA.

Additionally, Eldegard et al. (2012) found that male moose are more likely to move closer to roads, especially during winter, when food resources are limiting, suggesting that roadsides may offer valuable foraging opportunities. Similarly, Laurian et al. (2008) observed that moose frequented the vicinity of highways to feed on sodium-rich vegetation, particularly in spring and summer.

Despite some localized habitat avoidance, regional moose populations are unlikely to be significantly affected, as moose are known to adapt to the presence of roads and may even use ROWs for foraging due to improved vegetation growth.

For aquatic furbearers such as beavers, construction-related sensory disturbances may arise from the removal of dams and lodges (should it be required), potentially causing relocation or mortality. Sensory disturbance of terrestrial furbearers caused by roads such as the proposed Project can include noise, edge effects, dust and vibration. Marten are an important terrestrial furbearer species and have generally been found to have negative relationships with roads (Silet, 2017). For representative furbearers such as marten and beaver, the proportion of habitat loss within the RAA is 0.028% and 0.008% respectively, while habitat loss within the LAA is 0.19% for marten and 0.03% for beaver. Sensory disturbances are expected to have minimal effects given the small area impacted (Joro, 2018b).

Additionally, wildlife monitoring reports from similar projects, such as the Project 1 All-Season Road from PR 304 to Berens River (P1), indicated that measurable changes in furbearer distribution were not observed during or after construction and operation. Both monitoring data and trapper reports did not identify any measurable decline in furbearer distribution. Given the limited amount of ancillary access and the absence of intensive industrial activities such as forestry, the area surrounding P1 was relatively intact for species like marten. Furthermore, the implementation of mitigation measures, such as restricting right-of-way (ROW) clearing to winter months and confining construction activities to the project footprint to avoid disrupting denning or nesting, also contributed to minimizing impacts. These same conditions and mitigation strategies are applicable to Project 6. Overall, the amount of habitat lost by terrestrial and aquatic furbearer species is expected to be minimal and unlikely to result in significant ecological impacts.

Migratory Birds

Sensory disturbances from construction and operation activities during nesting and staging periods could lead to temporary local abandonment or avoidance of wetlands by migratory waterfowl (EIS Chapter 6, Section 6.3.2.2). However, habitat loss for species such as Canada geese (0.01%), mallards (0.02%), and ring-necked ducks (0.04%) is minimal, and habitat availability within the RAA is extensive, reducing long-term effects (Joro, 2018b). As described in Chapter 3, Section 3.3.1 of the Project's Environmental Impact Statement (EIS), the proposed all-season road will generally follow the pre-existing winter road alignment and will remain within 1 km of the winter road corridor along most of the alignment. The proposed all-season road only deviating further in select locations so as to avoid lower and wetter areas. Overall, the amount of habitat avoided by migratory waterfowl is expected to be minimal, with no significant impact on their populations.

Other migratory birds such as passerine (perching) species may experience sensory disturbance caused by road noise, dust, and edge effects. While some species more sensitive to such disturbance may avoid the immediate area of the proposed all-season road, it is not anticipated to apply to all species and therefore may result in a shift in the composition of migratory bird species along the road as was detected by Ingelfinger and Anderson (2004).

Non-Migratory Birds

Modeled habitat for species like ruffed grouse falls outside the Project Footprint, indicating no direct habitat loss. Low road densities in the Local Assessment Area (LAA) and RAA suggest minimal sensory disturbance effects, as habitat availability is ample, and some populations benefit from habitat disturbances (Joro, 2018a). Overall, the amount of habitat avoided by non-migratory birds is expected to be negligible, with no significant impact on their populations.

Species at Risk

Caribou

As described in Chapter 6, Section 6.2.5.5.1.2 of the EIS, modelled caribou calving habitat is not limiting, and caribou behaviour strategies and avoidance of anthropogenic disturbance, including sensory disturbance, are known to be associated with predator avoidance. Leclerc *et al.* (2014) found that female caribou that calved near cutovers with associated high road densities had fewer calves than those that calved away from these features. However, results of fidelity analysis also illustrates that female caribou exhibit large movements between calving site selection from year to year and if present, would select other potential high quality calving habitat available throughout the Wildlife LAA and RAA (EIS Chapter 6, Section 6.2.5.5.1.2). The large distances travelled, in combination with the analysis of time spent in the Wildlife RAA by all collared Pen Islands caribou (27.1 days), provides rationale for the low predicted effect for sensory disturbance and displacement. As no Norway House animals calved within the Wildlife RAA, the effect of sensory disturbance and displacement is predicted to be low (EIS Chapter 6, Section 6.2.5.5.1.2).

Additionally, as described in Appendix D-2 of the EIS, although disturbance thresholds are not applied to eastern migratory caribou, as a precautionary evaluation Pen Islands caribou were assessed based on the 35% disturbed threshold identified by Environment Canada (2012) for boreal woodland caribou. Results showed that the overall disturbance is 23% for the Pen Islands range, with 0.005% disturbance contributed to the P6 ASR (Joro, 2018b). For boreal woodland caribou (forest-tundra) the total disturbance regime in the Pen Islands range remains under the Environment Canada threshold (35%), and the P6 Project accounts for a small percentage of the overall disturbance in the Pen Islands range (<1%) with natural disturbance being the major factor (20%) (Joro, 2018b). For boreal woodland caribou (forest dwelling) the total disturbance regime in the Molson Management Unit remains under the Environment Canada threshold (35%), and the P6 Project accounts for a small percentage of the overall disturbance in the Molson Management Unit (<1%) with natural disturbance being the major factor (25%) (Joro, 2018b). If using a precautionary approach it may be assumed that both Pen Islands caribou and boreal woodland caribou would entirely avoid portions of their range that may be disturbed by the Project. This approach would result in Pen Islands caribou potentially avoiding up to 4.23 km^2 (0.005% of the range) and boreal woodland caribou actually gaining 7.05 km^2 (<1% of their range). The response to IR1-53 provides further detail on the anticipated decrease in habitat disturbance for boreal woodland caribou.

As discussed in Chapter 6, Section 6.5.5.2.1.2 of the EIS, based on the assessment of adversity for the criteria after implementation of mitigation measures (EP1, EP14, EP18 ES 130.6, ES 130.11, ES 130.12, and ES 130.17), and the defined significance criteria, the residual effects are not significant.

Additionally, wildlife monitoring reports from similar projects, such as the Project 1 All-Season Road from PR 304 to Berens River (P1) concluded that there is no evidence to indicate that the P1 development has adversely impacted either directly or indirectly the number or distribution of boreal woodland caribou.

Wolverine

As described in Chapter 6 of the EIS, two wolverines were observed on trail cameras in the Wildlife RAA. One wolverine track was observed during the 2012 multispecies survey, one wolverine track was observed during the 2014 multispecies survey and ten tracks were observed as part of the trapper program. Austin (1998) indicates that wolverines may avoid areas within approximately 100 m of major transportation corridors and up to 200 m along adjacent trails, with a strong preference for travelling more than 1,100 m from such disturbances. However, the Austin (1998) study was conducted along the Trans-Canada Highway in Kicking Horse Pass (Alberta-British Columbia), a major transportation corridor with substantially higher traffic volumes, greater noise, and higher levels of human activity than the proposed Project 6 all-season road. For Project 6, traffic volumes are expected to be less than 300 vehicles per day (EIS Chapter 3) , resulting in a substantially lower level of sensory disturbance compared to the Trans-Canada Highway.

Applying the 200 m buffer documented in Austin (1998), to either side of the full 141 km road alignment results in an estimated maximum of 56.4 km^2 of habitat potentially avoided by wolverines. This represents approximately 1.93% and 0.63% of the LAA and RAA, respectively. The amount of habitat affected is minor relative to habitat availability in the Wildlife LAA and RAA. Based on the assessment of adversity for the criteria after implementation of mitigation measures and the defined significance criteria, the residual effects are not significant, and therefore the amount of habitat that will be avoided is minimal.

Little Brown Bat

As described in Chapter 6 of the EIS, no little brown bat were observed during field studies, and no known winter roosting, hibernacula or critical habitat for this species was identified within the RAA. The potential residual effect to little brown bat is a decrease in the population and/or habitat as a result of clearing and sensory disturbance. While some studies suggest that bats may avoid foraging near roads, this appears to be related to traffic volumes and noise. Bennett and Zurcher (2013) studied commuting bats, including little brown bats, in Indiana, and found that most avoidance (turn-back) events occurred within 40 m of roads. In their study, 56% of bats avoided the road in the absence of vehicles, increasing to 68% when vehicles were present. As mentioned above, for Project 6, operational traffic (<300 vehicles/day) is well below the 20–40 vehicles/hour in

Bennett and Zurcher's study. Given the very low anticipated traffic volumes for the Project, it is not believed that bats will measurably avoid the road. Applying a 40 m per-side disturbance distance to the 141 km alignment results in 11.28 km^2 of potential disturbance. This represents approximately 0.39% and 0.13% of the LAA and RAA, respectively.

This effect is considered minor relative to habitat availability. Based on the assessment of adversity for the criteria after implementation of mitigation measures and the defined significance criteria, the residual effects are not significant, and therefore the amount of habitat that will be avoided is minimal.

Lake Sturgeon

As described in Chapter 6 of the EIS, while no lake sturgeon were encountered during field investigations, their distribution overlaps the Aquatic RAA. The potential effect to habitat would be at the God's River crossing which is suitable foraging habitat but is also considered non-limiting habitat. The magnitude of effect is considered minor due to limited potential for in-water effects and the limited number of locations where lake sturgeon may occur. The source of effects could occur sporadically associated with construction and maintenance activities that would occur throughout the life of the Project. In-water work would be scheduled to be outside of critical life stages and will only occur under a Fisheries Act authorization. A Fisheries Act authorization application will be put forward after design of the God's River crossing structure has been completed and prior to work occurring. Exact details regarding possible habitat impacts will be identified at that time, and are anticipated to be fully offset.Based on the assessment of adversity for the criteria after implementation of mitigation measures and the defined significance criteria, the residual effects are not significant, and therefore the amount of habitat that will be avoided is minimal.

b) The anticipated mortality of moose, aquatic and terrestrial furbearers, migratory and non-migratory birds, and species at risk due to the Project is expected to be minimal, with no significant population declines. Quantified estimates for the number of individuals that may be lost due to direct or indirect Project effects can not be provided for reasons stated below. Furthermore, the risk of increased poaching as a result of the Project is not considered to be a concern. As described in Section 6.1.9 in Chapter 6 of the EIS, with the exception of a few lodges, the human environment in the vicinity of the Project is primarily composed of Indigenous Nations whose harvesting rights are constitutionally protected. Indigenous harvest is therefore not considered poaching. Additionally, because the road provides no additional connection to the remainder of Manitoba except for times when the winter road is open, the Project does not change the potential access to the region by non-indigenous peoples (until all season road link(s) are made to the Manitoba highway network), and therefore is not considered to be a potential cause for increased non-indigenous poaching.

For moose and caribou, mortality risks are primarily linked to potential vehicle collisions and increased hunting access. However, given the low moose densities in the RAA (0.02 – 0.04 moose

per km^2 [Joro 2018]) and the fact that similar projects (Project 1)) have reported only one known moose-vehicle collision, the overall risk remains low. Indirect effects to moose and caribou from hunting or harvest can not be estimated as current sustenance harvest numbers are not currently known and can be difficult or sensitive data to acquire. Regardless, the EIS anticipates that hunting pressure is unlikely to increase but may shift with construction of the new road.

Aquatic and terrestrial furbearers face similar mortality risks, mainly from vehicular collisions, but also from trapping. Quantifying the potential number of individuals that may be lost from vehicle collisions is difficult, and again, the EIS identifies that trapping effort may shift to new locations but is not anticipated to increase over current levels.

Migratory and non-migratory birds are additionally threatened by increased hunting pressure and potential mortality of young birds during construction, maintenance, and operation. Non-migratory birds such as ruffed grouse may be killed by vehicle collisions, but studies generally relate to areas of higher road density. Since road density and anticipated traffic volumes in the LAA and RAA are low road mortality is not anticipated to impact local populations (Joro 2018) but quantifying the number of individuals that may be affected is hard to predict. Increased harvest of non-migratory birds such as ruffed grouse is possible but is not the limiting factor for populations (Joro 2018). As per moose harvest numbers, the number of ruffed grouse harvested by Indigenous Nations are not known, therefore, predicting how many grouse may be indirectly affected through hunting cannot be quantified. As per Joro 2018, effects related to vehicle mortality for migratory birds is not expected to be measurable, and as per other harvest information, quantifying changes from indirect effects such as hunting of waterfowl is not possible.

Table IR1-42-1 presents the residual effects of the project on mortality risks, along with the extent of these risks. It shows the anticipated proportion of individuals that might be lost due to both direct and indirect causes linked to the project. While some risks may lead to measurable population impacts, the overall significance remains negative. This indicates that with the implementation of mitigation measures, no significant effects are expected. See Chapter 6, Appendix 6-5 of the EIS for the complete assessment of these effects.

Table IR1-42-1. Mortality risks and residual environmental effects

Factor	Residual Environmental Effects	Magnitude of Effect	Evaluation of significance
Mammals (ungulates)	Increased caribou mortality due to increased hunting pressures during construction and with increased access along the all-season road during operation	Effect likely to occur at the individual level, not measurably affecting the population	Not significant
	Increased moose mortality due to increased hunting pressures during construction and with increased access in spring, summer and fall along the all-season road during operation	May measurably affect populations	Not significant
	Increased moose and caribou mortality due to vehicular collisions during construction, maintenance and operation	Effect likely to occur at the individual level, not measurably affecting the population	Not significant
	Increased moose and caribou mortality due to increased predation by wolves from increased access beyond that provided by the existing winter road and transmission	Effect likely to occur at the individual level, not measurably affecting the population	Not significant
	Increased moose and caribou mortality due to introduction of disease from white-tailed deer (ex: brainworm, liverfluke)	Effect likely to occur at the individual level, not measurably affecting the population	Not significant
Mammals (Aquatic and Terrestrial Furbearers)	Increased furbearer (ex: beaver, marten) mortality due to vehicular collisions and nuisance wildlife management during construction, maintenance and operation	Effect likely to occur at the individual level, not measurably affecting the population	Not Significant
Birds / Migratory Birds (Songbirds, Raptors, Waterfowl, Upland)	Loss of nests and mortality to young migratory (ex: raptors, waterfowl, forest birds) and nonmigratory (ex: upland game birds) birds during construction, maintenance and operation	Effect likely to occur at the individual level, not measurably affecting the population	Not significant
	Increased mortality of migratory (ex: waterfowl) and non-migratory (ex: upland game birds) birds due to increased hunting pressures during construction and with increased access in spring, summer and fall along the all-season road	May measurably affect populations	Not Significant
	Increased mortality of migratory (ex: waterfowl, forest birds) and non-migratory (ex: upland game birds) birds due to vehicular collisions during construction, maintenance and operation	Effect likely to occur at the individual level, not measurably affecting the population	Not significant

As stated in Chapter 8, Section 8.6.1 of the EIS, MTI is committed to implementing a Wildlife Monitoring Plan prior to construction. The Wildlife Monitoring Plan will include provisions to document instances of collisions between wildlife and vehicles so as to verify the effectiveness of proposed mitigation measures as well as the predictions made in the EIS. This plan will focus on moose, caribou, migratory birds, and furbearers, in alignment with the Environmental Act License (EAL) and the P6 EIS requirements.

MTI will share findings with regulators and seek input from Indigenous Nations to ensure a comprehensive approach to wildlife monitoring and management. Annual monitoring reports summarizing activities results will be developed and provided to provincial and federal regulators as well as Indigenous Nations. At the completion of the monitoring program, annual reports will be summarized into one final Wildlife Monitoring Report.

c) The environmental assessment does not need to be revised regarding potential Project effects, residual effects, and cumulative effects for caribou. Information regarding existing habitat, distribution and seasonal movements of caribou were presented in Project 6 Existing Environment Wildlife Report (Joro 2018a) and Wildlife Characterization and Effects Assessment of The Proposed All-Season Road report (Joro 2018b) provided with the EIS. Information reported on in both aforementioned reports were used in the identification and assessment of potential project effects to caribou. As such a revised assessment of potential Project effects, residual effects, and cumulative effects is not required.

The Joro reports provide information on study methodology and results including group counts. Studies performed for the Project, including telemetry data, trail camera observations, and traditional knowledge confirm that Pen Islands caribou use the Wildlife RAA seasonally, primarily during winter. These caribou ecotype spend an average of 10.4 days in the RAA during early winter and 16.7 days during late winter (Joro, 2018b). Although Norway House caribou have smaller-scale movements, they have also been observed in the Wildlife LAA between March 2016 and August 2017, suggesting potential use of portions of the Project footprint, LAA, and RAA during spring and other non-calving periods (Joro, 2018b). Exact caribou locations and/or proximity to the proposed Project were not made publicly available and were treated as confidential as caribou are a species of conservation concern as well as to protect indigenous knowledge provided by Indigenous Nations.

High-quality winter and calving habitats are not limiting in the Wildlife RAA or the broader region. Confidential caribou telemetry data demonstrated that seasonal occupation and migration of the Pen Islands caribou occurs throughout the RAA during winter. However, this data and locational mapping for species of conservation concern and hunted species is considered sensitive and has been removed from the technical reports. This information can be made available upon permission granted from communities, and if agreed to be kept confidential. The RAA contains 594 km^2 of high-quality winter habitat and 466 km^2 of high-quality calving habitat. Within the LAA, 102 km^2 of winter habitat and 119 km^2 of calving habitat are available (Joro, 2018b). However, sensory disturbances caused by Project activities could lead to temporary habitat avoidance during critical periods, such as migration or foraging, potentially increasing energy expenditures and affecting fitness.

While the overlap of seasonal core use areas with the Project footprint is limited for both Pen Islands and Norway House caribou, sensory disturbances could extend beyond the immediate footprint into the LAA, particularly for Pen Islands caribou during their winter migration. These effects are expected to be occasional throughout the life of the Project and are considered irreversible.

Given the ecological importance of woodland caribou and their protection under the Species at Risk Act (SARA) and Endangered Species and Ecosystems Act (ESEA), as well as the likelihood of Eastern Migratory caribou receiving future protection, the potential decrease in populations and/or habitat is considered a high ecological and social risk prior to mitigation.

With the implementation of mitigation measures outlined in Chapter 6, Section 6.4.5.2.1.2 of the EIS, the magnitude, timing, reversibility, and ecological and social context of sensory disturbance effects on caribou have been reassessed. Key mitigation measures include:

- Scheduling construction activities to avoid critical life stages (e.g., calving and winter migration).
- Minimizing noise and vibration during Project activities.
- Maintaining buffer zones around key habitats.
- Implementing measures to reduce predation risks and hunting pressure in the area.

The residual adverse effect is an increase in sensory disturbance and temporary displacement of caribou due to vehicle and equipment noise during construction, maintenance, and operation. Residual effects are expected to occur at the individual level and are unlikely to result in measurable impacts on caribou populations.

Given the mobility of caribou and the availability of high-quality habitat within the RAA, residual effects would likely be temporary and reversible over the long term, as caribou are expected to adjust to reduced disturbance levels following construction. Effects are expected to extend beyond the Project footprint into the Wildlife LAA but would not persist across the entire RAA.

The cumulative effects of sensory disturbances, combined with natural and anthropogenic factors, remain below the 35% disturbance threshold for boreal woodland caribou. Current disturbance levels in the Pen Islands range (23%) and Molson MU (28%) are largely attributed to natural factors, such as wildfires, with minimal contribution from human activities (Joro, 2018b). Ecosystem-level effects are assessed as moderate due to the ecological and cultural importance of caribou to local communities. The residual effects on woodland caribou populations and habitat are not considered significant after the implementation of mitigation measures and are not believed to require reassessment.

d) An updated or revised assessment of potential Project effects to wildlife from sensory disturbance is not required. Potential adverse effects of increased hunting pressure and sensory effects for moose, aquatic and terrestrial furbearers (i.e. resource use via trapping), migratory and non-migratory birds and species at risk (e.g. caribou) have already been assessed in the EIS and are presented in Chapter 6 throughout Section 6.3, and in the effects tables included as Appendices 6-4 and 6-5.

Similarly, the assessment of sensory effects was not limited to vehicle and equipment noise. Chapter 6, Section 6.2.1 presents predicted atmospheric changes (including noise and light) which are then applied as “sensory effects” in the assessment of wildlife valued components throughout

Section 6.3. Noise in section 6.2.1.3 is described as including noise generated from blasting activities and is not limited to equipment or vehicle use.

While individual fitness and stress may not have been explicitly discussed in the EIS, these factors cannot be easily or directly assessed or measured. Fitness is challenging to quantify accurately in wild populations due to the need for long-term data to estimate an individual's reproductive value, which is rarely available (Alif et al., 2021). Similarly, measuring physiological stress responses in wildlife, such as plasma glucocorticoid levels, is invasive, requires rapid and repeated blood sampling, and poses various challenges, including risks of capture-related mortality, and high costs (Sheriff et al., 2011; Jacques et al., 2009). However, stress and fitness do contribute to observable and measurable reactions by wildlife, such as habitat avoidance. Habitat avoidance, therefore, as used in the EIS, is representative of a predictable, observable, and measurable reaction which is better suited for environmental assessment purposes than individual wildlife fitness or stress.

As a result, an updated or revised assessment of potential Project effects to wildlife from sensory disturbance is not required.

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QUESTION IAAC IR1-43

EIS Guideline Reference	• Part 2, Section 6.3, 6.4, and 6.5
EIS Reference	• Chapter 6, Section 6.2.5
Category	Wildlife

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential adverse effects of the Project to fish and fish habitat, migratory birds, species at risk, and species of importance to Indigenous peoples for traditional purposes. The proponent is also required to describe measures to mitigate any potential adverse effects and any residual adverse effects following the implementation of mitigation measures.

The EIS does not discuss potential Project effects and pathways of effect to the health of fish, migratory birds, species at risk, and species of importance to Indigenous peoples, which may in turn affect, for example, population sizes, fitness, and reproductive capacity of local species. Should species of importance to Indigenous peoples for traditional use be adversely affected, this may have an adverse effect on the ability of Indigenous peoples to practice traditional use activities.

Supplementary information is required to support the characterization of potential Project effects to fish and fish habitat, species at risk, migratory birds, and Indigenous peoples.

INFORMATION REQUEST

a) Describe the potential effects of all Project components and activities during all Project phases to the health of fish, migratory birds, species at risk, and species of importance to Indigenous peoples, and include a description of the nature of the effect, pathway of effect, and the severity of the effect.

b) Should the potential exist for adverse Project effects to wildlife health to occur, describe the effect this may have on wildlife populations, fitness, reproductive capacity, suitability for harvest by Indigenous peoples, and the suitability of individuals for human consumption, if harvested. Include a quantitative estimate of the anticipated number of individuals or proportion of the populations of fish, migratory birds, species at risk, and species of importance to Indigenous peoples that may be lost as a result of any adverse effects to health.
c) Based on the effects noted in b), describe potential effects on the ability of Indigenous peoples to practice traditional use activities.
d) Describe measures that will be implemented to mitigate adverse Project effects to wildlife health and follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.
e) Provide an assessment of potential Project effects, residual effects, and cumulative effects for wildlife health.

RESPONSE

a) Chapter 6, Appendix 6-3 of the Environmental Impact Statement (EIS) identifies the interaction between the Valued Components (VCs) and key proposed Project activities. Chapter 6, Appendix 6-4 of the EIS identifies potential environmental effects for each valued component prior to the application of mitigation. For fish, this includes potential impacts resulting from reduced surface water quality, injury or death from compressive shock waves due to blasting near water, or increased harvesting pressure. For migratory birds, species at risk and species of importance to indigenous peoples (e.g. wildlife) potential effects related to health considered in the EIS includes mortality risk from construction activities or vehicle collisions.

As described in Chapter 6, Section 6.3.1 of the EIS, the introduction of deleterious substances into watercourses from spills or releases of fuel or hazardous materials associated with construction equipment or vehicles and vehicular accidents can reduce surface water quality, resulting in toxic effects to aquatic organisms, including fish. Hydrocarbons (e.g. oil, fuel, gasoline, lubricants, or hydraulic fluids) can enter watercourses during the use, maintenance and fuelling of construction vehicles and machinery near watercourses. Deleterious substances may kill fish or other aquatic biota directly, or may result in impaired health, vigour, or productive capacity. Polycyclic aromatic hydrocarbons (PAHs) can persist in stream sediments resulting in chronic exposure through direct contact or indirectly through food chain interaction (Collier et al., 2002). Effects of PAHs to fish include fin erosion, liver abnormalities, cataracts and compromised immune systems (Fabacher et al., 1991; Weeks and Warinner, 1984 and 1986; O'Conner and Huggett, 1988). In benthic invertebrates, PAH exposure can inhibit reproduction, delay emergence and cause sediment avoidance and mortality. Similarly, accidental discharges into an aquatic environment may result in an increase in the pH of the water. Elevated pH can damage fish tissue and increase the toxicity of

other substances in the water, such as ammonia. However, as described in Chapter 6, Table 6.46 of the EIS, the probability of occurrence and magnitude are determined to be low.

Although not a direct effect, as described in the response to IR1-09 bedrock in the Regional Assessment Area (RAA) has a potential for acid rock drainage/metal leaching (ARD/ML) due to occurrences of sulphides based on the desktop assessment (Chapter 6, Section 6.1.2; Figures 6-4 and 6-6). In the event that ARD/ML is generated and left unmitigated it can have toxicological effects on ecological and human receptors via groundwater, surface water, soil, or sediment pathways. The pathways of effect include runoff to surface water bodies and infiltration to groundwater. Aquatic and benthic organisms could be affected via direct contact with impacted surface water and sediments. Terrestrial and avian organisms could be affected via ingestion of impacted surface water and/or direct contact with impacted surface water, soils and sediment.

However, as detailed in the response to IR1-09, geochemical testing for ARD/ML will be conducted at potential quarry locations and completed as part of the detailed design phase so as to avoid use or disturbance of sites with ARD/ML potential. If avoidance is not possible, adaptive measures such as those described in the response to IR1-09 will be implemented. Monitoring will be completed following best management practices including utilizing a risk-based approach such as the one described in Chapter 8 of the Global Acid Rock Drainage Guide (GARD Guide; INAP, 2009).

For additional information on potential Project related effects of ARD/ML, see the response to IR1-09.

With regard to other wildlife health risks, the potential introduction and spread of white-nose syndrome (WNS) among bats during all project phases is considered unlikely due to several mitigating factors. While human activity has been identified as a possible vector for spreading WNS, particularly through fungal spores translocated on equipment (Reynolds & Barton, 2013), the likelihood of this occurring within the proposed Project area is very low. Field studies conducted by Joro (2018) for the EIS found no bats or hibernacula in the area, and no critical habitat has been identified. The primary mode of WNS transmission is bat-to-bat or bat-to-cave, with human-mediated spread being highly dependent on conditions such as fungal survivability during transport and the minimum infectious dose required for bat infection (Langwig et al., 2015). While WNS fungal spores can persist on clothing and equipment (U.S. Forest Service, 2012), none of the proposed project activities involve entering caves or disturbing bat roosting areas, significantly reducing the risk of introduction. For woodland caribou, while chronic wasting disease (CWD) is a concern, the latest distribution maps indicate that the CWD zone is not near the proposed Project area (Province of Manitoba, 2024). However, the stress associated with habitat fragmentation, noise disturbances, and increased predator access could lead to physiological stress, impacting energy reserves, migration patterns, and reproductive success. Similarly, as described in Chapter 6, Section 6.2.5.5.1.6 of the EIS for caribou and moose, potential for increased transmission of parasites including brainworm and liver fluke are not expected and extremely unlikely because the proposed Project area is well past the northern limit of the white-tailed deer (which can act as the

parasite host) range. Even with climate change, the range of white-tailed deer will be south of proposed Project assessment areas (Joro, 2018).

For migratory birds, potential risks to health include increased mortality due to sensory disturbances, leading to disorientation, collisions, or nest abandonment. Habitat loss may result in reduced nesting success, while exposure to heavy metals from project-related contamination may accumulate in tissues, affecting immune function and reproduction. Similarly, species of importance to Indigenous peoples may experience bioaccumulation of contaminants such as methylmercury and hydrocarbons in fish, and waterfowl, posing long-term health risks for both wildlife and Indigenous communities reliant on traditional food sources.

Additionally, dust deposition from construction and operational activities may alter the health and availability of culturally significant plants used for food, medicine, and traditional practices, reducing the quality and quantity of these resources. However, these impacts are unlikely to significantly affect Indigenous practices after mitigation measures are implemented. These resources are not confined to specific areas but are widely distributed across the region. A detailed assessment of potential effects to vegetation communities is provided in response to IR1-39.

Beyond direct health risks, behavioral and fitness changes across multiple species could result from proposed Project activities. Increased energy expenditure due to displacement, increased stress levels, and altered predator-prey dynamics may affect overall species fitness. Stress-related changes could reduce maternal care, alter mating behaviors, and impact reproductive success, leading to long-term population declines.

Chapter 6, Appendix 6-5 in of the EIS provides the assessment of effects after the application of proposed mitigation measures. The Project 6 all-season road is not anticipated to have a significant impact on the health of fish, migratory birds, species at risk, or species of importance to Indigenous peoples.

As part of the follow-up program described in Chapter 9 of the EIS, environmental inspections will be conducted to ensure compliance with permit conditions and environmental protection measures. During construction, particulate levels will be monitored, and adaptive management strategies, such as additional wetting or suppression techniques, will be implemented if necessary. MTI will continue collaborating with Indigenous Nations to identify and mitigate any unanticipated impacts.

Additionally, MTI will implement the Environmental Protection Procedures and Environmental Protection Specifications (see Chapter 8, Appendix 8-2 and 8-3 of the EIS, or Appendix IR1-19-1 in the response to IR1-19) for many work activities to mitigate potential effects to valued components (VC). These include requirements and procedures to reduce health risk to VCs, including those relating to accidents and malfunction, materials handling, storage and disposal, dust and particulate control, noise and noise limitations, and working in or near water. Some mitigation measures to address these concerns include the implementation of dust suppression techniques

such as applying water and restricting vehicle speeds, using larger aggregate and granitic material to reduce dust generation, and adhering to MTI's EP18 (Dust Suppression Procedures) and ES 130.11 (Dust and Particulate Control) guidelines. Additional measures include prohibiting the use of waste petroleum by-products as suppressants, requiring tarps to cover loads during transport, and minimizing wind erosion through the maintenance of stockpiles.

Other measures include requirements for dust control practices to primarily utilise the application of water to avoiding chemical applications, requiring that equipment be fitted with sound reducing parts (e.g. mufflers) or that blasting near water adhere to the DFO Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters 1998. Water quality monitoring activities will be conducted during construction to confirm that deleterious substances from project activities are not entering fish bearing waters or exceeding Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOGs). As stated in Chapter 8, Section 8.4.2.4 of the EIS, an Emergency Response Plan will be developed by the contractor to provide procedures to be followed in the event of an unanticipated situation, that include hazardous substance spills.

Additionally, as stated in Chapter 8, Section 8.6.1 of the EIS, MTI is committed to implementing a Wildlife Monitoring Plan to verify predictions regarding effects on wildlife movement, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects. This plan will be in alignment with the requirements set forth in the Environmental Act License (EAL) and the P6 EIS.

b) If not mitigated, Project-related activities have the potential to affect wildlife health through multiple pathways, including changes to water quality, air quality, food and habitat availability, and behavioral stressors, which may influence suitability for harvest by Indigenous peoples.

As described in Chapter 6, Section 6.2.5.1.4 of the EIS, vegetation may be lost or impaired due to the accidental spills or releases of deleterious substances such as oil, fuel, and hydraulic fluids during construction, maintenance, and operation. The release of fuels or other hazardous substances can result in the loss or impairment of vegetation due to toxicity. Similarly, herbicide application for potential noxious weeds maintenance may affect desirable plant species used by wildlife and Indigenous communities for traditional, medicinal, or botanical purposes. A spill or release of deleterious substances may measurably affect vegetation species or communities and could occur when vegetation is trying to establish or flower. The potential for spills would, however, be limited to the proposed Project Footprint where construction and maintenance activities are occurring. While these impacts are negative, after the implementation of mitigation measures, they are expected to be sporadic and reversible over the long term, with no adverse ecosystem or social effects anticipated (Chapter 6, EIS).

Additionally, project-related dust deposition from construction and operational activities may also affect the health and availability of culturally significant plants used for food, medicine, and traditional practices. These impacts could reduce the quality and quantity of resources such as

berries, which are important to Indigenous communities. However, because these plants are widely distributed across the region, the impacts are not expected to significantly affect Indigenous practices. Similarly, changes in the quality of country foods, such as fish, moose, furbearers, and waterfowl, may indirectly affect human health through bioaccumulation of contaminants or reduced availability of harvested species. As mentioned in Chapter 6, Section 6.5.9.1.3 of the EIS, while the residual adverse effect is the potential reduction in food supply from vegetation loss, Indigenous communities are expected to adapt with relative ease because effects would be sporadic. The overall impact on traditional food sources is expected to be minimal. The proposed Project may also provide increased access to new harvesting areas, benefiting local Indigenous communities.

As mentioned in Chapter 6 of the EIS, wildlife species, including migratory birds, woodland caribou, and species of importance to Indigenous peoples, may experience increased sensory disturbance and displacement. While woodland caribou populations are not expected to be impacted by chronic wasting disease (CWD), the residual effect is the alteration, fragmentation and/or loss of caribou habitat due to proposed Project activities. For migratory birds, the residual effect is an increase in sensory disturbance to and displacement (Chapter 6, Section 6.5.7.3 EIS). However, with the implementation of mitigation measures and compliance with all applicable regulations (SARA, DFO's restricted activity timing windows, and MTI's Environmental Protection Procedures), any potential sensory disturbances and displacement of species important to Indigenous peoples are expected to be minimal and not significant.

Additionally, as outlined in Response A, with the implementation of proposed ARD/ML testing, avoidance and mitigation there are no direct potential effects on wildlife health anticipated from proposed Project activities. However, indirect effects, such as the generation of ARD and ML, could impact aquatic life if not mitigated. For ARD to become an issue, it would require the leachate to have trace element concentrations high enough to harm aquatic organisms. Specifically, the pH of ARD leachate would need to fall below the safe range of 6.5 to 9, as defined by the Canadian Water Quality Guidelines (CWQG) and Manitoba Water Quality Standards for the protection of freshwater life. Similarly, for ML to pose a concern, trace metals would need to leach at levels exceeding CWQG, MWQSOG, and baseline concentrations (See the response to IR1-09).

If ARD or ML were to occur, aquatic ecosystems and fish would be the primary receptors, as these contaminants would first enter groundwater or surface water. Toxic effects on fish would include direct exposure to acidic and metal-rich waters through gills and ingestion of contaminated sediments. Byproducts like iron hydroxide could coat streambeds, degrading habitat by blocking spawning gravel and reducing food sources (Jennings et al., 2008). Small-bodied fish would be particularly vulnerable to ARD due to their higher metabolic rates, greater surface area-to-volume ratios, and limited energy reserves, which increase the effects of metal uptake and acid exposure, leading to impaired respiration and metabolic stress. As also described in the response to IR1-09, ARD/ML can contaminate drinking water with increased concentrations of toxic and carcinogenic

heavy metals. If these metals are dissolved into the water, they can be highly mobile and can travel long distances; up to 50 km from the source, depending on topography, hydrography, geology and chemistry (Lemiere, 2010). If left unmitigated, this could also pose a risk to drinking water for terrestrial VCs. However, as mentioned in response to IR1-09, the proposed mitigation measures are expected to reduce potential adverse effects.

ARD would likely be more concentrated near quarry locations; however, these areas are yet to be determined, making specific population impact estimates dependent on factors like species distribution in these areas. Nonetheless, as described in IR1-09, with the application of proposed mitigation and preventive measures, the risk to fish health is expected to be minimal. Specifically, the Quarry Site Selection and Development Requirements (Chapter 8, Appendix 8.2, EP 20 of the EIS; IR1-19 Appendix IR1-19-1) state that: "Prior to development quarry sites the potential for acid rock generation will be assessed with the intent of not developing such sites." Therefore, potential effects related to ARD when developing new and using existing quarries, including related effects on other valued components (VCs), will not occur. In the RAA it is unlikely to find high ML in a quarry with low ARD potential, because both ARD and ML are generally related to oxidation of sulphide minerals.

Overall, it is not anticipated that effects of ARD or ML, if they occur at all, would impact fish populations, fitness, reproductive capacity, suitability for harvest by Indigenous peoples, or the suitability of individuals for human consumption, if harvested.

Other piscivorous species such as mink *(Neovison vison),* or otter (*Lontra canadensis*), may bioaccumulate metals, since they feed at high tropic levels. Therefore, their position in the food web may result in the biomagnification of environmental pollutants, including certain metals (Wren at al., 1998). However, it is not anticipated that this would impact regional populations, fitness, reproductive capacity, suitability for harvest, or suitability for consumption. Although mink was identified by one Indigenous Nation in their confidential traditional knowledge report as having been eaten in the past, piscivorous species such as mink and otter are not thought to be regularly consumed by local Indigenous Nations at this time and therefore should not pose a risk to human health.

Overall, with the implementation of mitigation measures potential effects to wildlife populations, fitness, reproductive capacity, suitability for harvest or human consumption will be prevented or minimized. The proposed Project is not expected to have significant adverse effects on wildlife populations, fitness, reproductive capacity, suitability for harvest by Indigenous peoples, or the suitability of individuals for human consumption. Any residual effects are anticipated to be localized within the proposed Project Footprint, occur sporadically, and be reversible over time. However, if unanticipated adverse effects are reported, MTI will implement adaptive management measures, which will be updated accordingly and shared with regulators and Indigenous Nations.

c) The ability of Indigenous peoples to practice traditional use activities, may be influenced by project-related effects on wildlife health and populations. Potential pathways of effect include changes to water quality, habitat availability, sensory disturbances, and contamination from proposed Project activities (Chapter 6, Section 6.5.9 of the EIS).

Hunting, for example, can be compromised if sensory disturbances alter species behaviour and movement patterns. However, as described in response to IR1-44, caribou in the RAA and the timing of annual migration through the area have coincided with the presence of winter roads for many decades (Joro, 2018). The proposed Project alignment closely follows most of the pre-existing winter road corridor. At the regional scale, gradual replacement of the winter roads with the all-season road may present a shift from seasonal sensory disturbance, to year-round sensory disturbance. However, since the winter road already coincides with movement of caribou into the region, annual road operation is not anticipated to substantially increase disturbance. Given the low density of caribou and generally low density of roads and other disturbances sensory effects are not expected and therefore impacts to caribou movement are not anticipated.

Sensory effects may also impact moose, who may avoid high-quality habitats near the proposed Project Right-Of-Way (ROW) during construction and, to a lesser extent, during operation. The low densities of moose observed in winter suggest that only a low number of individuals would be potentially displaced by the proposed Project. Monitoring reports presented in 2019 for Project 1 show that general winter concentration areas based on aerial survey kernel analysis were shown to be consistent through time with an overall 52% overlap or core area for surveys conducted in previous years (Joro, 2018). Mapping of these data also illustrate that non-overlap areas are in close proximity to the core areas, further supporting there were no major shifts in moose concentration areas during construction and operation.

For aquatic and terrestrial furbearers, such as beaver (*Castor canadensis*) and pine marten (*Martes americana*), potential displacement may occur at the individual level but is not anticipated to have significant population impacts over the long term (Chapter 6, Appendix 6-5 of the EIS). Each water crossing will be appropriately sized (see response to IR1-01 and IR1-44) and are not anticipated to impact aquatic furbearer movement within waterways. Therefore, terrestrial furbearers may experience an increase in sensory disturbance from the proposed Project, but movements are not anticipated to be significantly impacted.

Additionally, as mentioned in Chapter 6 of the EIS, potential effects on Indigenous peoples who rely on vegetation communities for traditional purposes may include localized impacts, such as reduced access to culturally significant plants or changes in their quality and availability. Key resources, including berries and medicinal plants like Labrador tea, may be affected by factors such as dust deposition, which could impact plant health and reduce their abundance. However, because these plants are widely distributed across the region, these impacts are not expected to significantly affect Indigenous practices. While dust could pose localized impacts, mitigation measures will be implemented to minimize their effects. Furthermore, increased access resulting

from the proposed Project may provide new opportunities for harvesting as previously remote areas become more accessible, allowing Indigenous communities to continue traditional harvesting practices in new locations.

The potential generation of ARD and/or ML could also affect the ability of Indigenous people to practice traditional activities, particularly if contamination impacts critical waterbodies used for fishing, travel, and other cultural purposes. Many traditional travel routes, including those used for seasonal hunting, trapping, fishing, and gathering, rely on key waterways near the proposed Project area, such as God's River, God's Lake, Oxford Lake, Semmens Lake, and Edmund Lake (Chapter 6 of the EIS). Fishing, which is practiced for both food consumption and recreational activities, could be compromised if ARD/ML were to affect these waters, making fish unsafe for consumption and reducing fish populations due to habitat degradation. However, these potential effects will be avoided, minimized or mitigated.

As described in Responses A and B above, with the implementation of testing, avoidance and mitigation adverse effects of ARD/ML are not anticipated. In addition, a monitoring program will also be implemented to enable early detection of ARD/ML, allowing for immediate response measures. The monitoring program aims to assess any impacts on the surrounding environment and the effectiveness of engineering controls designed to prevent or reduce ARD/ML.

The monitoring program will follow best management practices, using a risk-based approach outlined in the Global Acid Rock Drainage Guide (GARD Guide) (INAP, 2009). This guide details a structured approach for ARD monitoring, including steps for developing a conceptual site model, defining monitoring objectives, designing and implementing the monitoring program, and analyzing the data.

Through these preventive measures and ongoing monitoring, it is not anticipated that ARD/ML will impact fish or wildlife populations, fitness, or reproductive capacity, nor the ability of Indigenous peoples to safely harvest or consume fish or other resources. As such, this approach will enable MTI to quickly identify if there are impacts, and take action to mitigate, and confirm mitigation measures are effective, supporting the continued ability of Indigenous peoples to practice traditional use activities.

d) The measures that will be implemented to mitigate potential adverse Project effects to wildlife are the Environmental Protection Procedures (Chapter 8, Appendix 8-2 of the EIS; Appendix IR1-19-1 in the response to IR1-19) and will be supplemented with Environmental Protection Specifications (Chapter8, Appendix 8-3 of the EIS; Appendix IR1-19-1 in the response to IR1-19). These documents include environmental requirements, contractor submittals, timing windows, permitting requirements, petroleum storage, spill response, etc.

Additionally, general mitigation measures applicable to all Species at Risk will be implemented, including:

- Right-of-way selected to use existing disturbed/cleared areas and avoid waterbodies (except at crossings) and sensitive habitat (e.g. spawning sites, calving sites, raptor nests, multi-generational stick nests, nesting colonies).
- Existing water flow patterns, water levels and wetland hydrologic regimes will be maintained along with vegetated buffers between disturbed areas and waterbodies.
- Follow clearing and grubbing timelines and restrictions to avoid critical calving and nesting times (EP1 and ES 130.17.1).
- Decommission and rehabilitate all disturbed areas not required for Project operation and maintenance (EP22).
- Contract Administrators, inspectors and construction staff will receive training and handbooks to facilitate identification of potential Species at Risk that could be encountered and a member of the Environmental Inspection team will be advised when encounters occur to document and report on species presence and management strategies applied, as required.
- Prohibit herbicide application near identified environmentally sensitive sites or beyond road ROW and apply by hand within 30 m of any waterbody.

As described in Chapter 6, Section 6.4.5.1.1, mitigation measures that would be implemented to reduce potential reduction in food and medicinal supply due to disturbance and loss of vegetation include limiting clearing to designated areas within the ROW in accordance with EP1 (Clearing and Grubbing) and ES 130.17 (Clearing and Grubbing). Specifically, clearing and grubbing would be limited to all-season road alignment, construction camps and laydown areas, quarries, borrow pits and the associated access routes. The clearing would be conducted between September 1 and April 1 of the following year. Other measures include vegetation buffers, that would be maintained between the ROW and any development including borrow areas, quarries, laydown areas, personal property, utility poles and camps.

MTI would provide regular Project construction progress updates to local communities to facilitate local planning of harvesting activities and provide opportunities for on-going input into the proposed Project. In particular, important medicinal and cultural plants and harvesting areas would be identified and mapped prior to clearing for Project planning and design. The road would be designed and alignment adjusted, where there are equitable conditions in the immediate vicinity, based on community input to avoid loss of important harvesting areas.

In addition, to address the potential risk of ARD/ML, mitigation measures are described in detail in IR1-09. The primary mitigation for ARD/ML is avoidance. Quarries with high ARD/ML potential will not be used. Before construction, bedrock and materials will be tested for ARD/ML, and high-risk materials will be isolated to active areas with controlled runoff. Of 62 quarry sites, only 19 are expected to be used, allowing flexibility to avoid high-risk areas. Exposed soils will be quickly

covered, and borrow pits capped and revegetated to prevent long-term ARD. Where exposure is unavoidable, measures such as lime blending, engineered covers, or water diversion will neutralize or limit contamination. If monitoring detects ARD/ML, further actions will be implemented to protect water quality and surrounding habitats.

Prior to construction, an Aquatic Monitoring Plan and a Wildlife Monitoring Plan will be developed to verify key predictions regarding effects on aquatic environment and wildlife, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects. While these plans are yet to be finalized, the proposed table of contents are included as part of response to IR1-73.

The monitoring criteria established for the WMP will be informed by concerns raised through the Project's environmental assessment review and subsequent information requests received from federal and provincial regulators, Indigenous rights-holders, and stakeholders.

The objectives of the WMP are to verify key Project EIS predictions and evaluate the effectiveness of mitigation strategies for the environmental effects on wildlife and wildlife habitat and to establish a framework for adaptive management that can be used to enhance mitigation strategies for wildlife and wildlife habitat.

The Aquatic Monitoring Plan (AMP) will be developed to verify predictions regarding potential effects on the aquatic environment. The plan will assess the effectiveness of mitigation measures and identify any unanticipated impacts, ensuring that proposed project-related activities do not cause significant harm to aquatic ecosystems.

e) As identified in Response A above, Chapter 6, Appendix 6-4 and 6-5 of the EIS present an assessment before and after mitigation for each valued component and include effects related to health. Table IR1-43-1 below has been developed using the same format as Appendix 7-1: Environmental Assessment Summary Table from Chapter 7 of the EIS, and provides for an updated assessment of effects on wildlife health, particularly for aquatic systems and fish, with considerations for the potential generation of ARD and/or ML. The assessment presented in Table IR1-43-1 includes consideration of potential effects prior to mitigation, applicable mitigation, and presents the significance criteria ranking for the residual effect (post-mitigation). As presented, with the application of proposed mitigation measures, the overall significance for the residual effects is considered not significant.

Table IR1-43-1. Environmental assessment summary table showing the assessment of effects on wildlife health.

Assessment of potential, residual and cumulative Project Effects for Wildlife Health												
Factor	**Project Activity**	**Potential Effects**	**Proposed Mitigation**	**Residual Effects**	**Key criteria for determining significance[1]**							**Significance of Residual Effect**
					Duration	**Magnitude**	**Timing**	**Extent**	**Frequency**	**Reversibility**	**Ecological and Social Context**	
Aquatic systems and Fish	Construction activities, including blasting and rock crushing	Exposure and disturbance to sulphide-bearing rocks, leading to Acidic Rock Drainage and/ or Metal Leaching. Decreased quality of fish habitat and fish populations, leading to impacts to piscivorous species and risks for human consumption.	▪ Environmental Protection Procedures (Appendix 8-2). Environmental Protection Specifications (Appendix 8-3). ▪ Quarries with high ARD/ML potential will not be used. ▪ Before construction, bedrock and materials will be tested for ARD/ML, and high-risk materials will be isolated to active areas with controlled runoff. ▪ Exposed soils will be quickly covered, and borrow pits capped and revegetated to prevent long-term ARD. ▪ Engineered covers, reclamation of contaminated land, soil removal, direct treatment of the contaminated water, or water diversion can be implemented if needed. ▪ Water crossing design and equalization culverts that prevent impoundment of water and/or changes to water quality.	Increased risk during construction for disturbance of sulphide-bearing rocks.	Medium- Term, until completion of construction and remediation	Potential disturbance of resources that are of local importance and are not recoverable. No measurable reduction to fish communities and populations	N/A	Localized to blasting and rock crushing areas within Project Footprint	Infrequent, mitigation measures will prevent the effects to fish and fish habitat	Readily reversible	Potential adverse effects to traditional use activities	Not Significant
					Level II	Level I	Level III	Level I	Level I	Level I	Level II	
Mammals (Ungulates)	Vehicle and equipment noise and vibration during construction, maintenance and operation. Maintenance activities (e.g.: blasting, rock crushing, stockpiling, roadbed construction, hauling)	Increased sensory disturbance to and displacement of moose and caribou. Behavioural and fitness changes (e.g. stress, increased energy expenditure and exposure to predators, reduced maternal care, altered mating behaviours, reduced reproductive success)_	▪ Stage construction activities to limit the extent of noise disturbance during critical calving times to defined areas ▪ Follow clearing and grubbing (EP1 and ES 130.17.1) and blasting (EP14 and ES 130.19) timelines and restrictions to avoid critical calving times ▪ Limit clearing to designated areas within the ROW using existing cutlines, routes and trails where they are present (EP1 and ES 130.17.1) ▪ Restrict equipment and vehicle	Increased sensory disturbance to and displacement of moose and caribou. Changes in behaviour may impact fitness at individual level.	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Critical life stages would be avoided	Effects may extend beyond the Project Footprint within the LAA	Continuous	Reversible over a long period	Moderate ecosystem effect important to local communities	Not Significant
					Level III	Level I	Level I	Level II	Level III	Level II	Level II	

[1] The description of assessment criteria and levels of potential environmental effects were provided in Chapter 4 Table 4.4 of the Environmental Impact Statement, but are also included in Appendix IR1-43-1 of this response.

Assessment of potential, residual and cumulative Project Effects for Wildlife Health												
Factor	**Project Activity**	**Potential Effects**	**Proposed Mitigation**	**Residual Effects**	**Key criteria for determining significance[1]**							**Significance of Residual Effect**
					Duration	**Magnitude**	**Timing**	**Extent**	**Frequency**	**Reversibility**	**Ecological and Social Context**	
			use outside of cleared areas (ES 130.6.1) ▪ Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and 130.11) techniques									
Aquatic and Terrestrial Furbearers	Vehicle and equipment noise and vibration during construction, maintenance and operation. Maintenance activities (e.g. blasting, rock crushing, stockpiling, roadbed construction, hauling	Increased sensory disturbance to and displacement of furbearers. Behavioural and fitness changes (e.g. stress, increased energy expenditure and exposure to predators, reduced maternal care, altered mating behaviours, reduced reproductive success)	▪ Stage construction activities to limit the extent of noise disturbance at a given time to defined areas ▪ Limit clearing to designated areas within the ROW using existing cutlines, routes and trails where they are present (EP1 and ES 130.17.1) ▪ Restrict equipment and vehicle use outside of cleared areas. (ES 130.6.1) ▪ Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and ES 130.11) techniques.	Increased sensory disturbance to and displacement of furbearers, leading to behavioural and fitness alterations.	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Critical life stages would be avoided	Limited to the Project Footprint	Continuous	Reversible over a long period	No adverse ecosystem effects	Not Significant
					Level III	Level I	Level I	Level I	Level III	Level II	Level I	
Migratory and Non-Migratory Birds	Vehicle and equipment noise and vibration during construction, maintenance and operation. Maintenance activities (e.g. blasting, rock crushing, stockpiling, roadbed construction, hauling)	Increased sensory disturbance to and displacement of birds. Behavioural and fitness changes (e.g. stress, increased energy expenditure and exposure to predators, reduced maternal care, altered mating behaviours, reduced reproductive success)	▪ Stage construction activities to limit the extent of noise disturbance at a given time to defined areas ▪ Limit clearing to designated areas within the ROW using existing cutlines, routes and trails where they are present (EP1 and ES 130.17.1) ▪ Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) ▪ Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and ES 130.11) techniques ▪ Design road to optimize line of sight and reduce collisions ▪ Wildlife awareness information provided to construction workers ▪ Reduce speed limits at identified problem areas ▪ Construction vehicle speeds adhere to posted limits and	Increased sensory disturbance to and displacement of birds. Leading to behavioural and fitness alterations.	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Effect could occur during critical life stage	Limited to the Project Footprint	Continuous	Reversible over a long period	No adverse ecosystem effects	Not Significant
					Level III	Level I	Level I	Level I	Level III	Level II	Level I	

Assessment of potential, residual and cumulative Project Effects for Wildlife Health												
Factor	**Project Activity**	**Potential Effects**	**Proposed Mitigation**	**Residual Effects**	**Key criteria for determining significance[1]**							**Significance of Residual Effect**
					Duration	**Magnitude**	**Timing**	**Extent**	**Frequency**	**Reversibility**	**Ecological and Social Context**	
			wildlife warning signs shall be installed at identified problem areas (EP14) ▪ Remove trees and tall shrubs to maintain line of sight									
Vegetation and species of importance to Indigenous Nations	Construction, operation and maintenance	Impairment of vegetation in the project assessment area from dust deposition, and availability of culturally significant plants used for food, medicine, and traditional practices.	▪ Dust Suppression Procedures (EP18) and Dust and Particulate Control (ES 130.11) ▪ Undertake construction activities during winter months to extent possible. ▪ Important medicinal and cultural plants and harvesting areas would be identified and mapped prior to clearing for Project planning and design	Potential reduction in food supply from vegetation loss .	Long-Term, life of Project	Effect considered minor	Critical life stages would be avoided	Localized to construction areas within Project Footprint	Sporadic	Readily reversible	No adverse ecosystem effects	Not Significant
					Level III	Level I	Level I	Level I	Level II	Level I	Level I	

APPENDIX IR1-43-1

Description of assessment criteria and levels of potential environmental effects (Table 4.4 from Chapter 4 of the Project EIS)

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
Direction of Change (type of effect)	Neutral or Negligible	No measurable change on the VC.
	Negative	Net loss (adverse or undesirable change) on the VC.
	Positive	Net benefit (or desirable change) on the VC.
Duration (period of time the effect occurs)	Short-Term	**Level I** - The potential effect results from short-term events or activities such as the time required to complete a discrete component during construction, maintenance, or rehabilitation activities (i.e., a timeframe of several months up to one year).
	Medium-Term	**Level II** - The potential effect is likely to persist until the completion of construction and rehabilitation activities (i.e., > 1 year to 10 years).
	Long-Term	**Level III** -The potential effect is likely to persist beyond the completion of construction and rehabilitation activities into the operations and maintenance phase of the Project (i.e., a timeframe of greater than 10 years).
Magnitude (degree or intensity of the change)	Negligible or Low	**Level I** - A change that is not likely to have a definable, detectable or measurable potential effect above baseline (i.e., potential effect is within a normal range of variation) or is below established thresholds of acceptable change (e.g., water quality guideline). See **Table 4.5** for VC specific criteria.
	Moderate	**Level II** – A change that will have a potential measurable effect that can be detected with a well-designed monitoring program; but is only marginally beyond standards/guidelines or established thresholds of

[2] **Chapter 6** of the Environmental Impact Statement outlines VC specific definitions for the three level ranking system.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
		acceptable change. See **Table 4.5** for VC specific criteria.
	High	**Level III** – A change that will have potential effects that are easily observed, measured, and described (i.e., readily detectable without a monitoring program) and are well beyond guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
Timing[3]	No Sensitivity	**Level I** – Effect does not occur during critical life stage.
	Moderate Sensitivity	**Level II** – Effect occurs at the start or end of a critical life stage.
	High Sensitivity	**Level III** – Effect occurs during a critical life stage.
Extent (Spatial Boundary)[4]	Project Footprint	**Level I** - The physical space or directly affected area on which Project components or activities are located and/or immediately adjacent area which is within the defined limits of the P6 all-season road ROW (i.e., 100 m) and permanent and temporary facilities (e.g., temporary access routes and quarries) within which potential effects are likely to be measurable.
	LAA	**Level II** - Area within which potential Project effects are measurable and extending beyond the Project Footprint to, but not beyond, the LAA (either a 2 km or 10 km corridor centred on the all-season road alignment depending on the VC (**Figure 4-1**).
	RAA	**Level III** - The maximum anticipated regional extent of potential direct, indirect and cumulative effects that may

[3] In terms of **Timing**, the critical life stages include things such as nesting, breeding, spawning and calving which will vary by VC and will vary annually depending on seasonal conditions. For example, it is clear that winter is outside of bird nesting and breeding period and that spring is fully within this critical time period, whereas early spring and late fall is a transitional period that depending on the seasonal conditions may or may not affect the life stage.

[4] Environmental Impact Statement **Figures 4-1** and **4-2** illustrate the VC specific spatial boundaries of the LAA and RAA, which are discussed in greater detail in **Chapter 6**.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
		extend beyond the LAA. The boundaries of the RAA will vary depending on the VC.
Frequency (how often the effect occurs)	Infrequent	**Level I** - The potential effect occurs once or seldom during the life of the Project (e.g., initial clearing of the ROW).
	Sporadic/Intermittent	**Level II** - The potential effect occurs only occasionally and without any predictable pattern during the life of the Project (e.g., blasting at quarries; site-specific construction equipment noise; potential wildlife-vehicle collisions).
	Regular/Continuous	**Level III** – The potential effect occurs at regular and frequent intervals during the Project phase in which they occur or over the life of the Project (e.g., construction traffic; operations traffic).
Reversibility (the degree of permanence)	Reversible (short-term)	**Level I** – Potential effect is readily reversible over a relatively short period (< than eight years).
	Reversible (long-term)	**Level II** - Potential effect is potentially reversible but over a long period (> than eight years).
	Irreversible	**Level III** - Project-specific potential effects are permanent and irreversible.
Ecological and Social Context (resilience of a VC to adapt to changes as a result of the project)	Low	**Level I** – The VC is not rare or unique and is resilient to imposed change. Social – Indigenous people/communities in the RAA are able to adapt with relative ease and maintain pre-project development activities.
	Moderate	**Level II** – The VC is moderately/seasonally fragile and has some capacity to adapt to imposed change. Social - Indigenous people/communities in the RAA are able to adapt with some adjustments and maintain pre-project development activities but only with a degree of support.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
	High	**Level III** – The VC is a protected/designated species under MESEA, SARA and species listed by COSEWIC and by the MBCDC as very rare (S1) to rare (S2) or fragile with low resistance to imposed change or part of a very fragile ecosystem. Social - affected Indigenous people/ communities in the RAA will not be able to adapt to changes or maintain-pre-project development activities.

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QUESTION IAAC IR1-44

EIS Guideline Reference	• Part 2, Section 6.3, 6.4, and 6.5
EIS Reference	• Chapter 6, Section 6.3.3.2
Category	Wildlife

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential adverse effects of the Project to species at risk and species of importance to Indigenous peoples for traditional purposes. The proponent is also required to describe measures to mitigate any potential adverse effects and any residual adverse effects following the implementation of mitigation measures.

Environment and Climate Change Canada (ECCC) noted concerns that the EIS does not describe potential effects to wildlife species' movement as a result of the Project, particularly the bridges over God's Lake and Magill Creek. Additionally, as Indigenous peoples may depend on the harvest of certain wildlife species for traditional purposes, any changes to the movement patterns and/or distribution of wildlife species may have an adverse effect on the ability of Indigenous peoples to practice traditional use activities. A similar concern was also noted by GLFN, who indicated that displacement/disturbance from the ASR may scare away or attract wildlife to certain areas due to curiosity, which may affect wildlife migration and movement patterns.

Supplementary information on potential effects to wildlife movement is required to support the characterization of potential Project effects to species at risk and Indigenous peoples.

INFORMATION REQUEST

a) Describe potential effects of the Project to wildlife species' movement.
b) Describe measures that will be implemented to mitigate any adverse effects identified above and follow-up and monitoring that will be conducted to verify predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.

c) Provide a residual effects assessment for any adverse Project effects to wildlife species' movement, following the implementation of mitigation measures. Ensure that any residual Project effects to wildlife species' movement patterns are included in the cumulative effects assessment.

RESPONSE

a) As stated in the Environmental Impact Statement (EIS) in Chapter 6, Appendix 6-4, the potential effects of the project on wildlife species movement, particularly for ungulates such as moose (*Alces alces*) and caribou (*Rangifer tarandus caribou)*, include displacement due to vehicle and equipment noise and vibrations during construction, maintenance, and operation. These effects are expected to occur at the individual level and are not likely to have a measurable impact on the overall population in the long term. The field studies conducted by Joro Consultants in 2018 show that the forest-tundra (Pen Islands) caribou travel over 3,500 km annually, which is significantly more than the forest-dwelling Norway House boreal caribou of the Norway House range (i.e. Norway House caribou). This, combined with the average time Pen Islands caribou spend in the Regional Assessment Area (RAA) (27.1 days), suggests a low predicted effect for sensory disturbance and displacement. Based on monitoring observations from Project 1, an All-season road linking Bloodvein and Berens FN to Provincial Road 304, located in the Lac Seul Upland Ecoregion, which provides similar habitat conditions to Project 6, the availability of high-quality habitat combined with the limited physical disturbance of the road construction project caused minor disturbances to calving of collared female caribou (Joro, 2019). Based on the monitoring results for Project 1, a similar result is expected for the Project 6 All-Season Road connecting Bunibonibee Cree Nation, Manto Sipi Cree Nation and God's Lake First Nation ,and it is anticipated that regional caribou movements will continue.

As identified by Joro (2018a), caribou in the RAA and the timing of annual migration through the area have coincided with the presence of winter roads for many decades. The proposed Project alignment closely follows most of the pre-existing winter road corridor. At the regional scale, gradual replacement of the winter roads with the all-season road may present a shift from seasonal sensory disturbance, to year-round sensory disturbance. However, since the winter road already coincides with movement of caribou into the region, annual road operation is not anticipated to substantially increase disturbance. Given the low density of caribou and generally low density of roads and other disturbances sensory effects are not expected, and therefore impacts to caribou movement are not anticipated.

Sensory effects may also impact moose, who may avoid high-quality habitats near the Project Right-Of-Way (ROW) during construction and, to a lesser extent, during operation. The low densities of moose observed in winter suggest that only a low number of individuals would be potentially displaced by the Project. Monitoring reports presented in 2019 for Project 1 show that general winter concentration areas based on aerial survey kernel analysis were shown to be consistent

through time with an overall 52% overlap or core area for surveys conducted in previous years (Joro, 2019). Mapping of these data also illustrate that non-overlap areas are in close proximity to the core areas, further supporting there were no major shifts in moose concentration areas during construction and operation. Similar to caribou, moose have co-existed with annual winter roads in the RAA for decades. Gradual replacement of the winter roads with the all-season road may present a shift from seasonal sensory disturbance, to year-round sensory disturbance but is not anticipated to impact moose population in the regional assessment area.

During the summer, moose are most commonly associated with wetlands and lakes, where they feed on herbaceous plants and emergent aquatic vegetation rooted in mineral soils (Joro, 2018a). Habitat selection during late spring and early summer is closely linked to the availability of aquatic plants, making proximity to water a key factor in moose distribution (Timmerman & McNicol, 1988).

Manto Sipi Cree Nation participants have indicated that moose hunting primarily occurs in the fall along the shoreline of lakes and rivers in the area and east to the Ontario border (Joro, 2018a). Given that moose densities in the RAA are primarily influenced by habitat productivity and climate rather than disturbance, their presence in the region during fall is expected to persist regardless of road access (Joro, 2018a). Camera trap data indicate that moose activity is highest in summer, with 64-70% of observations occurring during this season, particularly in areas west of God's Lake First Nation and south of Bunibonibee Cree Nation (Joro, 2018a). The data suggest that moose continue to occupy preferred habitats despite the presence of the winter road.

Road density within the RAA remains low at 0.06 km/km^2, which is well below values that published literature has identified as target thresholds for access density (e.g., 0.9 km/km^2). This indicates that effects related to fragmentation are expected to be negligible (Joro, 2018a). Additionally, habitat loss within the RAA is minimal, with only 0.06% of available high-quality habitat affected, thus moose populations in the RAA are not considered a conservation concern (Joro, 2018a). Given the overall low road density and the adaptability of moose, they are expected to adapt to the presence of the road, likely avoiding or moving across the road to avoid vehicles (Joro, 2018b). The effects on moose populations as a result of the year-round presence of the road are anticipated to be minor, with moose continuing to utilize high-quality habitat within the region.

Changes in movement of predators as a result of the Project may also impact moose and caribou. As described in Chapter 6, Section 6.2.5.5.1.5 of the EIS, there may be an increase in moose and caribou mortality due to increased predation by wolves (*Canis lupus*) from increased access beyond that provided by the existing winter road and transmission lines. An increase in linear features, such as the proposed all-season road, may therefore allow predators (wolves) to access new areas that may affect existing predator-prey dynamics. However, based on wolf collaring and telemetry studies conducted from 2013 to 2015 as part of the Project 4 all-season road connecting Berens River and Poplar River (Project 4), wolves were shown to use anthropogenic features far less than natural linear features. Monitoring activities conducted as part of the Project 4 did not identify a significant change in wolf predation on moose and showed that wolf kill sites were not correlated with anthropogenic linear features (East Side Road Authority, 2016). During field investigations

conducted for the proposed Project, moose, caribou and wolves were observed at low frequencies in the Wildlife local assessment area (LAA) and regional assessment area (RAA) and therefore increased predation as a result of wolves utilizing the new all-season road is predicted to be minimal (Joro, 2018b). The potential increase in ungulate mortality as a result of increased predation from wolves, prior to the implementation of mitigation measures, is considered negative and would occur throughout the life of the Project. The potential increase in mortality is not likely to have a measurable effect on the population for the reasons discussed above. The effect would likely be beyond the Project Footprint within the Wildlife LAA and could occur during critical ungulate life stages as wolves hunt year-round. Predation was assessed to be sporadic and is considered reversible over a long period. The risk of increased ungulate mortality due to increased predation is considered to have a moderate ecosystem effect due to the importance of moose and caribou to local communities.

For aquatic and terrestrial furbearers, such as beaver (*Castor canadensis*) and pine marten (*Martes americana*), potential displacement may occur at the individual level but is not anticipated to have significant population impacts over the long term. Each water crossing will be appropriately sized (see response to IR1-01) and are not anticipated to impact aquatic furbearer movement within waterways. Ewaskiw (2018) demonstrated that properly designed and maintained water crossings facilitate the movement of aquatic furbearers like beavers by preserving habitat connectivity and supporting use by terrestrial species such as moose and wolves. Flynn (2006) complements this by showing that while culverts can influence stream hydrology, such as creating conditions favorable for beaver pond formation, these changes do not necessarily disrupt overall ecosystem function. Terrestrial furbearers may experience an increase in sensory disturbance from the Project, but movements are not anticipated to be significantly impacted.

Forest birds, including bank swallows (*Riparia riparia)* and barn swallows (*Hirundo rustica)*, Canada warblers (*Cardellina canadensis)*, and common nighthawks (*Chordeiles minor)*, may experience minor decreases in population and habitat due to clearing, sensory disturbances, nest loss, and vehicle collisions. However, the effect is considered minor, alteration or loss of noncritical habitat and effect is minor relative to habitat availability, thus significant movement is not anticipated. Waterbirds, while potentially displaced due to disturbances, are adaptable and can find refuge within the LAA and RAA, as there is plenty of suitable habitat. In addition, migratory and non-migratory birds are also likely to be impacted by increased sensory disturbance and displacement during all Project stages. Although this is expected to occur for the life of the Project, it is not likely to measurable affect the population. Generally, impacts to bird movement may have a greater impact on species that avoid edge habitat such as that which would be created from clearing of the right-of-way (ROW). However, given the mobility of birds via flight, impacts are not anticipated to be significant.

Amphibians and reptile movement may also be impacted by the Project. As described in Chapter 6, Section 6.2.5.6.1 of the EIS, clearing of native vegetation would result in the alteration, fragmentation and loss of amphibian habitat within the ROW, temporary access roads, quarries, borrow pits, work areas and camps. The results of habitat modelling indicate that habitat loss due

to the Project would be small relative to the amount of habitat available within the Wildlife LAA and RAA. Approximately 8.1 km2 of primary or high-quality habitat would be lost or altered within the Project Footprint (Joro, 2018b). This represents approximately 0.6% of available habitat within the Wildlife LAA (1,327 km2) and 0.09% of overall habitat contained in the Wildlife RAA (9,005 km2). Amphibian habitat use patterns in the Project Footprint are not anticipated to change substantially although ditching along the roadway may create preferred habitat for some species. Alteration, fragmentation and loss of amphibian habitat due to clearing of native vegetation during construction and maintenance within the ROW, temporary access roads, quarries, borrow pits, work areas and camps, prior to the implementation of mitigation measures, is considered negative and would occur throughout the life of the Project. The overall habitat loss or alteration in the Wildlife LAA would decrease over time due to the decommissioning of temporary access routes and the natural regeneration of segments of winter road not within the Project ROW. The effect could occur during a critical life stage but is limited to the Project Footprint and amphibian populations are not likely to be measurably affected by the alteration, fragmentation and loss. The changes to habitat would occur infrequently, primarily associated with initial clearing. The changes to habitat are considered irreversible as long as the all-season road remains. No adverse ecosystem effects are anticipated as a result of habitat alteration, fragmentation and loss on amphibians.

b) As stated in Appendix 6-4, mitigation measures include:

- Stage construction activities to limit the extent of noise disturbance during critical calving times to defined areas.
- Follow clearing and grubbing (EP1 and ES 130.17.1) and blasting (EP14 and ES 130.19) timelines and restrictions to avoid critical calving times.
- Limit clearing to designated areas within the ROW using existing cutlines, routes and trails where they are present (EP1 and ES 130.17.1).
- Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1), apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and 130.11) techniques.
- Employ general mitigation measures that are applicable to all Species at Risk:
    - Right-of-way selected to use existing disturbed/cleared areas and avoid waterbodies (except at crossings) and sensitive habitat (ex: spawning sites, calving sites, raptor nests, multi-generational stick nests, nesting colonies).
    - Existing water flow patterns, water levels and wetland hydrologic regimes will be maintained along with vegetated buffers between disturbed areas and waterbodies.
    - Follow clearing and grubbing timelines and restrictions to avoid critical calving and nesting times (EP1 and ES 130.17.1).
    - Decommission and rehabilitate all disturbed areas not required for Project operation and maintenance (EP22).
    - Contract Administrators, inspectors and construction staff will receive training and handbooks to facilitate identification of potential Species at Risk that could be encountered, and a member of the Environmental Inspection team will be advised.

    - Wildlife encounters that occur will be documented and reported with respect to species presence and management strategies applied, as required.
    - Prohibit herbicide application near identified environmentally sensitive sites or beyond road ROW and apply by hand within 30 m of any waterbody.
- Identify and avoid vertical and near vertical faces, ledges or overhangs for road routing and quarry selection where possible.
- Inspect temporary structures prior to removal for presence of nests during the breeding and rearing season. If barn swallow nests are identified they will not be disturbed during the breeding season.

Monitoring reports presented in 2019 from Project 1 state that the net loss of wildlife habitat as a result of the project, relative to available habitat, was deemed low and not significant, due to the mitigation measures applied. These included clearing the ROW only during the winter months and limiting construction activities to the project area to avoid involuntary disruptions to denning or nesting activities (Joro, 2019).

Joro Consultants in 2019 indicated that without mitigation, the potential adverse effects of construction on caribou during calving were estimated to be moderate. However, the mitigation measures identified above and applied in previous projects such as the all-season road connecting PR304 to Berens River (Project 1) effectively reduced these impacts. Since Project 6 shares similar environmental conditions, species, and development types, and the same mitigation measures, applying these same mitigation measures is expected to produce similarly effective results in minimizing disturbances to caribou and other wildlife species.

As mentioned in response to IR1-43, the objectives of the Wildlife Monitoring Plan (WMP) are to verify key Project EIS predictions, to evaluate the effectiveness of mitigation strategies for environmental effects on wildlife and wildlife habitat, and to establish a framework for adaptive management that can be used to enhance mitigation strategies if required.

The monitoring criteria established for the WMP will be informed by concerns raised through the Project's environmental assessment review and subsequent information requests received from federal and provincial regulators, Indigenous rights-holders, and stakeholders. Opportunities will be provided for provincial and federal regulators as well as Indigenous Nations to review the WMP prior to it being finalized.

Although specific study design, protocols, locations, and schedules will be described in the WMP to be developed before construction, MTI anticipates that monitoring may include:

- Trail cameras;
- Engagement of local trappers or resource users; and,
- General field observations, including incidental wildlife observations during project activities.

The results of the studies are expected to further address the question regarding wildlife movements. If significant negative changes are observed, additional mitigation measures may be developed.

Since the WMP will be developed prior to construction, the monitoring schedule may vary based on species and monitoring objectives. As monitoring data becomes available, MTI will share findings and a draft monitoring plan with provincial and federal regulators during the pre-construction phase and will seek input from Indigenous Nations to ensure a comprehensive approach to wildlife monitoring and management.

Annual monitoring reports summarizing activities and results will be developed and provided to the Impact Assessment Agency of Canada, Manitoba Natural Resources and Indigenous Futures, and Indigenous Nations (Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation). At the completion of the monitoring program, annual reports will be summarized into one final Wildlife Monitoring Report for the Project.

c) See Response A. Appendix 6-4 and 6-5 of the EIS summarize the assessment of potential Project effects, and the significance determination of residual effects to wildlife, including effects of fragmentation and sensory disturbance which would be inferred to reflect potential changes to movement. Relevant sections of Appendix 7-1: Environmental Assessment Summary Table included in Chapter 7 of the EIS which showing the assessment of residual effects to wildlife movement (e.g. fragmentation, habitat loss, predator movement, displacement) has been included as Appendix IR1-44-1. Description of assessment criteria and levels of potential environmental effects (Table 4.4 from Chapter 4 of the Project EIS) is also included as Appendix IR1-44-2.

Cumulative effects are described in Chapter 6, Section 6.6.3 of the EIS, and were conducted in accordance with CEAA 2012 guidance (see Chapter 4, Section 4.5.6.3 of the EIS).

APPENDIX IR1-44-1

Selection of Appendix 7-1 from the Project 6 Environmental Impact Statement: Environmental assessment summary table showing the assessment of residual effects to wildlife movement

System / VC / Feature	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Mammals (Ungulates)	Clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps during construction and maintenance	Alteration, fragmentation and/or loss of moose and caribou habitat	▪ Follow clearing and grubbing timelines and restrictions to avoid critical calving times (EP1 and ES 130.17.1) ▪ Use baseline studies to identify location of calving areas and mineral licks to be avoided ▪ Limit clearing to designated areas within the ROW using existing cutlines, routes and trails where they are present (EP1 and ES 130.17.1) ▪ Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) ▪ Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7) ▪ Bridges and culverts at watercourse crossings will accommodate 1:50 year flood events with regular culvert maintenance and cleanouts (EP11 and ES 130.15.9) to maintain wetland hydrologic regime ▪ Preserve vegetation buffers at watercourses (ES 130.15.1.)	Alteration, fragmentation and/or loss of moose and caribou habitat	Long-Term, life of Project	May measurably affect populations	Critical life stages would be avoided	Limited to the Project Footprint	Sporadic	Reversible over a long period	Moderate ecosystem effect important to local communities	Not Significant
					Level III	Level II	Level I	Level I	Level II	Level II	Level II	
Mammals (Ungulates)	Vehicle and equipment noise and vibration during construction, maintenance and operation	Increased sensory disturbance to and displacement of moose and caribou	▪ Stage construction activities to limit the extent of noise disturbance during critical calving times to defined areas ▪ Follow clearing and grubbing (EP1 and ES 130.17.1) and blasting (EP14 and ES 130.19) timelines and restrictions to avoid critical calving times ▪ Limit clearing to designated areas within the ROW using existing cutlines, routes and trails where they are present (EP1 and ES 130.17.1) ▪ Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) ▪ Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and 130.11) techniques	Increased sensory disturbance to and displacement of moose and caribou	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Critical life stages would be avoided	Effects may extend beyond the Project Footprint within the LAA	Continuous	Reversible over a long period	Moderate ecosystem effect important to local communities	Not Significant
					Level III	Level I	Level I	Level II	Level III	Level II	Level II	

[1] The description of assessment criteria and levels of potential environmental effects were provided in Chapter 4 Table 4.4 of the Environmental Impact Statement, but are also included in Appendix IR1-44-1 of this response.

System / VC / Feature	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Mammals (Ungulates)	Construction, maintenance and operation of the all-season road, access roads, work areas and watercourse crossings	Increased moose and caribou mortality due to increased access and predation by wolves along the ROW	▪ Decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7) ▪ No additional mitigation proposed as access during late spring, summer and early fall to areas off the road surface will be no different with the Project as the terrain and habitat beyond the Project Footprint will not change	Increased moose and caribou mortality due to increased access and predation by wolves along the ROW	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Effect could occur during critical life stage	Effects may extend beyond the Project Footprint within the LAA	Sporadic	Reversible over a long period	Moderate ecosystem effect important to local communities	Not Significant
					Level III	Level I	Level III	Level II	Level II	Level II	Level II	
Mammals (Aquatic and Terrestrial Furbearers)	Clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps	Alteration, fragmentation and/or loss of furbearer (ex: beaver, marten) habitat	▪ Use baseline studies to identify location of denning areas and lodges to be isolated with construction setbacks ▪ Limit clearing to designated areas within the ROW (EP1 and ES 130.17.1) ▪ Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) ▪ If required beaver dams will be removed gradually (ES 130.15.10) ▪ Alignment selected so no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (EP6 and 130.15.1) ▪ Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7) ▪ Bridges and culverts at watercourse crossings will accommodate 1:50 year flood events with regular culvert maintenance and cleanouts (EP11 and ES 130.15.9) to maintain wetland hydrologic regime	Alteration, fragmentation and/or loss of furbearer (ex: beaver, marten) habitat	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Critical life stages would be avoided	Limited to the Project Footprint	Infrequent	Reversible over a long period	No adverse ecosystem effects	Not Significant
					Level III	Level I	Level I	Level I	Level I	Level II	Level I	
	Vehicle and equipment noise and vibration during construction, maintenance and operation	Increased sensory disturbance to and displacement of furbearers (ex: beaver, marten)	▪ Stage construction activities to limit the extent of noise disturbance at a given time to defined areas ▪ Limit clearing to designated areas within the ROW using existing cutlines, routes and trails where they are present (EP1 and ES 130.17.1) ▪ Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) ▪ Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and ES 130.11) techniques	Increased sensory disturbance to and displacement of furbearers (ex: beaver, marten)	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Critical life stages would be avoided	Limited to the Project Footprint	Continuous	Reversible over a long period	No adverse ecosystem effects	Not Significant
					Level III	Level I	Level I	Level I	Level III	Level II	Level I	

System / VC / Feature	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
					Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Amphibians and Reptiles	Clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps	Alteration, fragmentation and/or loss of amphibian (ex: spring peeper) habitat	▪ Follow clearing and grubbing timelines and restrictions to avoid critical breeding times (EP1 and ES 130.17.1) ▪ Limit clearing to designated areas within the ROW (EP1 and ES 130.17.1) ▪ Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) ▪ Alignment selected so no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (EP6 and ES 130.15.1) ▪ Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7) ▪ Bridges and culverts at watercourse crossings will accommodate 1:50 year flood events with regular culvert maintenance and cleanouts (EP11 and ES 130.15.9) to maintain wetland hydrologic regime	Alteration, fragmentation and/or loss of amphibian (ex: spring peeper) habitat	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Critical life stages would be avoided	Limited to the Project Footprint	Infrequent	Irreversible	No adverse ecosystem effects	Not Significant
					Level III	Level I	Level I	Level I	Level I	Level III	Level I	
Birds / Migratory Birds (Songbirds, Raptors, Waterfowl, Upland)	Clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps	Alteration, fragmentation and/or loss of migratory (ex: raptors, waterfowl, forest birds) and non-migratory (ex: upland game birds) bird habitat	▪ Alignment selected so no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (EP6 and ES 130.15.1) ▪ Follow clearing and grubbing timelines and restrictions to avoid breeding and nesting times (EP1 and ES 130.17.1) ▪ Limit clearing to designated areas within the ROW (EP1 and ES130.17.1) ▪ Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) ▪ Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7) ▪ Bridges and culverts at watercourse crossings will accommodate 1:50 year flood events with regular culvert maintenance and cleanouts (EP11 and ES 130.1.9) to maintain wetland hydrologic regime	Alteration, fragmentation and/or loss of migratory (ex: raptors, waterfowl, forest birds) and non-migratory (ex: upland game birds) bird habitat	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Critical life stages would be avoided	Limited to the Project Footprint	Infrequent	Reversible over a long period	No adverse ecosystem effects	Not Significant
					Level III	Level I	Level I	Level I	Level I	Level II	Level I	
	Vehicle and equipment noise and vibration during construction, maintenance and operation	Increased sensory disturbance to and displacement of migratory (ex: raptors, waterfowl, forest birds) and non-migratory (ex: upland game birds) birds	▪ Stage construction activities to limit the extent of noise disturbance at a given time to defined areas ▪ Follow clearing and grubbing (EP1 and ES 130.17.1) and blasting (EP14 and ES 130.19) timelines and restrictions to avoid critical breeding and nesting times ▪ Limit clearing to designated areas within the ROW using existing cutlines, routes and trails where they are present (EP1 and ES 130.17.1) ▪ Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) ▪ Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and ES 130.11) techniques	Increased sensory disturbance to and displacement of migratory (ex: raptors, waterfowl, forest birds) and non-migratory (ex: upland game birds) birds	Long-Term, life of Project	Effect likely to occur at the individual level, not measurably affecting the population	Critical life stages would be avoided	Limited to the Project Footprint	Continuous	Reversible over a long period	No adverse ecosystem effects	Not Significant
					Level III	Level I	Level I	Level I	Level III	Level II	Level I	

APPENDIX IR1-44-2

Description of assessment criteria and levels of potential environmental effects (Table 4.4 from Chapter 4 of the Project EIS)

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
Direction of Change (type of effect)	Neutral or Negligible	No measurable change on the VC.
	Negative	Net loss (adverse or undesirable change) on the VC.
	Positive	Net benefit (or desirable change) on the VC.
Duration (period of time the effect occurs)	Short-Term	**Level I** - The potential effect results from short-term events or activities such as the time required to complete a discrete component during construction, maintenance, or rehabilitation activities (i.e., a timeframe of several months up to one year).
	Medium-Term	**Level II** - The potential effect is likely to persist until the completion of construction and rehabilitation activities (i.e., > 1 year to 10 years).
	Long-Term	**Level III** -The potential effect is likely to persist beyond the completion of construction and rehabilitation activities into the operations and maintenance phase of the Project (i.e., a timeframe of greater than 10 years).
Magnitude (degree or intensity of the change)	Negligible or Low	**Level I** - A change that is not likely to have a definable, detectable or measurable potential effect above baseline (i.e., potential effect is within a normal range of variation) or is below established thresholds of acceptable change (e.g., water quality guideline). See **Table 4.5** for VC specific criteria.
	Moderate	**Level II** – A change that will have a potential measurable effect that can be detected with a well-designed monitoring program; but is only marginally beyond standards/guidelines or established

[2] **Chapter 6** of the Environmental Impact Statement outlines VC specific definitions for the three level ranking system.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
		thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
	High	**Level III** – A change that will have potential effects that are easily observed, measured, and described (i.e., readily detectable without a monitoring program) and are well beyond guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
Timing[3]	No Sensitivity	**Level I** – Effect does not occur during critical life stage.
	Moderate Sensitivity	**Level II** – Effect occurs at the start or end of a critical life stage.
	High Sensitivity	**Level III** – Effect occurs during a critical life stage.
Extent (Spatial Boundary)[4]	Project Footprint	**Level I** - The physical space or directly affected area on which Project components or activities are located and/or immediately adjacent area which is within the defined limits of the P6 all-season road ROW (i.e., 100 m) and permanent and temporary facilities (e.g., temporary access routes and quarries) within which potential effects are likely to be measurable.
	LAA	**Level II** - Area within which potential Project effects are measurable and extending beyond the Project Footprint to, but not beyond, the LAA (either a 2 km or 10 km corridor centred on the all-season road alignment depending on the VC (**Figure 4-1**).

[3] In terms of **Timing**, the critical life stages include things such as nesting, breeding, spawning and calving which will vary by VC and will vary annually depending on seasonal conditions. For example, it is clear that winter is outside of bird nesting and breeding period and that spring is fully within this critical time period, whereas early spring and late fall is a transitional period that depending on the seasonal conditions may or may not affect the life stage.

[4] Environmental Impact Statement **Figures 4-1** and **4-2** illustrate the VC specific spatial boundaries of the LAA and RAA, which are discussed in greater detail in **Chapter 6**.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
	RAA	**Level III** - The maximum anticipated regional extent of potential direct, indirect and cumulative effects that may extend beyond the LAA. The boundaries of the RAA will vary depending on the VC.
Frequency (how often the effect occurs)	Infrequent	**Level I** - The potential effect occurs once or seldom during the life of the Project (e.g., initial clearing of the ROW).
	Sporadic/Intermittent	**Level II** - The potential effect occurs only occasionally and without any predictable pattern during the life of the Project (e.g., blasting at quarries; site-specific construction equipment noise; potential wildlife-vehicle collisions).
	Regular/Continuous	**Level III** – The potential effect occurs at regular and frequent intervals during the Project phase in which they occur or over the life of the Project (e.g., construction traffic; operations traffic).
Reversibility (the degree of permanence)	Reversible (short-term)	**Level I** – Potential effect is readily reversible over a relatively short period (< than eight years).
	Reversible (long-term)	**Level II** - Potential effect is potentially reversible but over a long period (> than eight years).
	Irreversible	**Level III** - Project-specific potential effects are permanent and irreversible.
Ecological and Social Context (resilience of a VC to adapt to changes as a result of the project)	Low	**Level I** – The VC is not rare or unique and is resilient to imposed change. Social – Indigenous people/communities in the RAA are able to adapt with relative ease and maintain pre-project development activities.
	Moderate	**Level II** – The VC is moderately/seasonally fragile and has some capacity to adapt to imposed change. Social - Indigenous people/communities in the RAA are able to adapt with some adjustments and

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
		maintain pre-project development activities but only with a degree of support.
	High	**Level III** – The VC is a protected/designated species under MESEA, SARA and species listed by COSEWIC and by the MBCDC as very rare (S1) to rare (S2) or fragile with low resistance to imposed change or part of a very fragile ecosystem. Social - affected Indigenous people/ communities in the RAA will not be able to adapt to changes or maintain-pre-project development activities.

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QUESTION IAAC IR1-45

EIS Guideline Reference	• Part 2, Section 6.3.4 and 6.4
EIS Reference	• Appendix D-2, Section 7.3.2
Category	Wildlife

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential changes resulting from the Project to resources used for traditional purposes by Indigenous peoples, including wildlife species identified as culturally important. The proponent is also required to describe measures to mitigate any potential adverse effects.

The EIS indicates that beavers may be adversely affected by the Project due to sensory disturbance, habitat loss, and mortality. It is unclear how the mitigation measures and activities proposed in the EIS could be considered mitigation measures that may address adverse effects to beavers. In the assessment of the significance of residual adverse effects to beavers, the EIS also indicates that beavers are a very adaptable and prolific species and uses this as a rationale for why residual effects may be minimal. No rationale or evidence is provided to support this conclusion.

With respect to the management of nuisance beavers (see IR1-41 for additional context), concerns have been identified regarding the Project's relationship with beavers including the removal of beavers, destruction of dams, or habitat alteration and fragmentation. It is unclear whether management options, such as those described by Pimicikamak Okimawin, were considered as potential mitigation measures for nuisance beavers.

The EIS notes that aerial multi-species surveys were utilized to collect baseline information on the number of beaver lodges and dams in the area of the Project as a proxy for beaver abundance. It is unclear whether MI conducted field studies on the ground to verify whether these features are currently in use by active beaver colonies or if they are abandoned relic structures, which can persist for many years. If active use of these lodges/dams was not verified, the EIS may overestimate the size of the beaver population in the Project footprint, LAA, and RAA, potentially underestimating adverse Project effects to beaver abundance.

Supplementary information is required to support the characterization of potential Project effects to beavers, which are a wildlife species of importance to Indigenous peoples for traditional purposes, and to assess whether mitigation measures proposed may be adequate to address potential adverse effects.

INFORMATION REQUEST

a) Describe the measures that will be implemented to mitigate adverse effects to beavers resulting from sensory disturbance, habitat loss, and mortality during all Project phases and from all Project components and activities. Describe alternative measures that may be technically and economically feasible to manage culvert blockage from beaver activity.
    i. Revise the residual and cumulative effects assessments for beavers to include these mitigation measures.
b) Using clear rationale and/or evidence, justify the assertion that beaver are an adaptable and prolific species.
c) Confirm whether active use of beaver lodges and dams identified during aerial multi-species surveys was confirmed through field studies on the ground and justify the baseline estimates presented in the EIS with respect to the size of beaver populations in the area of the Project. Revise the assessment of potential Project effects, residual effects, and cumulative effects for beaver to account for any potential discrepancies in the population size of beavers.

RESPONSE

a) Proposed measures to mitigate potential Project effects are presented in Chapter 8, Appendix 8-2 (Environmental Protection Procedures; EP) and Appendix 8-3 (Environmental Protection Specifications; ES 130) of the Environmental Impact Statement (EIS). EIS Appendices 8-2 and 8-3 are also included in the response to IR1-19 as Appendix IR1-19-1. As mentioned in Appendix 6-4 of the EIS, measures that will be implemented to mitigate adverse effects to aquatic furbearers resulting from sensory disturbance, habitat loss, and mortality during all Project phases include commitments to:

- Stage construction activities to limit the extent of noise disturbance at any given time to defined areas.
- Limit clearing to designated areas within the ROW using existing cutlines, routes and trails where they are present (EP1 and ES 130.17.1).
- Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1).

- Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and ES 130.11) techniques.

Additional measures, listed in Appendix 7-1 of the EIS, that apply to beaver *(Castor canadensis)* and other aquatic furbearers include:

- Use baseline studies to identify location of denning areas and lodges to be isolated with construction setbacks.
- If required beaver dams will be removed gradually (ES 130.15.10).
- Alignment selected so no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (EP6 and 130.15.1).
- Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7).
- Bridges and culverts at watercourse crossings will accommodate 1:50 year flood events with regular culvert maintenance and cleanouts (EP11 and ES 130.15.9) to maintain wetland hydrologic regime.
- Design road to optimize line of sight and reduce collisions.
- Wildlife awareness information provided to construction workers.
- Reduce speed limits at identified problem areas.
- Construction vehicle speeds adhere to posted limits and wildlife warning signs shall be installed at identified problem areas (EP14).
- Remove trees and tall shrubs to maintain line of sight.
- Preserve vegetation buffers at watercourses (ES 130.15.1).

Additionally, more beaver-specific measures include:

- Lodges and Dams found during pre-construction surveys that require removal shall be removed gradually and with authorization with MSD as per ES130.15.10 – Beaver Dam Removal.
- Road-clearing activities will be scheduled to occur during daytime hours when beaver are less active.

As indicated in Appendix 7-1 of the EIS, with the application of mitigation measures, the potential effect of temporary sensory disturbance to beaver is not expected to be significant. To mitigate habitat loss, and/ or fragmentation, design considerations will be undertaken to maintain the existing water flow patterns, levels, and wetland hydrologic regimes. Riparian vegetation clearing within the right-of-way is limited to the removal of trees and tall shrubs (to maintain line-of-sight safety requirements) with no removal of low-growing vegetation. Clearing activities will take place during the fall and winter, as feasible, when beavers are overwintering and utilizing stored food caches. Clearing will occur away from water (except at crossing locations) where beavers may still be foraging for food until the ice forms. Once the water freezes, beavers generally stay in their lodges and beneath the ice until spring.

For other all-season road projects (i.e. Project 4 all-season road connecting Berens River to Poplar River First Nation, MTI proposed to suspend blasting and other disruptive construction activities during spring months adjacent to beaver houses will be used where necessary to decrease disturbance during breeding periods. If required, this measure could also be applied for Project 6 . Should additional mitigation measures be required, they will be identified and consider as part of the data validity review described in the response to IR1-19.

Beaver would only be removed if they cause damage or risk of damage to infrastructure. The Nuisance Beaver Management Plan (Chapter 3 of the EIS, Appendix 3-6) outlines a phased approach dams would first be removed to encourage beavers to relocate. If they do not move, removal of the beavers themselves may be necessary. Given the availability of other suitable habitat in the region, it is anticipated that any required removals will impact individual beavers without significantly affecting the regional population.

As mentioned in the response to IR1-41, Chapter 6 (Section 6.6.2.2) of the EIS outlines measures to manage culvert blockages caused by beavers. This includes the use of large-diameter culverts (≥ 900 mm) and beaver cones[1]. Large diameter culverts have the potential to allow a larger volume of water to flow and would take longer for a beaver to block, thereby increasing the likelihood that beaver activity is detected before damage to the infrastructure occurs. A beaver cone is a conical cage placed on the end of a culvert. The end of the cone includes a large opening to allow for fish passage. If beavers begin plugging the cone or blocking water flow through the culvert, the beaver cone is easily tipped up out of the water and can be cleaned by maintenance personnel. Although other measures such as beaver deceivers or pond levellers may be considered during detailed engineering design, beaver cones have used and proven effective on the all-season road linking PR 304 to Beren River (i.e. Project 1).

Regular inspections and maintenance, such as culvert clean-outs and the clearing of vegetation, branches, mud, ice, snow, and other debris from the culvert inlets, barrels, and outlets, will help minimize potential damage to road and culvert crossings. If beaver control measures prove ineffective, and beavers are causing or may cause damage to infrastructure and therefore road users, then the Nuisance Beaver Management Plan (Appendix 3-6) will be implemented. This plan involves local trappers assisting MTI staff with road maintenance in their registered trap line areas and has been successfully implemented for other road construction projects on the east side of Lake Winnipeg. Nuisance beaver locations will be identified by MTI staff or contractors during annual inspections or through community reports.

b) The North American beaver has a remarkable ability to shape its environment and thrive in various conditions. According to Kemp et al. (2012), the presence of beavers has a positive impact

[1] For more information on beaver cones, please visit the manufacturers website at https://beavercone.com/

on fish populations, downstream flooding prevention, water flow regulation. They have been correlated with greater species diversity and richness due to their role in the creation or maintenance of wetland habitats. Taylor et al. (1994) suggested that beavers can use whatever materials are available to construct dams, from fencing materials, bridge planking, crossties, rocks, wire, and other metal, wood, and fiber materials. Therefore, showing their adaptability to different environments, as they would only avoid areas lacking acceptable foods, lodge or denning sites, or a suitable dam site. They typically prefer areas with low-gradient channels, intermittent or steady water flow, woody vegetation nearby, and soft substrates, which provide necessary food and materials (Allen, 1983).

As ecosystem engineers, beavers profoundly alter landscapes. Their dam-building likely evolved to create deep ponds, which protect them from predators and provide a stable place to store food through winter (Plint et al., 2020). This behavior benefits other species by promoting water storage, sedimentation, nutrient cycling, and carbon storage (Gable et al., 2020). Additionally, beavers contribute to plant spread in stream networks by dispersing stem cuttings, which is especially important for plants in floodplain areas (Levine & Meyer, 2019). However, they can also impact human spaces by flooding pathways and modifying vegetation, showing their strong influence on local hydrology (Bailey et al., 2018).

Beavers are resilient even in competitive environments. In Elk Island National Park, for example, they adjusted their foraging strategies to cope with competition from large herbivores, showing their flexibility in finding food despite limited resources (Hood & Bayley, 2008). Organ et al. (1998) suggested that their adaptability has allowed them to do well in proximity to human habitation.

Beyond natural settings, beavers show both adaptability and resiliency in human-altered landscapes. The study by Mumma et al. (2018) examined how beaver populations were affected by the expansion of natural gas infrastructure in northeast British Columbia, which involved the development of roads and seismic lines (clearings up to 10 meters wide). Such disturbances could potentially degrade beaver habitat, in particular aspen stands. Using models to predict beaver colony locations and evaluating landscape features around active and inactive colonies, the study found that these disturbances did not significantly impact beaver distribution. Beavers continued to establish colonies where high-quality resources like aspen were available. This finding suggests that beavers can tolerate moderate levels of environmental disruption, provided that essential resources remain unchanged.

The adaptability of beavers is further evidenced in urban settings. England and Westbrook (2021) studied beaver populations along a river flowing through an urban area compared to a nearby conservation area. They observed that beavers adjusted their foraging behavior based on available resources in the city, traveling farther from shore to access green ash, their preferred species. Additionally, they cut non-native tree species such as mountain maple, birch, and English elm, which were not part of their natural diet, indicating flexibility in utilizing available materials.

As demonstrated by these studies, beavers can adapt their foraging patterns to available resources, even when traditional options are scarce, demonstrating their resilience and adaptability across both natural and human-altered landscapes

c) Aerial surveys located beaver lodges and dams within the Project Regional Assessment Area (RAA) as noted in response to IR1-41 (Joro, 2018), and beaver-influenced wetlands were recorded, with details provided in Appendix 4 and 5 of the North/South Consultants Aquatic Environment Report: Existing Environment (NSC, 2017). Although active occupancy was not verified with on-the-ground surveys, the presence of beaver lodges and dams suggests that suitable habitat and favorable conditions currently exist, or could exist in these locations and throughout the broader area.

While it is true that without on-the-ground verification of active use of these lodges and dams, the EIS could potentially overestimate beaver population sizes within the Project footprint, Local Assessment Area, and Regional Assessment Area, this estimate was also supported by additional sources. Traditional Knowledge (TK) interviews and community workshops consistently reported that beavers are abundant within the area. Additionally, data from the trapper program indicated that beavers are among the most frequently seen and trapped furbearers across all communities. This broader context supports the population estimates (Joro, 2018).

As described in response to IR1-43, prior to construction, a Wildlife Monitoring Plan will be developed to verify key predictions regarding effects on wildlife, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects. The monitoring criteria established for the WMP will be informed by concerns raised through the Project's environmental assessment review and subsequent information requests received from federal and provincial regulators, Indigenous rights-holders, and stakeholders. While the WMP details are yet to be finalized, the proposed table of contents are included as part of response to IR1-73. If on-the-ground verification of beaver use within the Project footprint is determined to be necessary, it may be incorporated as part of the finalized WMP.

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QUESTION IAAC IR1-46

EIS Guideline Reference	• Part 2, Section 6.3.4 and 8.0
EIS Reference	• Appendix D-2, Section 7.2.1
Category	Wildlife

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe any changes resulting from the Project to resources used for traditional purposes by Indigenous peoples. The proponent is also required to describe the proposed follow-up and monitoring program to verify the accuracy of the effects assessment, effectiveness of mitigation measures, and to describe proposed contingency measures.

The EIS notes that moose densities within the LAA are low and that the Project is not expected to result in any measurable adverse effects to moose populations. Uncertainties are noted regarding the degree of effects within the LAA for moose, however no information or rationale is included to characterize the uncertainty referenced.

The EIS also notes that potential Project effects to moose due to habitat fragmentation are expected to be minor as moose will adapt to the presence of the road, likely avoiding or moving across the road to avoid vehicles. The EIS does not describe how effects to moose will be monitored during all Project phases to verify this prediction or the mitigation measures that will be implemented should monitoring indicate that effects to moose are more severe than anticipated.

It is unclear whether analysis was conducted for baseline information for moose presence and use of previously burned areas. This is important for understanding the current use of habitat by moose species and potential effects to moose habitat should wildfires result from Project components and activities or should wildfire occurrence and severity increase in the future with climate change, resulting in cumulative effects with the Project.

Supplementary information is required to support the characterization of potential Project effects to moose, a wildlife species identified as important to Indigenous peoples for traditional purposes.

Include consideration of sensory disturbance and increased harvesting rates (IR1-42), wildlife health (IR1-43), and movement patterns (IR1-28).

INFORMATION REQUEST

a) Describe the uncertainty regarding the degree of effects within the LAA for moose, including the nature of the uncertainty and how this uncertainty may affect the conclusions regarding potential Project effects to moose.
b) Describe the monitoring and follow-up plan(s) that will be implemented to verify the prediction that moose will adapt to the presence of the road and/or avoid the road to prevent mortality/injury.
c) Should monitoring indicate that moose are not adapting to or avoiding the road as anticipated, describe contingency measures that will be implemented to mitigate adverse effects to moose from vehicle collisions and the thresholds that would trigger the implementation of such measures.
d) Clarify whether an analysis was conducted with respect to moose presence and use of previously burned areas within the Project footprint, LAA, and RAA. If not, provide information, such as data from field studies or literature, regarding the use of burned areas by moose.
    i. Update the assessment of potential Project effects, residual effects, and cumulative effects for moose to include potential effects as a result of fires from the Project and/or due to potential increases in wildfire occurrence and severity in the future with climate change.

RESPONSE

a) The uncertainty regarding the degree of effects on moose (*Alces alces*) within the Local Assessment Area (LAA) primarily arises from potential changes in human hunting patterns that may occur after construction of an all-season road. The effects of vehicle collisions and habitat loss are more predictable, but the effects of hunting might be less certain due to the possibility of shifts in hunting behaviour once the road is built.

The proposed Project 6 road will provide a year-round travel corridor, but access to additional hunters will not change as connection to the rest of the provincial road network is seasonal and doesn't occur until winter roads are open. Therefore, the situation is expected to remain largely similar to the current conditions, with moose harvest patterns potentially shifting rather than increasing. It may be expected that hunters will shift locations once the road is built, with some

hunters moving efforts from waterways and waterbodies to areas accessible by the road. However, this shift is unlikely to lead to an overall increase in hunting pressure.

Moose are likely to continue selecting similar habitats, and the interaction between these habitats and the road, along with human activity, will be the most reliable predictor of potential effects on moose. Community members identified moose hunting areas as spanning entire watersheds and along the winter roads.

Although, there may be uncertainty when predicting future outcomes of a proposed project, the assessment of potential effects for the all-season road linking God's Lake First Nation, Manto Sipi Cree Nation and Bunibonibee Cree Nation is based on well studied and understood effects of other road construction Projects on the east side of Lake Winnipeg.

Similar to Project 6, the Project 1 all-season road (ASR) from PR304 to Berens River First Nation (P1) also had the potential to indirectly affect moose mortality by increasing hunting pressure during construction and operation, as the ASR could provide easier access to areas previously less accessible in non-frozen conditions. Potential effects of P1 also included hunters shifting their efforts from rivers and streams to areas along the road. Where Project 1 differs from Project 6 is that the P1 road could have more easily lead to an increase in the overall number of hunters during the licensed season or could more easily attract hunters from other communities due to increased vehicular access and connectivity to the provincial highway network via PR304. However, monitoring data from 2012 to 2018 indicates that moose populations, densities, and productivity along P1 have remained stable, suggesting that there has not been a significant increase in hunting pressure or harvest rates as a result of P1 ASR. These monitoring results from P1 support the conclusion that the overall risk to moose from the construction of Project 6 is anticipated to remain low.

b) As stated in Chapter 8 of the Environmental Impact Statement (EIS), a strategic plan for wildlife monitoring will be developed in association with local liaison committees and appropriate federal and provincial departments to meet regulatory obligations, improve or update information on the existing environment and to verify environmental assessment predictions. This plan will be developed prior to construction, and may include programs to monitor moose, caribou (*Rangifer tarandus caribou)*, migratory bird and furbearers.

Monitoring and follow-up programs specifically will aim to verify that environmental assessment predictions regarding moose habitat use in proximity to the road and potential impacts to moose mortality were accurate and that proposed mitigation is working as intended. As stated above, Manitoba Transportation and Infrastructure intends to work with God's Lake First Nation, Bunibonibee Cree Nation and Manto Sipi Cree Nation as well as branches and divisions of other provincial departments such as the Manitoba Wildlife Branch in developing these programs. It is MTI's hope that local knowledge from Indigenous Nations, and monitoring performed by Manitoba's

Wildlife Branch can supplement and support MTI's monitoring efforts and provide for early detection of unanticipated effects (if any).

As described in IR1-43 and IR1-44, the objectives of the Wildlife Monitoring Plan (WMP) are to verify key Project EIS prediction, to evaluate the effectiveness of mitigation strategies for environmental effects on wildlife and wildlife habitat, and to establish a framework for adaptive management that can be used to enhance mitigation strategies, if required. While the WMP plans is yet to be finalized, the proposed table of contents are included as part of the response to information request IR1-73.

The monitoring criteria established for the WMP will be informed by concerns raised through the Project's environmental assessment review and subsequent information requests received from federal and provincial regulators, Indigenous rights-holders, and stakeholders. Opportunities will be provided for provincial and federal regulators as well as Indigenous Nations to review the WMP prior to it being finalized.

Although specific study design, protocols, locations, and schedules will be developed at a later stage, MTI anticipates that monitoring may include:

- Trail cameras;
- Engagement of local trappers or resource users; and,
- General field observations, including incidental wildlife observations during project activities which could include documenting evidence of roadside mortalities and vehicle collisions.

The results of the monitoring should help to reduce the uncertainty regarding the degree of effects on moose. If significant negative changes are observed, additional mitigation measures may be developed.

Since the WMP will be developed prior to construction, the monitoring schedule may vary based on species and monitoring objectives. As monitoring data becomes available, MTI will share findings and a draft monitoring plan with provincial and federal regulators during the pre-construction phase, and will seek input from Indigenous Nations to ensure a comprehensive approach to wildlife monitoring and management.

Annual monitoring reports summarizing activities and results will be developed and provided to the Impact Assessment Agency of Canada, Manitoba Natural Resources and Indigenous Futures, and Indigenous Nations (Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation). At the completion of the monitoring program, annual reports will be summarized into one final Wildlife Monitoring Report for the Project.

c) During the first monitoring period from 2011 to 2014 for the Project 1 ASR, only one moose-vehicle collision was recorded (Joro, 2015). Similarly, in the subsequent monitoring period between 2012 and 2017, MTI field staff identified four known or suspected moose mortalities due to vehicle collisions (Joro, 2019). Despite these incidents, the data suggests that vehicle collisions involving moose remain relatively infrequent.

This low incidence of collisions can be attributed to the ongoing implementation of mitigation strategies, which will also be implemented for P6. These measures include incorporating appropriate sight lines, posting speed limits, and installing wildlife crossing signage. Additionally, the low traffic volumes on the two-lane gravel roads are expected to further reduce the likelihood of collisions. Based on the monitoring results for P1 and the preventative measures that will be implemented, there is no indication of an increased risk of moose mortality due to vehicle collisions.

Should the monitoring program described in the response to B identify unanticipated effects, or that moose are not avoiding or adapting to the presence of the new road as had been predicted, alternative measures such as further restricting vehicle speeds, or modifying vegetation maintenance activities along the roadway. Should more substantial alternative measures be required, these could also include, but are not necessarily limited to working with local Indigenous Nations and Manitoba Wildlife Branch to identify and implement additional protections as necessary.

d) The wildlife technical reports included as part of the EIS did consider and monitor moose presence and distribution in the Project footprint, LAA and Regional Assessment Area (RAA). The wildlife technical reports describe moose habitat use and consider potential moose habitat areas. Habitat modeling was conducted to evaluate moose habitat availability and distribution within the RAA and the 10 km LAA. This analysis required two years of winter survey data from 2016 and 2017, incorporating moose observations into a resource selection function (RSF) model (Joro, 2018). Additionally, multispecies aerial surveys recorded moose distribution in the RAA, and trail camera occupancy studies were also used to determine moose distribution in the RAA (Joro, 2018). While specific associations between potential moose habitat and moose observations do not comment on fire history, scientific literature supports use of previously burned areas by moose.

(Joro, 2018) highlights that the ecological processes within the RAA are influenced by repetitive burn patterns, with fire severity linked to fuel loads and meteorological variables. Wildlife in the ecozone has evolved to adapt to these broad vegetative patterns, creating a dynamic habitat supply that meets various life history needs. Moose are known to thrive in old burn areas where vegetation regrowth provides optimal foraging habitat. Large groups of moose are often observed utilizing these regrowth areas, especially along the winter roads within the RAA.

Scientific literature also supports the use of burned areas by moose. Mumma et al. (2024) observed that moose are likely to use areas with intermediate and older stages of vegetation regrowth after a wildfire, particularly during spring, summer, and winter. While moose may return to recently burned areas due to site fidelity, it is also possible that these young burns offer specific resources. The study suggests that moose use burned areas in proportion to their availability, with their presence likely increasing as vegetation regrows.

Supporting this, Gasaway et al. (1989) found that moose populations tend to increase in recently burned areas due to the abundance and higher quality of regenerating vegetation. Moose populations are expected to respond most rapidly to these habitats where moose are already abundant or along major migration corridors, where the density might be low, but the number of migrating moose is high.

Fredriksson et al. (2023) also demonstrated that moose continue to use and browse in areas more than 10 years after a fire, as long as forage remains available. This suggests that while burning itself may not be the primary factor; moose are effective at locating and utilizing areas with abundant forage, making burned areas particularly attractive. In addition, McNay et al. (2021) found that habitats with a mix of low to medium fire severity and wetter soil moisture conditions offer moose both cover and forage. Moose habitat use and selection varied with fire severity, showing a decreasing preference for low and medium severity at finer scales of selection, such as home range to daily movements. While soil moisture is an important factor, fire severity was more significant in determining the locations of moose home ranges and their specific areas within those ranges.

Joro Consultants in 2018 note that most fires within the ecoregion over the past century are less than 40 years old, favoring wildlife species like moose that benefit from younger regenerating forest structures. However, within the RAA itself, a lower burn rate has resulted in a more mature forest. This suggests that habitat availability is not static; with a fire regime occurring every 40-80 years, habitat is constantly shifting and thus remains readily available in the broader region. Because fire is a recurring disturbance in the region, and because literature supports the fact that moose can use and benefit from burned areas, a revised assessment is not required. While fire frequencies may change in light of climate change, moose habitat remains available in the broader region.

Similarly, a revised assessment for effects of fire to moose as a result of the Project are also not required. As identified in Chapter 8 of the EIS, MTI has a number of measures to prevent and respond to fires that may result from the Project. As outlined in Chapter 7 of the EIS (Appendix 7-1), the increased risk of wildfire resulting from the Project is considered not significant with the application of proposed mitigation measures.

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QUESTION IAAC IR1-47

EIS Guideline Reference	• Part 2, Section 6.3.4
EIS Reference	• Chapter 5, Table 5.8 • Chapter 6, Section 6.1.4.5.4 • Appendix D-2, Section 7.4.2
Category	Wildlife

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential changes resulting from the Project to resources used for traditional purposes by Indigenous peoples, including wildlife species identified as culturally important.

The EIS describes that there may be adverse effects to marten, should the Project facilitate increased access to previously remote or inaccessible areas by non-local trappers, resulting in higher trapping pressure on marten populations due to the relative ease to trap and high price for the pelts. Despite this, the EIS concludes that there is no evidence that martens will be negatively affected to a measurable extent by the Project. No rationale is provided in the EIS to support this conclusion. As this species is important to Indigenous peoples for traditional use and income, any adverse effects to marten as a result of the Project may adversely affect the socioeconomic conditions of Indigenous peoples and their ability to practice traditional land use.

MSCN and GLFN also expressed concerns regarding the use of marten in the EIS as the only species to represent all terrestrial furbearers. To support the selection of marten as the representative terrestrial furbearer for the Project, the EIS indicates that marten was selected as their habitat can be modelled to assess effects, their habitat is representative of the other VCs, and they are a species of importance for commercial harvesting by Indigenous peoples. However, there may be limitations in the assessment approach as marten may not be representative of potential effects to all furbearer species of importance to Indigenous peoples or furbearer species at risk.

Supplementary information is required to support the characterization of potential Project effects to species of importance to Indigenous peoples for traditional use.

INFORMATION REQUEST

a) Justify, with rationale and evidence, the conclusion that the Project will not result in adverse effects to marten populations due to increased trapping pressure.
    i. If the Project will result in adverse effects to marten, describe mitigation measures to address potential effects and revise the residual and cumulative effects assessments for marten.
b) Should effects to marten from the Project be identified in a), describe potential effects to Indigenous peoples as a result of these effects.
c) Describe potential limitations of using marten as the representative terrestrial furbearer species for the assessment of potential Project effects to all furbearers, including species at risk and species of importance to Indigenous peoples. Demonstrate how Indigenous traditional knowledge was considered in the selection of marten as representative of all other terrestrial furbearers that may potentially occur in the area of the Project.
    i. Alternatively, following engagement with Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines to obtain their insight into which species may be considered representative of all terrestrial furbearers, provide an assessment of potential Project effects, including residual and cumulative effects, for each species identified and any associated effects to other VCs.
    ii. Describe mitigation measures that will be implemented to address any adverse effects identified above.
d) Describe follow-up and monitoring that will be conducted to verify predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.

RESPONSE

a) The assessment of potential Project effects to marten (*Martes americana*) are described in Chapter 6 of the Environmental Impact Statement (EIS).

i) The Project is not expected to result in adverse effects on marten populations due to increased trapping pressure, as trappers have already had access to the area in the past. While the Project will improve travel between communities, a winter road has been in place for many years, providing access during the marten trapping season, which runs from November 1 to February 28, as established by the 2024-2025 Trapping Guide (Government of Manitoba, n.d). While Indigenous peoples are not necessarily limited to harvesting within the regulated seasons set for licenced trappers, the marten trapping season is established so as to coincide with the period in which furbearer pelts reach their prime (Government of Manitoba, n.d) and is therefore anticipated to correspond to the period in which most marten trapping efforts would occur. This is

further supported by information and harvesting calendars which were developed as part of the traditional knowledge reports for Bunibonibee Cree Nation, God's Lake First Nation, God's Lake Narrows Norther Affairs Community and Manto Sipi Cree Nation (HTFC, 2017a,b,c,d). Each of these communities identify that marten trapping occurs in the winter and in periods that correspond to pelts being at their prime. Additionally, access into the Regional Assessment Area by others would still be limited to air travel or the period in which the regional winter road network becomes operational, as is currently the case. Trapping at other times of the year would therefore not be possible for non-local community members.

As a result, the Project is not anticipated to change trapping activity, since marten trapping occurs only in winter and during the recognized trapping season. The area is mainly within portions of the God's Lake (380) and Oxford Lake (370) sections, both part of the Northern Registered Trapline (RTL) Area 6 (Joro, 2018), where only trapline holders and their registered helpers are allowed to trap, ensuring controlled and sustainable harvests. Community traplines, typically located near communities, are also unlikely to experience increased pressure from better access. Since these systems are already in place and the winter road has long provided access, no significant increase in trapping effort is expected. Even if the Project resulted in increased trapping pressure, the impact on marten populations would still be minimal since less than half of 1% of the total marten habitat in the RAA falls within the 200-meter buffer around the project footprint (Joro, 2018). Mitigations for potential effects to marten are identified in Appendix 7-1 of the EIS. With the application of mitigation, potential effects are anticipated to be not significant.

b) As mentioned in response A, the assessment of potential Project effects to marten are described in Chapter 6 of the EIS. In traditional knowledge studies, Bunibonibee Cree Nation, God's Lake First Nation, God's Lake Narrows Norther Affairs Community and Manto Sipi Cree Nation (HTFC, 2017a,b,c,d) all identify that marten trapping occurs in the winter, and in periods that correspond to pelt primeness. The Project itself will also not create additional trapping opportunities for any other communities or individuals as access into the Regional Assessment Area will still be limited to air travel or the period in which the regional winter road network becomes operational, as is currently the case. Additionally, Chapter 7, Appendix 7-1 of the EIS already accounts for land and resource use effects, including furbearers. As a result, no further assessment or updates are required.

c) Marten were selected as a terrestrial furbearer VC as they also represent habitat suitable for fisher (*Martes pennanti*), grey wolf (*Canis lupus*), red fox (*Vulpes vulpes*), black bear (*Ursus americanus*), snowshoe hare (*Lepus americanus*), and lynx (*Lynx canadensis*). While there are

some limitations to this approach, they are not substantial enough to compromise the effectiveness of the model. Species with smaller populations, such as wolves, lynx, and fisher, may respond differently to habitat disturbances, meaning their specific sensitivities may not be fully reflected through a marten-based assessment. Additionally, differences in species interactions and individual life histories, such as predator-prey relationships and breeding habits may limit the extent to which impacts on all species are captured. However, these concerns are reduced by the fact that marten not only share the same habitat and interact with other terrestrial furbearers, but they are also among the species best suited for population modeling. This makes them a practical and reliable representative for assessing broader environmental impacts.

Wolverine (*Gulo gulo*), a species of Special Concern under Schedule 1 of the Species at Risk Act (SARA), was not selected as a representative species because its large home range, low population density, and specialized feeding preferences make it difficult to monitor. Between 2011 and 2016, field surveys documented only four wolverine sightings and nine track observations, showing the challenges of follow-up monitoring (Joro, 2018). Therefore, species at risk including wolverine are addressed separately, detailed information can be found in Appendix 6-5 in the EIS.

Marten was further supported as the most suitable representative species by the Aerial Multi-Species Surveys conducted from 2012 to 2016. The survey recorded 811 marten tracks, compared to 223 wolf tracks and 252 lynx tracks, making marten easier to track and model reliably. Their abundance supports effective population modeling and allows the development of accurate mitigation strategies that can also benefit other terrestrial furbearers. (Joro, 2018) suggested that marten are the primary furbearer targeted, as compared to other furbearers, since they are easy to trap and process, in addition to having the best fur price for harvest effort. Abundant marten population is the result of high prey availability (squirrel and rabbit) and low predator populations (Joro, 2018). In addition, the results from the Trapper Program (Joro, 2018) indicate that marten are the most abundant species trapped (71) during the season, while fisher was recorded 3 times, lynx 2 times, and other terrestrial furbearers only once or none.) The inclusion of Indigenous Traditional Knowledge also played an important role in the selection of marten as a representative species. Wildlife workshops were held in God's Lake First Nation (January 6, 2016), Bunibonibee Cree Nation (February 17, 2016), and Manto Sipi Cree Nation (March 24, 2016) to gather insights from trappers, hunters, and other resource users on wildlife movement, distribution, and culturally significant species (Joro, 2018). Participants from Bunibonibee and Manto Sipi Cree Nations reported that marten populations are increasing, in contrast to muskrat (*Ondatra zibethicus*) and fisher, which are in decline. This information confirmed that marten is both ecologically relevant and currently abundant in the area, supporting its selection as the key indicator for terrestrial furbearers.

The use of representative species, such as marten for terrestrial furbearers and beaver for aquatic furbearers, follows an approach successfully applied in other road development projects, including P4, which received federal approval. While no single species can perfectly reflect the responses of all others, the use of marten provides a reliable and practical framework for assessing project

impacts. With strong survey data, effective monitoring potential, and implementation of Indigenous knowledge, the selection of marten offers valuable insight into the potential effects of the project on terrestrial furbearers, while species at risk, such as wolverine, are addressed separately to ensure their needs are properly considered.

d) Based on the assessment in response-to-response A and C, the Project is unlikely to create significant new impacts. With less than 0.5% of marten habitat affected within the 200-meter buffer of the RAA, potential impacts are expected to be minimal (Joro, 2018). Current mitigation measures such as those included in the Environmental Protection Procedures (Chapter 8, Appendix 8-2 of the EIS; and Appendix IR1-19-1 in the response to information request IR1-19) and Environmental Protection Specifications (Chapter 8, Appendix 8-3 of the EIS; and Appendix IR1-19-1 in the response to information request IR1-19) are also believed to be appropriate and have been proven effective for other all-season road projects on the east side of Lake Winnipeg.

As described in IR1-43, IR1-44, IR1-46, and Chapter 8 of the EIS, MTI is committed to developing a Wildlife Monitoring Plan. The objectives of this plan are to verify key Project EIS predictions, to evaluate the effectiveness of mitigation strategies for environmental effects on wildlife and wildlife habitat, and to establish a framework for adaptive management that can be used to enhance mitigation strategies if required. The monitoring criteria established for the WMP will be informed by concerns raised through the Project's environmental assessment review and subsequent information requests received from federal and provincial regulators, Indigenous rights-holders, and stakeholders. Opportunities will be provided for provincial and federal regulators as well as Indigenous Nations to review the WMP prior to it being finalized.

Although specific study design, protocols, locations, and schedules will be developed at a later stage, MTI anticipates that monitoring may include:

- Trail cameras;
- Engagement of local trappers or resource users; and,
- General field observations, including incidental wildlife observations during project activities which could include documenting evidence of roadside mortalities and vehicle collisions.

Additionally, monitoring would include review of fur harvest records documented through Manitoba's Wildlife Branch, if feasible. If significant negative changes are observed, additional mitigation measures may be developed.

Since the Wildlife Monitoring Plan will be developed prior to construction, the monitoring schedule may vary based on species and monitoring objectives. As monitoring data becomes available, MTI will share findings and a draft monitoring plan with provincial and federal regulators during the pre-

construction phase, and will seek input from Indigenous Nations to ensure a comprehensive approach to wildlife monitoring and management.

Annual monitoring reports summarizing activities and results will be developed and provided to the Impact Assessment Agency of Canada, Manitoba Natural Resources and Indigenous Futures, and Indigenous Nations (Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation). At the completion of the monitoring program, annual reports will be summarized into one final Wildlife Monitoring Report for the Project.

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QUESTION IAAC IR1-48

EIS Guideline Reference	• Part 2, Section 6.3.4
EIS Reference	• Chapter 6, Section 6.3.2.3 and 6.3.2.6
Category	Wildlife

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential changes resulting from the Project to resources used for traditional purposes by Indigenous peoples, including wildlife species identified as culturally important.

The EIS indicates that ruffed grouse, a species noted by Indigenous peoples as important for traditional use, may be adversely affected by the Project due to increased hunting pressure. However, effects are expected to be limited due to potential improvements to habitat conditions near the Project footprint and due to the cyclical nature of ruffed grouse populations, resulting in varying hunting opportunities as populations fluctuate through time. The Agency notes that fluctuations in population size may not directly correlate with the rate of harvest of ruffed grouse species. For instance, increased hunting pressure from the Project during a state of natural population decline may adversely affect the ability of local Indigenous peoples to harvest this resource; this must be considered in the assessment of potential Project effects.

The EIS also notes that the potential for migratory and non-migratory bird mortality from vehicle collisions is higher when concentrations of birds are present within one kilometre of roads and that ruffed grouse are frequently killed by vehicles as they fly across roads. The proponent concludes that mortality due to vehicle strikes is not expected to have any effect on local populations despite noting that the Project may result in an improvement in habitat conditions for ruffed grouse near the footprint. Due to the fact that a higher number of individuals may be preferentially attracted to the ASR as a result of habitat improvements and the anticipated increase in vehicular traffic due to the Project, mortality rates of ruffed grouse may increase. Additionally, improved habitat conditions near the ASR may not be limited to ruffed grouse; there could be a higher risk for vehicle collisions for other species as well (i.e. migratory birds, bird species at risk, and other bird species of importance to Indigenous peoples).

Supplementary information is required to support the characterization of potential effects to species of importance to Indigenous peoples for traditional use and to assess whether further measures may be required to mitigate adverse environmental effects.

INFORMATION REQUEST

a) Revise the assessment of potential Project effects, residual effects, and cumulative effects for ruffed grouse to consider the fact that the ASR may preferentially attract bird species to the Project footprint, potentially resulting in higher mortality rates. Revisions must also be made to include the fact that cyclical population changes may not correlate to hunting pressure.
    i. If other bird species (i.e. migratory birds, bird species at risk, other bird species of importance to Indigenous peoples, etc.) may experience similar effects as above due to habitat improvements near the ASR, revise the residual and cumulative effects assessments for those species.
b) Describe measures that will be implemented to mitigate adverse effects to ruffed grouse and other bird species, as appropriate, resulting from increased hunting access and vehicle collisions and the follow-up and monitoring that will be conducted to verify predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.

RESPONSE

a) Revision of the residual and cumulative effects for these species is not necessary as this information has already been assessed and provided in the Environmental Impact Statement (EIS). Potential effects of increased mortality of migratory and non-migratory birds (which includes ruffed grouse) due to increased hunting pressure, and due to vehicular collisions during construction, operation, and maintenance are both assessed in Appendices 6-4 and 6-5 in Chapter 6 of the EIS.

Based on field study observations, ruffed grouse are considered to exist at low densities across the RAA (Joro, 2018b). Chapter 6, Section 6.3.2 of the EIS acknowledges that ruffed grouse (*Bonasa umbellus*) may use the road, given their preference for early-succession habitats created by roadside disturbances (Joro, 2018a). Ruffed grouse exhibit cyclic population trends and are particularly abundant in young aspen forests, and are naturally attracted to habitats with high stem densities that provide food and cover (Endrulat et al., 2005; Gullion, 1965; Dessecker et al., 2007). Roadside habitat would be created by the Project through disturbances that promote growth of aspen, which is likely to attract grouse to roadside areas for activities such as feeding and brood rearing (Gullion, 1965).

While the all-season road (ASR) may preferentially attract bird species to the Project footprint, this attraction is not expected to result in significant adverse effects to their populations. Monitoring conducted for the Keeyask Generation Project in northern Manitoba, demonstrated that although ruffed grouse were detected across a wider area after construction, no drumming activity was recorded along access roads and no mortality was observed due to traffic (WRCS, 2019). These results suggest that proximity to linear disturbances does not directly result in increased mortality. Similarly, long-term radio-telemetry studies in North Carolina found that while ruffed grouse made use of roadside habitat, only 11% of known mortalities were attributed to hunting and 7% to other causes including roadkill, with the majority caused by natural predators (Jones, 2005). These data show that while roadside habitats may enhance local habitat quality and temporarily attract bird species, this does not necessarily lead to measurable mortality at the population level, particularly in areas where traffic volumes remain low.

As described in Chapter 6, Section 6.3.2.4 of the EIS, in Manitoba, ruffed grouse are killed by vehicles as they fly low across roads . However, given the low density of roads within the Local Assessment Area (LAA) and Regional Assessment Area (RAA), and the fact that no primary or secondary habitat was identified for ruffed grouse in the Project Footprint, road mortality is not expected to have any effect on local populations.

While the Project could lead to increased hunting access, grouse populations are primarily shaped by forest succession cycles rather than hunting pressure alone (Rusch et al., 2000). Research indicates that ruffed grouse populations follow a natural 10-year cycle, with periods of population growth and decline that do not directly correspond to hunting activity (Dessecker et al., 2007). The EIS acknowledges that, with increased access along the all-season road, hunting pressure may intensify and potentially result in measurable population changes for upland game birds, including ruffed grouse, particularly because hunting can occur year-round and affect critical life stages such as nesting. This increased access may extend hunting opportunities beyond the Project Footprint into the Wildlife LAA, posing a continuous effect throughout the life of the Project (Joro, 2018b).

Despite this, waterfowl and upland game bird habitat throughout the broader Wildlife RAA is expected to support population resilience, as habitat conditions near the Project Footprint may actually improve for upland game birds through the creation of early-succession habitats. Given that the RAA is remote, and has a low density of linear features and access, impacts to ruffed grouse populations in the LAA or RAA are anticipated to be immeasurable (Joro, 2018b). Consequently, the EIS included the anticipated impacts, aligning with studies on grouse habitat use of roadside areas. Given the existing analysis, further revision is not necessary.

Potential effects to other birds such as migratory waterfowl which may also experience similar effects associated with increased hunting were also considered in the Wildlife Characterization and Effects Assessment of the Proposed All-Season Road Project 6 (Joro, 2018a). Potential effects of increased hunting for all birds (including migratory and non-migratory birds) were assessed in the EIS and summarized in Appendix 7-1. With the application of mitigation, the residual effects of

potential increased hunting was deemed not significant. No further assessment for other bird species is required.

Similarly, as described in Chapter 6, Section 6.3.2.4 of the EIS, the potential increase in migratory (waterfowl, forest birds) and non-migratory (upland game birds) bird mortality due to vehicular collisions during all project phases, prior to the implementation of mitigation measures, is considered negligible due to the anticipated low traffic volumes of the all-season road. While the potential increase in bird mortality would occur throughout the life of the Project, collision with vehicles would be limited to the Project Footprint. This effect would occur at the individual level, not likely to have a measurable effect on bird populations in the Wildlife RAA. With all-season road traffic occurring throughout the year there is potential that collisions happen during critical life stages (e.g. breeding and nesting). Given the anticipated low traffic volumes collisions with vehicles are expected to be infrequent throughout the life of the Project. As there are no anticipated changes to populations, the effect of bird mortality is considered reversible over a long period. The risk of increased migratory and non-migratory bird mortality due to vehicle collisions is not anticipated to be significant. Further revision of the residual and cumulative effects for these species is not necessary as this information has already been assessed and provided in the EIS.

b) As stated in Appendix 6-4 and Appendix 7-1 of the EIS, proposed mitigation measures to prevent adverse impacts to bird species resulting from increased hunting access and vehicle collisions include but are not limited to:

- Prohibit hunting by MTI employees and contractors working on the Project (EP14 and ES 130.19.1).
- Firearm possession prohibited in construction camps.
- Decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7).
- Restrict access to operation phase quarry areas (ES 130.8.8).
- Design roads with no pullouts or parking areas.
- Design road to optimize line of sight and reduce collisions.
- Wildlife awareness information provided to construction workers.
- Reduce speed limits at identified problem areas.
- Construction vehicle speeds adhere to posted limits and wildlife warning signs shall be installed at identified problem areas (EP14).
- Remove trees and tall shrubs to maintain line of sight.
- Employ general mitigation applicable to all Species at Risk when needed.

With the application of mitigation, effects are anticipated to be not significant. As described in Chapter 8, Section 8.6.1, and other information requests including IR1-43 IR1-44, IR1-46, the objectives of the Wildlife Monitoring Plan (WMP) are to verify key Project EIS prediction, to evaluate

the effectiveness of mitigation strategies for environmental effects on wildlife and wildlife habitat, and to establish a framework for adaptive management that can be used to enhance mitigation strategies if required. While these plans are yet to be finalized, the proposed table of contents are included as part of response to IR1-73.

The monitoring criteria established for the WMP will be informed by concerns raised through the Project's environmental assessment review and subsequent information requests received from federal and provincial regulators, Indigenous rights-holders, and stakeholders. Opportunities will be provided for provincial and federal regulators as well as Indigenous Nations to review the WMP prior to it being finalized.

Although specific study design, protocols, locations, and schedules will be developed at a later stage, MTI anticipates that monitoring may include:

- Trail cameras;
- Engagement of local trappers or resource users; and,
- General field observations, including incidental wildlife observations during project activities

Additionally, other options for bird monitoring could include the use of auditory surveys or use of automated recording units (ARUs). If significant negative changes are observed, additional mitigation measures may be developed.

Since the WMP will be developed prior to construction, the monitoring schedule may vary based on species and monitoring objectives. As monitoring data becomes available, MTI will share findings and a draft monitoring plan with provincial and federal regulators during the pre-construction phase, and will seek input from Indigenous Nations to ensure a comprehensive approach to wildlife monitoring and management.

Annual monitoring reports summarizing activities and results will be developed and provided to the Impact Assessment Agency of Canada, Manitoba Natural Resources and Indigenous Futures, and Indigenous Nations (Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation). At the completion of the monitoring program, annual reports will be summarized into one final Wildlife Monitoring Report for the Project.

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QUESTION IAAC IR1-49

EIS Guideline Reference	• Part 2, Section 6.1.9 and 6.3.4
EIS Reference	• Appendix D-2, Section 7.6 and 7.6.1
Category	Wildlife

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe baseline information for wildlife species of importance to Indigenous peoples for traditional use and any potential changes resulting from the Project to those species.

With respect to the presence of nests and young of bald eagles, a species of cultural importance to local Indigenous peoples, within the Wildlife RAA, the EIS indicates that aerial surveys did not identify any nesting sites near the Project footprint. However, the EIS also describes how aerial surveys conducted in 2015 resulted in seven bald eagle stick nest observations within the RAA and one within the Project footprint, and surveys conducted in 2016 resulted in a single incidental nest observation. It is unclear whether the presence of nests and young within or near the Project footprint was accounted for in the assessment of potential Project effects to bald eagle.

Supplementary information is required to support the characterization of potential Project effects to species of importance to Indigenous peoples for traditional use and to assess whether further measures may be required to mitigate adverse environmental effects.

INFORMATION REQUEST

a) Clarify whether bald eagle nests were observed within the Project footprint, LAA, and RAA and, if so, confirm whether the number of observations noted in the EIS for the 2015 and 2016 surveys is accurate.
b) If the presence of bald eagle nests and young within the Project footprint, LAA, and RAA was not considered in the assessment of potential Project effects, residual effects, and

cumulative effects for bald eagle, revise these assessments to include the confirmed presence of bald eagle nests and, potentially, young.

RESPONSE

a) According to the Wildlife Characterization and Effects Assessment report (Joro, 2018), bald eagle (*Haliaeetus leucocephalus*) nests were documented in a multi-species areal survey conducted in 2015, resulting in seven stick nests observations within the Regional Assessment Area (RAA), and one within the Project footprint. In June 2016 a single incidental nest observation was reported. Joro in 2018 suggested that although many bald eagle nests are generational, it is possible that new nests become established near the Project Footprint area. In recognition that new nests may become established or that old nests may fall out of use before the start of construction, MTI is committed to replicating stick nest surveys prior to clearing, and implementing appropriate mitigation measures as necessary, including those described in Response B below.

b) The presence of bald eagle nests within the Project Footprint, Local Assessment Area (LAA), and Regional Assessment Area (RAA) were documented in baseline studies and considered in the assessment of Project effects. The bald eagle was selected as the raptor VC for this project, and the assessment of environmental effects can be found under the Migratory and Non-Migratory Birds category in Appendix 6-4 of the Environmental Impact Statement (EIS). Potential effects considered include loss of nests and mortality to young migratory birds which the Environmental Impact Statement defines as increased sensory disturbance and displacement, and alteration, fragmentation and/or loss of migratory birds (including raptors). However, following the application of the proposed mitigation measures, the effects are likely to occur at the individual level and are limited to the Project Footprint.

As described in the response to IR1-19, selective review(s) of data validity will occur prior to construction of the all-season road. The review will focus on key topics where legislative changes (e.g. updates to species at risk listings) occur and will be used to verify whether key predictions made in the Environmental Impact Statement (EIS) remain accurate and appropriate. This will include consideration of proposed mitigation measures. Should additional mitigation measures beyond those proposed in Appendix 6-4 of the EIS be required, or should nests be encountered before construction, building artificial nests and nest structures could be used to encourage relocation of nesting activity (Grubb, 1995). The need for such additional measures will be considered as part of the data validity review process described above and in the response to IR1-19.

As stated in the Wildlife Characterization and Effects Assessment report (Joro, 2018), bald eagle nests are typically easy to detect during pre-construction surveys and the application of set back

distances is anticipated to result in little or no mortality to young eagles. However, it was reported that bald eagles have the greatest use for artificial nests when they replace recently active nests, as opposed to attracting bald eagles to new nest locations (Richardson et al., 1997). Hunter et al. (1997) suggested that when locating nesting structures in historical territories, success in attracting bald eagles may be dependent upon the most recent occupation of the site.

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QUESTION IAAC IR1-50

EIS Guideline Reference	• Part 2, Section 6.3
EIS Reference	• Chapter 6, Section 6.4.5, 6.4.6, 6.4.7, 6.4.8, 6.5.5, and 6.5.8
Category	Wildlife

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential adverse effects of the Project to fish and fish habitat, migratory birds, species at risk, and species of importance to Indigenous peoples.

The EIS describes mitigation measures to avoid clearing or conducting Project activities near sensitive areas of ungulates, furbearers, migratory birds, species at risk, and fish, or during critical lifecycle periods. Limited information is provided regarding the distance of sensitive areas from Project components and activities or a complete, consolidated description of the critical lifecycle periods that will be avoided. It is also unclear how the proponent plans to avoid certain Project activities during critical lifecycle periods. For instance, while construction activities could be scheduled to avoid critical lifecycle periods, it is unclear how the proponent plans to avoid or mitigate potential effects in these timing windows during Project operation. Additionally, the EIS indicates that no construction activities will occur within 100 metres of an eagle's nest, heron rookery, or other sensitive wildlife area without prior approval from the contract administrator and MI. No criteria or decision making factors regarding when and under what circumstances approval to clear within this buffer would be granted are described.

Supplementary information is required to support the description of mitigation measures to limit adverse effects to fish and fish habitat, migratory birds, species at risk, and species of importance to Indigenous peoples, and to assess whether further mitigation measures may be required.

INFORMATION REQUEST

a) Describe the distance between Project components and activities and any sensitive areas for fish, migratory birds, species at risk, species of importance to Indigenous peoples for traditional use, and Indigenous peoples, and describe what these sites are or may be used for.
b) Provide a consolidated table describing the critical lifecycle periods for fish, migratory birds, species at risk, species of importance to Indigenous peoples for traditional use, and Indigenous peoples, including for individual species, where applicable, that will be avoided and indicate which species is associated with each period. With respect to critical periods for Indigenous peoples, this shall include important periods such as hunting and trapping seasons and periods important for ceremonies or cultural activities.
    i. Engagement with Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines must be undertaken to identify critical periods for Indigenous peoples and/or to verify any information that MI may have collected with respect to these critical periods from secondary sources.
c) Describe how MI plans to avoid critical periods, including critical periods for Indigenous peoples, during Project operation.
d) Describe the criteria and/or decision making factors that will be considered when determining whether clearing will be allowed within 100 metres of an eagle's nest, heron rookery, or other sensitive wildlife area, and the approval criteria to allow clearing within the buffer.

RESPONSE

a) Field studies and information shared by Indigenous Nations engaged on the proposed Project have helped to identify potential environmentally sensitive sites. To avoid or mitigate adverse effects to the environment, a variety of measures have been incorporated into the proposed Project, as mentioned in Chapter 6, Section 6.4 of the Environmental Impact Statement (EIS). These measures are detailed in Chapter 8 of the EIS, including Appendix 8-2 (Environmental Protection Procedures) and 8-3 (Environmental Protection Specifications) but are also included as Appendix IR1-19-1 in the response to IR1-19. Examples of avoidance measures include:

- Selecting crossing locations to avoid sensitive aquatic environments such as spawning areas where possible and to minimize in-water works.
- Selecting a road alignment that provides appropriate setbacks from important physical features such as sensitive cultural, heritage and biophysical sites and waterbodies, where possible.

- Selecting quarry, borrow and temporary work/staging locations that avoid sensitive or important features associated with traditional activities and Indigenous and treaty rights (e.g. trapper cabins, gathering areas).
- Appropriate scheduling of blasting when in the vicinity of sensitive wildlife sites.
- Vegetation buffers would also be maintained between the ROW and sensitive features (e.g. watercourses, denning areas and lodges).
- Quarries would not be located within 100 m of a waterbody or sensitive wildlife habitat.

Fish and Fish Habitat

As described in Chapter 6, Section 6.1.6 of the EIS, crossings at fish-bearing watercourses include the bridges at God's River and Magill Creek as well as culverts at 23 fish bearing streams. The remaining 28 crossings are non-fish bearing watercourses that would have equalization culverts to maintain existing water flow and drainage patterns.

Sensitive fish habitats include fish-bearing watercourses that will be intersected by proposed Project activities, and that provide suitable habitat for critical periods such as spawning. Therefore, the distance can be as close as zero meters at crossings such as The God's River and Magill Creek, and other culvert crossings (Appendix IR1-50-1). Smaller streams crossed by the proposed Project may serve as important spawning and nursery areas for larger fish species like northern pike (*Essox lucius*) during spring. Additionally, smaller forage species such as minnows and stickleback may use these streams throughout the summer, as long as the water volume is sufficient. Medium-sized streams may also offer suitable spawning habitats for larger fish, including suckers and northern pike. Table IR1-50-2 in Appendix IR1-50-2 presents information on site-specific sensitivity/concerns and mitigation for watercourse crossings with fish habitat that are part or support a commercial, recreational or aboriginal (CRA) fishery (Table 2 in Appendix C-2 of the EIS).

The God's River Crossing (P6b-X015), shown in Appendix IR1-50-1 provides moderate velocity run habitat with sandy and rocky substrates. A variety of large-bodied fish such as lake sturgeon (*Acipenser fulvescens*), brook trout (*Salvelinus fontinalis*), northern pike, etc. are present in God's river. Potential spawning habitat for sturgeon, walleye and sucker is located 4 km downstream at a set of large rapids. The Magill Creek Crossing (P6a-X019), also shown in Appendix IR1-50-1 is located 7.4 km upstream of Knee Lake, this crossing area includes habitat with fine sediments, boulders, and instream vegetation, making it suitable for northern pike and forage fish. There are also sections with gravel and cobble, suitable for spawning and rearing of suckers and walleye (*Sander vitreus*).

For other water crossings, large-bodied species, such as northern pike, are likely to use this area for spawning, rearing, and foraging, especially at sites P6a-X031, P6b-X002, P6b-X003, and P6b-X009. Although the coarse substrate at P6a-X002 could support suckers and walleye, the small watershed and low water levels limit its potential as a habitat.

Additionally, at P6a-X008, P6a-X018, P6a-X023, and P6b-X013 crossings are characterized by flat water, fine sediments, organic substrate, and instream vegetation. This habitat is suitable for spawning, rearing, and feeding of forage fish species and northern pike. P6a-X008, P6a-X018, P6a-X023, P6b-X007, and P6b-X013 crossings are medium-sized streams within open canopied grass, sedge, and shrub-dominated floodplains. These watercourses provide ideal habitat for spawning, rearing, and feeding by forage fish and northern pike. In addition, at crossing P6b-X007 areas of gravel, cobble, and boulder are present both upstream and downstream, likely providing spawning habitat.

Appendix IR1-50-1 (Figure IR1-50-2), also presented as Figure 3-2 in the EIS, presents a map showing specific locations. Additional information on the characteristics of water crossings is available in the Aquatic Existing Environment Report- Appendix C-1(NSC, 2017) provided in the EIS as part of the technical reports for the Project.

As identified in the response to IR1-01, water crossing design will consider and account for fish passage, navigation, Manitoba's stream crossing guidelines and DFO codes of practice.

Migratory Birds

Potential sensitive sites for migratory birds include multi-generational stick nests, nesting colonies, and heron rookeries. Since different bird species utilize varying habitat types, including those intersected by the proposed Project, the distance between sensitive sites and proposed Project activities may be as close as zero meters. Joro Consultants in 2018 documented seven stick nests observations within the Regional Assessment Area (RAA) during a multi-species areal survey conducted in 2015, and one within the proposed Project footprint. In June 2016 a single incidental nest observation was reported. Joro Consultants in 2018 suggested that although many bald eagle (*Haliaeetus leucocephalus*) nests are generational, it is possible that new nests become established near the proposed Project Footprint area (see the response to IR1-49 for additional information).

In addition, aerial surveys of waterfowl species provide substantial evidence that they are nesting within or near the RAA. Other birds such as barn swallow (*Hirundo rustica*), bank swallow (*Riparia riparia*), Canada warbler (*Cardellina canadensis*), eastern wood-pewee (*Contopus virens*) and peregrine falcon (*Falco peregrinus*) were not observed during field studies but have the potential to occur in the RAA (Joro, 2018). Similarly, olive sided-flycatcher (*Contopus cooperi*), rusty blackbird (*Euphagus carolinus*), common nighthawk (*Chordeiles minor*), and short eared owl (*Asio flammeus*) can potentially occur in the RAA (Joro, 2018). Although the distance of sensitive sites to proposed Project activities is immediate, Manitoba Transportation and Infrastructure (MTI) will adhere to environmental regulations, including the Migratory Bird Regulations, and The Wildlife Act (Manitoba) to provide protection to birds and nesting sites. Mitigation measures include but are not limited to maintaining a 100-m vegetated buffer around eagle nests or heron rookeries, and restricting equipment use to cleared and disturbed areas. As stated in the EIS, if new sensitive

features are found prior to the start of construction or during clearing, they would be reported to the Contract Administrator (i.e. MTI delegate) and are not to be cleared until an appropriate course of action is identified. This may depend on the species or site in question and could include consulting with federal or provincial regulators and Indigenous Nations.

Species at Risk

Potential sensitive sites for species at risk includes identified critical habitat. For boreal woodland caribou (Norway House caribou range; *Rangifer tarandus*). Boreal woodland caribou critical habitat is found within a small portion of the Wildlife RAA where the RAA overlaps with the Molson Boreal Caribou Management Unit and the Norway House range identified by Manitoba (see Figure 6-12 in Chapter 6 of the EIS). Boreal woodland caribou core use areas occur to the west of the RAA, and were not found to have seasonal core use areas, including calving, in the RAA. Critical habitat for the Eastern Migratory caribou (*Rangifer tarandus*) (i.e. Pen Islands caribou) has not been defined. Eastern Migratory caribou calving sites are considered part of sensitive sites. Calving amounted to 1.83% of the core use area in the RAA, but 0% within the LAA (Joro, 2018, maps removed from the report due to sensitive wildlife information). Therefore, distance between sensitive sites and proposed Project activities can be as close as zero due to their large home range and movement.

Federally recognized critical habitat for lake sturgeon, wolverine (*Gulo gulo*) and little brown bat (*Myotis lucifugus*) has not been identified within the proposed Project area, thus distance between specific critical habitat and proposed Project activities cannot be calculated. However, in certain cases, proposed Project activities may occur in immediate proximity to sensitive areas such as spawning sites, reducing the distance to as close as zero. As described in Chapter 6, Section 6.1.8.2.1 of the EIS, no lake sturgeon were observed during field investigations, but their distribution overlaps with the Aquatic RAA, and they have been documented in God’s River, God’s Lake, and Hayes River. Lake sturgeon spawn in fast-moving water, which may be present at specific crossings, such as the God’s River crossing (P6b-X015 as described above). Similarly, wolverine and little brown bat, being wide-ranging species, may overlap with the Project footprint at times, further reducing the distance between activities and sensitive areas such as denning or roosting sites to zero.

Should any sensitive site be found as part of monitoring and inspections prior to construction or at any phase of the Project, proper measures will be implemented, such as establishing buffers, limiting clearing, informing Contractors, and providing handbooks to facilitate identification of sensitive sites. Detailed mitigation measures can be found in Chapter 8, Appendix 8-2 and Chapter 7, Appendix 7-1 of the EIS, but are also included as Appendix IR1-19-1 in the response to IR1-19.

Indigenous people

Sensitive sites include trapper cabins, gathering areas, cultural sites, travel routes, camping locations and important wildlife, fish or resource locations. Traplines within the Oxford House Registered Trapline (RTL) District that are at least partially located within the Indigenous LAA are 50,

52 to 54, 67 and 68. Manto Sipi Cree Nation shares the RTL District with the neighboring God's Lake First Nation. Trapping activities take place across various sections of the RTLs within the Manto Sipi RTL, located north and east of God's Lake, specifically in RTLs 10 to 13, 15, 18, 20, 33, and 50. (Figure IR1-50-1). The location between the individual RTLs that overlap with proposed Project activities can be as close as zero meters. However, MTI will follow environmental regulations and will maintain trapper access to traplines and trails during construction; design trail crossings to maintain trapper access and trails (EP1 and ES 130.17.3.3). If active traps are discovered during construction, work will stop, and the trapper will be notified. Buffers would be clearly identified to designate limits of activities such as vegetation clearing.

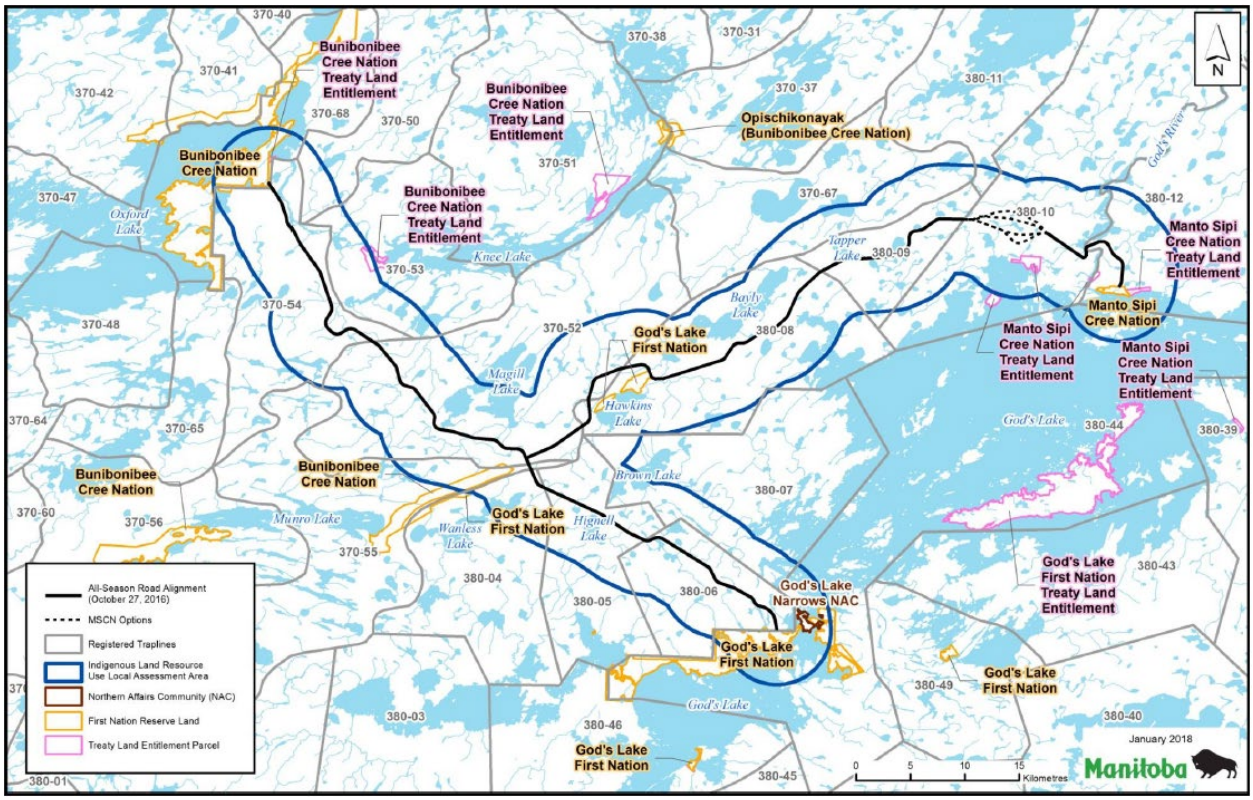


Figure IR1-50-1. First Nation reserve land, Treaty Land Entitlements and Registered Traplines in the vicinity of the proposed project (Figure 6-17 in the Project 6 Environmental Impact Statement)

As described in Chapter 4 Section 4.4.3 of the EIS, MTI commissioned traditional knowledge studies with Manto Sipi Cree Nation, God's Lake First Nation, God's Lake Narrows Norther Affairs Community (NAC), and Bunibonibee Cree Nation. While exact details of these reports remain confidential, it has allowed for an understanding of key areas of importance for each community and how the proposed Project may interact or overlap with such areas.

As part of these studies, key area maps were developed to identify sites, routes, and areas of particular cultural or ecological significance to Indigenous communities, which were considered during Project planning and road alignment. While precise GIS data and site-specific locations cannot be disclosed without community consent due to confidentiality agreements, MTI can provide the following general information on sensitive areas identified to date:

- Manto Sipi Cree Nation: Two sensitive fish habitat sites were recorded along the shoreline of God's Lake and at the 14 km marker (from town) on the winter road (HTFC, 2017a).
- God's Lake First Nation: One sensitive fish spawning area was recorded near the proposed route (HTFC, 2017b).
- Bunibonibee Cree Nation: One location near the road was identified as sensitive aquatic area (HTFC, 2017c).
- God's Lake Narrows NAC: No sensitive sites were identified (HTFC, 2017d).

Based on information provided by each community, the distance of the proposed Project to identified key areas can be as little as zero meters as the all-season road may intersect some such locations. Local community leaderships were involved in the selection of the proposed project alignment and are supportive of the proposed Project. The information shared by communities as part of the traditional knowledge studies has and will continue to help in project planning and design. These details will be foundational to completing detailed design for the proposed Project and will allow for specific discussion on mitigating community concerns or potential Project effects to sensitive Indigenous areas at the detailed design stage.

In summary, and as described above, field studies and information shared by Indigenous Nations engaged on the proposed Project have helped to identify potential environmentally sensitive sites. Through measures such as those outlined in Chapter 8 of the EIS, including Appendix 8-2 (Environmental Protection Procedures) and 8-3 (Environmental Protection Specifications) and which are also included as Appendix IR1-19-1 in the response to IR1-19, MTI has outlined controls which would require advanced planning, contractor submittals, and MTI review and approval prior to the start of works. These processes would then enable the spatial and/or temporal avoidance of sensitive locations through the construction and operation phase. In some cases, MTI may even identify (without disclosing confidential detail) restricted areas on construction drawings and site maps to inform contractors that certain areas located outside of the right of way are off-limits, meaning no proposals for any type of temporary works would be accepted in such locations.

b) The following table (Table IR1-50-1) presents critical lifecycle periods for fish, migratory birds, species at risk, and species of importance to Indigenous Nations. Table IR1-50-2 presents critical periods for Indigenous peoples as per harvesting calendars developed from traditional knowledge reports for Bunibonibee Cree Nation, God's Lake First Nation and Manto Sipi Cree Nation. While the harvesting calendars for each Indigenous Nations are unique, they share common patterns. In

order to protect community information harvest dates have been generalized by season rather than providing specific details for individual nations. The table identifies associated key species for each identified critical period. However, the application of mitigation such as avoidance or setbacks is not necessarily limited to the listed species. Identified timelines are representative of DFO's timing windows, Environmental Protection Procedures, regulatory guidance and requirements, which are consistent with information provided in Traditional Knowledge studies with Manto Sipi Cree Nation, God's Lake First Nation, and Bunibonibee Cree Nation.

Mitigations would be implemented when interactions with the identified critical periods may occur. As identified in Chapter 8 of the EIS, an Environmental Management Plan will be developed prior to construction to ensure compliance with current federal and provincial requirements using an adaptive management approach. If new information related to critical lifecycle periods for the above-mentioned species is provided through legislation or through discussions with Indigenous Nations as a part of the Indigenous and Public Engagement Program for the proposed Project, MTI will revisit these dates in the future as necessary. Should alternate, new or modified mitigation measures be required, including timeframes for the critical lifecycle periods, these will be included and adjusted as required at that time.

Table IR1-50-1. Critical Lifecycle Periods for Fish, Migratory Birds, Species at Risk, Species of Importance, and Indigenous Peoples

Species/ Group	Critical Period	Timeframe[1]	Examples of Associated Species	Related or Applicable Legislation, Policy or Information source
Fish	Spawning	**Spring** - April 15 to June 30 **Summer**- May 15 to July 15 **Fall**-September 1 to May 15	Northern pike, walleye, yellow perch (*Perca flavecens*) Lake Sturgeon Brook trout (*Salvelinus fontinalis*), lake whitefish (*Coregonus clupeaformis*)	Projects Near Water - Manitoba Restricted Activity Timing Windows for the Protection of Fish and Fish Habitat
Migratory Birds	Nesting	April 1 to September 1	Federally recognized migratory birds: Canada geese (*Branta canadensis*), mallard	The Wildlife Act Migratory Bird Regulations, 2022

[1] Timeframe based on DFO's timing windows, Environmental Protection Procedures, regulatory guidance and requirements, and other available scientific or indigenous information.

Species/ Group	Critical Period	Timeframe[1]	Examples of Associated Species	Related or Applicable Legislation, Policy or Information source
			(*Anas platyrhynchos*), ring-necked duck (*Aythya collaris*), magnolia warbler (*Setophaga magnolia*), palm warbler (*Setophaga palmarum*)	
Species at Risk	Spawning	May 15 to July 15	Lake Sturgeon	Projects Near Water - Manitoba Restricted Activity Timing Windows for the Protection of Fish and Fish Habitat
	Calving	May-June	Woodland caribou & eastern migratory caribou	
	Denning	February- May	Wolverine	Species At Risk Act, Recovery Strategies and COSEWIC assessments
	Hibernation	October or November to March or April (males emerge later than females)	Little brown bat	Migratory Bird Regulations, 2022
	Migratory Bird Breeding	April 1 to September 1	Migratory birds species at risk (e.g. bank swallow, Canada warbler, common nighthawk)	
Species of importance to Indigenous Peoples for traditional use	Calving	May-June	Moose (*Alces alces*) and caribou	Species At Risk Act, Recovery Strategies and COSEWIC assessments The Wildlife Act
	Breeding, Rearing and Nesting	April-June	Beaver (*Castor canadensis*)	
		July- early August, March-April	Marten (*Martes americana*)	Migratory Bird Regulations, 2022
		April 1 to September 1	Migratory Birds (Canada geese, mallard, ring-necked duck, american	Traditional Knowledge Studies

Species/ Group	Critical Period	Timeframe[1]	Examples of Associated Species	Related or Applicable Legislation, Policy or Information source
			robin (*Tordus migratorisu*)	
		March 15-July 15	Bald eagle	
		April 1 to September 1	Ruffed grouse (*Bonasa umbellus*), ptarmigan (*Lagopus lagopus*), spruce grouse (*Canachites canadensis*)	

Table IR1-50-2. Critical Lifecycle Periods for Fish, Migratory Birds, Species at Risk, Species of Importance, and Indigenous Peoples

Species/ Group	Critical Period	Timeframe	Examples of Associated Species	Related or Applicable Legislation, Policy or Information source
Indigenous People's activities	Harvesting	Year-round, but with particular harvesting practiced from spring through to fall	Plants and Earthen Materials (berries, medicinal plants, wood and timber)	Traditional Knowledge Studies
	Trapping	Winter and Spring	Furbearers (Marten, otter (*Lontra canadensis*), beaver, fisher (*Pekania pennanti*), mink (*Neogale vision*), lynx (*Lynx canadensis*), muskrat (*Ondatra zibethicus*), hare (*Lepus americanus*), Red Fox (*Vulpes vulpes*), Wolf (*Canis lupus*))	
	Fishing	Year-round	Northern pike, walleye, lake trout, brook trout, lake whitefish, mariah (burbot), sucker, sturgeon	
	Hunting	Year-Round, but with particular hunts occurring in fall, winter and spring.	Moose, Caribou, Waterfowl, Game Birds and Small Game	
	Cultural and Traditional Activities	Year-Round	Cultural Sites	

c) To avoid disturbance during critical periods for Indigenous peoples during Project operation, specific measures are detailed in Chapter 8 of the EIS, including Appendix 8-2 (Environmental Protection Procedures) and 8-3 (Environmental Protection Specifications) but are also included as Appendix IR1-19-1 in the response to IR1-19. Key strategies include ongoing communication with

local communities and all-season road users, ensuring they are informed of routine and unscheduled maintenance activities or changes in operations. Additionally, an Operational Phase Environmental Management Plan (OPEMP) will be developed to outline the practices and procedures for maintaining long-term environmental protection during the Project's operation.

Some of the mitigation measures include:

- Selecting quarry, borrow, and temporary work/staging locations that avoid sensitive features related to traditional activities and Indigenous and treaty rights, such as trapper cabins and gathering areas.
- Incorporating measures into Project design and construction planning to accommodate traditional activities and Indigenous and treaty rights, including maintaining trails and providing access to traplines for trappers.
- Scheduling maintenance activities to avoid sensitive life stages of wildlife unless required for safety reasons.
- Identifying and mapping areas of cultural importance prior to clearing for Project planning and design, incorporating routing and setbacks to protect these areas.

d) As identified in the response to IR1-19, selective review(s)of data validity will be conducted prior to construction of the all-season road. The review will focus on key topics where legislative changes (e.g. updates to species at risk listings) occur. This process will verify that related key predictions made in the Environmental Impact Statement (EIS) remain accurate and that proposed mitigations and monitoring remain applicable and appropriate. The selective data validity review process will help avoid sensitive areas through spatial or temporal setbacks for features that may occur on the landscape at that time.

Clearing within 100 meters of an eagle's nest, heron rookery, or other sensitive wildlife area may involve discussions with Indigenous Nations and provincial or federal regulators or technical experts and qualified biologists and is subject to approval from the Contract Administrator and MTI. Several criteria will be considered in determining the feasibility of such clearing. Ensuring compliance with federal legislation is necessary, if the species is federally protected (e.g. Migratory Birds Convention Act 1994, Species At Risk Act), in which case MTI must adhere to all regulations. Provincial legislation, including the Wildlife Act, will also be taken into account, alongside MTI’s own commitments to environmental protection.

The status and type of site will also factor into decision making. For stick nests or rookeries, consideration will be given as to whether the nest is active, has been in the past, or is a condition that may allow it to be used in the future. For denning, or calving, it is anticipated that winter clearing will allow for temporal avoidance (in full or in part) of potential sensitive sites. Site such as bat hibernacula have not been identified within the Project Footprint and are not anticipated to be

encountered; however, reassessment of potential project effects and additional monitoring (if required) prior to construction will assure this remains the case.

The level of potential disturbance will also be evaluated and would consider the actual proximity from the edge of clearing to the sensitive site in question. Clearing will be allowed if there is a demonstrated necessity, such as safety concerns, and no viable alternatives exist. If clearing is approved, appropriate mitigation measures will be implemented to minimize environmental impact, which may include pre-clearing nest surveys. This could include hand clearing (i.e. by use of chainsaws) may be employed in place of heavy equipment to reduce noise and ground vibration. Similarly, some situations may allow for clearing some sensitive sites to be deferred until the next calendar year in the hopes of reducing disturbance to the particular site. Additional mitigations such as nest relocation, or creation of nesting platform in a nearby location could also be employed if needed and appropriate.

As identified above, MTI will engage with Indigenous Nations, provincial and federal regulators and technical exports and qualified biologists as part of this process so as to minimize impacts to the greatest extent possible.

APPENDIX IR1-50-1

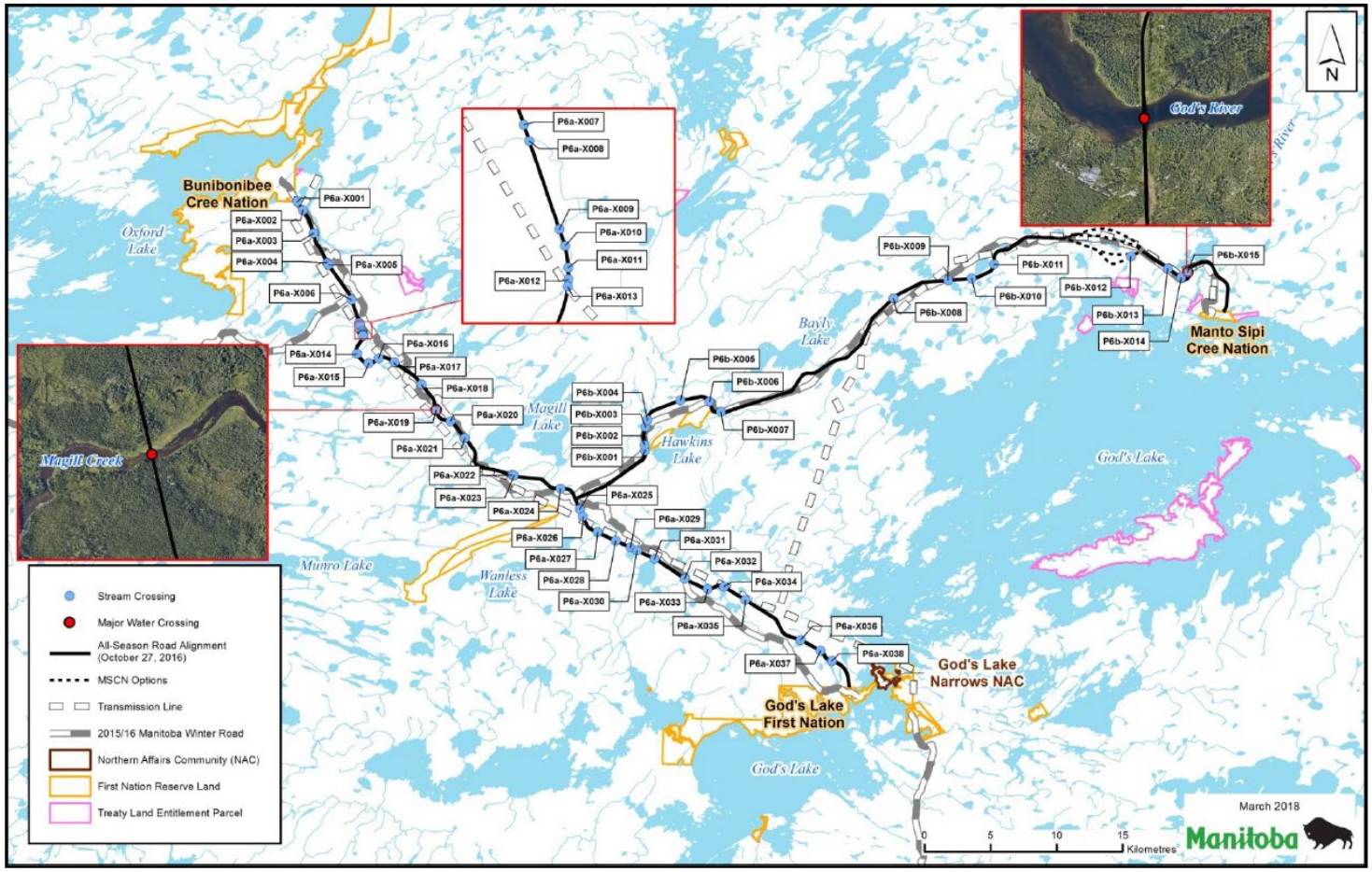


Figure IR1-50-2. Proposed project all-season road water crossings. (Figure 3-2 of the Project 6 Environmental Impact Statement)

APPENDIX IR1-50-2- Site-specific mitigation for watercourse crossings with fish habitat, defined as habitats that support fish that are part of or support a CRA fishery (Table 2 in Appendix C-2 of the EIS)

Crossing	Watercourse	Crossing Structure	Sensitivity/Concern	Mitigation
P6a-X002	Unnamed Tributary of Hayes River	Culvert	• Habitat for spring spawning fish species (i.e., Walleye, Northern Pike, suckers) and habitat supporting a range of life requisites for fish which support a CRA fishery is present; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Floodplain prone to rutting and erosion by construction machinery and equipment.	• In water activity, including construction and removal of coffer dams or placement of rip rap below the high water mark will avoid spawning and incubation periods in spring (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats. • Construction will be conducted under frozen conditions to avoid damage to floodplain.
P6a-X008	Unnamed Tributary of Michikanes Lake	Culvert	• Spawning, rearing and feeding habitat for Northern Pike and fish which support a CRA fishery is present; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Soft floodplain prone to rutting and erosion by construction machinery and equipment.	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats. • Construction will be conducted under frozen conditions to avoid damage to floodplain.
P6a-X018	Unnamed Tributary of Knee Lake	Culvert	• Spawning, rearing and feeding habitat for Northern Pike and fish which support a CRA fishery is present; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Soft floodplain prone to rutting and erosion by construction machinery and equipment.	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats. • Construction will be conducted under frozen conditions to avoid damage to floodplain.

Crossing	Watercourse	Crossing Structure	Sensitivity/Concern	Mitigation
P6a-X019	Magill Creek	Two-span Bridge	• Habitat for spawning and rearing of spring spawning fish species (i.e., Walleye, Northern Pike, suckers) and habitat supporting a range of life requisites for fish which support a CRA fishery is present; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation.	• In water activity, including construction and removal of coffer dams or placement of rip rap below the high water mark will avoid spawning and incubation periods in spring (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats.
P6a-X023	Unnamed Tributary of Laird Lake	Culvert	• Suitable habitat for spawning and rearing of Northern Pike, feeding of White Sucker and habitat supporting a range of life requisites for fish which support a CRA fishery is present; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Soft floodplain prone to rutting and erosion by construction machinery and equipment	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats • Construction will be conducted under frozen conditions to avoid damage to floodplain.
P6a-X031	Unnamed Tributary of Hignell Lake	Culvert	• Spawning, rearing and feeding habitat for Northern Pike and fish which support a CRA fishery is present; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation.	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats.

Crossing	Watercourse	Crossing Structure	Sensitivity/Concern	Mitigation
P6a-X032	Unnamed Tributary of Hignell Lake	Culvert	• Potential Northern Pike spawning habitat and habitat supporting a range of life requisites for fish which support a CRA fishery is present; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Soft floodplain prone to rutting and erosion by construction machinery and equipment	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats. • Construction will be conducted under frozen conditions to avoid damage to floodplain.
P6a-X033	Unnamed Tributary of an Unnamed Lake	Culvert	• Potential Northern Pike spawning habitat downstream of the crossing and habitat supporting a range of life requisites for fish which support a CRA fishery is present; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Soft floodplain prone to rutting and erosion by construction machinery and equipment	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats. • Construction will be conducted under frozen conditions to avoid damage to floodplain.
P6a-X034	Unnamed Tributary of an Unnamed Lake	Culvert	• Habitat supporting a range of life requisites for fish which support a CRA fishery is present and potential Northern Pike spawning habitat downstream of the crossing; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation.	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats.
P6a-X037	Unnamed Tributary of an Unnamed Lake	Culvert	• Downstream habitat suitable for fish supporting a CRA fishery; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats

Crossing	Watercourse	Crossing Structure	Sensitivity/Concern	Mitigation
P6a-X038	Unnamed Tributary of an Unnamed Lake	Culvert	• Potential Northern Pike spawning habitat downstream of the crossing; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Soft floodplain prone to rutting and erosion by construction machinery and equipment	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats. • Construction will be conducted under frozen conditions to avoid damage to floodplain
P6b-X002	Unnamed Tributary of Hawkins Lake	Culvert	• Habitat supporting a range of life requisites for fish which support a CRA fishery is present and potential Northern Pike spawning habitat downstream of the crossing; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Soft floodplain prone to rutting and erosion by construction machinery and equipment	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats. • Construction will be conducted under frozen conditions to avoid damage to floodplain.
P6b-X003	Unnamed Tributary of Hawkins Lake	Culvert	• Habitat supporting a range of life requisites for fish which support a CRA fishery is present and potential Northern Pike spawning habitat downstream of the crossing; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Soft floodplain prone to rutting and erosion by construction machinery and equipment	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats. • Construction will be conducted under frozen conditions to avoid damage to floodplain.

Crossing	Watercourse	Crossing Structure	Sensitivity/Concern	Mitigation
P6b-X006	Unnamed Tributary of Opaskaykow Lake	Culvert	• Habitat supporting a range of life requisites for fish which support a CRA fishery is present and potential Northern Pike spawning habitat downstream of the crossing; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Soft floodplain prone to rutting and erosion by construction machinery and equipment	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats • Construction will be conducted under frozen conditions to avoid damage to floodplain.
P6b-X007	Unnamed Tributary of Opaskaykow Lake	Culvert	• Potential Northern Pike spawning habitat. Walleye and sucker spawning habitat may also exist; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Floodplain prone to rutting and erosion by construction machinery and equipment	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats. • Construction will be conducted under frozen conditions to avoid damage to floodplain.
P6b-X009	Unnamed Tributary of Tapper Lake	Culvert	• Habitat supporting a range of life requisites for fish which support a CRA fishery is present, Northern Pike spawning habitat is present upstream of the crossing site; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Soft floodplain prone to rutting and erosion by construction machinery and equipment	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats. • Construction will be conducted under frozen conditions to avoid damage to floodplain.

Crossing	Watercourse	Crossing Structure	Sensitivity/Concern	Mitigation
P6b-X013	Unnamed Tributary of God's River	Culvert	• Habitat supporting a range of life requisites, including spawning for fish which support a CRA fishery and Northern Pike is present; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Soft floodplain prone to rutting and erosion by construction machinery and equipment	• In water construction will avoid spawning and incubation periods for spring spawning fish (April 15-June 30) • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats. • Construction will be conducted under frozen conditions to avoid damage to floodplain.
P6b-X015	God's River	Clear-span Bridge	• Spring, summer and fall spawning fish species present; in water work could potentially disrupt fish during sensitive periods including spawning and egg incubation. • Potential Lake Sturgeon spawning habitat 4 km downstream. • Juvenile Brook Trout found in the area.	• In water activity, including construction and removal of coffer dams or placement of rip rap below the high water mark will avoid spawning and incubation periods in spring (April 15-June 30), summer (May 15-July 15), and fall (September 1 to May 15). • In water work will be conducted in isolation of flowing water to mitigate sediment transfer to downstream habitats.

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QUESTION IAAC IR1-51

EIS Guideline Reference	• Part 2, Section 6.1.4 and 6.3.3
EIS Reference	• Chapter 6
Category	Species at Risk

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe baseline information and potential adverse effects of the Project to species at risk, including a characterization of potential residual effects.

With regard to the selection of wildlife species to include in the EIS, MSCN noted that species observed by community members in the area of the Project include northern myotis (Myotis septentrionalis) and red knot (Calidris canutus rufa), which are listed as "Endangered" under Schedule 1 of SARA, and polar bear (Ursus maritimus), listed as "Special Concern" under Schedule 1 of SARA. No baseline data are provided for these species and an assessment of potential Project effects to these species is not included in the EIS.

Supplementary information is required to support the characterization of baseline information and potential Project effects to species at risk.

INFORMATION REQUEST

a) Include a description of baseline information, an assessment of potential Project effects, a residual effects assessment, and a cumulative effects assessment for northern myotis (*Myotis septentrionalis*), red knot (*Calidris canutus*), and polar bear (*Ursus maritimus*). Describe measures that will be implemented to mitigate adverse effects identified and include these species in the description of follow-up and monitoring plans for the Project.
    i. Alternatively, provide a clear rationale for why a description of baseline information and potential Project effects is not included for these species, including a description of the views of Indigenous groups on the matter.

RESPONSE

a) **Northern Myotis**

Baseline information for northern myotis *(Myotis septentrionalis)* was not collected. However, as a member of the Vespertilionidae family, it shares similar life history traits with the little brown bat *(Myotis lucifugus),* which was already assessed in the Environmental Impact Statement (EIS). Both species face similar threats, with White-nose Syndrome being the primary cause of their decline (ECCC, 2019). Due to their shared life history and ecological characteristics, they are listed together in the same Environment Climate Change Canada (ECCC) recovery strategy.

Approximately 50% of the global range of little brown myotis is found in Canada, compared to 40% for northern myotis (ECCC, 2019). Morphologically, northern myotis can generally be distinguished by its longer ears, tail, wings, and tragus (Caceres and Barclay, 2000). Additionally, northern myotis is more specialized, with the ability to capture both airborne and perched prey, unlike the little brown bat (Ratcliffe & Dawson, 2003). Caceres and Barclay (2000) also reported that both species have a longevity record in the wild of 18.5 years, further indicating their shared life history traits. Studies reported that they frequently co-occurred in the same mines (Kurta and Smith, 2014).

The potential effects of the Project are expected to be the same for both northern myotis and little brown bat due to their common traits. As a result, additional assessment is not needed. All potential effects and mitigation presented for the little brown bat would be equally applicable and appropriate for the northern myotis.

Red Knot

Red knot *(Calidris canutus rufa)* are principally marine shorebirds in the non-breeding season, during the spring they breed in the Central Canadian Arctic, preferring locations near wetlands or lake edges which may facilitate feeding, and where the young are led after hatching (Whitfield and Brade, 1991).

During spring migration, red knots build up their food reserves to ensure successful breeding upon reaching the Arctic. Research indicates that their primary stopover site is Delaware Bay, along the mid-Atlantic coast of the USA, where they feed on horseshoe crab eggs (Burger et al., 2012). Recent studies using geolocators have identified a final stopover at the Nelson River in Hudson Bay before the birds continue to their breeding sites in the high Arctic (Baker et al., 2020).

Critical habitat identified for red knot in Manitoba includes Churchill, Hudson Bay Coast, Wapusk National Park and the Nelson River area (ECCC, 2020). Smith et al. (2023) have reported the locations of various adult red knots during northbound migration during April and May (2017-2019) (Figure IR1-51-1) which suggests that this species is not likely to temporarily reside in the Project area.

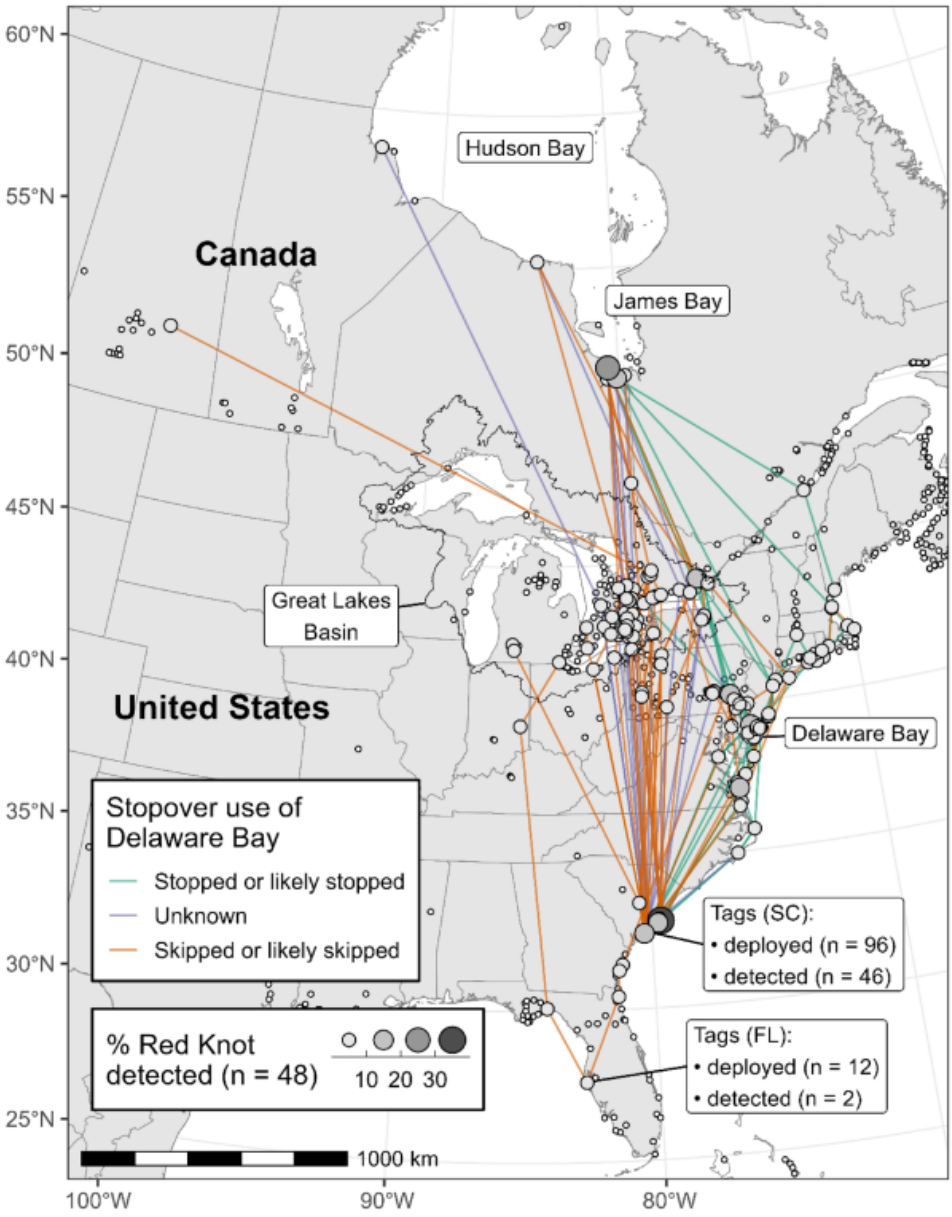


Figure IR1-51-1. Locations of 48 Red Knots tagged in South Carolina during April and May (2017-2019) during northbound migration. From "Spring migration patterns of red knots in the Southeast United States disentangled using automated telemetry" (Smith et al.,2023).

Red knots are unlikely to make multiple frequent stops, as their primary goal is to reach Arctic breeding grounds quickly to conserve energy and ensure successful reproduction. Research has indicated that red knots exhibit site fidelity, often returning to the same locations each year (Buchanan et al., 2012), making it improbable that they would frequent the project site. Moreover, field studies conducted by Joro (2018) for the EIS recorded no incidental observations of these birds, and Indigenous Nations have not reported encountering this species in the area.

While it may be possible that indigenous Nations have observed red knot in the area, this was likely a very unusual circumstance and is not typical for the species. Therefore, baseline information was not collected, and the species was not assessed in the EIS as it is unlikely that the red knot occur near the project area. However, if any encounters do occur, the proposed mitigation measures for migratory birds will still be applicable to this species.

Polar Bear

Polar bears *(Ursus maritimus)* are typically distributed along the coastlines of Manitoba and Ontario and on the islands of James Bay, near where the last of the annual ice breaks up (Stirling et al., 2004). In Manitoba, north of the Nelson River, large adult males are more common along the coast, while pregnant females or females with dependent young move farther inland, likely to avoid predation by adult males (Stirling et al., 2004). Derocher and Stirling (1990) reported that pregnant females in western Hudson Bay were found denning 10 to 80 km inland from the coast. This region is likely preferred due to the extensive peat banks, which provide ideal conditions for digging dens. In addition, adult female polar bears exhibit a high degree of fidelity to maternity denning areas, primarily located between the Nelson and Churchill Rivers to the north. This is due to the availability of dry hummocks or raised lake edges with frozen peat banks suitable for denning (Stirling et al., 2004). While some polar bears may, on occasion, travel much farther inland, the likelihood of bears travelling from the Hudson Bay coast to the Project area would be considered a very unusual circumstance and not typical. Traditional Knowledge studies with God's Lake Narrows, God's Lake First Nation, Manto Sipi Cree Nation, and Bunibonibee Cree Nation indirectly support this as only one community noted a polar bear observation in the area and only once in the past. Given these factors, it is unlikely that polar bears would frequent the project area, which is why baseline information on this species and an assessment of potential effects was not included in the EIS.

The views expressed in this response reflect perspectives from God's Lake First Nation, God's Lake Narrows, Manto Sipi Cree Nation, and Bunibonibee Cree Nation, as Traditional Knowledge was specifically gathered from these communities for the area within the Project corridor of the proposed road alignment (Local Assessment Area).

As detailed in Chapter 5, Section 5.4.1 of the EIS, Manitoba Transportation and Infrastructure (MTI) notified all the communities listed in Part 2, Section 5.1 of the EIS Guidelines about the Project and made efforts to further engage them and receive their input on the Environmental Assessment (EA)

through specific invitation to identify and describe potential effects of the Project on the environment and on their community. Despite these efforts, the only formal response received was a letter from the Manitoba Métis Federation (MMF) (Chapter 5, Appendix 5-10 of the EIS); no other communities provided feedback in response to MTI's outreach. In compliance with the guidelines, MTI distributed copies of the final EIS to each of these communities for their review and comments during the designated public comment periods. Therefore, the absence of additional responses and/or input does not indicate a lack of effort to engage these groups.

To ensure ongoing opportunities for Indigenous Nations to provide input, MTI has developed an Engagement and Consultation Plan that includes all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines. MTI is committed to ongoing engagement efforts through and beyond August 2026, ensuring that relevant project information is shared with regulators and Indigenous communities. This plan includes regular updates, consultation meetings, and open channels for feedback. If any new information is obtained through these efforts, it will be documented and shared with regulators and incorporated in the Project's environmental assessment regulatory response process as required.

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QUESTION IAAC IR1-52

EIS Guideline Reference	• Part 2, Section 6.3.3 and 6.4
EIS Reference	• Chapter 6
Category	Species at Risk

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential direct and indirect adverse effects to species at risk resulting from the Project and any measures that will be implemented to mitigate those effects.

The EIS does not provide information regarding arthropod species at risk. MSCN noted that yellow-banded bumblebee, which is listed as a species of "Special Concern" under Schedule 1 of SARA, has been observed in the area of the Project. As the Project will result in disturbance and loss of vegetation (i.e. potential habitat and food sources for this species) and will facilitate year-round road access which may result in mortality due to vehicle strikes, this species may be adversely affected.

Supplementary information is required to support the characterization of potential Project effects to species at risk.

INFORMATION REQUEST

a) Describe the arthropod species at risk that may occur in the Project footprint and LAA. For each species identified, provide baseline data on:
   i. their SARA status;
   ii. residences, seasonal movements, movement corridors, habitat requirements, key habitat areas, any identified critical habitat, and general life history; and
   iii. any published studies that describe the regional importance, abundance, and distribution of these species at risk, including recovery strategies or plans. The existing data must be supplemented by surveys, as appropriate, to provide current field data.

RESPONSE

a) For the purpose of this Project, Species at Risk are defined as federal species listed under the federal Species At Risk Act (SARA) or designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for listing on Schedule 1 of the federal SARA; species listed as Endangered or Threatened under the Manitoba Endangered Species and Ecosystems Act (ESEA); and species listed as very rare or rare throughout their range as listed by the Manitoba Conservation Data Centre (MCDC, 2016). There has been no change to the listing of arthropod species at risk that may occur in the Project's Regional Assessment Area (RAA) since the Environmental Impact Statement (EIS) was filed.

Manto Sipi Cree Nation (MSCN) noted that yellow-banded bumble bee *(Bombus terricola),* which is listed as a species of "Special Concern" under Schedule 1 of SARA, has been observed in the area of the Project.

i. The MCDC has a recorded observation of the yellow-banded bumblebee outside of the Local Assessment Area (LAA), but within the RAA. Based on this record, it is possible that yellow-banded bumblebee are, or could be, present within the Project Footprint of LAA. Yellow-banded bumble bee was listed as a species of "Special Concern" under Schedule 1 of SARA in May of 2018.

ii. The yellow-banded bumble bee inhabits open woodlands, grasslands, and meadows, with a preference for areas containing diverse floral resources necessary for nectar and pollen collection throughout the growing season. This species relies on undisturbed ground spaces like old rodent burrows for nesting and overwintering sites for queens (ECCC, 2022; COSEWIC, 2015).

    In Manitoba, which falls within the bee's historical northern range, habitat includes native flowering areas with minimal disturbances. Seasonal movements align with the availability of floral resources, as workers and queens forage extensively during the summer to support colonies. Newly mated queens disperse in the fall to find overwintering sites. However, pressures such as habitat fragmentation and pesticide exposure have negatively impacted bumblebee populations, especially in southern Manitoba (COSEWIC, 2015; ECCC, 2022).

    Although critical habitat is legally defined under SARA as essential areas required for a species' survival and recovery, no critical habitat has yet been formally designated for the yellow-banded bumble bee. Much of the bee's remaining habitat in Manitoba is relatively intact compared to southern parts of its range, where significant declines have been recorded (ECCC, 2022). Despite this stability in northern regions, habitat loss from

agricultural expansion and urban development continues to threaten the movement corridors necessary for foraging and nesting (Government of Canada, 2022).

iii. In Manitoba, the yellow-banded bumble bee remains present, especially in the northern parts of the province where habitat conditions are more suitable than in the more heavily farmed southern areas (COSEWIC, 2015). This species plays a key role in pollination, supporting both wild plants and crops, enhancing biodiversity and healthy ecosystems (ECCC, 2022). However, significant population declines of up to 34% have been reported in southern portions of its range due to habitat loss, pesticide exposure, disease spread from managed bees, and climate change (COSEWIC, 2015; ECCC, 2022).

To help protect this species, a management plan for the yellow-banded bumble bee, has been established under SARA, with a primary focus on conserving habitats for foraging, nesting, and overwintering. Ideal habitats include open meadows, native grasslands, and woodland edges, providing essential floral resources (ECCC, 2022). In southern Manitoba, habitat fragmentation and the use of neonicotinoid pesticides are threats, reducing available nesting sites and flowers. The plan promotes restoring native plants, limiting pesticide use, and collaborating with farmers to implement pollinator-friendly practices (ECCC, 2022). As described above, habitat conditions in northern parts of Manitoba are more intact, less fragmented, and are not subject to the agriculture or pesticide use in southern parts of the province.

To track population trends and habitat use, the SARA plan emphasizes the need for updated surveys, particularly in under-sampled northern areas. This data will help identify key movement corridors and address the challenges posed by climate change, such as mismatched flowering times and bee lifecycles (COSEWIC, 2015).

Public education and collaboration between stakeholders, including researchers, landowners, and policymakers, are critical to the plan's success. Although critical habitat for the yellow-banded bumblebee has not yet been formally defined, the plan aims to protect and enhance known populations through adaptive management and targeted conservation actions (ECCC, 2022).

As described in the response to information request IR1-73, a Wildlife Monitoring Plan for the Project will be developed in concert with local liaison committees and appropriate federal and provincial departments. Should incidental observations or detections of yellow-banded bumble bee (if any) be made during follow-up and monitoring activities, these will be documented. Should results of surveys, or incidental

observations of yellow-banded bumble bee require it, management and monitoring procedures may be updated (if needed). However, existing measures such as those listed in the Environmental Protection Procedures and Environmental Requirement Specifications and Chapter 8 of the Environmental Impact Statement (EIS) including revegetating work sites with native vegetation, and limiting use of pesticides to controlled and permitted cases are anticipated to minimize impacts to yellow-banded bumble bees and contribute to reducing threats identified to the species.

The COSEWIC assessment for the transverse lady beetle (*Coccinella transversoguttata*) appears to show a historical observation northeast of the Project RAA, but there do not appear to be any observations within the Project assessment area. Regardless, and as described in response A.iii. above a Wildlife Monitoring Plan will be developed for the Project. Should observations of transverse lady beetle and other arthropod species at risk and their habitat, such as yellow-banded bumblebees occur during follow-up and monitoring activities, these will be documented. Because species at risk are typically rare, or occur at low densities and therefore can be difficult to survey, documented observations would be made as part of broader follow-up and monitoring activities.

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QUESTION IAAC IR1-53

EIS Guideline Reference	• Part 2, Section 6.3.3
EIS Reference	• Chapter 6, Section 6.5.8.2.2.1 • Appendix D-1 • Appendix D-2, Table 22 and 23 • Appendix D-2, Section 7.1
Category	Species at Risk

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential adverse effects of the Project to species at risk.

The EIS describes the amount of habitat for the Pen Islands and Norway House boreal woodland caribou herds that may be disturbed as a result of the Project compared to the amount of habitat currently disturbed by the existing winter road. Although the EIS notes in the residual effects assessment for boreal woodland caribou that habitat loss would result from the Project after the implementation of mitigation measures, Table 22 of Appendix D-2 indicates that there would be a net habitat gain of 4.23 square kilometres (km2) in the Pen Islands range. No rationale is provided to explain or support this inconsistency. It is also unclear whether the values presented in Tables 22 and 23 of Appendix D-2 represent the entirety of the Project, including both permanent and temporary disturbances, or just the ASR.

With respect to the measures described to mitigate adverse Project effects to caribou and their habitat, the EIS indicates that pre-construction surveys and telemetry data will be utilized to identify the presence of calving areas. It is not clear what measures will be taken to mitigate effects to caribou habitat should calving areas be found. The EIS also indicates that a mitigation measure for caribou will include providing “some protection” to important habitat features such as mineral licks, if discovered. It is unclear what “some protection” would entail or how this would protect important habitat features.

With respect to telemetry data and locational mapping showing caribou movements, the EIS states that this information has been withheld due to the perceived sensitivity of the data and potential

risk to the species should this information be disclosed publicly. Maps and telemetry data would assist ECCC in assessing potential adverse effects of the Project to caribou.

To ensure that this information is protected and not released publicly, the Agency recommends that this information be shared directly with ECCC, who would treat the information as sensitive. Members of GLFN and Pimicikamak Okimawin have also expressed an interest in reviewing these data to compare the proponent's assessment with their own traditional knowledge of caribou movement and distribution patterns.

With regard to the herds of caribou included in the EIS, the EIS only considers potential effects to Norway House and Pen Islands caribou. As noted by MSCN, individuals from the Beverly and Qamanirjuaq caribou herds have been observed in the area of the Project. Additionally, MSCN expressed concerns that potential effects to the Nelson-Hayes, Island Lake, and Barren Grounds caribou herds were not considered. A rationale must be provided for why these caribou herds were not considered in the EIS.

Supplementary information is required to support the characterization of potential Project effects to boreal woodland (listed as "Threatened" under Schedule 1 of SARA) and eastern migratory caribou (listed as "Endangered" by COSEWIC) and to assess the validity of conclusions with respect to potential Project effects

Information Request

a) Provide a rationale for why habitat availability would increase for Pen Islands caribou following construction of the Project and clarify the discrepancy between the information presented in Tables 22 and 23 of Appendix D-2 and the conclusions presented in the residual effects assessment for woodland caribou. Revise Table 22 or the residual and cumulative effects assessments, as appropriate.
b) Clarify whether the data presented in Tables 22 and 23 of Appendix D-2 includes the area of caribou habitat potentially disturbed by only the ASR or all permanent and temporary Project activities and components.
    i. If values presented do not include all permanent and temporary Project components and activities, revise the area of habitat disturbance presented in Tables 22 and 23 to account for this. Revise the assessment of potential Project effects, residual effects, and cumulative effects for caribou to account for the total area of habitat disturbance from the Project.
c) Describe the mitigation measures that MI will implement should caribou calving areas be identified during pre-construction surveys or using telemetry data and follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.

d) Describe the mitigation measures that will be implemented to protect important caribou habitat features such as mineral licks.
e) Provide a summary of telemetry data and, if possible without compromising species recovery, a map of caribou use of the RAA. Include a seasonal breakdown of the data. Please discuss confidentiality of the information with the Agency before providing potentially sensitive data.
f) Provide a rationale to support the exclusion of the Beverly, Qamanirjuaq, Nelson-Hayes, and Island Lake caribou herds from consideration in the EIS, considering that community members of MSCN have observed members from some of these herds in the area of the Project.

RESPONSE

a) Tables 22 and 23 in Appendix D-2 (Joro 2018; and included as Appendix IR1-53-2) of the Environmental Impact Statement provide a quantitative evaluation of habitat disturbance to Pen Islands and Norway House caribou ranges for scenarios with and without the proposed Project. Habitat disturbance with and without the Project was calculated using the methods described in the Recovery Strategy for the Woodland Caribou (*Rangifer tarandus caribou*), Boreal Population, in Canda (Environment Canada 2012). This means that disturbance included consideration of fires less than 40 years old, and anthropogenic features which were buffered by an additional 500m beyond their geographic footprint.

The application of a 500m buffer to anthropogenic features creates a degree of spatial overlap between the Project and other features. The spatial overlap of anthropogenic features is not double-counted and therefore can appear to cause irregularities between Scenario 1 (existing conditions without the Project) and Scenario 2 (with the Project) as presented in Tables 22 and 23 of Appendix D-2. Differences between disturbances attributed to features such as drill holes, transmission lines, and even fire does not necessarily suggest an increase or reduction of those particular features (between scenarios 1 and 2), but is attributed to overlap of disturbance caused when the additional 500m buffer is applied to the proposed Project footprint. Additionally, as habitat disturbances were calculated for the Pen Islands and Norway House caribou herds independently, and because the herd ranges are unique, calculation for disturbance are attributed to anthropogenic features differs for each caribou range.

Contrary to the context and rationale for this information request, the disturbance analysis presented in Table 22 of Appendix D-2 for the Pen Islands herd shows the disturbed totals are greater for the Pen Islands herd in Scenario 2 with the proposed Project. Table 22 shows that under current conditions (Scenario 1) there is a total of 20,488 km^2 of disturbed area and that with construction of the proposed Project (Scenario 2) the total disturbed area increases to 20,492km^2, i.e., a loss of 4.23km^2. This is a net gain in disturbed area, not in undisturbed habitat.

Conversely, the analysis presented in Table 23 of Appendix D-2 for the Norway House herd shows that the total disturbed area with the proposed Project, when compared to current conditions, decreases by 7.05km^2. As presented in the table, variation in the disturbance areas with and without the Project is attributed to overlap of buffered features as described above and the fact that the proposed Project alignment reduces much of the road curvature associated with the existing winter road.

b) The data in Tables 22 and 23 of Appendix D-2 of the Environmental Impact Statement (EIS) account for the All-Season Road footprint. The tables include both natural disturbance factors (mainly fire less than 40 years old) and anthropogenic disturbance including linear features such as Winter Roads (WR), transmission lines, as well as other footprint disturbance including forestry and quarry development. As outlined in Chapter 3, Section 3.3 of the EIS, the Project footprint includes the all-season road, bridges, culverts, and quarries required for on-going maintenance. The footprint area of temporary and permanent Project activities and components is approximately <14 km^2. Therefore, a revised assessment is not required, as the overall Project footprint has been considered in both Table 22 and Table 23.

c) Between 2011 and 2016 telemetry data was used to identify calving areas as part of the baseline data study (Joro, 2018). However, these areas may change based on fire disturbances that could occur before construction begins. As described in the response to information request IR1-19, MTI will conduct selective review(s) of data validity 1-2 years before construction of the all-season road begins. The review will focus on key topics where legislative changes (e.g. updates to species at risk listings) occur. This process will verify that key predictions made in the Environmental Impact Statement (EIS) remain accurate and that proposed mitigations and monitoring such as the Environmental Protection Procedures (Chapter 8, Appendix 8-2 of the EIS; Appendix IR1-19-1) and the Environmental Protection Specifications (Chapter 8 Appendix 8-3 of the EIS; Appendix IR1-19-1) remain relevant and applicable. This process may include a desktop exercise incorporating detailed design, newly collected data available to MTI (if any), and may include field studies if required.

Should new or additional caribou calving areas be identified during pre- construction surveys or using telemetry, restrictions will be implemented accordingly, such as no temporary roadbed borrow operations shall occur within 2 kilometres of known caribou calving areas along access roads from May 15 to July 1 of any given year. The Contract Administrator will be informed, and these areas will not be cleared. No blasting would be permitted within 2 km of known caribou calving areas along access roads and quarry areas from April 15 to July 31. The Environmental Protection Procedures and Environmental Protection Specifications include measures to prevent disturbing caribou calving areas and are included in Chapter 8, Appendices 8-2 and 8-3 of the EIS (also included in Appendix IR1-19-1 in the response to information request IR1-19).

More mitigation measures can be found in Chapter 7, Appendix 7-1 of the EIS, including:

- Follow clearing and grubbing timelines and restrictions to avoid critical calving times (EP1 and ES 130.17.1).
- Stage construction activities to limit the extent of noise disturbance during critical calving times to defined areas.
- Follow clearing and grubbing (EP1 and ES 130.17.1) and blasting (EP14 and ES 130.19) timelines and restrictions to avoid critical calving times
- General mitigation applicable to all Species at Risk
    - Right-of-way selected to use existing disturbed/cleared areas and avoid sensitive habitat, including calving sites
- Develop blasting plans to comply with blasting regulations and reflect appropriate timing of important life cycle events for fish and wildlife, including calving and not develop borrow within 2 km of known caribou calving areas (EP12, EP14)

d) By the time the field studies were conducted 2016-2017, no mineral licks were reported. As described in response C above and in the response to information request IR1-19, MTI will conduct selective review(s) of data validity1-2 years before construction of the all-season road begins. This process will verify that key predictions made in the Environmental Impact Statement (EIS) remain accurate and that proposed mitigations and monitoring such as the Environmental Protection Procedures (Chapter 8, Appendix 8-2 of the EIS; Appendix IR1-19-1) and the Environmental Protection Specifications (Chapter 8 Appendix 8-3 of the EIS; Appendix IR1-19-1) remain appropriate and applicable. This process may include a desktop exercise incorporating detailed design, newly collected data available to MTI (if any), and may include field studies if required. Should there be significant changes in baseline data, a review of potential effects may also be conducted. Therefore, if mineral licks are identified prior to construction, MTI is committed to follow the procedures outlined in Chapter 7, Appendix 7-1 of the EIS, including:

- Use baseline studies to identify location of mineral licks to be avoided
- Avoiding these areas and leave a vegetated buffer as per ES130.17- Clearing and Grubbing.
- If mineral licks are found, they will be marked and isolated as sensitive areas. The Contract Administrator will be informed, and these areas will not be cleared.

e) The telemetry data, detailed in Appendix D-2 (Wildlife Characterization and Effects Assessment) (Joro, 2018), provides detailed information on the distribution, seasonal occupation, and migration patterns of caribou populations within the Project area. GPS collaring methods were employed from February 2010 to March 2017 to collect this data, focusing on both the Pen Islands and Norway House caribou populations.

For the Pen Islands population, eight caribou were captured and collared within the God's Lake area of the Regional Assessment Area (RAA). Historical telemetry data from 2010–2016 supplemented this study. The data showed that Pen Islands caribou primarily occupy the RAA during winter and spring, migrating inland during these seasons and returning to the Hudson Bay

coastline in summer and autumn. Only one calving event was documented within the RAA from 2010–2017. Seasonal core use areas shift inland during winter, overlapping the RAA most significantly in late winter (6.24%), while the Local Assessment Area (LAA) sees the largest overlap in early winter (1.22%). The caribou's overall range extends from northeastern Manitoba along the Hudson Bay coastline to northwestern Ontario, with episodic migrations into the northeastern RAA during winter.

For the Norway House caribou, 61 individuals from the Molson Management Unit (MU) were captured and collared between 2011 and 2016. Core use areas were identified based on telemetry data showing the concentration of caribou activity. Norway House caribou were present in the RAA during spring, primarily north of Bunibonibee (Oxford House First Nation) and Manto Sipi. However, most of this population resides southwest of the RAA near Norway House First Nation or west of the RAA near Cross Lake First Nation. No calving was recorded in the RAA between 2012 and 2016, and the population's range intersects only a small portion of the western RAA.

Locational mapping for both caribou populations was removed from the Technical Reports due to confidentiality.

f) The process for selection of valued components (VCs) is described in Chapter 4, Appendix 4-2 of the EIS. The selection of wildlife VCs are specifically described in memo authored by Joro Consultants contained within this appendix.

The Beverly and Qamanirjuaq caribou herds are known to be barren-ground caribou (COSEWIC 2016). As identified by the Beverly & Quamanirjuaq Caribou Management Board, current management plan maps show that the Beverly and Quamanirjuaq herds remain north of the Project's Regional Assessment Area (RAA), extending only so far south as York Landing near the Nelson River (Appendix IR1-53-1) and approximately 130km north of Bunibonibee Cree Nation. Similarly, the *COSEWIC Assessment and Status Report on the Caribou Rangifer tarandus Barren-ground population in Canada* (2016) also shows the maximum extent of the Beverly and Quamanirjuaq herds shows the maximum barren-ground range which included traditional knowledge sources as extending only slightly south of the Nelson River in Manitoba.

While it is possible that individual members of the Beverly and Quamanirjuaq herds could travel further south of the delineated range and possibly into the Project's RAA, if this were a more common occurrence it would presumably have been observed through monitored movements of collared individuals.

The Nelson-Hayes and Island Lake caribou herds are not currently recognized as neither are identified in Manitoba's Boreal Woodland Caribou Recovery Strategy (2015), the Amended Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada (ECCC 2020), nor the COSEWIC assessment and status reports for the eastern migratory (2017) or the barren-ground populations (2016). According to the COSEWIC assessment and status

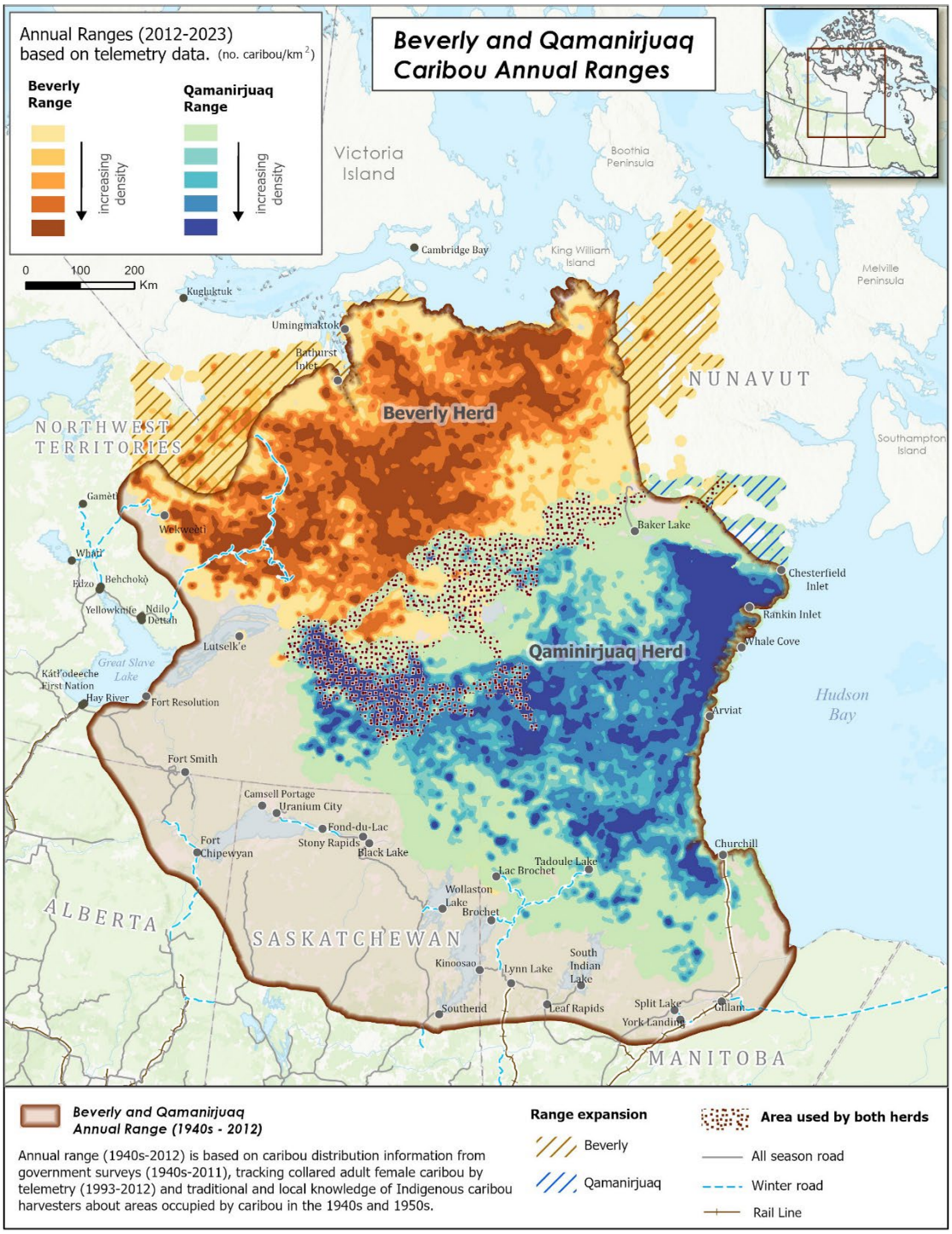
report for the Woodland Caribou (2002), some caribou may have emigrated from the Nelson-Hayes population to the expanding Pen Island population.

While the Island Lake area of Manitoba is part of Manitoba's Boreal Woodland Caribou Recovery Strategy (2015) Molson Management Unit (MU), boreal woodland caribou herds within this MU are the Charron Lake herd located to the south, and the Norway house herd located to the west of Island Lake. The Norway House caribou herd has already been included in the Project EIS as members of this herd do overlap with the RAA. While members of the Charron Lake caribou herd may occasionally venture north towards the Project RAA, if this were a common occurrence it would be demonstrated in the delineated range maps for the herd.

Overall, and as similarly described for other species in the response to information request IR1-51, it is possible that Indigenous Nations such as Manto Sipi Cree Nation have observed members of other caribou herds within their traditional territories or within the Project's RAA. However, based on scientifically collected data, these events are presumably rare, uncommon, or may actually be attributed to the Norway House and Pen Island (i.e. eastern migratory) caribou herds. In either case, the EIS has assessed potential effects to both woodland and migratory caribou and has identified mitigation measures to avoid or minimize potential Project-related effects.

APPENDIX IR1-53-1

Figure showing Beverly and Qamanirjuaq Caribou Annual Ranges (2012-2013)



APPENDIX IR1-53-2

Wildlife Characterizationand Effects Assessment
Of the Proposed All-Season Road Project 6 - Final Report, April 2018

Table 22: Disturbance factors and extent of disturbance of the Pen Islands range (based on available data)

Land Cover Category	Area (km²)		Difference (km²) (Scenario 2 - Scenario 1)	Difference as a percentage of Total Non-Water Area
	Scenario 1: Existing Winter Road	Scenario 2: New P6 ASR		
Fires	18,396	18,395	-1.10	-0.001%
Forest Harvest (less than 40 years)	0	0	0	0%
Drill Holes (less than 40 years)	222	221	-0.82	-0.001%
Mines	0.76	0.76	0	0%
Rail Active	183	183	0	0%
Transmission Line	901	853	-48	-0.052%
Roads Minor	367	501	134	0.147%
Roads Major	245	245	0	0%
Winter Road	173	93	-80	-0.088%
Disturbed Total	**20,488 (23%)**	**20,492 (23%)**	**4.23**	**0.005%**
Undisturbed Area, Non-Water	70,483	70,478	-4.23	-0.005%
Total Area, Non-Water	90,971	90,971	0	0.000%

Wildlife Characterizationand Effects Assessment
Of the Proposed All-Season Road Project 6 - Final Report, April 2018

Table 23: Disturbance factors and extent of disturbance of the Molson Management Unit (based on available data)

Land Cover Category	Area (km²)		Difference (km²) (Scenario 2 - Scenario 1)	Difference as a percentage of Total Non-Water Area
	Scenario 1: Existing Winter Road	Scenario 2: New P6 ASR		
Fires	12,893.87	12,893.86	-0.01	0%
Forest Harvest (less than 40 years)	61.21	61.21	0	0%
Drill Holes (less than 40 years)	173.27	172.56	-0.71	-0.001%
Mines	1.97	1.97	0	0%
Rail Active	19.69	19.69	0	0%
Transmission Line	410.32	399.51	-10.81	-0.02%
Roads Minor	99.15	119.05	19.90	0.04%
Roads Major	163.36	163.36	0	0%
Winter Road	763.15	747.73	-15.43	-0.03%
Disturbed Total	**14,586 (28%)**	**14,579 (28%)**	**-7.05**	**-0.01%**
Undisturbed Area, Non-Water	37,189	37,196	7.05	0.01%
Total Area, Non-Water	51,775	51,775	0	0%

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QUESTION IAAC IR1-54

EIS Guideline Reference	• Part 2, Section 6.3.3
EIS Reference	• Chapter 6, Section 6.3.3.2.2
Category	Species at Risk

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential direct and indirect adverse effects to species at risk resulting from the Project, including any changes to their habitat.

The EIS indicates that there is the potential for a decrease in the population size and habitat availability of little brown bat (Myotis lucifugus) due to Project-related clearing and sensory disturbance. Potential effects to little brown bat as a result of collisions with vehicles or construction/maintenance equipment and potential spread of white-nose syndrome are not described. As construction and operation of the Project would result in increased construction and public traffic, the risk of introduction and spread of white-nosed syndrome to the area of the Project may increase, especially if construction equipment and traffic are sourced from areas where the disease is prevalent.

Supplementary information is required to support the characterization of potential Project effects to species at risk, including little brown bat, which is listed as “Endangered” under SARA.

INFORMATION REQUEST

a) Revise the assessment of potential Project effects, residual effects, and cumulative effects for little brown bat to include:
   i. any adverse effects resulting from collisions with vehicles or construction/maintenance equipment; and
   ii. the potential introduction and spread of white-nose syndrome during all project phases.

b) Describe measures that will be implemented to mitigate any adverse effects and follow-up and monitoring that will be conducted.

RESPONSE

a) As noted in Chapter 6 of the Environmental Impact Statement (EIS), and in the response to IR1-42, no little brown bats (*Myotis lucifugus*) were recorded during baseline field studies, and no hibernacula, maternity roosts, or critical habitat have been identified within the Local Assessment Area (LAA) or Regional Assessment Area (RAA). The COSEWIC (2013) assessment, along with other available literature described below, indicates that vehicle collisions are not considered a primary threat to this species and are typically associated with higher traffic volumes and roads intersecting high-quality foraging habitat. Based on baseline conditions, anticipated traffic volumes (<300 vehicles/day), and the absence of key habitat features along the alignment, the potential for bat–vehicle collisions is generally considered low and would not be expected to represent a measurable effect as a result of the Project. As such, detail was not provided in the EIS on this topic. Nonetheless, in response to the information request issued by the Impact Assessment Agency of Canada (IAAC) following is a clarification on the assessment of potential effects on little brown bat provided in the EIS with respect to potential collisions with vehicles or construction/maintenance equipment. Appendix IR1-54-1 of this response provides an assessment of potential Project-related effects of vehicle collisions with bats in a format consistent with Tables 6-4 and 6-5 in Chapter 6 of the EIS. Potential effects are presented prior to the implementation of mitigation, and after the implementation of mitigation. Overall, the potential adverse effects of vehicle collisions with bats is considered not significant. A revised effects assessment for Project-related spread of white-nose syndrome is not required as there is no pathway of effect.

i) Bat mortalities from vehicle collisions are closely linked to the quality of habitats bordering roads. According to Fensome and Mathews (2016), bats are more likely to be killed by vehicles where roads intersect high-quality habitats or are near scarce foraging locations like water bodies and riparian habitats, therefore roads may pose a collision risk if they provide foraging opportunities for bats. This is supported by findings that *Myotis spp.* carcasses are frequently found near water bodies. The presence of woodland species on roads suggests they might forage along roads similar to woodland paths, while the presence of trees and shrubs influences road-crossing behaviour (Fensome & Mathews, 2016).

Medinas et al. (2012) suggested that the number of road-killed bats varies with traffic volume, being highest on roads with the greatest nightly traffic (high/moderate traffic approximately 1210 vehicles per night) and lowest on quiet rural roads (< 100 vehicles per night). Junctions between roads and linear habitats may increase collision risks, male bats might be more susceptible due to greater dispersal distances or proximity to roads for

roosting and foraging, while young bats may mistake damp roads for water surfaces, leading to increased mortality risk (Fensome & Mathews, 2016). Females might occupy better quality habitats with lower road densities. However, during early summer, more female mortalities were found due to maternity roosts near roads (Medinas et al., 2013). Clutter-adapted species, such as the little brown bat are at greater risk due to their slow flight and potential disorientation from traffic noise. It is possible that such species cross roads where the roads are narrow or bordered by trees. Also, disorientation could make bats more susceptible to collisions as a result of traffic noise (Fensome & Mathews, 2016). Another study investigated causes of mortality across various bat species in British Columbia. Among the 64 little brown bats surveyed, 14 died from trauma. This trauma was attributed to human-related causes, included collisions with vehicles, walls, windows, garage doors, and harm from humans or domestic dogs (Beattie et al., 2022)

As mentioned in Chapter 3, Table 3.1 of the EIS, the proposed road is expected to have an average daily traffic of <300 vehicles per day which is a very low traffic density compared to the numbers from the study by Medinas et al. (2012). This suggests that this low traffic density will minimize the risk of bat collisions, and effects are most likely to be seen at the individual level. By implementing the mitigation measures proposed in the EIS, such as reduced speed limits in specific areas and avoiding sensitive locations like known maternity roosts or critical life stages such as mating and swarming (Medinas et al. 2013), the risk of adverse effects is minimized. Furthermore, critical habitat for this species is not present in the vicinity of the project (ECCC, 2018), reducing the potential of adverse effects.

ii) With regard to the potential introduction and spread of white-nose syndrome during all project phases, the likelihood of this happening as a result of the Project is anticipated to be very low. Although human activities have been considered as a potential vector for spreading WNS, particularly through the translocation of fungal spores on equipment transported to new environment (Reynolds & Barton, 2013), several factors significantly reduce the potential for this occurring within the Project area.

First, field studies conducted by (Joro, 2018) for the EIS reported no bats or hibernacula in the area, and there is also no critical habitat identified. The primary means for WNS spread is from bat-to-bat or bat-to-cave. The ability of humans to spread WNS depends on factors that are not fully understood, such as how long the fungus can survive during transport, the minimum infectious dose needed for bats, and the conditions that would allow the fungus to establish itself in a new location (Langwig et al., 2015). While the spores of the fungus can persist on clothing and equipment (US Forest Service Department of Agriculture, 2012), the potential of them spreading WNS is very low as none of the project activities involve entering caves or disturbing places where bats might roost.

As a result, a revised effects assessment for Project-related spread of WNS is not required as there is no pathway of effect.

b) Measures that will be implemented to mitigate any adverse effects are outlined in Appendix IR1-54-1, which include:

- Design road to optimize line of sight and reduce collisions.
- Reduce speed limits at identified problem areas.
- Construction vehicle speeds adhere to posted limits and wildlife warning signs shall be installed at identified problem areas (EP14).
- Remove trees and tall shrubs to maintain line of sight.
- Provide construction staff with information on potential bat hibernacula, such as abandon mine shafts if observed during construction.
- General guidelines regarding restrictions to clearing in summer provide protection to potential roosting sites.
- Provide construction staff with Species of Conservation Concern handbooks to facilitate identification if present.

In addition to the measures listed above and in Appendix IR1-54-1, many other measures relating to clearing and brush disposal, noise, dust control, temporary work sites and decommissioning are anticipated to help mitigate effects to little brown bat. These measures were included in Chapter 8, Appendices 8-2 and 8-3 of the EIS, but are also included as Appendix IR1-19-1 in the response to IR1-19.

As described previously, no significant adverse effects are anticipated to little brown bat given the conditions and the area where the Project will be developed.

If any changes occur during project activities, such as the identification of hibernacula, appropriate mitigation measures will be implemented as needed. As identified in the response to IR1-19, selective reassessment(s) prior to Project construction will occur to verify that key predictions remain relevant and that propose mitigation measures remain applicable and appropriate.

A specific follow-up and monitoring program has not been established for little brown bat due to its very low potential for occurrence in the Local Assessment Area (LAA) or Regional Assessment Area (RAA). Field studies conducted by Joro Consultants between 2011 and 2016 confirmed that, while suitable habitat exists, no sightings of the species or bat hibernacula were recorded (Joro, 2018).

As outlined in Chapter 8, Section 8.6.1 of the EIS, MTI will implement a Wildlife Monitoring Plan (WMP). The objectives of the WMP are to verify key Project EIS prediction, to evaluate the effectiveness of mitigation strategies for ~~the~~ environmental effects on wildlife and wildlife habitat, and to establish a framework for adaptive management that can be used to enhance mitigation

strategies if required. While these plans are yet to be finalized, the proposed table of contents are included as part of response to IR1-73.

The monitoring criteria established for the WMP will be informed by concerns raised through the Project's environmental assessment review and subsequent information requests received from federal and provincial regulators, Indigenous rights-holders, and stakeholders. Opportunities will be provided for provincial and federal regulators as well as Indigenous Nations to review the WMP prior to it being finalized.

Although specific study design, protocols, locations, and schedules will be developed at a later stage, MTI anticipates that monitoring may include:

- Trail cameras;
- Engagement of local trappers or resource users; and,
- General field observations, including incidental wildlife observations during project activities which will include documenting evidence of roadside mortalities and vehicle collisions.

Since the WMP will be developed prior to construction, the monitoring schedule may vary based on species and monitoring objectives. As monitoring data becomes available, MTI will share findings and a draft monitoring plan with provincial and federal regulators during the pre-construction phase, and will seek input from Indigenous Nations to ensure a comprehensive approach to wildlife monitoring and management.

Annual monitoring reports summarizing activities and results will be developed and provided to the Impact Assessment Agency of Canada, Manitoba Environment and Climate Change, and Indigenous Nations (Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation). At the completion of the monitoring program, annual reports will be summarized into one final Wildlife Monitoring Report for the Project.

Should incidental observations (including roadside mortality or vehicle collisions) of little brown bat occur during other monitoring activities or construction inspections, these will still be recorded, and adaptive mitigation measures will be implemented as necessary. Similarly, instances of confirmed collisions between bats and construction equipment or vehicles can be recorded and may provide opportunities to implement adaptive management, if necessary.

APPENDIX IR1-54-1

Assessment of Environmental Effects on Little Brown Bat Before and After Application of Proposed Mitigation Measures

Assessment of environmental effects before application of mitigation measures										
Factor	**Potential Environmental Effects**	**Key criteria for determining significance [1]**								**Proposed Mitigation Measures**
		Direction of Change	**Duration**	**Magnitude**	**Timing**	**Extent**	**Frequency**	**Reversibility**	**Ecological and Social Context**	
Mammal (Little Brown Bat)	Increased mortality of little brown bat as a result of collisions with vehicles or construction/maintenance equipment	Negative	Long-Term, life of Project	Effect is considered minor, alteration or loss of non-critical habitat and effect is minor relative to habitat availability	Effect could occur during critical life stage	Limited to the Project Footprint	Sporadic	Irreversible	Little brown myotis listed by SARA and ESEA	• Design road to optimize line of sight and reduce collisions. • Reduce speed limits at identified problem areas. • Construction vehicle speeds adhere to posted limits and wildlife warning signs shall be installed (EP14). • Remove trees and tall shrubs to maintain line of sight. • Provide construction staff with information on potential bat hibernacula (abandon mine shafts) if any. • General guidelines regarding restrictions to clearing in summer provide protection to potential roosting sites. • Provide construction staff with Species of Conservation Concern handbooks to facilitate identification if present.
			Level III	Level I	Level III	Level I	Level II	Level III	Level III	

[1] The description of assessment criteria and levels of potential environmental effects were provided in Chapter 4 Table 4.4 of the Environmental Impact Statement, but are also included in Appendix IR1-54-2 of this response.

Assessment of environmental effects following application of mitigation measures											
Factor	**Residual Environmental Effects**	**Key criteria for determining significance [2]**							**Evaluation of significance**	**Likelihood**	**Follow-up/ Monitoring**
		Duration	**Magnitude**	**Timing**	**Extent**	**Frequency**	**Reversibility**	**Ecological and Social Context**			
Mammal (Little Brown Bat)	Increased mortality of little brown bat as a result of collisions with vehicles or construction/maintenance equipment	Long-Term, life of Project	Effect is considered minor, alteration or loss of non-critical habitat and effect is minor relative to habitat availability. Likely to occur at the individual level, not measurably affecting the population	Critical life stages would be avoided (when bats are not hibernating)	Limited to the Project Footprint	Infrequent	Irreversible	Little brown myotis listed by SARA and ESEA	Not Significant	N/A	No
		Level III	Level I	Level III	Level I	Level I	Level III	Level III			

[2] The description of assessment criteria and levels of potential environmental effects were provided in Chapter 4 Table 4.4 of the Environmental Impact Statement, but are also included in Appendix IR1-54-2 of this response.

APPENDIX IR1-54-2

Description of assessment criteria and levels of potential environmental effects

Assessment Criteria	Range of Criteria	Level of Effect and Definition[3]
Direction of Change (type of effect)	Neutral or Negligible	No measurable change on the VC.
	Negative	Net loss (adverse or undesirable change) on the VC.
	Positive	Net benefit (or desirable change) on the VC.
Duration (period of time the effect occurs)	Short-Term	**Level I** - The potential effect results from short-term events or activities such as the time required to complete a discrete component during construction, maintenance, or rehabilitation activities (i.e., a timeframe of several months up to one year).
	Medium-Term	**Level II** - The potential effect is likely to persist until the completion of construction and rehabilitation activities (i.e., > 1 year to 10 years).
	Long-Term	**Level III** -The potential effect is likely to persist beyond the completion of construction and rehabilitation activities into the operations and maintenance phase of the Project (i.e., a timeframe of greater than 10 years).
Magnitude (degree or intensity of the change)	Negligible or Low	**Level I** - A change that is not likely to have a definable, detectable or measurable potential effect above baseline (i.e., potential effect is within a normal range of variation) or is below established thresholds of acceptable change (e.g., water quality guideline). See **Table 4.5** for VC specific criteria.
	Moderate	**Level II** – A change that will have a potential measurable effect that can be detected with a well-designed monitoring program; but is only marginally beyond standards/guidelines or established thresholds of acceptable

[3] **Chapter 6** of the Environmental Impact Statement outlines VC specific definitions for the three level ranking system.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[3]
		change. See **Table 4.5** for VC specific criteria.
	High	**Level III** – A change that will have potential effects that are easily observed, measured, and described (i.e., readily detectable without a monitoring program) and are well beyond guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
Timing[4]	No Sensitivity	**Level I** – Effect does not occur during critical life stage.
	Moderate Sensitivity	**Level II** – Effect occurs at the start or end of a critical life stage.
	High Sensitivity	**Level III** – Effect occurs during a critical life stage.
Extent (Spatial Boundary)[5]	Project Footprint	**Level I** - The physical space or directly affected area on which Project components or activities are located and/or immediately adjacent area which is within the defined limits of the P6 all-season road ROW (i.e., 100 m) and permanent and temporary facilities (e.g., temporary access routes and quarries) within which potential effects are likely to be measurable.

[4] In terms of **Timing**, the critical life stages include things such as nesting, breeding, spawning and calving which will vary by VC and will vary annually depending on seasonal conditions. For example, it is clear that winter is outside of bird nesting and breeding period and that spring is fully within this critical time period, whereas early spring and late fall is a transitional period that depending on the seasonal conditions may or may not affect the life stage.

[5] Environmental Impact Statement **Figures 4-1** and **4-2** illustrate the VC specific spatial boundaries of the LAA and RAA, which are discussed in greater detail in **Chapter 6**.

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QUESTION IAAC IR1-55

EIS Guideline Reference	• Part 2, Section 6.3.3 and 6.4
EIS Reference	• Chapter 4, Appendix 4-1 • Chapter 6, Section 6.4.8.2.2.2
Category	Species at Risk

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential direct and indirect adverse effects to species at risk from the Project and any measures that will be implemented to mitigate those effects.

The EIS notes that, while wolverine (Gulo gulo) is a species listed as “Special Concern” under Schedule 1 of SARA and was identified as important to Indigenous peoples, this species did not qualify as a VC due to the difficulty in modelling and monitoring them. Despite this, the EIS describes potential Project effects to wolverine and outlines mitigation measures to address any adverse effects. No discussion is presented regarding the limitations or uncertainties associated with the conclusions reached in the assessment of potential Project effects, the residual effects assessment, or cumulative effects assessment due to the lack of baseline data for wolverine. Additionally, although no baseline data are available for wolverine in the area of the Project, it would be beneficial to reference studies assessing the effects of other similar road projects on wolverine to support the conclusions made. Similar concerns were also expressed by MSCN and Pimicikamak Okimawin.

With respect to mitigation measures to address potential adverse Project effects to wolverine during Project construction, the EIS indicates that, should natal and maternal den sites of wolverine be found, MI will provide construction staff with information regarding potential den sites; however, details are required regarding what the proponent plans to do to mitigate Project effects should den sites of wolverine be located.

Supplementary information is required to support the characterization of potential Project effects to species at risk.

INFORMATION REQUEST

a) As baseline data for wolverine in the area of the Project were not collected, describe the limitations/uncertainties with respect to the conclusions reached regarding potential Project effects to wolverine. This description must include reference to studies related to the effects of similar road projects or other related projects to wolverine, if available.
b) Describe mitigation measures that will be implemented to address adverse effects to wolverine den sites if found during construction, in addition to notifying construction personnel of the location of den sites, and follow-up and monitoring that will be conducted.
c) Revise the residual and cumulative effects assessments for wolverine to consider the mitigation measures identified in b).

RESPONSE

a) Although species-specific baseline surveys for wolverine were not performed, multi-species trail camera and aerial surveys were conducted and did detect the presence of wolverine (*Gulo gulo*) (Joro Consultants, 2018a). The absence of more detailed species-specific baseline data for wolverine populations in the Project area presents specific limitations in accurately assessing potential impacts. Without localized population density and distribution data, it is difficult to determine how many wolverines might use or cross the Project area, and limits precise estimates of potential population effects from Project activities. Furthermore, wolverines have large home ranges and low population densities, complicating sampling efforts and resulting in limited data availability (Weaver et al., 1996; Inman et al., 2012; Barrueto et al., 2020). In British Columbia, for example, even in high-quality habitats, female wolverine home ranges can span 300-400 km^2 (Lofroth & Krebs, 2007), while studies in Ontario and Alberta indicate ranges up to 1,000 km^2 (Scrafford et al., 2024), reflecting the challenges in accurately sampling wolverine populations.

Moreover, wolverine habitat use and denning behavior are driven by seasonal and reproductive needs. Females require deep, late-persisting snow cover and specific structures like talus slopes or snowdrifts for denning, which offer thermoregulation and predator protection for kits (Magoun, 1985; Magoun and Copeland, 1998). Without specific data on denning locations and movement patterns in the Project area, there is some uncertainty regarding how Project activities might overlap with critical habitats, particularly during denning, which is essential for successful reproduction.

Additionally, the lack of local data limits understanding of how wolverines in this region may respond to disturbances, as behavior can vary based on territory, predation risks, and food availability (Krebs et al., 2007). Though mitigation measures are in place, such as avoiding activity during denning seasons, the effectiveness of these measures is more difficult to assess without

localized data. The Wildlife Characterization and Effects Assessment (Joro, 2018b) reported only a few wolverine observations and track sightings in the Regional Assessment Area (RAA), suggesting a low-density population, which aligns with observations by local trappers who report harvesting only one or two wolverines annually.

Studies on similar road and industrial projects provide additional information into how wolverines may respond to such developments. Research in northwestern Alberta indicates that wolverines tend to avoid roads and infrastructure in high-traffic areas, likely due to increased human activity, though some industrial features like regenerating seismic lines and cutblock edges may attract them temporarily for foraging (Scrafford & Boyce,2014; Scrafford et al., 2017). In Yoho and Banff National Parks, wolverines were observed to avoid major roads and highways, with activity near infrastructure limited, suggesting a sensitivity to linear developments that disrupt their preferred forested cover (Scrafford et al., 2017). Additionally, increased human access due to roads can pose greater mortality risks for wolverines through indirect factors, such as hunting and trapping, as seen in various studies across the Canadian boreal forest (Scrafford & Boyce,2014).

Despite these potential impacts, the amount of habitat affected by the Project is minor compared to the potential habitat availability within the Wildlife Local Assessment Area (LAA) and RAA; wolverine populations in northeastern Manitoba are thought to be stable or increasing (COSEWIC, 2014). With the application of mitigation measures identified in Chapter 6, Appendix 6-4 and 6-5, and as summarized in Chapter 7 Appendix 7-1 of the Environmental Impact Statement, the Project's effects on wolverine populations are anticipated to be minimal and not significant. As described in the response to IR1-19, selective review(s) of data validity prior to construction of the all-season road. The review will focus on key topics where legislative changes (e.g. updates to species at risk listings) occur. This process will verify that related key predictions made in the Environmental Impact Statement (EIS) remain accurate and that proposed mitigations and monitoring appropriate and applicable.

b) If wolverine den sites are found during construction, proper mitigation measures will be implemented. These include general mitigation applicable to all Species at Risk, using studies and/or incidental observations to identify natal and maternal den sites, if present, and providing construction staff information on identification of potential den sites (Appendix 6-4 and Appendix 7-1 of the EIS). Additional relevant information is provided in the response to IR1-50. Overall, the primary means of mitigating effects to wolverine dens would be to apply spatial and temporal setbacks to prevent disturbance. This could include maintaining a treed buffer, or delaying or preventing activities during sensitive lifecycle periods for known sites.

If a den is found, Manitoba Transportation and Infrastructure will first identify the type of den, as wolverines can also make holes to recover from injuries, to sleep, or hide food. Studies have identified key differences between wolverine reproductive and resting dens (Glass et al., 2022).

Reproductive dens are generally more complex and located in snowdrift-prone areas like streambeds and lake cutbanks. They have longer tunnels for added security and lack food remnants, as their only purpose is to shelter kits and protect them from predators and extreme weather. In contrast, resting dens are simpler, usually consisting of a single tunnel leading to one chamber and are often associated with features like cliffs, river ice, and stream cutbanks. Some resting dens contain food remnants, indicating occasional food storage (Glass et al., 2022).

If it is a reproductive den, females may abandon the site or move the kits to a different location, which increases the mortality risk (Inman et al., 2012). To prevent such disturbance, Project-specific mitigation measures will include establishing a buffer zone and restrict activities during the denning season (February-May), provide construction staff with information on potential den sites and handbooks to facilitate identification if present. The potential for wolverine presence and/or denning in the vicinity of the Project may also be informed through continued engagement with Indigenous Nations and resources users. Should MTI be made aware that a wolverine is thought to be residing in a particular area, MTI may implement further measures (as necessary or appropriate) to prevent disturbance to denning and/or other important lifecycles and may seek input from provincial and/or federal regulators as required.

As described in Chapter 8, Section 8.6.1, and other information requests including IR1-43 and IR1-44, the objectives of the Wildlife Monitoring Plan (WMP) are to verify key Project EIS predictions, to evaluate the effectiveness of mitigation strategies for the environmental effects on wildlife and wildlife habitat, and to establish a framework for adaptive management that can be used to enhance mitigation strategies if required. While the WMP is yet to be finalized, the proposed table of contents are included as part of response to IR1-73.

Monitoring often does not focus on species at risk as they typically occur at low densities, are rare or otherwise difficult to monitor (the ability to monitor presence and change is an important factor in determining viability of a monitoring plan). For these same reasons, monitoring wolverine is extremely challenging due to their very low numbers, extremely large home ranges, and dependence on carrion. The monitoring criteria established for the WMP will be informed by concerns raised through the Project's environmental assessment review and subsequent information requests received from federal and provincial regulators, Indigenous rights-holders, and stakeholders.

Although specific study design, protocols, locations, and schedules will be developed at a later stage, MTI anticipates that monitoring may include:

- Trail cameras;
- Engagement of local trappers or resource users; and,
- General field observations, including incidental wildlife observations (such as tracks and scat) during project activities.

If denning sites (including wolverine dens) are discovered during construction, MTI will adhere to Environmental Protection Procedures (EPs) (Chapter 8, Appendix 8-2 of the EIS; Appendix IR1-19-1) and Environmental Protection Specifications (Chapter 8, Appendix 8-3 of the EIS; Appendix IR1-19-1), which include:

- A vegetation buffer shall be maintained between the ROW and sensitive features including, but not limited to, sticknests, mineral licks, dens, heritage sites as outlined in the Forest Management Guidelines for Terrestrial Buffers (ES 130.17.1.5).
- Trees containing large nests of sticks and areas where active dens or burrows occur shall be identified, left undisturbed and reported to the Contract Administrator. No construction is to occur within 100m of an eagle's nest, heron rookery or other sensitive wildlife area without prior approval from the Contract Administrator and MTI (ES 130.19.9).
- Trees containing large nests of sticks and areas where active dens or burrows occur shall be identified, left undisturbed and reported to the Natural Resources Officer (EP14-Wildlife).

Since the WMP will be developed prior to construction, the monitoring schedule may vary based on species and monitoring objectives. As monitoring data becomes available, MTI will share findings and a draft monitoring plan with provincial and federal regulators prior to construction of the all season road, and will seek input from Indigenous Nations to ensure a comprehensive approach to wildlife monitoring and management.

Monitoring reports summarizing activities and results will be developed and provided to the Impact Assessment Agency of Canada and Indigenous Nations (Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation). At the completion of the monitoring program, reports will be summarized into one final Wildlife Monitoring Report for the Project.

c) No further revisions to the assessment of residual and cumulative effects are required, as the existing mitigation measures outlines in the Environmental Impact Statement are detailed and remain applicable. Proposed measures specify that baseline studies will be conducted to help identify natal and maternal dens. Although locating all potential den sites can be challenging due to wolverine population distribution and large home ranges, alternative strategies have been outlined. These include implementing spatial and temporal setbacks if dens are encountered during construction, which will ensure immediate protection and will allow for the documentation of den locations for future monitoring. In addition, general mitigation strategies for Species at Risk, such as setbacks and guidance for construction staff on identifying potential den sites, remain applicable. Therefore, it is expected that the current mitigation plan will sufficiently address any potential impacts, and no further revisions should be necessary. Regardless, as identified in the response to IR1-19, a data validity reassessment will be performed prior to the start of construction to verify whether key environmental assessment predictions remain accurate, and whether

proposed mitigation and monitoring also remains applicable and appropriate. Outcomes of this reassessment will be provided to provincial and federal regulators as well as to Indigenous Nations.

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QUESTION IAAC IR1-56

EIS Guideline Reference	• Part 2, Section 6.2.3, 6.3.2, and 6.3.3
EIS Reference	• Chapter 1, Section 1.2.2 • Chapter 6, Section 6.5.7.1 and 6.5.8.2.1 • Appendix D-2, Section 5.1.3.2
Category	Species at Risk

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential direct and indirect adverse effects to migratory birds and species at risk resulting from the Project, including any changes to their habitat.

The EIS indicates that adverse effects to migratory birds and species at risk may result from the Project through habitat loss, alteration, and fragmentation. As it is anticipated that the ASR will remain in perpetuity, decommissioning of the ASR must not be considered as a factor in assessing potential residual Project effects associated with habitat loss. In describing the availability of habitat for bird species, the EIS describes both “primary” and “secondary” habitat. No definitions of what constitutes primary and secondary habitat for each species is provided and it is also unclear what data sets (i.e. ALCES model and/or the Boreal Avian Modelling studies) were used in characterizing primary and secondary habitat data and any potential uncertainties/limitations of the data. Additionally, the EIS does not describe whether any critical habitat for migratory bird species at risk exists within the Project footprint, LAA, or RAA, and no recovery strategies are described.

Supplementary information is required to support the characterization of potential Project effects to migratory birds and species at risk and to verify the validity of conclusions with respect to potential residual effects.

INFORMATION REQUEST

a) Revise the residual effects assessment for migratory birds and species at risk to account for the irreversibility of habitat loss, alteration, and fragmentation resulting from permanent Project components, given that there are no plans to decommission these components.
b) Define what constitutes primary and secondary habitat for each species of migratory bird and bird species at risk.
c) Indicate whether the primary and secondary habitat data used in the ALCES model and the Boreal Avian Modelling studies were the same. If not, highlight the main differences between these two data sets, as well as any potential uncertainties/limitations with using two different sets of habitat data.
d) Should critical habitat for any migratory bird species at risk exist within the Project footprint, LAA, or RAA, describe the amount of habitat available and the amount of habitat that may be disturbed or lost as a result of the Project.
e) Should recovery strategies exist for any migratory bird species at risk that may occur within the Project footprint, LAA, or RAA, describe these strategies and how MI will adhere to them.

RESPONSE

a) Given that there are no plans to decommission the all-season road (ASR) (Chapter 3, Section 3.2.5 of the Environmental Impact Statement), the residual effects assessment for migratory birds and species at risk already account for the irreversibility of habitat loss, alteration, and fragmentation resulting from permanent Project components. The changes to habitat would occur infrequently, primarily associated with initial clearing and revegetation of the road alignment and temporary work locations. However, the natural revegetation of the segments of the winter road corridors not used for the all-season road will also help to offset the overall effects.

Based on, and similar to, the Canadian Environmental Assessment Agency decision statement for Project 4 (Impact Assessment Agency, 2017), it is anticipated that sections of the existing winter road not used for the all-season road alignment will be progressively abandoned during the construction phase (see the response to IR1-04 for more information). This will be done by blocking access points, restoring disturbed areas and allowing for natural revegetation in these areas. Therefore, the term "reversible" is used in the context of the natural revegetation of the winter road as a means to minimize Project-related habitat loss, alteration, and fragmentation.

For example, habitat alteration, fragmentation, and/or loss of migratory bird habitat due to clearing of native vegetation within the right-of-way (ROW), temporary access roads, quarries, borrow pits, work areas, and camps is classified as “reversible” over a long period because these activities will primarily occur during the construction phase and will not persist indefinitely. Temporary access

roads, work areas and camps will be decommissioned after construction, and will not be used in perpetuity. Vegetation regeneration in decommissioned temporary work areas will be promoted to restrict or limit off-road access by vehicles as per ES 130.8 – Designated Areas and Access, EP21 – Winter Road Closure and Reclamation Plan, and EP22 – Temporary Site Decommissioning. Additionally, clearing regulations, including ES 130.17 – Clearing and Grubbing, ES 130.19 – Wildlife, and EP14 – Wildlife, will be followed to further minimize long-term habitat disturbance. While some effects may resume as maintenance operations occur, these too will be short-lived and also infrequent over the Project's life-cycle.

Similarly, the decrease in the population and/or habitat of rare fish species (e.g., lake sturgeon) if it were to occur, is also considered reversible over a long period, despite the road's permanence, because the contributing factors (e.g., habitat, potential water quality impacts, and increased fishing pressure,) are primarily associated with the construction phase and will not persist indefinitely. The God's River crossing site is therefore the most likely (and only) potential point of interaction between the proposed Project and this species.There is an already an existing clear span Acrow bridge that crosses the God's River for the winter road at this location, so no new accesses for potential fishing of the river will be provided.

As discussed in response to IR1-60, the existing winter road bridge will either be left, upgraded or replaced for the proposed Project to widen the crossing. The use of a clear-span bridge eliminates the need for instream works, preserving the flow, substrate, and structure of the riverbed. No new permanent or temporary instream structures are planned. If in water works were to be identified in the future, works would likely require authorization under the Fisheries Act and require offsetting, effectively reversing the impact once offsetting measures are implemented. Water quality impacts are also limited to the construction period. Water quality effects are expected to be mitigated effectively, but even if they were to occur, they should only persist for the construction period.

Unavoidable destruction and alteration of fish habitat may occur within the footprint of other crossings and crossing approaches, with habitat loss estimated at approximately 3,671.8 m^2 of instream habitat and 864 m of riparian habitat, and an additional 1,008 m of riparian habitat within the cleared ROW being altered from riparian forest to low-growing vegetation. At Magill Creek, 161.5 m^2 of instream habitat will be altered due to riprap placement at the base of the proposed multi-span bridge (NSC, 2017). However, Environment Canada (2013) states that for a riparian zone to function sufficiently for fish habitat, 75% of a stream length should remain naturally vegetated. Given the pristine nature of the project area, the planned mitigation ensures that riparian habitat loss remains well below this threshold (NSC, 2017).

To further reduce potential increased fishing pressure during construction, contractors and Manitoba Transportation and Infrastructure (MTI) employees working on the Project will have restricted access in accordance with provisions of the Manitoba Fishery Regulations 1987, including restrictions on fishing periods, use of catch-and-release only, limits on allowable catch, licenses, and conservation closures. Following construction completion, temporary access roads

and winter road access points will be decommissioned and reclaimed (ES 130.8.7) to allow for the regeneration of vegetation. This will restrict off-road access by vehicles and reduce the opportunities for fishing off the existing winter road, thereby mitigating potential long-term impacts on fish populations.

b) Birds, like other wildlife, may utilise habitat of varying quality and suitability based on species-specific preferences. Primary habitat refers to high-quality environments where necessary resources are abundant, varied, and capable of supporting a healthy and stable population. These habitats are less likely to experience constant environmental changes, and provide all the necessary elements for survival, reproduction, and long-term stability. Primary habitat is high-quality, desirable habitat. The suitability of primary habitat is species-dependent, and detailed information on habitat preferences and species-habitat associations is available in Appendix E Table E-1 of the Joro Wildlife Characterization and Effects Assessment Report (Joro Consultants, 2018).

In contrast, secondary habitat allows species to survive but under less ideal conditions. This is potential and useable, but less desirable habitat. Although this type of habitat may still provide necessary resources, there are often less abundant or of lower quality. For example, secondary habitat might offer less protection from predators or support fewer prey species, leading to increased competition, or habitat where nest sites are more difficult to find. In secondary habitat, species may face more challenges compared to high-quality environments.

c) According to the Wildlife Characterization and Effects Assessment report (Joro Consultants, 2018), the Boreal Avian Modelling (BAM) dataset and the ALCES model provide information on habitat suitability and species distribution, both datasets utilize Land Cover Classification data from Natural Resources Canada. The BAM dataset, which compiles boreal bird data from various inventory, monitoring, and research projects across Canada and the United States, uses a 4 km by 4 km grid cell level for its analysis. The model considers a species present in a grid cell if at least one individual was observed in any point-count survey within that cell. These models were then transferred to ArcGIS, with habitat suitability values divided into four equal quantiles, categorizing primary (7.5-10) and secondary habitat (5-7.5). Due to its coarser scale, the BAM model likely indicates a higher proportion of suitable habitat for a species than the ALCES model. However, it is recognized that not all habitat within a 4 km by 4 km grid cell labeled as primary is necessarily used by the species, though sufficient habitat exists within the cell to be classified as such.

The ALCES model is developed based on published habitat requirements, avoidance attributes, and professional judgment. It uses a finer raster grid that accounts for 100% of landscape and human footprint types. The ALCES model also incorporates LCC data to describe relationships

between vegetation communities, landscape types, wetlands, water, and human footprint variables.

BAM models were used along with ALCES to model Valued Component (VC) songbird species, both providing existing bird data, density estimates, and habitat suitability modeling. However, the BAM model, with its coarser scale, complements the ALCES model by providing broader habitat information and thereby providing a useful secondary model to compare with the ALCES model, reducing uncertainty while identifying areas of potential discrepancy. The modeling information was used to augment and help verify the field-related data collected through surveys and the information obtained through workshops and discussions with resource users.

The use of the ALCES model and Boreal Avian Modelling (BAM) data reflects differences in scale, methodology, and assumptions. BAM uses a 4 km × 4 km grid and satellite-based land cover classifications to predict current habitat suitability for bird species, while ALCES simulates future habitat changes based on land use and anthropogenic impacts. Because BAM relies on observational data, there is potential for spatial biases and an overestimation of suitable habitat, whereas ALCES' predictive models are based on assumptions about species behaviour and habitat response to environmental changes. Both models were used together to provide a more balanced assessment where the interpretation of the models' output considers the strengths and limitations of each model. In-field data helped verify the model output, which also assisted in selection of sampling methods and sites. Professional judgment was also essential in interpreting results, ensuring more accurate and reliable predictions.

d) Migratory bird Species at Risk include bank swallow (*Riparia riparia*), barn swallow (*Hirundo rustica*), Canada warbler (*Cardellina canadensis*), Common nighthawk (*Chordeiles minor*), Eastern wood pewee *(Contopus virens),* Olive-side flycatcher *(Contopus cooperi)*, Peregrine falcon (*Falco peregrinus*), Rusty blackbird *(Euphagus carolinus)* and Short-eared owl *(Asio flammeus),* Horned grebe (*Podiceps auritus*) and yellow rail (*Coturnicops noveboracensis*). However, according to the Species At Risk Act (SARA) public registry, no critical habitat for these species exists within the Project footprint, LAA or RAA. A detailed listing of species of conservation concern is provided in the Wildlife Characterization Effects Assessment (Joro Consultants, 2018).

e) No critical habitat for any migratory bird species at risk exists within the Project footprint, LAA or RAA. However, according to the SARA registry, several of these birds have recovery strategies. Recovery plans for the bank swallow and barn swallow focus on protecting nesting sites and foraging habitats, while the Canada warbler and common nighthawk strategies emphasize habitat conservation and threat mitigation. For the eastern wood-pewee and olive-sided flycatcher, efforts are directed at conserving forested habitats and managing pesticide exposure. The peregrine falcon plan focuses on nesting site protection, while rusty blackbird conservation involves wetland

management. Short-eared owl and yellow rail strategies prioritize open grassland and wetland conservation, and the horned grebe plan seeks to enhance essential wetland habitats. These strategies collectively aim to protect and manage habitats critical to the recovery of these species in Manitoba. As identified in the response to IR1-19 a reassessment of potential key Project effects will occur prior to construction and will consider new data that may be available at that time potentially including regulatory changes and/or updates to species at risk recovery strategies. Should critical habitat be identified before construction, this will be considered as part of final design, mitigation and monitoring plans.

MTI will adhere to regulatory requirements related to Species at Risk, including mitigation measures outlined in Chapter 6, Section 6.4.8 of the EIS. Additionally, species-specific mitigation measures detailed in Chapter 6, Section 6.4.8.2.3 will be implemented to minimize impacts on key species. As mentioned, should changes to species at risk recovery strategies require new mitigation measures, or changes to those that have already been developed, adaptive measures will be considered and developed as required.

For example, bank swallows and barn swallows, which nest on vertical and near-vertical rock faces (Joro, 2018), will be considered during project planning. As mentioned in Chapter 6, Section 6.4.8.2.3 of the EIS, road routing and quarry selection will avoid these nesting locations whenever a viable alternative is available nearby. During the decommissioning of temporary construction areas, structures will be inspected for barn swallow nests before removal if decommissioning occurs during the breeding and rearing season. If active nests are found, they will not be disturbed until the breeding season concludes. Similarly, should quarries or borrow sites be reinstated for maintenance activities after a prolonged period, rock faces will be surveyed for bank swallow nests. As common nighthawks may also nest in rocky areas, besides open grounds and cleared areas, surveys may also be conducted to identify active nests prior to reinstating quarries or borrow areas. If either bank swallow or common nighthawk nests are found, they will be protected from disturbance during the breeding season (Chapter 6, Section 6.4.8.2.3 of the EIS).

MTI will ensure that the Contractor complies with conditions specified in permits, authorizations, approvals, issued for the project. Additionally, MTI will adhere to EP14 – Wildlife Environmental Protection Procedures (Chapter 8, Appendix C of the EIS) to ensure compliance with best practices for species protection throughout the project duration.

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QUESTION IAAC IR1-57

EIS Guideline Reference	• Part 2, Section 6.2.3, 6.3.2, and 6.3.4
EIS Reference	• Chapter 6, Section 6.3.2.3 • EIS Appendix D-2, Section 7.7.5 and 7.9.3
Category	Migratory Birds

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential direct and indirect adverse effects to migratory birds resulting from the Project. The proponent is also required to describe potential changes resulting from the Project to resources used for traditional purposes by Indigenous peoples, including wildlife species identified as culturally important.

The EIS indicates that the Project will provide increased access to previously remote areas during the spring and summer staging periods and may cause an increase in local hunting of migratory and non-migratory birds. Given the amount of available habitat throughout the RAA and LAA, the proponent anticipates adverse effects to migratory and non-migratory birds related to overharvest to be minor. The Agency notes that habitat availability may not preclude effects of overhunting; even though there may be a high amount of habitat available, if birds are being overhunted in these areas there could still be an adverse effect to migratory and non-migratory bird populations, including bird species of importance to Indigenous peoples.

With respect to potential Project effects to migratory and non-migratory birds, the EIS concludes that increased access and harvesting opportunities facilitated by the ASR will benefit local resource users. As potential benefits to local resource users may not correlate to benefits to migratory and non-migratory birds, this factor should not be included in the assessment of potential Project effects to migratory and non-migratory birds.

Supplementary information is required to support and assess the validity of conclusions with respect to potential Project effects to migratory birds, bird species at risk, and bird species of importance to Indigenous peoples for traditional use.

INFORMATION REQUEST

a) Revise the assessment of potential Project effects, residual effects, and cumulative effects for migratory and non-migratory birds, including bird species at risk and species of importance to Indigenous peoples, to:
   i. reflect that the amount of available habitat in the area of the Project may not correlate with potential adverse effects to bird populations from increased hunting pressure; and
   ii. remove consideration of potential benefits to local resource users as a result of increased access for hunting from the assessment of effects to migratory and non-migratory birds.

RESPONSE

a) Chapter 6, Section 6.3.2, Appendix 6-4 and Appendix 6-5 of the Environmental Impact Statement (EIS) already covers the assessment of potential project effects for migratory and non-migratory birds. Additional information for migratory birds can also be found in response to IR1-56. It is important to clarify that the potential benefits mentioned, such as increased hunting opportunities, are intended for resource users, not migratory and non-migratory birds. The presence of the all-season road may shift harvesting locations from areas that would have been accessed by traditional travel routes to new locations nearer to the road, but it is not expected to impact bird populations as stated in Section 6.5.7 in Chapter 6 of the EIS. As per the response to information request IR1-04, Manitoba Transportation and Infrastructure (MTI) is anticipating that clearing of the alignment could begin when Project approvals are obtained, and that winter road traffic would be relocated from the old alignment to the all-season road alignment until the all-season road itself is constructed. This temporary transition may initially shift winter harvesting areas, and summer harvesting areas once the road is constructed.

While access throughout the area may change during non-winter months once the all-season road is fully constructed, is it not expected to increase the number of hunters or resource users in the area as access to the surrounding Regional Assessment Area that will still be consistent with current conditions and require travel by air or winter road. The Project is therefore not anticipated to facilitate overhunting of migratory or non-migratory birds. The benefit is specific to resource users, with no anticipated effects on migratory birds and no revision to the assessment of effects is required at this time.

As stated in Chapter 8, Section 8.6.1 of the EIS, Manitoba Transportation and Infrastructure (MTI) is committed to implementing a Wildlife Monitoring Plan prior to construction to verify predictions regarding effects on wildlife, the effectiveness of mitigation measures, and to monitor for unanticipated effects. While this plan is not yet finalized, its proposed table of contents is included as part of response to IR1-73. This plan will focus on key valued species, and will be in alignment

with the requirements set forth in the Environmental Act License (EAL) and the P6 EIS. The primary objective of the Wildlife Monitoring Plan is to monitor the effects of the All-Season Road (ASR) development over time and determine whether the applied mitigation measures are effective. If mitigation measures are not sufficient, adaptive management strategies may be identified and implemented. Additional information provided by local resource users and Indigenous Nations may also assist in understanding the effectiveness of proposed mitigations, trends and observations regarding Project-related effects.

As monitoring data becomes available, MTI will share findings with regulators and seek input from Indigenous Nations to ensure a comprehensive approach to Project-related monitoring.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-58

EIS Guideline Reference	• Part 2, Section 1.4, 5.1, 6.3.1, and 6.4
EIS Reference	• Chapter 1, Section 1.4.1 • Chapter 6, Section 6.3.1.6
Category	Fish & Fish Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent describe any federal power, duty, or function that may be exercised that would permit the carrying out in whole or in part of the Project or associated activities; and any legislation or other regulatory approvals that are applicable to the Project at the federal, provincial, regional, and municipal levels. The proponent is also required to identify any potential adverse effects to fish and fish habitat and any mitigation measures that will be implemented to address any potential adverse effects.

The EIS indicates that, should Fisheries and Oceans Canada (DFO) determine that a *Fisheries Act* authorization is required for the Project, MI will be required to develop offsetting plans for DFO review prior to commencing construction of watercourse crossings. The EIS does not describe options or examples of offsetting measures that may be considered or how and when Indigenous groups will be involved in the development of offsetting measures. It should also be noted that, in addition to reviewing the offsetting plans, DFO will need to approve/agree to these plans prior to issuance of an authorization under the Fisheries Act. Additionally, on August 28, 2019, an Act to amend the Fisheries Act and other acts in consequence came into force, replacing the Fisheries Act which came into force in 2012 (DFO 20199). While the EIS indicates that an authorization from DFO under the former *Fisheries Act* may be required for the Project, no reference is made to potential requirements under the Fisheries Act that is currently in force. It should be noted that amendments in the Fisheries Act currently in force have implications for projects currently under review by DFO, including the Project, and should be considered in developing offsets.

Supplementary information is required to support the characterization of federal regulatory requirements related to the Fisheries Act authorization for the Project and potential adverse effects of the Project to fish and fish habitat. This information is also required to assess whether further mitigation measures may be required.

See Annex I for related advice

INFORMATION REQUEST

a) Describe options or examples of offsetting measures that may be considered in the event that an authorization under the current *Fisheries Act*, and therefore offsetting plans, are required.
b) Provide a summary of any applicable regulatory approvals and potential offsetting requirements with respect to the current *Fisheries Act*.

RESPONSE

a) In the event that an authorization under the current *Fisheries Act* is required, an example of a possible offsetting project might include the restoration of degraded in-stream and riparian habitats at former watercourse crossings along decommissioned sections of the existing winter road network in the vicinity of the proposed Project. This could involve removal of in-stream debris to restore connectivity of habitats, placement of spawning gravels at select areas to restore degraded spawning sites or create new spawning sites, planting of riparian vegetation to replace what was cleared for the road crossing, and/or shoreline stabilization to prevent sediment deposition. Other options include working with local Indigenous Nations to identify priority restoration fish habitat areas in and around their communities.

   Ultimately, the amount and nature of the offsetting required to counterbalance HADD of fish habitat will depend largely on the size and nature of the HADD and the value of the habitat that has been harmed. Self-sustaining offsets may not be necessary in some instances. According to DFO's *Policy for Applying Measures to Offset Harmful Impacts to Fish and Fish Habitat* (Fisheries and Oceans Canada, 2025), temporary losses to fish or fish habitat may be offset by temporary measures, until the impacts of the project, including any death of fish from temporary impacts, have been counterbalanced.

   As DFO has advised in Annex 1of the P6 Technical Review Information Request - Round 1, Package 2 (2021), in the event that a *Fisheries Act* authorization is required for the Project, DFO will work with Manitoba Transportation and Infrastructure (MTI) through the detailed design and regulatory review phase to determine the amount of harm to fish and fish habitat and to negotiate the requirements of a fish habitat offsetting plan. MTI is committed to working with DFO during the detailed design phase, as well as the tendering and construction phases of the Project, to incorporate any conditions or suggestions that will help to avoid residual impacts to fish and fish habitat wherever possible.

b) MTI does not anticipate any change to the need for a Fisheries Act (FA) authorization or offsetting under the current 2019 version of the FA as opposed to the 2012 version that was in use at the

time of the EIS submission. After applying DFO's Risk Management Framework Overview (2024), the impacts to fish and fish habitat are still expected to be minor and not result in residual harmful alteration, disruption or destruction of fish habitat, death of fish, or harm to aquatic species at risk, including their residences or habitat.

Project 6 has not yet undergone the detailed design phase of MTI's design process where the proposed Project will be fully dimensioned and quantified, and detailed drawings will be produced that describe and define each feature of the proposed Project, such as in-water footprints of permanent structures. Until such time, specific details about project dimensions and activities are not yet available and therefore final details about the type, size, and duration of any impacts to fish and fish habitat and whether those impacts can be avoided, mitigated, or require Authorization under the *Fisheries Act* are also not yet available. In addition, the details of temporary activities such as site isolation methodology, seeding timing, and blasting details will not be known until the construction stage of the proposed Project and will be determined by the contractor in consultation with MTI. MTI generally requires the contractor to submit plans to MTI for final approval of such activities (i.e. water control plan, blasting management plan, etc.). Plans submitted to MTI are required to meet best management practices and conditions of federal approvals.

While MTI does not anticipate impacts to fish and fish habitat that would require authorization, in the event that detailed design of the proposed Project results in a residual HADD that cannot be avoided or mitigated, MTI would propose an offsetting project that is acceptable to DFO and follows the *Policy for Applying Measures to Offset Harmful Impacts to Fish and Fish Habitat* (Fisheries and Oceans Canada, 2025).

REFERENCES

Fisheries and Oceans Canada. 2025. Policy for Applying Measures to Offset Harmful Impacts to Fish and Fish Habitat. 29p. Available at: https://www.dfo-mpo.gc.ca/pnw-ppe/documents/reviews-revues/policies-politiques/offsetting-policy-politiques-mesures-compensation-eng.pdf

Fisheries and Oceans Canada. 2024. Risk Management Framework Overview. 21p. Available at: https://www.talkfishhabitat.ca/risk-management-framework

QUESTION IAAC IR1-59

EIS Guideline Reference	• Part 2, Section 6.3.1, 6.4, and 6.5
EIS Reference	• Chapter 6, Section 6.4.6.2 and 6.6.1.2
Category	Fish & Fish Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe any potential adverse effects to fish and fish habitat that may result from the Project, including potential effects resulting from blasting. The proponent is also required to describe measures that will be implemented to mitigate any potential adverse effects.

To mitigate potential adverse effects to fish and fish habitat resulting from blasting, the EIS indicates that blasting plans will be developed prior to blasting in areas that could affect fish habitat; these plans would comply with blasting regulations. Details regarding the measures that will be contained within these plans to mitigate potential adverse effects to fish and fish habitat are not provided in the EIS. It is also unclear who would develop these blasting plans, what would be included in these plans, how compliance with these plans would be enforced, which blasting regulations would be complied with, and whether Indigenous groups have been or will be engaged during the development of blasting plans. It is also unclear whether these plans are the same or separate from the Blasting Management Plan that the EIS states will be developed by the construction contractor(s). It should also be noted that plans are not the same as mitigation measures. Without the information outlined above, including details of proposed mitigation measures that will be contained within blasting plans, the effectiveness of these measures cannot be assessed.

The EIS also indicates that, following the implementation of mitigation measures, injury or death to fish from blasting may still occur, but that residual effects from blasting are not expected to result in a measurable reduction to fish populations. No quantitative estimates of the number of fish or proportion of fish populations that may be injured or killed as a result of blasting activities is provided and the EIS does not present rationale to support the conclusion that a measurable reduction will not occur.

Supplementary information is required regarding measures that will be implemented to mitigate potential effects to fish and fish habitat from blasting and to assess their adequacy.

INFORMATION REQUEST

a) Clearly describe the measures that will be implemented to mitigate potential adverse effects to fish and fish habitat from blasting, including fish death or injury, and follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.
b) Clarify whether the blasting plans referenced are the same or separate from the Blasting Management Plan that will be developed by the construction contractor(s). If the blasting plans are separate from the Blasting Management Plan:
    i. describe who would be responsible for developing the blasting plans;
    ii. if MI will not be responsible for the development of blasting plans, describe whether these plans will require approval by MI; and
    iii. describe the regulations that the plans will comply with and who will enforce them.
c) With respect to the Blasting Management Plan and/or the blasting plans, if separate from the former:
    i. describe the information and mitigation measures that will be included in these plans or that are typically included; and
    ii. describe whether the development of these plans will involve engagement with Indigenous groups.
d) Provide a clear rationale to support the conclusion that blasting is not expected to result in a measurable reduction in fish populations, including quantitative estimates of the number of fish or proportion of fish populations that may be injured or killed as a result of blasting activities.

RESPONSE

a) MTI will adhere to DFO's *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters* (Wright and Hopky, 1998), including using some or all of the suggested mitigation measures to avoid harm to fish from blasting activities, such as:
    - Avoiding use of ammonium nitrate-fuel oil mixtures for blasting,
    - Undertaking blasting at the time of least biological activity or biological sensitivity (i.e. by adhering to DFO's restricted activity timing windows to avoid spawning periods for northern Manitoba),
    - Using time-delay detonation initiators to reduce overall detonation of multiple charges to a series of discrete explosions greater than 25 ms apart,

- Subdividing large charges into a series of smaller discrete detonations or explosions by using time-delay detonation initiators to reduce overall detonation to a series of smaller discrete detonations or explosions, and/or isolation of the in-water area of concern through the use of bubble curtains to disrupt sound waves,
- Using noise generating devices within 20 m of the blast area to scare fish from the site (e.g. air compressor discharge line or small charge weight blasts prior to the main blast),
- Removing/excluding of fish from the area before the blast occurs.

Setback distances to achieve 100kPa guideline criteria, based on substrate type and weight of explosive charge, will also be adhered to and all blasting will be carried out by a qualified and certified blaster.

While MTI does not anticipate any harm to fish from blasting associated with the Project, monitoring of adjacent fish habitat will be done to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects, as well as to comply with any conditions that may be required through regulatory processes, including any *Fisheries Act* Authorizations. Monitoring may include measurement of vibrations and overpressures using seismographs (land/air) and/or hydrophones (water) to ensure adherence to guidelines near fish and fish habitat. Any observations of dead or injured fish associated with blasting will be recorded and result in changes to the blasting plan(s) to prevent further harm. The contractor will be required to provide blast reports whenever blasting occurs to ensure adherence with the blasting plan. The blast reports will provide details on the date, time, location, weather, type and weight of explosives used, primer used, number, diameter and spacing of holes, the blaster's name, a sketch of the shot layout, a pre-blast plan drawing, and a map showing the blast location.

b) Blasting plans and the Blasting Management Plan are usually separate documents. The Blasting Management Plan is a prepared by the contractors after contract award for each segment of road tendered for construction and is comprehensive plan that applies to all blasts throughout the particular contract in a general sense that covers all aspects of explosives use for the Project, such as explosives handling, transport, storage, and licensing. The blasting plans are prepared by the contractor prior to initiation of blasting activities and are more specific to the individual blasting sites.
    i) Details of temporary activities such as blasting are not known until the construction stage of the Project and are determined by the contractor in consultation with MTI.
    ii) MTI will require the contractor to submit a Blasting (aka Explosives) Management Plan (including an explosives residuals management plan) and site-specific blasting plan(s) to MTI (or its Contract Administrator) for final approval before construction begins. This requirement will be part of the contract tender specifications.

iii) The Blasting Management Plan and blasting plan(s) submitted to MTI (or its Contract Administrator) will be required to meet best management practices and conditions of federal approvals. Blasting activities will be done in compliance with the federal *Explosives Act* and *Explosives Regulations*, as well as the *Fisheries Act* and DFO's *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters* (Wright and Hopky,1998). MTI will enforce compliance with regulations through its Project Manager (or it's Contract Administrator) and MTI's Environmental Services Branch.

c) Blasting plans and the Blasting Management Plan are usually separate documents. The Blasting Management Plan is a comprehensive plan that applies to all blasts throughout the particular contract in a general sense that covers all aspects of explosives use for the particular contract, such as explosives handling, transport, storage, and licensing. The blasting plans are more specific to the individual blasting sites.
    i) Where blasting is required, the Contractor is required to submit a blasting plan (or series of blasting plans) to MTI prior to preparatory work for each blast, including such information as:
        - The location, depth and area of the sinking cut.
        - The blast sequencing, including location, depth, and area of each blast.
        - Diameter, depth, pattern and inclination of blast holes for each blast.
        - The type, strength, amount, column load, and distribution of explosives to be used per hole, per delay and per blast.
        - The sequence and pattern of delays for each blast and the description and purposes of any special methods to be adopted.

    The Blasting Management Plan generally provides personnel qualifications, resumes, and licenses of the blaster in charge, drilling and blasting crews, and third-party blasting consultants; a list of federal, provincial, and local regulations to which the project must comply, copies of permits. It also provides detailed descriptions including MSDS sheets of explosives materials, provisions for safe transportation, storage, handing, loading and disposal of packaging materials of products to be used for blasting, and an explosives residuals management plan. During transport, explosives must be appropriately labelled, packaged and an appropriate vehicle used. Additional precautions pertaining to the transport, handling, and storage of explosives are detailed in the *Explosives Act*. The blasting contractor is responsible for obtaining blasting permits for the job.

    The Blasting Management Plan must contain a safety plan that details personnel responsibility and safety during explosives transportation, storage, blast hole loading at the site, pre-blast and post-blast notifications, warning sirens, guarding of

the site to prevent unauthorized access, and the return of unused explosives after the blast is completed. The location of buried utilities are also the responsible of the blasting contractor.

Storage, transportation, and on-site handling of explosives (where required) will be in accordance with the *Explosives Act*. Storage of explosives (including magazine design and location) must be in a dry location away from flammable substances and sources of ignition and in a secure location to ensure that restricted access is limited to authorized personnel. Potential blasting areas will be included on the construction maps; however, more detailed blasting exclusion zones will be shown on a separate map, which will be distributed closer to the start of the construction period, should blasting be required.

ii) Development of the Blasting Management Plan and blasting plan(s) may involve engagement with Indigenous groups. Once plans are developed by the contractor, MTI will share these plans with local Indigenous groups to provide them with a clear understanding of the contractor's plans and to provide advance notification of planned blasting events.

d) No fish are anticipated to be killed or injured as a result of blasting activities as blasting is not anticipated to occur in watercourses and the application of mitigation measures to reduce or eliminate blasting impacts on fish and fish habitat from blasting activities near fish habitat means there is a low risk of harm to fish.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

Wright, D.G., and G.E. Hopky. 1998. Guidelines for the use of explosives in or near Canadian fisheries waters. Can. Tech. Rep. Fish. Aquat. Sci. 2107: iv + 34p. Accessed June 20, 2025 at: https://publications.gc.ca/collections/Collection/Fs97-6-2107E.pdf

QUESTION IAAC IR1-60

EIS Guideline Reference	• Part 2, Section 6.1.6, 6.3.1, and 6.3.3
EIS Reference	• Chapter 6, Table 6.41 • Chapter 6, Section 6.3.3.1 • Appendix C-1, Section 4.2.3 and Appendix 5
Category	Fish & Fish Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent describe fish habitat present in the Project study areas by homogeneous section, including the length of each section and any natural obstacles, such as falls or beaver dams, or existing structures that may hinder the free passage of fish and provide maps at a suitable scale indicating the surface area of potential or confirmed fish habitat. The proponent is also required to describe potential direct and indirect adverse Project effects to fish and fish habitat, including any fish species at risk. This description should include calculations of any potential temporary or permanent habitat loss in terms of surface area and in relation to watershed availability and significance.

The EIS does not include a description of the amount of fish habitat currently present in the Project footprint, LAA, or RAA, including the area, length of section, and width of section, or any natural obstacles or existing structures that may limit fish passage. The EIS also does not include maps indicating the surface area of potential or confirmed fish habitat. Without this information, predictions with respect to the significance of potential habitat loss or alteration due to the Project cannot be assessed. It is also unclear whether existing obstacles to fish passage were considered in the assessment of potential Project effects, residual effects, or cumulative effects.

With respect to potential barriers to fish passage, Pimicikamak Okimawin noted that, while beaver dams are generally viewed as a barrier to fish passage, research in other regions has indicated that some species of fish may pass through or by beaver dams more frequently than previously assumed (Lokteff et al. 2013[10]). Passage upstream may be seasonal during high water periods but was found to be significant and downstream passage through porous dams by young fish is often possible (Cutting et al. 2018[11]). Beaver ponds may also provide useful spawning and rearing habitat for some species of fish and may not always act as definitive barriers. As described in IR1-41, this

may also have implications in terms of potential effects to fish and fish habitat resulting from MI's Nuisance Beaver Management Program.

The EIS also indicates that there is the potential for a decrease in the population of rare fish species, including lake sturgeon (Acipenser fulvescens), from the Project due to blasting, reduced fish passage, habitat alteration/loss, invasive species, and adverse effects to water quality. The proponent does not anticipate these adverse effects to be significant following the implementation of mitigation measures. No data are provided regarding the amount of lake sturgeon habitat that may be altered/lost and no quantitative comparison is made to the amount of habitat available in the Project footprint, LAA, or RAA. Without this information, conclusions with respect to the significance of habitat loss/alteration resulting from the Project cannot be verified. Additionally, no quantitative data are presented regarding the anticipated number of individuals or the proportion of the lake sturgeon population(s) in the area that may be lost as a result of Project-related mortality.

Supplementary information is required to support the description of fish and fish habitat currently present within the Project footprint, LAA, and RAA, and to assess predictions with respect to potential Project effects to fish habitat.

INFORMATION REQUEST

a) Describe the area of fish habitat currently present within the Project footprint, LAA, and RAA, delineated by habitat type for each species of fish potentially present, including lake sturgeon and other aquatic species at risk. Compare the amount of habitat currently available to the amount of habitat that may be lost, altered, or disturbed by the Project, including both permanent and temporary components and activities, per fish species.
b) Provide maps at a suitable scale indicating the surface area of potential or confirmed fish habitat (e.g. spawning, rearing, nursery, feeding, overwintering, migration routes, etc.) overlain with the location of Project components and activities.
c) Given that beaver ponds may provide useful spawning and rearing habitat for some species of fish, describe potential effects to fish and fish habitat, including the availability and quality of habitat, due to the removal of beaver dams, drainage of beaver ponds, and removal/relocation of nuisance beavers through MI's Nuisance Beaver Management Program.
d) Revise the assessment of potential Project effects, residual effects, and cumulative effects for fish and fish habitat to include potential existing natural or anthropogenic obstacles to fish passage, and potential effects related to MI's Nuisance Beaver Management Program.
e) Provide quantitative data regarding the anticipated number of individuals or proportion of lake sturgeon population(s) that may be lost or adversely affected as a result of the Project.

RESPONSE

a) The area the proposed Project is located within Manitoba is remote, with limited development and aquatic data and characterized by abundant lakes and watercourses, see map in Figure IR1-60-1 of Appendix IR1-60-1 below. As described in Chapter 4 of the EIS the Aquatic Local Assessment (LAA) area is 1431km^2, and the Aquatic Regional Assessment Area (RAA) is 20,842km^2. The RAA is largely undeveloped except for three First Nations and one Northern Affairs Community and the transmission lines and winter road corridors which service the communities. There are no industrial facilities in the region with the only commercial development consisting of a few lodges and outfitters. Fish habitat data is limited throughout the region due to minimal development. The aquatics study conducted for the proposed Project was designed to collect the level of information that is consistent with the level of potential impact from the proposed development based on understanding of effects on the aquatic environment from development and maintenance of all season road (ASR) stream crossings. Additional baseline studies would provide little additional information upon which to base impact predictions or to select appropriate mitigation for the project.

The Aquatic Environment Report: Existing Environment (Appendix C-2 of the EIS) prepared by NSC (2017) provides baseline physical and biological data for each watercourse that will be affected by the Project. Regional context is provided by drainage area size, distance and connectivity to major waterbodies, and contribution to fisheries. The detailed summaries for each watercourse include:

- physical assessments of instream and riparian habitats at the crossing sites and 400 m up and downstream of the crossing sites,
- habitat information such as channel width and depth, bank condition, substrate types, riparian conditions, habitat types, water quality, and cover composition,
- results of fish and mussel sampling, and
- an assessment of fish habitat potential.

The Project area is mostly untouched wilderness where habitat is not limiting for fish. Of the 53 watercourses that will be crossed by the ASR, roughly half (i.e, 25) were assessed as being fish habitat, and of those, 23 are unnamed tributaries consisting of small low gradient boreal streams that were found to contain mostly bog assemblage minnow species and occasionally northern pike. Of the two larger watercourses crossed by the ASR, Magill Creek is a larger stream connecting a string of small lakes to Knee Lake and God's River is a medium sized river flowing out of God's Lake. Both Magill Creek and God's River contain a variety of large-bodied fish species. The one species at risk known to inhabit the Project footprint (i.e. lake sturgeon), is found in God's River.

The baseline information collected on fish and fish habitat is sufficient to assess the effects of an all-season road under the Canadian Environmental Assessment Act, 2012, given watercourse crossings will be designed and constructed using standard methods and mitigation measures as described in Appendix 8-2 and 8-3 in Chapter 8 of the EIS. These methods and mitigations are well-

established and have proven to be effective at minimizing effects to fish and fish habitat. For fish bearing crossings, Department of Fisheries and Oceans Canada's (DFO) Swim Performance Online Tool will be used to identify velocities to appropriately size culverts during the detailed design phase and culverts will be embedded to meet fish passage requirements. Non-fish bearing watercourses will have equalization culverts to maintain existing water flow and drainage patterns. Where streams have been classified as not supporting fish, the rationale for that classification is provided within the Fish Habitat Classification section of the assessment booklet developed for each individual stream in Appendix C of the EIS, the reasons typically include absence of channel and no connection to fish bearing waters. With the use of proposed mitigation, including sediment and erosion controls, effects to fish and fish habitat from the proposed Project is anticipated to be limited to the right of way of the proposed All-Season Road (ASR).

Compliance monitoring (i.e. environmental site inspections) will be completed to verify and ensure that construction activities meet requirements contained in construction contracts and environmental licences, authorizations, permits and legislation. Inspections and monitoring will be conducted at stream crossing sites to ensure that the mitigation measures are effective and to identify if and where adaptive management is required. Environmental site inspections will be conducted before and regularly during construction to ensure that appropriate mitigation measures are in place, properly maintained, and effective. Post construction inspections will ensure that crossing sites have been adequately stabilized and disturbed areas are restored.

The proposed Project includes a number of watercourse crossings, the most important being P6b-X015 at God's River due to the presence of a species at risk (lake sturgeon). The God's River is a major perennial watercourse flowing out of God's Lake, that provides year-round habitat for several fish species (NSC, 2017). According to the Aquatic Environment Report – Existing Environment prepared for the Environmental Impact Statement (EIS), twenty-four fish species have been reported, limited to this crossing site and include lake sturgeon, brook trout, lake whitefish, northern pike, suckers, and walleye (NSC, 2017).

The drainage areas upstream of the proposed crossings and distances to the nearest downstream major waterbody are identified for each of the proposed watercourse crossings in Table 5 of the Aquatic Environment Report - Existing Environment found in Appendix C of the EIS. Given the remoteness and lack of development in the proposed project area, fish habitat is plentiful. The amount of fish habitat that may be lost or altered is provided in Appendix 2 of the Aquatic Environment Effects Assessment Report found in Appendix C of the EIS. Information on temporary disruptions to fish habitat will not be known until the detailed design phase or the construction phase until construction contractor's submissions are submitted to MTI for review and approval. This information will be provided to DFO when it becomes available to inform their review of the Project under the Fisheries Act and decision as to whether the specific crossing requires Authorization. Where DFO Authorization is required, additional site-specific crossing information from detailed design and construction contractor submissions will be supplied to DFO along with

any additional information requested (i.e. fish and fish habitat offset) to support the Fisheries Act Authorization.

The aquatic habitat at the proposed crossing site P6b-X015 at God's River, includes moderate velocity run and riffle zones with gravel, cobble, and boulder/bedrock substrate, as well as shallow shoreline areas with fine substrates and submergent macrophytes (NSC, 2017). Baseline studies recorded the following water quality data, presented in Table IR1-60-1 below. Additionally, a bathymetric map (Figure IR1-60-2) and substrate map (Figure IR1-60-3) for this crossing site are provided in Appendix IR1-60-1 of this response. Additional information on fish habitat at each crossing site can be found in Appendix C of the EIS.

Table IR1-60-1. Water quality data at P6b-X015 (God's River).

Water quality data	
Habitat	Run
Temperature	15.40
pH	7.68
Turbidity (NTU)	97
Specific Conductance ()	118
Dissolved Oxygen	8.86

Source: NSC, 2017

Off current macrophyte beds may serve as spawning and rearing habitat for northern pike and forage fish, while main channel areas provide foraging habitat for species such as suckers, brook trout, and walleye. Walleye and suckers may also spawn in riffles within the study area, though more suitable spawning habitat exists at rapids located 1.5 km upstream and 4 km downstream, rapids which may also be used for lake sturgeon spawning.

As described in Appendix C, Aquatic Environment – Existing Environment Report of the EIS, prepared by NSC (2017), lake sturgeon have been reported within the God's River, God's Lake, and Hayes River systems. The report notes that biological studies confirm its presence as far downstream as the Red Sucker River confluence, approximately 150 km downstream of the Project area, while Traditional Knowledge (TK) from Shamattawa First Nation extends the known range upstream to a set of rapids 4 km downstream of the P6b crossing. God's Lake First Nation and Bunibonibee Cree Nation confidential TK further indicate sturgeon presence within God's Lake and Oxford Lake, respectively (HTFC, 2017a, 2017b). The God's River crossing site is therefore the most likely potential point of interaction between the proposed Project and this species, providing foraging habitat within the crossing area and spawning habitat further downstream.

Despite this overlap, the proposed Project is not expected to result in any measurable loss, alteration, or destruction of fish habitat at this crossing location. There is an existing clear span Acrow bridge that crosses the God's River at this location for the winter road, this bridge will either be left upgraded or replaced for the proposed Project to widen the crossing. The use of a clear-

span bridge eliminates the need for instream works, preserving the flow, substrate, and structure of the riverbed. No new permanent or temporary instream structures are planned, and provided that mitigation measures are implemented, the crossing is not anticipated to require authorization by Fisheries and Oceans Canada (DFO) under the Fisheries Act. While limited and localized disturbances (e.g., riparian vegetation clearing or noise) may occur during construction, these are not expected to affect the ecological function of the aquatic habitat.

While the God's River currently supports a wide range of spawning, foraging, and rearing habitat types that are important for both common and at-risk fish species, the proposed Project's design and mitigation measures will ensure that these habitat functions will be maintained, and the amount of change in available riparian habitat before and after construction will remain minimal. Given the small area of potential disturbance, the abundance of similar habitat nearby, and the avoidance of instream activity, no measurable adverse effects to fish habitat or species productivity, including for lake sturgeon are anticipated.

Overall, the area of fish habitat currently available in the area as shown in Figure IR1-60, vastly outweighs the area of fish habitat that will be negatively impacted by the proposed Project. Once detailed design for the Project is completed, and the footprints of the crossing structures and armouring are available, an assessment of the habitat currently available at the crossing sites as compared to the amount of habitat that may be lost, altered or disturbed by the Project will be provided to DFO for review under the Fisheries Act.

b) This information could be provided following the detailed design phase, once site-specific crossing designs are finalized. However, as described in Appendix C-1 of the EIS, a risk assessment was conducted for the 25 stream crossing sites assessed as fish habitat. Installation of culverts at seven sites was assessed as low risk to fish and fish habitat, as they are not expected to contribute to a Commercial, Recreational or Aboriginal (CRA) fishery. These sites are primarily boreal wetland headwater areas with poor connectivity to downstream fish-bearing waters, and the habitat was characterized as poor quality for supporting the life requisites of CRA fishery species. The remaining 18 crossing sites, comprising 16 culvert sites, one clear span bridge, and one two-span bridge were also assessed as low risk, provided that appropriate mitigation measures are implemented. Although these sites may support large-bodied fish such as Northern Pike, the habitat is not considered critical or limiting to the fishery.

Given the remote, undisturbed nature of the existing environment, known impacts and mitigations for all-season road projects, MTI's experience with developing and maintaining road infrastructure and the results of the risk assessment, the level of mapping detail requested is not necessary at this stage of the proposed Project. The information supplied in the EIS and in responses to this and other information requests is sufficient to assess and make a determination of significance under CEAA 2012.

c) Given that beaver ponds may provide spawning and rearing habitat for some species of fish, the removal of beaver dams, drainage of beaver ponds, and relocation of nuisance beavers through MTI's Nuisance Beaver Management Program has the potential to affect fish and fish habitat.

Potential effects may include alteration in fish habitat conditions, primarily by changing flow regimes, water temperature, and dissolved oxygen levels downstream. The sudden release of water and sediment from beaver pond drainage could lead to habitat degradation, increased turbidity, and potential displacement or stranding of fish.

However, these activities are not expected to result in significant adverse effects. As described in Appendix C of the EIS, habitat at 25 stream crossing sites ranged from marginal (supporting forage fish only) to habitat supporting a greater diversity of fish species.

Eighteen of these sites were classified as marginal, typically small, poorly connected first- or second-order streams with limited flow often impounded by beaver dams. These systems are characterized by soft substrates, abundant instream vegetation, and marshy floodplains, with degraded water quality and low dissolved oxygen making them unsuitable for large-bodied fish but supporting forage fish such as brook stickleback, fathead minnow, and northern pearl dace.

Where access is less restrictive, large bodied species such as Northern Pike are expected to make use of the crossings area for spawning, rearing and foraging. This would include sites P6a-X031, P6b-X002, P6b-X003, and P6b-X009. The coarse substrate at P6a-X002 may be used by suckers and Walleye for spawning if velocities are sufficient, but the small watershed and low water levels reduce the viability of the habitat.

Due to these physical and water quality limitations, fish species are not expected to rely heavily on habitat created by beaver dams at these sites. Nonetheless, as described in response to IR1-41, removing beaver dams, draining ponds, and relocating nuisance beavers is not expected to have significant adverse effects. Beavers typically relocate to new areas with high-quality, available habitat, which is present in this Project area. If relocation is successful, habitat availability for other species that rely on beaver dams will remain unchanged. Pollock et al. (2003) note that most fish species are capable of passing beaver dams under appropriate flow conditions, and that the ecological impacts of beaver dams are highly site-specific. As such, the removal of dams in marginal, low-order streams, when properly mitigated is unlikely to cause significant long-term harm to fish populations.

The Nuisance Beaver Management Program is described in Chapter 3, Appendix 3-6 of the EIS. This plan includes mitigation measures and follows best management practices for beaver dam removal such as those identified in the Environmental Protection Procedures (EPs) and Environmental Protection Specifications (ES) available in Appendices 8-2 and 8-3 in Chapter 8 of the EIS, as well as in Appendix IR1-19-1 in the response to information request IR1-19.

- EP11 – Culvert maintenance and replacement

- When removing beaver dams and associated debris for culvert maintenance, the Contractor shall:
    - Time work to avoid harm to spawning fish, eggs, and larval fish.
    - Install effective sediment and erosion control measures before starting work. Erosion and sediment control is to be inspected regularly to ensure proper function and repaired immediately if found damaged.
    - Operate machinery from outside the water that minimizes the disturbance to the banks and bed of the watercourse.
    - Remove dam gradually to allow water to release slowly and prevent sediment at the bottom of the pond from being released downstream.
    - Not create a breach in the dam exceeding the width of the original stream.
    - Not use explosives without MTI and DFO approval.
    - Safely return any stranded fish to the main channel.
    - Stabilize any waste material above the ordinary high-water mark. Spoil piles shall be removed or contained within appropriate erosion and sediment control measures.
    - Minimize removal of riparian vegetation.
    - Re-vegetate any disturbed area.
    - Maintain erosion and sediment control until such time as the as re-vegetation is complete.

- ES 130.15.1 Working withing or near water
    - ES130.15.1.6 Whenever it is necessary to remove existing beaver dams, the Contractor shall adhere to the 130.15.10. Work plans for beaver dam removal shall be provided to the Contract Administrator 10 business days prior to the start of dam removal for application of a beaver dam removal permit from Manitoba Natural Resources and Indigenous Futures (NRIF, formerly Manitoba Sustainable Development).
    - ES130.15.10 Beaver Dam Removal
        - Beaver Dams to be removed shall be identified in consultation with and as approved by the Contract Administrator. Beaver dams may not be removed without first obtaining authorization from NRIF.
        - Removal of the dam shall not adversely affect a fishery, or recreational property uses that depend on the dam's existence, both upstream and downstream.
        - Removal activities shall be restricted to removal or breaching of the dam itself and shall not involve channel or shoreline modification downstream of the dam.
        - Beaver dam removal is not to be conducted in the winter as this may result in loss of fish habitat.
        - Whenever possible remove beaver dams by hand.
        - Remove the dam gradually to allow a slow release of water to prevent sediment release and potential flooding downstream.

- if explosives are to be used in dam removal, individual detonations shall not exceed one kilogram of explosives, diesel fuel and fertilizer are not to be used as explosives.
- Removals are not to be completed on beaver dams directly connected to a culvert or bridge.

Additionally, MTI will adhere to the DFO's Timing Windows for Avoidance of In-Water Work. With these measures in place, effects to fish and fish habitat associated with removal of beaver dams are expected to be minimal, localized, and reversible.

d) No revision of potential effects is required at this time as Chapter 6 of the EIS already includes this information. Fish passage may be limited by existing natural (e.g., beaver dams, seasonal low flows) and anthropogenic (e.g., culverts) barriers within the Project area. Beaver dams, in particular, can alter stream connectivity by blocking or slowing flow. While they may obstruct access to upstream habitat, they can also provide rearing and overwintering habitat for forage fish and juvenile stages of larger species, depending on site-specific conditions such as water depth and dissolved oxygen.

The proposed Project has been designed to minimize disruption to aquatic connectivity. As described in Chapter 6, Section 6.4.4 of the EIS, bridge and culvert design and maintenance would be in accordance with the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, DFO's Code of practices when applicable (i.e. for clear span bridges and culvert maintenance) and other measures to avoid causing harm to fish and fish habitat, EP7 (Stream Crossings), EP11 (Culvert Maintenance and Replacement), ES 130.15.5 (Stream Crossings) and ES 130.15.9 (Culvert Maintenance and Replacement). Temporary crossings will be removed following construction and restored to pre-construction conditions.

To manage risks associated with existing natural barriers, MTI will implement a Nuisance Beaver Management Program as described above. Although removal of dams may temporarily reduce habitat for some species, such effects are localized, reversible, and mitigated by the presence of similar habitat in adjacent areas, in addition to the proposed mitigation measures. Beavers are also expected to re-establish in suitable areas nearby and upstream from some crossings. Re-establishment of beaver dams downstream will be discouraged (i.e. use of beaver deceivers) as required and if reasonable.

The Project is not expected to result in a measurable reduction in the productivity or availability of fish habitat. The presence of beaver dams is a natural and dynamic component of aquatic ecosystems in the region, and MTI's adaptive management approach is expected to maintain or improve long-term connectivity in critical areas.

No revisions to the overall conclusions of the effects assessment presented in the EIS are currently required. With the implementation of mitigation measures, the Project is not expected to result in significant adverse residual or cumulative effects on fish passage or habitat.

e) Although quantitative estimates are not available, no mortality of lake sturgeon is anticipated as a result of the Project's, construction, operation, or maintenance activities with proposed mitigation measures. Potential impacts to Lake Sturgeon in the God's River are not expected at all, as a clear-span bridge is proposed for the crossing site. Clear-span bridges do not require authorization under the Fisheries Act provided measures to avoid harm are implemented, as no temporary or permanent instream destruction or alteration is expected to occur.

As mentioned in Chapter 6, Section 6.1.8.2.1 of the EIS, while lake sturgeon has been previously documented in God's River, God's Lake and Hayes River, no aquatic Species at Risk were recorded during field investigations. As described in the Aquatic Environment – Existing Environment Report in Appendix C of the EIS, biological studies have documented lake sturgeon populations in the God's River up to its confluence with the Red Sucker River, approximately 150 km downstream of the P6b project area. As mentioned above, the report notes that Traditional Knowledge from Shamattawa First Nation extends the distribution further upstream to a set of rapids 4 km downstream of the P6b God's River crossing, and that surveys within the Hayes River have found lake sturgeon upstream of the confluence with the Fox River, but not as far upstream as Knee Lake . In addition, God's Lake First Nation TK indicates the species is found within God's Lake (HTFC, 2017a). Traditional Knowledge from Bunibonibee Cree Nation report sporadic records from Oxford Lake (HTFC, 2017b).

In 2024, Manitoba Fisheries Branch released the Manitoba Lake Sturgeon Management Strategy (the Strategy) noting that the existing regulatory prohibitions on harvest are adequate to protect the Hayes River population, which includes Fox, Bigstone, Gods and Hayes rivers. As noted in the Strategy, access to spawning, larval and juvenile habitats is critical, followed by sufficient river area to support reproductively capable fish.

The likelihood of mortality of an individual sturgeon or population-level effects due to the proposed Project is considered to be negligible. Suitable habitat at the God's River crossing is considered non-limiting for the population and is primarily used for foraging rather than spawning. As mentioned in Chapter 6, Section 6.5.8.1 of the EIS, the magnitude of effect is considered minor due to limited potential for in-water effects and the limited number of locations where lake sturgeon may occur. Additionally, MTI will follow the *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters*, as well as the *Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat*, and relevant Codes of Practice where applicable. Construction details and final crossing design for the God's River crossing site will also be sent to Fisheries and Oceans Canada (DFO) for review under the Fisheries Act prior to construction.

APPENDIX IR1-60-1

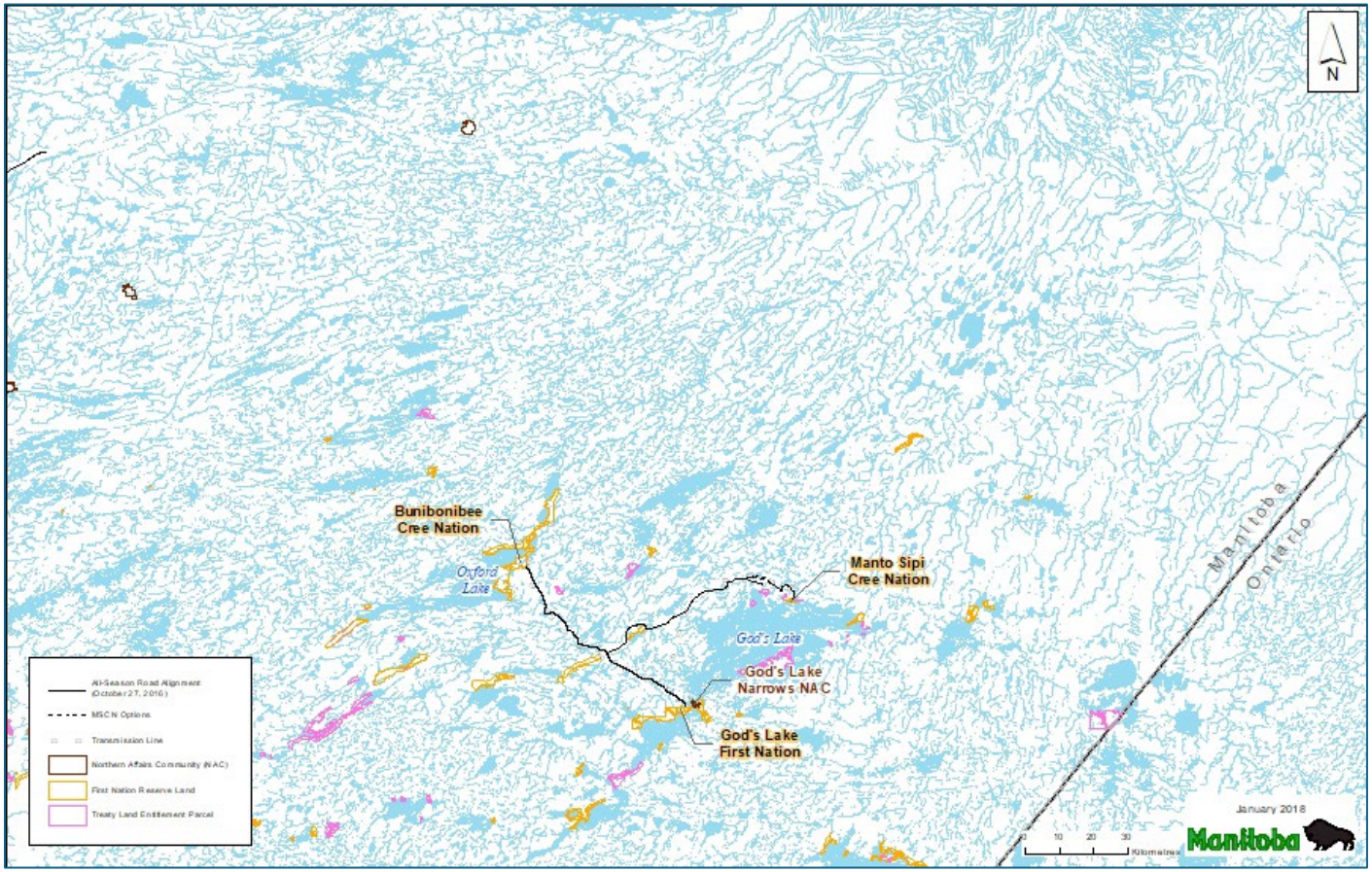


Figure IR1-60-1. Map showing abundant watercourses and waterbodies in the area surrounding the proposed Project.

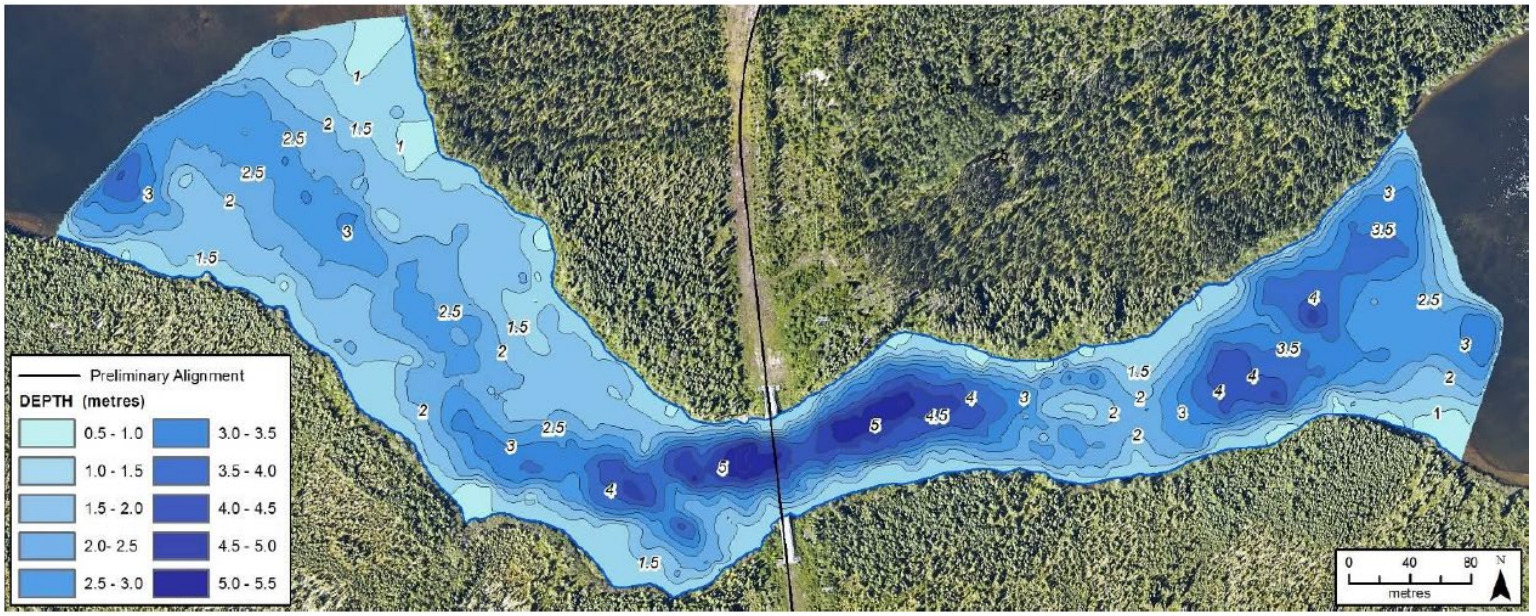


Figure IR1-60-2. Bathymetric map for crossing P6b-X015 God's River

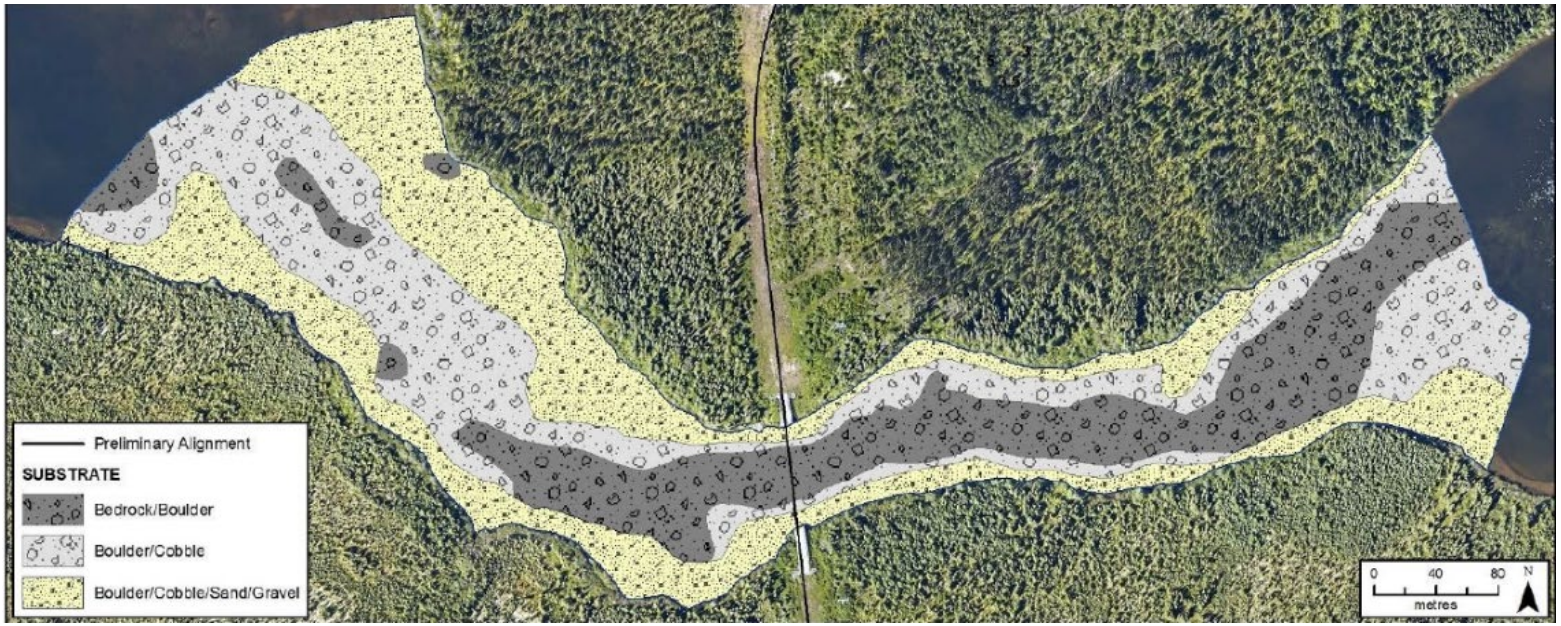


Figure IR1-60-3. Bathymetric map for crossing P6b-X015 God's River

REFERENCES

HTFC. 2017a. East Side Road Project 6. God's Lake First Nation: Traditional Knowledge Study for the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation.

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Pollock, Michael & Heim, Morgan & Werner, Danielle. 2003. Hydrologic and Geomorphic Effects of Beaver Dams and Their Influence on Influence on Fishes. Available at: (PDF) Hydrologic and Geomorphic Effects of Beaver Dams and Their Influence on Influence on Fishes

QUESTION IAAC IR1-61

EIS Guideline Reference	• Part 2, Section 5.1, 6.3.1 and 6.4
EIS Reference	• Chapter 6, Section 6.2.5, 6.3.1, 6.4.5, 6.4.6, 6.5.5, and 6.5.6 • Chapter 6, Table 6.41
Category	Fish & Fish Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent identify any potential adverse effects to fish and fish habitat, including any potential temporary or permanent habitat loss in terms of surface area and in relation to watershed availability and significance. The proponent is also required to identify any mitigation measures that will be implemented to address any potential adverse effects.

The EIS notes that there will be residual effects to fish and fish habitat from the permanent footprint of watercourse crossing structures, including bridges and culverts. Temporary construction infrastructure and activities within watercourses (e.g. cofferdam installation, excavation for culvert installation, etc.) and other activities and infrastructure below the high water mark will also create in-stream and riparian disturbance footprints. This alteration/footprint, while temporary, may result in serious harm to fish and fish habitat and is not adequately characterized in the EIS. This information is also required to assess potential Project effects to the current use of lands and resources for traditional purposes by Indigenous peoples.

Table 6.41 of the EIS describes the total habitat alteration and loss at the proposed watercourse crossings for the Project. It is unclear whether this table presents total habitat loss/alteration prior to or following the implementation of mitigation measures to limit the amount of fish habitat disturbance, and whether the estimates provided in this table include only permanent Project components and activities or permanent and temporary components and activities.

Supplementary information is required to support and assess the characterization of the total construction footprint, potential adverse effects to fish and fish habitat, and potential effects to Indigenous peoples. Additionally, this information is required to determine whether the temporary construction activities or footprint of the Project would result in harm to fish and fish habitat, in which case a DFO *Fisheries Act* authorization may be required, as well as mandatory offsetting.

INFORMATION REQUEST

a) Describe the location, footprint, and nature of all temporary construction infrastructure and activities that will or may occur near or within fish-bearing watercourses/waterbodies and any non-fish bearing waterbodies/watercourses that may contribute indirectly to fish habitat.
    i. Include the locations of all temporary construction infrastructure and activities in a figure or figure(s).
b) Clarify whether Table 6.41 presents total fish habitat loss and alteration prior to or following the implementation of mitigation measures. If the former, provide a table describing the amount of fish habitat that is expected to be lost/altered as a result of the Project following the implementation of mitigation measures.
c) Provide a table that clearly indicates the amount of habitat that will be lost/altered as a result of temporary and permanent Project components and activities, separately
d) Describe potential effects to Indigenous peoples, particularly the current use of lands and resources for traditional purposes, as a result of watercourse crossings, including any permanent and temporary components and activities, and resulting from any effects to fish and fish habitat which may be of importance to Indigenous peoples.

RESPONSE

a) Detailed information regarding the exact location, footprint, and nature of temporary components will largely be determined during the detailed design phase. As described in Chapter 3, Section 3.2.2 of the Environmental Impact Statement (EIS) during this process, bridge and stream crossing locations, quarry and borrow areas, temporary access routes, construction laydown areas and construction camps will also be located, surveyed and flagged.

The details of some construction-related activities will be determined at the construction stage by the contractor in consultation with Manitoba Transportation and Infrastructure (MTI). This can include things such as site isolation methodology, seeding timing, and blasting details. MTI generally requires the contractor to submit a plan to MTI for final approval of such activities (i.e. water control plan, blasting management plan, etc.). These plans must comply with all applicable mitigation and protection measures outlined in the EIS and associated Environmental Protection Procedures (EPs), and Environmental Specifications (ESs), which include provisions for fish habitat protection and sediment control. Contractors' plans are also required to also meet all applicable conditions of federal and provincial approvals.

Information about temporary construction infrastructure and activities is outlined in Sections 3.3 and 3.4 of the EIS, including those that will occur in or near fish habitat, such as temporary watercourse crossings and use of cofferdams for in-stream site isolation. For example, as outlined in Section 3.3.2.4 of the EIS, temporary crossings of watercourses may be required during the

construction phase within the 60 m cleared ROW. Existing roads and cut lines will be used as access to temporary crossings whenever possible. At fish-bearing watercourses, in-stream placement and removal of temporary crossing structures (if required) will be scheduled in accordance with Fisheries and Oceans Canada timing windows for in water work in Northern Manitoba to avoid serious harm to fish (Fisheries and Oceans Canada 2015a). Temporary crossing structures will be removed when no longer required and temporary crossings will be rehabilitated and revegetated using a native vegetation seed mix for boreal areas.

As outlined in Chapter 3, Sections 3.3.6, and 3.4.1.9 of the EIS, for bridge and culvert installation in fish-bearing waters, cofferdams will be used to isolate work areas to prevent sedimentation and maintain flow around the isolated areas either by diversion channels or pumps. Where cofferdams are required, silt curtains or other sediment control measures will be installed downstream to prevent sediment release. Pumps will discharge water through geofabric, straw bales, or alternate energy-dissipating devices located at least 30 m from any watercourse to reduce erosion and sedimentation. In fish-bearing waters, protection screens will be used for small water intakes following DFO's Interim code of practice where applicable. Fish salvages will be conducted within isolated areas prior to dewatering, following the procedures outlined in EP10 and ES 130.15.7.

i) Temporary in-stream and riparian construction activities will be subject to the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (Fisheries and Oceans Canada and Manitoba Natural Resources, 1996), along with DFO's Measures to Avoid Causing Harm to Fish and Fish Habitat. DFO's codes of practice will be followed where applicable. Mitigation and monitoring commitments described in the EIS and EMP will be implemented to reduce impacts, confirm predictions of impacts and effectiveness of mitigations, and respond to any unanticipated effects through additional mitigations and/or adaptive management. Where applicable, MTI will seek appropriate DFO reviews and authorizations under the Fisheries Act. While detailed location and footprint will be confirmed during detailed design, the EIS has identified known crossing locations in Appendix 3-7. Temporary construction activities and infrastructure will be managed to minimize effects on fish-bearing waterbodies and indirect contributors to fish habitat. All water crossings, whether fish-bearing or not, will be constructed in accordance with applicable regulatory guidelines to avoid adverse effects on fish, fish habitat, and Indigenous Nations' resource use.

b) Table 6.41 in Chapter 6 of the EIS presents total residual fish habitat loss and alteration following the implementation of mitigation measures. As described in the Aquatic Environment Report: Effects Assessment (Appendix C-1 of the EIS), in Section 4.4 Residual Effects, while mitigation is expected to minimize the frequency, magnitude and extent of sediment introduction into the aquatic environment during the construction phase of the Project, in-water construction activities, particularly during the installation and removal of coffer dams and silt curtains, may result in

temporary, localized effects. Habitat loss will include approximately 3,671.8 m^2 of instream and 864 m of riparian habitat. An additional 1,008 m of riparian habitat within the cleared RoW will be altered from riparian forest to low growing vegetation and 161.5 m^2 of instream habitat will be altered from rip rap placed at the base of the pier of the proposed multi-span bridge at Magill Creek. These totals are shown in Table A.2. of the Aquatic Report: Effects Assessment (Appendix C-1 of the EIS), which is essentially the same table as Table 6.41 of the EIS.

c) Detailed estimates of fish habitat loss and alteration resulting from both temporary and permanent project components have not yet been finalized. These estimates will be confirmed during the detailed design phase and subsequently shared with regulators. This information will also be included as part of the requests for DFO review under the Fisheries Act.

d) As described in Chapter 6, Section 6.3.4.1 of the EIS, land use in the Indigenous RAA consists mainly of traditional activities by Indigenous people belonging to Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Northern Affairs Community. The proposed Project has the potential to affect use of lands and resources for traditional purposes such as hunting, trapping, fishing and gathering as a result of changes in land use and increased access to previously isolated areas by both locals and non-residents. Watercourse crossings have potential to cause temporary changes in water quality (e.g., increased sedimentation and erosion) and hydrology, which could affect fish and fish habitat in localized areas and could disrupt traditional fishing activities if they coincide with key periods of use by Indigenous peoples. However, MTI will adhere to the Manitoba Stream Crossing Guidelines, applicable DFO measures to avoid serious harm to fish, and internal standards (EP7 and ES 130.15.5), which are expected to limit residual effects on fish habitat. Furthermore, the anticipated impacts due to increases in erosion and sedimentation or to changes in flow are not expected to negatively affect fish, and no significant adverse ecosystem or social effects are predicted (Chapter 6, Section 6.5.4 of the EIS).

As per Chapter 6, Section 6.4.6.6 of the EIS, temporary stream crossings would be located at straight stream sections, perpendicular to the bank and would be located at narrow channel sections to minimize crossing length. The number of temporary stream crossings constructed would be minimized. Temporary stream crossings would be removed as soon as possible following completion of the work or when it is no longer required and would be restored to its original state. Restoration would include appropriate erosion and sediment control measures and re-vegetation of disturbed areas as required.

As described in Chapter 6, Section 6.4.9 of the EIS, to minimize potential adverse effects on land and resource use, MTI would provide regular Project construction progress updates to local communities to facilitate local planning of these activities and provide opportunities for on-going input into the Project. This should minimize the potential effects of construction activities and the

interaction of these activities with the timing of traditional practices by the local Indigenous peoples. Additionally, efforts to maintain pre-existing access to fishing areas by providing for ongoing navigation of waterways during construction would minimize adverse effects on sustenance and recreational fishing success. As mentioned in Chapter 6, Section 6.4.9.2 of the EIS, mitigation measures to reduce the potential effects of the proposed Project on access to traditional travel routes include designing bridges to maintain navigability and providing an approach for users to cross the road at key culvert crossings. Appropriate signage would be installed to inform both boater and driver. MTI would provide regular Project construction progress updates to the local communities to communicate which areas along the all-season road route would be under construction, provide information on how and when travel routes would be affected and which routes would require alternative temporary rerouting.

The list of mitigation measures provided in Chapter 6, Appendix 6-4 of the EIS, to address land and resource use is not exhaustive, as many of the mitigation measures proposed to minimize effects on environmental components such as wildlife and wildlife habitat, fish and fish habitat and vegetation also protect land and resource use.

Appendix 6-5 of the EIS provides an assessment of residual environmental impacts to Indigenous peoples' use of lands and resources, which specifically assessed the impacts of a reduction in food supply as a result of the identified effects on fish and fish habitat from construction, operation, and maintenance activities. After application of proposed mitigation measures, the residual effects were found to be not significant. Project effects on fish and fish habitat would be sporadic during construction and maintenance activities at watercourse crossings and the new all-season road may open up new harvesting areas which would be positive for local Indigenous communities (Chapter 6, Section 6.5.9.1.2 of the EIS).

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-62

EIS Guideline Reference	• Guidelines Part 2, Section 6.3.1
EIS Reference	• Section 1.2.2 • Section 6.3.1.6, 6.4, and 6.5.6.6 • Chapter 6, Table 6.41 • Appendix C-1 and C-2
Category	Fish & Fish Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe any potential adverse effects to fish and fish habitat as defined in subsection 2(1) of the Fisheries Act, including calculations of any potential temporary or permanent habitat loss in terms of surface areas and in relation to watershed availability and significance. This includes potential effects on riparian areas that could affect aquatic biological resources and productivity taking into account any anticipated modifications to fish habitat.

The EIS notes that riprap installed to armour culvert inlets and outlets will create a positive effect by increasing habitat diversity and productivity in areas where riprap does not create a complete infill. The EIS does not address the issue that, while riprap may be beneficial to certain fish species by providing additional habitat, not all species of fish have the same habitat requirements. As such, a benefit to one species from the installation of riprap could equate to an adverse effect to another species that may utilize the habitat currently present but could no longer use it following alteration.

The EIS describes the amount of in-stream and riparian fish habitat that may be lost or altered from crossing footprints and road approaches for all crossings over watercourses/waterbodies that support fish habitat (Table 6.41). In terms of riparian habitat loss for each crossing, the EIS consistently reports losses of 36 square metres (m^2) for each crossing, noting that riparian habitat loss and alteration were calculated as the width of the roadbed on each bank and the 60 metre cleared right of way on each bank, respectively. However, the EIS also notes that riparian habitat width conditions vary at each Project crossing (Appendix C-1). For example, at watercourse crossing P6a-X002, the average surveyed riparian width at the crossing is between 30 and 35 metres on the right and left banks, respectively. This width was not considered in the estimated riparian loss value presented for the watercourse crossings in Table 6.41.

While the EIS describes potential effects to fish habitat during construction, it is unclear whether effects to fish habitat may result during maintenance activities, and if so what those effects would be and their significance. MI should discuss with DFO if permitting is required for proposed maintenance activities. Additionally, in the residual effects assessment for potential Project effects to fish habitat during construction, the EIS concludes that the effect of habitat loss and alteration is reversible over a long period. However, as there are no plans to decommission the ASR and other permanent Project components, it is unclear how the proponent concluded that effects to fish habitat would be reversible.

Supplementary information is required to support the characterization of potential Project effects to fish and fish habitat and to determine whether further mitigation may be required.

INFORMATION REQUEST

a) Recalculate the estimates of potential habitat loss and alteration presented in Table 6.41 to be consistent with the description of the baseline amount of riparian and in-stream habitat for watercourse crossings provided in Appendix C-1.
b) Provide a rationale to support the conclusion that installation of riprap for culvert armouring would create a positive effect by increasing the diversity of fish habitat and productivity. Include consideration of the fact that not all fish species utilize the same habitats and that alterations creating one type of habitat may have a detrimental effect on another fish species that may have utilized the habitat prior to disturbance.
    i. Clearly list and explain which fish species may potentially benefit from the addition of riprap for culvert armouring and which species may experience adverse effects.
    ii. Describe post-construction monitoring and follow-up activities that will be undertaken to confirm predictions with respect to potential benefits and adverse effects to fish from culvert armouring.
    iii. Describe contingency measures that will be implemented should monitoring indicate that riprap is not resulting in positive habitat effects or is resulting in unanticipated adverse effects.
c) Revise the assessment of potential Project effects, residual effects, and cumulative effects for fish and fish habitat to:
    i. include the revised estimates for potential habitat loss/alteration;
    ii. include fish habitat loss/alteration due to culvert armouring, including consideration that habitat alteration may have both positive and negative effects, depending on the species;
    iii. include fish habitat loss/alteration during Project maintenance; and
    iv. account for the fact that fish habitat loss/alteration would not be reversible given that there are no plans to decommission the ASR and other permanent Project components.

d) Describe measures that will be implemented to mitigate any adverse effects identified in c) and follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.

RESPONSE

a) The estimates of instream habitat alteration and of riparian habitat loss and alteration, as presented in Table 6.41 of the Environmental Impact Statement (EIS), are not consistent with the baseline riparian and instream habitat measures provided in the Aquatic Environment Report: Existing Environment (Appendix C-1) because they are based on a couple of assumptions, the explanations of which follow for each category of impact.

Riparian Habitat Loss and Alteration Calculations

The estimates of riparian habitat loss and alteration as presented in Table 6.41 of the EIS are shown to be the same for each of those watercourses to which riparian impacts applied (i.e. 36 m^2 of riparian loss at 24 of the 25 watercourses, and 84 m^2 of riparian alteration at 12 of the 25 watercourses).

The riparian loss and alteration areas are uniform because they are based on the standard road width of 18 m for the length of riparian loss, and the standard right of way (ROW) width (less the road width) of 42 m for the length of riparian alteration, times a standard 1 m width of riparian vegetation above the ordinary high water (OHW) level, multiplied by both sides of the watercourse (Figure IR1-62-1).

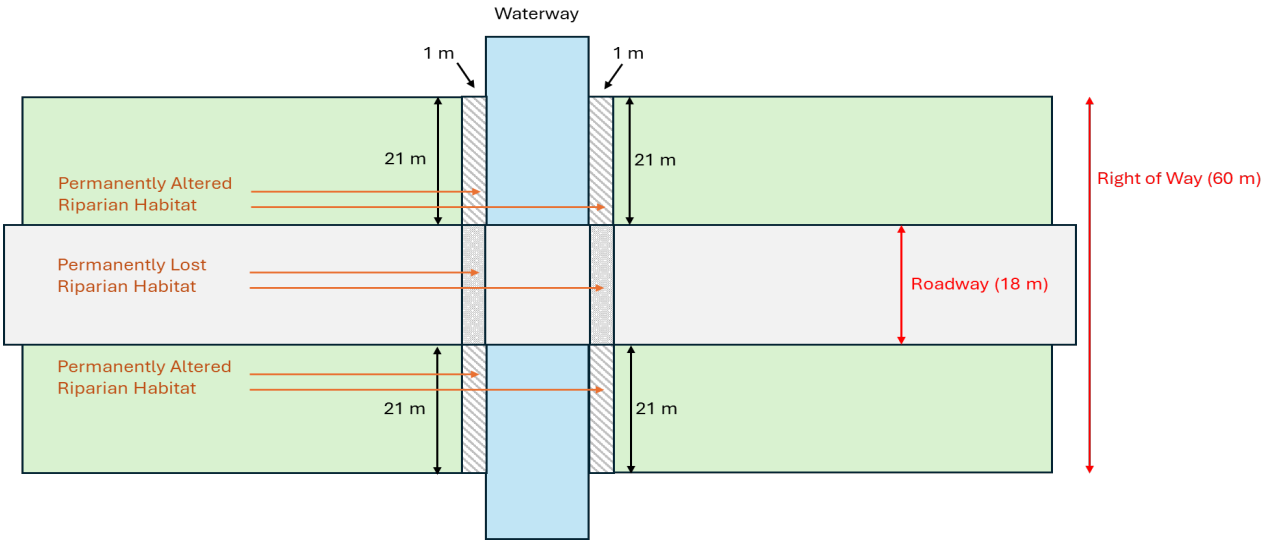


Figure IR1-62-1. Schematic plan view of watercourse crossing showing riparian loss and alteration areas.

While Appendix C-1 does provide a baseline measure of riparian distance (m) for both banks of each watercourse crossing, only the first metre of riparian vegetation above the OHW was deemed to provide direct benefits to fish (in the form of insects, woody debris, leaves, nutrients, and shade) which would be lost or reduced as a result of the project, while in-direct riparian benefits (such as bank stability and buffering against sediment-laden or deleterious run-off) that are provided by the riparian width beyond 1 m would continue to be provided by the road structure itself and its vegetated ditches, and would therefore not be lost or reduced as a result of the project.

Instream Habitat Alteration Calculation

Table 6.41 of the EIS only provides an estimate of instream alteration for the bridge crossing sites at Magill Creek and God's River. Instream habitat at God's River has been previously disturbed by the existing crossing, so the proposed crossing is not expected to cause any additional impacts and therefore the habitat alteration is reported as zero. At Magill Creek, the large rip rap armouring around the proposed bridge pier was deemed to be a harmful alteration of instream habitat, and the footprint of the pier was deemed to be a loss of instream habitat, with area estimates provided for both. Neither of these estimates are therefore related to the baseline measures of instream habitat provided in Appendix C-1.

All other instances of instream armouring below the OHW at culvert crossings are not considered to be harmful alterations of instream habitat due to the habitat diversity and potential productivity provided to these small headwater streams (see answer to b i. below). Any habitat losses due to rock armouring extending above the OHW (i.e. infills) are included in the crossing footprints. Habitat loss estimates are consistent with the information provided in Appendix C-1 for baseline measures of instream habitat for each watercourse crossing, as they are calculated based on the proposed length of the crossing and channel width at the crossing.

b) While not all fish species utilize the same habitats, and alterations creating one type of habitat may have adverse effects on some species while benefiting others, riprap is proposed to be installed below the Ordinary High-Water Mark (OHWM) in a way that it will not fill the entire channel or eliminate pre-existing flow patterns or habitat types. Rather, the riprap will be placed to armor culvert inlets and outlets to mitigate risks of erosion, subsequent culvert blowouts, and downstream sedimentation without significantly altering flow or displacing critical spawning areas.

Studies have shown that if riprap is applied with consideration to habitat features, such as establishing or maintaining interstitial spaces or incorporating vegetation, it can provide shelter and spawning habitat for fish, reduce erosion, and support key ecosystem functions (Fischenich, 2003). Similarly, it can mimic natural substrate and support benthic macroinvertebrate production, which is a critical food source for many fish species (Fischenich, 2003). Other research has shown that in degraded systems or areas with unstable banks, riprap installations may increase habitat complexity and offer rearing habitat for juvenile fish, especially by protecting them from high flows (Quigley and Harper, 2004). Watkinson et al. (2004) found the abundance of fish that feed primarily

on benthic invertebrates to be higher on riprapped riverbank sites than on natural, unmodified riverbank sites.

While some species, such as Northern Pike and Yellow Perch, prefer vegetated margins or soft-bottom areas for spawning or rearing, riprap at culvert sites is not expected to overlap with these habitat types extensively, and the habitats are not limiting. Therefore, installation of riprap is unlikely to result in measurable effects to fish and/ or fish habitat. As described in the Aquatic Environment Report; Existing Environment (Appendix C-2 of the EIS), 28 of the 53 sites were assessed as not being fish habitat based on absence of a channel at the crossing and/or connectivity to downstream fish bearing waterbodies. Of the 25 sites that were assessed as being fish habitat, 18 were assessed as marginal habitat. Of the marginal sites, seven were assessed as poorly connected headwater sites that do not contribute to a fishery, seven were assessed as unsuitable habitat for large bodied species due to poor overwintering conditions and restricted access, and only four were found suitable for pike, although one of those (P6a-X002) already has abundant coarse substrates. Therefore, installation of riprap at most of the culvert sites is unlikely to result in measurable effects to fish and fish habitat. The seven remaining crossing sites were assessed as being important fish habitat. Of the important habitat sites, two will be crossed by bridges, where substrates will mostly be untouched, and one already has coarse substrate material, leaving only four where pike may be found.

i. Fish species that may benefit from the installation of riprap at culvert sites include forage fish such as minnow species which utilize interstitial spaces for cover and may benefit from increased benthic invertebrate production and algae as a food source. Fathead minnows and Johnny darters will spawn on the underside of rocks, while northern pearl dace spawn on sand and gravel substrates. In larger streams with better connectivity, species such as white sucker may also find localized benefits from coarse substrates, such as increased availability of food resources and suitable spawning sites. Conversely, species such as northern pike, yellow perch, and brook stickleback, which prefer vegetated areas or soft-bottom habitats, may not benefit if riprap were to replace their preferred habitats. However, as described in Appendix C-1, the majority of the culvert crossing sites are typically small, poorly connected headwater streams where such habitat features are either limited or absent. Additionally, the 23 culvert crossings were classified as low risk, and the net habitat change assessment in Appendix C-2 did consider habitat alterations due to riprap.

ii. In order to assess the effects of construction on the aquatic environment, MTI committed to developing an Aquatic Effects Monitoring Plan (AEMP) prior to construction and in concert with local liaison committees and appropriate federal and provincial departments to meet regulatory obligations (Chapter 8.6.1 of the EIS). MTI will discuss the inclusion of monitoring to confirm predictions with respect to the potential benefits and adverse effects to fish from culvert armouring in the AEMP.

iii. As mentioned above, no adverse effects are expected from riprap installation, as it will be placed below the Ordinary High Water Mark (OHWM) and will not eliminate pre-existing flow patterns or habitat types up and downstream of the watercourse crossings. Additionally, the culvert sites where riprap will be used are generally small streams with limited habitat for larger fish species. However, even at sites that provide suitable habitat for fish species such as northern pike, no measurable impact is expected to fish populations due to the small area of impact and abundance of similar habitat within the system (Appendix C-1, EIS). The implementation of mitigation measures though the CPEMP and OPEMP will further reduce adverse effects.

However, if inspections or monitoring indicate that the installation of riprap is having adverse effects to fish at the crossing sites then adaptive management measures could be implemented, if required. Examples of measures that could be considered at armoured sites include adjusting riprap to improve flow or habitat function, adding smaller rock to armoured areas to provide better spawning substrate for certain species and prevent smaller fish from being trapped between large rocks, adding riparian or aquatic vegetation in armoured areas to improve in-stream cover, or adding woody material to increase habitat diversity. The nature of contingency measures would necessarily depend on the nature of improvement needed.

c)

i. As outlined in the response to question a) above, MTI does not believe it necessary to revise the estimates for habitat loss or alteration shown in Table 6.41at this time as they are based on the best available information and consideration of impacts following preliminary design of the proposed Project. Once detailed design has been completed for the Project, MTI will reassess the Project effects based on final footprints for structures and activities in or near fish habitat and will submit the results to DFO for review under the Fisheries Act.

ii. No revisions to the assessment of fish habitat loss/ alteration due to culvert armouring are required at this time. While riprap may alter habitat characteristics, this alteration is expected to be neutral or beneficial for species present (primarily forage fish). Habitat at these sites is not considered limiting, and the addition of rocky substrates may support increased cover and food production. Therefore, no revision to fish habitat loss or alteration estimates is required due to culvert armouring.

iii. Manitoba Transportation and Infrastructure (MTI) does not anticipate fish habitat loss or alteration resulting from routine Project maintenance, such as debris removal or culvert

replacement, as impacts can usually be mitigated through standard best management practices. Maintenance activities will follow the Environmental Protection Procedures (EPs) included in Chapter 8 (EP11- Culvert Maintenance and Replacement), along with the Department of Fisheries and Oceans Canada (DFO) *Code of Practice for Culvert Maintenance* to avoid in-water impacts. If maintenance work in or near water that may result in serious harm to fish (i.e., a HADD) is required after the Project has been completed and is operational, MTI will submit site-specific applications for review and authorization under the Fisheries Act. The application for authorization would include details on proposed works, site conditions, HADD estimates, and offsetting measures.

iv. As the proposed Project is not planned to be decommissioned, fish habitat loss from culvert installations or other permanent components that create an infill would be considered irreversible and these have been included in the accounting of fish habitat impacts. Fish habitat alterations, however, can be reversed or at least reduced over time. An example of this would be riparian alteration due to ROW clearing; as vegetation regrows along the edge of the watercourse, the riparian functions largely return. Regardless, MTI has included these alterations in the calculations of fish habitat impacts due to the lag time for re-establishment.

d) As mentioned above, no revisions to the assessment of adverse effects for fish and fish habitat are required at this time. The mitigation measures outlined in the EIS remain applicable, including the Environmental Protection Procedures (EPs) (Chapter 8, Appendix 8-2 of the EIS), Environmental Protection Specifications (ES 130s) (Chapter 8, Appendix 8-3 of the EIS). Additionally, MTI will adhere to Manitoba Stream Crossing Guidelines for Protection of Fish and Fish Habitat, DFO's Codes of Practice where applicable and other DFO measures to avoid causing harm to fish and fish habitat.

As noted in Chapter 9 of the EIS, inspection is the organized and routine examination or evaluation of a construction project or activity. Inspection results will be compared to pre-defined requirements and/or standards to determine whether an activity conforms to these. Environmental inspection will provide an essential function in environmental protection and implementation of mitigation measures. The follow-up program will include a comprehensive and integrated inspection program to facilitate effective implementation of environmental protection measures and compliance with regulatory approvals.

Inspectors will visit work sites and inspect for compliance with license and permit(s) terms and conditions and adherence to the Environmental Protection Specifications (ES 130s) and the Environmental Protection Procedures (EPs) described in Chapter 8. Environmental inspectors will interact with contractors and MTI Project Manager (i.e. pre-construction meeting, daily

discussions). Inspection activities will be recorded daily with non-compliance reported to MTI and the contractor. Inspection activities will be documented, and inspection documents will be submitted to the MTI Project Manager and Construction Supervisor. Monthly summary reports will also be submitted to the MTI Project Manager and senior management. MTI will report results to regulatory authorities and will notify regulatory authorities of emergency situations.

Appropriate environmental monitoring plans for the aquatic and terrestrial environments will be developed through discussion with regulators and local Indigenous communities. The monitoring plans will be shared with community liaison committees and appropriate federal and provincial authorities for their review and comment. Additional monitoring or adjustments to the plans will be made in consideration of the responses received. The communication mechanisms with local Indigenous communities, stakeholders and regulatory authorities are outlined in Section 9.4 of the EIS.

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QUESTION IAAC IR1-63

EIS Guideline Reference	• Part 2, Section 6.3.1 and 6.6.2
EIS Reference	• Chapter 6, Section 6.3.1
Category	Fish & Fish Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require that the proponent describe potential geomorphological changes and their effects on hydrodynamic conditions and fish habitat, as well as potential effects of modifications of hydrological and hydrometric conditions on fish habitat and on fish species' life cycle activities. The EIS Guidelines also require the proponent to describe how local conditions and natural hazards, such as severe and/or extreme weather conditions and external events, could adversely affect the Project and how this in turn could result in effects to the environment. This must include a discussion of longer-term effects of climate change.

The EIS indicates that Project construction and operation could result in adverse effects to fish and fish habitat due to altered flow regimes and changes to the geomorphology of waterways, and includes general descriptions of the baseline geomorphology of watercourses/waterbodies where crossings may be required. The EIS is lacking an assessment of how specific Project components, including culverts, bridges, and associated road fill and abutments, will alter local geomorphology and flow, and related effects to fish and fish habitat. Although the proponent commits to conducting hydraulic and geotechnical investigations prior to construction to finalize crossing locations and determine site hydraulics and foundation conditions at watercourse crossings, potential Project effects to natural channel processes based on the anticipated type and size of culverts should be described and assessed.

Additionally, the EIS does not describe the potential for periodic and/or climate change-induced precipitation, snowmelt, or ice breakup to generate flooding or ice jams, which may, in combination with Project effects to geomorphology and flow regimes, act to imperil the road and watercourse crossing infrastructure, or may require design modifications to minimize the likelihood of ice scour, ice jams, or increased erosion potential. Site specific baseline data, predictive modeling, and detailed design for the bridge crossings at Gods River and Magill Creek are also absent from the EIS; this information is required to assess potential Project effects at these specific crossing locations, including potential effects to fishing, navigation, ice formation, and site erosion.

While the EIS describes potential mitigation measures to address adverse effects to fish and fish habitat from potential blockage or reduction of fish passage from bridge and culvert installation, these measures are not site or species specific. Further, no information is provided regarding how the effectiveness of mitigation measures employed will be monitored during construction and operation of the Project.

Supplementary information is required to support the characterization of potential Project effects to the geomorphology of waterbodies/watercourses where crossings may be required, which may adversely affect fish and fish habitat and the ability of Indigenous peoples to practice traditional use activities. This information is also required to determine whether site-specific mitigation measures may be required.

INFORMATION REQUEST

a) In the absence of detailed design, provide predictions of potential alterations to flow regimes and geomorphology for all watercourse crossings that may result from the possible bridge and culvert design choices available to MI.
    i. Based on the results of this analysis, describe potential effects to fish and fish habitat as a result of changes to flow regimes and geomorphology of watercourses.
b) Describe the minimum setback distance to be used for bridge abutments at Magill Creek and God's River. Assess the potential for adverse effects to fish and fish habitat due to potential constriction of flow, scouring, erosion, and sedimentation effects that may occur from culverts, bridges, and associated road fill and abutments.
c) Assess the potential for periodic and/or climate change-induced precipitation, snowmelt, or ice breakup to generate significant flooding or ice jams. Describe how this may act cumulatively with Project effects to geomorphology and flow regimes to imperil the road and watercourse crossing infrastructure, and describe design modifications that may be required to minimize the likelihood of ice scour, ice jams, or increased erosion potential.
    i. Based on the results of this assessment, describe potential effects to fish and fish habitat and the ability of Indigenous peoples to practice traditional use activities as a result of ice scour, ice jams, or increased erosion potential.
d) For the watercourse crossing locations described as important for fish habitat, describe measures that will be implemented to mitigate potential adverse effects to fish passage, including consideration of both site and species specific factors.
e) Describe how the effectiveness of mitigation measures will be monitored during construction, and how successful implementation of these mitigation measures will be verified through monitoring programs during operation of the Project.

RESPONSE

a) As outlined in Chapter 3, Section 3.3.2 of the Environmental Impact Statement (EIS), Manitoba Transportation and Infrastructure (MTI), will adhere to standardized hydraulic and structural design criteria to mitigate impacts to flow and geomorphology. Culvert and bridge crossings will be designed to maintain natural drainage patterns, avoid erosion, and maintain habitat connectivity.

At fish-bearing watercourses, culvert crossings will be constructed using either corrugated steel pipe culverts or box culverts with minimum culvert diameters of 900 mm. As described in Chapter 3, Section 3.3.2.2 of the EIS, hydraulic criteria ensure a maximum head loss of 0.3 m during passage of the design discharge (1% Flood). Velocities through culverts shall be less than 1.0 m/s for the 2-year, the 3DQ10 and the 100-year return periods event for culverts less than 25 m in length and 0.8 m/s for culverts greater than 25 m in length in accordance with the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (Fisheries and Oceans Canada & Manitoba Natural Resources,1996).

Culverts will also be installed at 28 non-fish-bearing watercourse crossings (NSC, 2017a, b). The minimum culvert size is 900 mm. An estimated 429 equalization culverts will be installed along the road to maintain hydraulic functioning of the local landscape.

For bridges, the general design criteria and assumptions will be in accordance with American Association of State Highway and Transportation Officials – Load and Resistance Factor Design Bridge Design. Specifications (Latest Edition) as required by the Government of Manitoba. Additionally, the structure designs will comply with the MTI Structures Design Manual and the following live loading requirements: Modified HSS40 Truck Loading, HS40 Lane Loading, HL-93 Combined Truck and Lane Loading (Chapter 3, Section 3.3.2.2 EIS). Representative watercourse crossing design drawings can be found in Chapter 3, Appendix 3-2 of the EIS.

For the God's River crossing, there are currently three options, as described in Chapter 3, Section 3.3.2 of the EIS, which include no change to the existing bridge, upgrade the existing clear span bridge to make it wider, or replace the existing bridge with a two-span bridge having one in water pier. Clear-span bridges do not require review by DFO provided measures to avoid causing harm are implemented (Fisheries and Oceans Canada, 2015), as no temporary or permanent instream destruction or alteration is expected to occur. If the two-span bridge option is selected, DFO review would be required and, depending on the footprint size of the in-water pier, authorization under the *Fisheries Act* may be required.

Additionally, as mentioned in Chapter 6, Section 6.4.4.1.1 of the EIS, measures to prevent effects to surface water drainage and flow patterns, bridges and culverts at watercourse crossings and equalization culverts would be designed to accommodate 1:50 year flood events and downstream flows would be maintained at all times during construction. Regular culvert maintenance and cleanouts would also be required to limit the potential of blockage and subsequent flow restriction. Bridge and culvert design and maintenance would be in accordance with the Manitoba Stream

Crossing Guidelines for the Protection of Fish and Fish Habitat, DFO's measures to avoid causing harm to fish and fish habitat, EP7 (Stream Crossings), EP11 (Culvert Maintenance and Replacement), ES 130.15.5 (Stream Crossings) and ES 130.15.9 (Culvert Maintenance and Replacement).

> i) Given the above measures, no significant changes to flow regimes or geomorphology are anticipated at watercourses crossings. The implementation of design standards, along with the adherence to fish passage requirements, are expected to prevent adverse effects to fish and fish habitat.

b) Potential effects to fish and fish habitat resulting from construction of culverts, bridges, and associated road fill and abutments have already been assessed in the EIS, as part of the overall effects from watercourse crossings, its construction and maintenance. These effects are presented in Appendix 7-1 of the EIS, and summarized in Appendix IR1-63-1 of this response.

Detailed setback distances have not yet been finalized but will be provided once the detailed design phase is completed. However, final placement of abutments at Magill Creek and God's River will follow MTI's standard design practices and relevant provincial setback guidelines to minimize effects and preserve riparian and aquatic habitat.

Once the detailed design is available, impacts to fish and fish habitat will be reconfirmed and any changes to conclusions regarding the level of impacts will be shared with DFO for assessment at the regulatory phase.

c) The design of all provincial hydraulic structures including road crossings in Manitoba are based on flood-discharge or flood-level frequency, either modeled from rainfall IDF value or derived from recorded/modeled peak discharge/level at a gauging station. In establishment of a flood frequency curve, the general principle is to gather peak flow records spanning as long a period as possible so that its periodic cycle (wet, dry, and mixed) can all be captured. Flood frequency curves are established for existing conditions of water control structures and operation rules if the watercourse is regulated. The land cover of the study basin is mainly natural woodland, so cumulative impacts from human-induced land use changes can be negated.

A changing climate can undermine the assumption of stationarity in flood frequency analysis and then affect the design flow of a hydraulic structure, especially when the design life expectancy of the road crossing is around 30-50 years. In Manitoba, hydrological observations reveal that since the 1990s there are signs of climate change impacts on hydrological processes in some of the river basins, such as an increase of multi-day rainstorm events and rainfall-driven extreme floods.

However, no tangible trend is observed for recorded peak flows at gauging stations in the study area to detect an impact of climate change. Though in late May 2017, an unprecedented flood occurred on many waterways from Gillam to Churchill, located at north of the study area, resulting in 19 washouts and damages to many railway crossings. The peak discharges from various waterways generated from the 2017 flood were identical to those from a 1983 flood in the same region.

At present, MTI does not incorporate projected flow under future climate scenarios in flood frequency analysis, due to lack of data in the northern region of Manitoba and uncertainties in projected future climate scenarios. However, to mitigate potential risks of the re-occurrence of extreme flood event during the life expectancy of a hydraulic structure, historic maximum peak flow should be used for bridge design if the historic peak discharge is greater than the discharge under design return period. In addition, to reduce the risk of erosion under heavy summer rainstorms, hydraulic design of some of the critical crossings will consider unsteady flow conditions with a rainfall-runoff hydrograph as input. These are examples of design modifications to prevent erosion and flood damage to the structures.

For watercourses in the northern region of Manitoba, it is likely that under a given return period the ice-affected flood level could be higher than that from open water. Impacts from ice scour and ice jams will certainly be considered in the design of the stream crossings and roads, and risk factors will be applied if an extreme high ice-affected flood level is found from the recorded levels at nearby gauging stations. In some cases, Monte-Carlo simulation will be used to simulate ice jam levels under various scenarios, so that a more desirable ice-affected flood-level frequency curve can be derived when observed ice level is inadequate.

i) Based on its precautionary approach to designing watercourse crossing structures as described above, MTI does not anticipate negative impacts to fish and fish habitat, or to the ability of Indigenous peoples to practice traditional use activities, as a result of ice scour, ice jams, or increased erosion potential. Detailed designs of the watercourse crossings will be submitted to DFO for review under the FIsheries Act.

d) As described in Appendix 7-1 of the EIS, measures to mitigate potential adverse effects to fish passage include:

- Bridges and culverts at watercourse crossings will accommodate 1:50 year flood events,
- Regular culvert maintenance and cleanouts (Culvert Maintenance and Replacement EP11 and ES 130.15.9), and
- Adherence to Manitoba Stream Crossing Guidelines for Protection of Fish and Fish Habitat, DFO’s measures to avoid causing harm to fish and fish habitat including aquatic species at risk, and EP7 (Stream Crossings), EP9 (Fish Passage), ES 130.15.5 (Stream Crossings) and ES 130.15.6 (Base Flow, Diversions and Fish Passage).

Culvert crossings at fish-bearing watercourses will be sized to meet fish passage velocities, As described in Chapter 3, Section 3.3.2.2 of the EIS, hydraulic criteria ensure a maximum head loss of 0.3 m during passage of the design discharge (1% Flood). Velocities through culverts shall be less than 1.0 m/s for the 2-year, the 3DQ10 and the 100-year return periods event for culverts less than 25 m in length and 0.8 m/s for culverts greater than 25 m in length in accordance with the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (Fisheries and Oceans Canada & Manitoba Natural Resources,1996). Culverts at crossing sites known to support large-bodied fish species will be sized to accommodate the swimming abilities of spawning-sized Northern Pike in order to provide passage for the greatest variety of fish species.

However, if unanticipated adverse effects are documented, impacts to fish and fish habitat, including impacts to fish passage, would be addressed and offset through the *Fisheries Act* Authorization process. For instance, as part of the Project 1 (Provincial Road 304 to Berens River First Nation), a fish passage and offsetting monitoring plan was developedat six streams within the ASR project area which involved the construction of new off-channel spawning habitat (spurs) and enhancement of existing habitat through the construction of spawning shoals (NSC, 2021). These projects provided spawning habitat for several fish species including walleye, sucker, northern pike, etc. Additionally, monitoring was conducted where culverts were installed to ensure fish passage beneath the ASR and to identify any possible obstructions (NSC, 2021). While the proposed mitigation measures are expected to prevent adverse effects, these examples from Project 1 illustrate effective offsetting strategies that can be adapted for P6 if required.

e) The effectiveness of mitigation measures will be monitored with the implementation of the Project Environmental Management Plan (EMP), which provides an overall management framework to address potential effects associated with the Project and is described in detail in Chapter 8 of the EIS. The EMP will include the Construction Phase Environmental Management Plan (CPEMP), and the Operation Phase Environmental Management Plan (OPEMP), which are described as part of the response to IR1-73. Monitoring and follow-up plans will be included in both the CPEMP and OPEMP.

Additionally, the EMP will include an Aquatic Environment Monitoring Plan (AEMP), that will be developed prior to construction, to verify predictions regarding potential effects on water quality, fish populations, fish passage, fish habitat offsetting, and bank stabilization. The plan will assess the effectiveness of mitigation measures and identify any unanticipated impacts, ensuring that project-related activities do not cause significant harm to aquatic ecosystems. The AEMP will be developed in concert with Local Liaison Committees and with appropriate federal and provincial government departments to meet regulatory requirements.

Monitoring will involve a combination of baseline studies, ongoing assessments during construction, and long-term post-construction evaluations. Overall, monitoring activities will be designed to:

- Verify environmental effects predictions made during the engineering design and environmental assessment of the Project.
- Provide data with which to evaluate the effectiveness of mitigation measures undertaken.
- Provide data with which to implement adaptive management measures for improving future environmental protection activities.
- Document the development and use of adaptive measures to improve future environmental protection activities.
- Document compliance with required conditions as stipulated in regulator permits, authorization and MTI guidance documents.

Water quality monitoring will be undertaken in accordance with EP24 (Water Quality Monitoring), where Total Suspended Solids (TSS) and turbidity will be monitored. Data collected at downstream sites will be compared to data collected at upstream reference sites (background conditions) and compared to the Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOGs) for the protection of aquatic life. As mentioned in response to IR1-31, MTI plans to adhere to the guidance provided in Alberta's Turbidity Monitoring for In-stream Construction Activities (Government of Alberta, 2022). Where monitoring results demonstrate changes above either MWQSOGs or the Canadian Water Quality Guidelines for the Protection of Aquatic Life, the activity shall cease until effective mitigative measures are taken, and two consecutive sampling evens indicate that TSS has returned to acceptable background levels. Where an isolated work area is being dewatered, and discharge exceeds guidelines, mitigative measures may include diverting discharged water to splash pads or settling ponds prior to water re-entering a watercourse, or to an area where the water will not run back into the watercourse. The spatial extent and intensity of water quality monitoring during in-water works shall depend upon the presence and velocity of stream flow at the time of construction, and/or regulatory requirements. Additionally, parameters such as suspended sediment, turbidity, pH, dissolved oxygen, and total suspended solids will be monitored.

Fish passage will be evaluated through hydrological assessments, visual inspections, and tracking surveys to confirm that culverts and stream crossings do not impede fish movement. Habitat offsetting and bank stabilization monitoring will assess the success of mitigation efforts by tracking vegetation growth, habitat use by fish, and the stability of restored areas through annual surveys. If monitoring results indicate ineffective mitigation, adaptive management strategies will be implemented to improve mitigation measures. The monitoring period is expected to last approximately 5 years, similar to other monitoring plans prepared for the Project, or as required by regulators.

Monitoring locations will be selected based on the presence of fish-bearing waters, and other sensitive areas identified in the EIS. Annual monitoring reports summarizing activities results will be developed and provided to the Impact Assessment Agency of Canada and Indigenous Nations

(Manto Sipi Cree Nation, Bunibonibee Cree Nation and God’s Lake First Nation). At the completion of the monitoring program, annual reports will be summarized into one final Aquatic Environment Monitoring Report.

APPENDIX IR1-63-1. Selection of Appendix 7-1 from the Project 6 Environmental Impact Statement: Environmental assessment summary table showing the assessment of residual effects to fish and fish habitat

System / VC / Feature	Area of Federal Jurisdiction	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
						Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Fish and Fish Habitat													
Fish and Fish Habitat	5 (1) (a) (i)	Temporary construction crossings and permanent watercourse crossings	Blockage or reduction in fish passage and disruption of spawning	• Bridges and culverts at watercourse crossings will accommodate 1:50 year flood events • Regular culvert maintenance and cleanouts (EP11 and ES 130.15.9) • Adhere to Manitoba Stream Crossing Guidelines for • Protection of Fish and Fish Habitat, DFO's measures to avoid causing harm to fish and fish habitat including aquatic species at risk, EP7, EP9, ES 130.15.5 and ES 130.15.6	Blockage or reduction in fish passage and disruption of spawning	Long-Term, life of Project	No measurable reduction to fish communities and populations	Critical life stages would be avoided	Localized to crossings within Project Footprint	Infrequent	Readily reversible	Moderate ecosystem effect	Not Significant
						Level III	Level I	Level I	Level I	Level I	Level I	Level II	
		Disturbed banks, right-of way runoff and in-stream works during construction and maintenance of watercourse crossings	The increased presence of external people and the potential introduction of drugs and alcohol	• Minimize clearing and soil disturbance • Install erosion and sediment control measures (EP16 and ES 130.16, ex: silt fencing, erosion control blanket, straw wattle, geotextile) • Preserve vegetation buffers at watercourses (ES 130.15.1) • Suspend construction activities during extreme weather events • Energy dissipation controls (ex: ditching, rip-rap, collection ponds) • Reclamation and re-vegetation of disturbed areas adhere to DFO timing windows for in-stream work (EP6, EP7,EP11, and ES 130.15.2) • Isolate in-stream construction areas with fish salvage in fish bearing water (EP10 and ES 130.15.7) • Follow Manitoba Stream Crossing Guidelines for Protection of Fish and Fish Habitat (EP6 and ES 130.15)	Decreased quality of fish habitat and effects to fish as a result of previously identified effects (increased suspended solids)	Short-Term, associated with discrete activities	Net loss of the productive capacity of fish habitat affecting local fish communities and population	Critical life stages would be avoided	Effects may extend beyond the Project Footprint within the LAA	Infrequent	Readily reversible	Moderate ecosystem effect	Not Significant
						Level I	Level II	Level I	Level II	Level I	Level I	Level II	

[1] The description of assessment criteria and levels of potential environmental effects were provided in Chapter 4 Table 4.4 of the Environmental Impact Statement, but are also included in Appendix IR1-63-2 of this response.

System / VC / Feature	Area of Federal Jurisdiction	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
						Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Fish and Fish Habitat													
		Construction and maintenance of watercourse crossings	Alteration and loss of riparian habitat (shorelines) and fish habitat (in-stream)	• Minimize vegetation clearing and disturbance (ES 130.15.3) • Reclamation and re-vegetation of disturbed areas • Implement DFO approved fish habitat offsetting plan for unavoidable habitat losses • Adhere to Manitoba Stream Crossing Guidelines for Protection of Fish and Fish Habitat, DFO's measures to avoid causing harm to fish and fish habitat including aquatic species at risk, EP7, EP10, ES 130.15.5 and ES 130.15.7	Alteration and loss of riparian habitat (shorelines) and fish habitat (in-stream)	Long-Term, life of Project	Net loss of the productive capacity of fish habitat affecting local fish communities and population	Critical life stages would be avoided	Localized to crossings within Project Footprint	Infrequent	Reversible over a long period	Moderate ecosystem effect	Not Significant
						Level III	Level II	Level I	Level I	Level I	Level II	Level II	
Physical Environment													
Surface Water	-	Development of quarries and borrow pits, access roads, road drainage during construction and construction and maintenance of the all season road and watercourse crossings	Disruption of surface drainage and flow systems resulting in increased or decreased flows in watercourses	• Bridges and culverts at watercourse crossings and equalization culverts will accommodate 1:50 year flood events • Regular culvert maintenance and cleanouts (EP11 and ES130.15.9) • Adhere to Manitoba Stream Crossing Guidelines for Protection of Fish and Fish Habitat, DFO's measures to avoid causing harm to fish and fish habitat including aquatic species at risk, EP7 and ES 130.15.5	Disruption of surface drainage and flow systems resulting in increased or decreased flows in watercourses	Long-Term, life of Project	Change in flows likely within range of natural variation	No critical life stage concerns as no anticipated effects on fish	May alter flow in watercourses beyond the Project Footprint within the LAA	Infrequent	Readily reversible	No adverse ecosystem and social effects	Not significant
						Level III	Level I	Level I	Level II	Level I	Level I	Level I	

APPENDIX IR1-63-2

Description of assessment criteria and levels of potential environmental effects

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
Direction of Change (type of effect)	Neutral or Negligible	No measurable change on the VC.
	Negative	Net loss (adverse or undesirable change) on the VC.
	Positive	Net benefit (or desirable change) on the VC.
Duration (period of time the effect occurs)	Short-Term	**Level I** - The potential effect results from short-term events or activities such as the time required to complete a discrete component during construction, maintenance, or rehabilitation activities (i.e., a timeframe of several months up to one year).
	Medium-Term	**Level II** - The potential effect is likely to persist until the completion of construction and rehabilitation activities (i.e., > 1 year to 10 years).
	Long-Term	**Level III** -The potential effect is likely to persist beyond the completion of construction and rehabilitation activities into the operations and maintenance phase of the Project (i.e., a timeframe of greater than 10 years).
Magnitude (degree or intensity of the change)	Negligible or Low	**Level I** - A change that is not likely to have a definable, detectable or measurable potential effect above baseline (i.e., potential effect is within a normal range of variation) or is below established thresholds of acceptable change (e.g., water quality guideline). See **Table 4.5** for VC specific criteria.
	Moderate	**Level II** – A change that will have a potential measurable effect that can be detected with a well-designed monitoring program; but is only marginally beyond standards/guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.

[2] **Chapter 6** of the Environmental Impact Statement outlines VC specific definitions for the three level ranking system.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
	High	**Level III** – A change that will have potential effects that are easily observed, measured, and described (i.e., readily detectable without a monitoring program) and are well beyond guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
Timing[3]	No Sensitivity	**Level I** – Effect does not occur during critical life stage.
	Moderate Sensitivity	**Level II** – Effect occurs at the start or end of a critical life stage.
	High Sensitivity	**Level III** – Effect occurs during a critical life stage.
Extent (Spatial Boundary)[4]	Project Footprint	**Level I** - The physical space or directly affected area on which Project components or activities are located and/or immediately adjacent area which is within the defined limits of the P6 all-season road ROW (i.e., 100 m) and permanent and temporary facilities (e.g., temporary access routes and quarries) within which potential effects are likely to be measurable.
	LAA	**Level II** - Area within which potential Project effects are measurable and extending beyond the Project Footprint to, but not beyond, the LAA (either a 2 km or 10 km corridor centred on the all-season road alignment depending on the VC (**Figure 4-1**).
	RAA	**Level III** - The maximum anticipated regional extent of potential direct, indirect and cumulative effects that may extend beyond the LAA. The boundaries of the RAA will vary depending on the VC.

[3] In terms of **Timing**, the critical life stages include things such as nesting, breeding, spawning and calving which will vary by VC and will vary annually depending on seasonal conditions. For example, it is clear that winter is outside of bird nesting and breeding period and that spring is fully within this critical time period, whereas early spring and late fall is a transitional period that depending on the seasonal conditions may or may not affect the life stage.

[4] Environmental Impact Statement **Figures 4-1** and **4-2** illustrate the VC specific spatial boundaries of the LAA and RAA, which are discussed in greater detail in **Chapter 6**.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
Frequency (how often the effect occurs)	Infrequent	**Level I** - The potential effect occurs once or seldom during the life of the Project (e.g., initial clearing of the ROW).
	Sporadic/Intermittent	**Level II** - The potential effect occurs only occasionally and without any predictable pattern during the life of the Project (e.g., blasting at quarries; site-specific construction equipment noise; potential wildlife-vehicle collisions).
	Regular/Continuous	**Level III** – The potential effect occurs at regular and frequent intervals during the Project phase in which they occur or over the life of the Project (e.g., construction traffic; operations traffic).
Reversibility (the degree of permanence)	Reversible (short-term)	**Level I** – Potential effect is readily reversible over a relatively short period (< than eight years).
	Reversible (long-term)	**Level II** - Potential effect is potentially reversible but over a long period (> than eight years).
	Irreversible	**Level III** - Project-specific potential effects are permanent and irreversible.
Ecological and Social Context (resilience of a VC to adapt to changes as a result of the project)	Low	**Level I** – The VC is not rare or unique and is resilient to imposed change. Social – Indigenous people/communities in the RAA are able to adapt with relative ease and maintain pre-project development activities.
	Moderate	**Level II** – The VC is moderately/seasonally fragile and has some capacity to adapt to imposed change. Social - Indigenous people/communities in the RAA are able to adapt with some adjustments and maintain pre-project development activities but only with a degree of support.
	High	**Level III** – The VC is a protected/designated species under MESEA, SARA and species listed by COSEWIC and

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
		by the MBCDC as very rare (S1) to rare (S2) or fragile with low resistance to imposed change or part of a very fragile ecosystem. Social - Social - affected Indigenous people/ communities in the RAA will not be able to adapt to changes or maintain-pre-project development activities.

REFERENCES

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QUESTION IAAC IR1-64

EIS Guideline Reference	• Part 2, Section 5.1 and 6.1.6
EIS Reference	• Chapter 3, Section 3.4.1.5 • Chapter 6, Section 6.1.6 • EIS Appendix C-1
Category	Fish & Fish Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to provide a characterization of fish populations on the basis of species and life stage information, and a description of the surveys carried out and the source of data available, including the location of sampling stations, catch methods, date of catches, species, and catch-per-unit effort. The proponent is also required to provide a description of secondary productivity of aquatic resources in terms of abundance and distribution in potentially affected waterbodies.

The EIS describes the fish species confirmed to be present in the Project study areas through field sampling or potentially present based on Indigenous knowledge and historical distribution data, and provides data on the number of fish captured per crossing. A full characterization of fish populations, including abundance, distribution, and movement patterns on the basis of species and life stage is not provided. Describing only the number of fish captured at each crossing during field sampling is not sufficient to characterize population abundance, distribution, and movement patterns; other information, such as catch-per-unit effort, is needed to understand this.

Additionally, baseline aquatic species and habitat data in the EIS is limited to sampling from one season of one year. This level of effort may not have been sufficient to determine the presence of species with low abundance that may be sensitive or have specific protection requirements. Information related to seasonal and year-to-year changes in aquatic ecosystems in the area of the Project is also important to support planning for detailed design, habitat offsetting, and site-specific mitigation measures. In the absence of detailed and multi-season baseline information, mitigation measures must be described to specifically address uncertainty in the predicted effects of the Project to fish and fish habitat.

With respect to the description of the methodology employed during fish community sampling and mussel sampling, minimal detail is provided regarding collection methods, effort, or tabulation of results. Detail regarding the sampling methodology employed at each collection site must be described.

With respect to fish presence at stream crossings, the EIS indicates that field surveys were conducted at 21 of the stream crossing locations proposed for the Project and that fish presence was not confirmed through field sampling at the remaining 32 streams crossed by the ASR as most do not have supporting fish habitat. However, elsewhere in the EIS, the proponent notes that 25 of the 53 watercourse crossings required for the Project are fish-bearing. It is unclear why the proponent chose not to collect field survey data for the remaining four stream crossings confirmed to be fish-bearing and why they concluded that these streams do not contain supporting fish habitat, given that fish presence has been confirmed. As mitigation measures presented in the EIS are to be applied only to known fish-bearing waters and potentially fish-bearing waters, the assumption of non-fish bearing status for 28 watercourses and numerous wetlands within the Project footprint may result in unanticipated residual effects to fish and fish habitat.

The EIS also does not provide details on secondary productivity of aquatic ecosystems within the Project footprint, LAA, and RAA, including baseline data. On this subject, the EIS notes that the well-documented effects of road projects on aquatic ecosystems and well established measures for mitigation, make additional site investigations to measure secondary productivity unnecessary and effects to secondary productivity from the Project would be negligible. The Agency notes that while the general effects of road projects may be well understood, the magnitude and significance of effects of projects may differ greatly based on the location of each project and the unique characteristics of the aquatic environment in those locations. As such, contingency measures may be required should monitoring indicate that standard mitigation measures to avoid or prevent effects to secondary productivity are insufficient.

Supplementary information is required to support the characterization of potential Project effects to fish and fish habitat and to assess the severity and significance of potential Project effects.

INFORMATION REQUEST

a) Provide a full characterization of fish populations within the Project footprint, Aquatic LAA, and Aquatic RAA, including population abundance, distribution, and movement patterns on the basis of species and life stage.
b) Provide a rationale for why field survey data regarding the presence of fish was not collected at four of the 25 proposed stream crossings confirmed to be fish-bearing and provide data on the presence/absence of fish at these four stream crossings.
c) Describe the sampling methodology employed at each site sampled during field surveys for fish and mussels, including:

i. date(s) of collection;
ii. type of survey gear used;
iii. effort; and
iv. results for each site surveyed.

d) Describe mitigation measures, such as changes to the timing of Project activities and crossing structure design, that will be implemented to address the uncertainty introduced by reliance on a single season of baseline information for fish and fish habitat.
e) Describe follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.
f) Describe contingency measures that will be implemented should monitoring indicate that measures to mitigate adverse Project effects to secondary productivity are insufficient and/or should pre-construction monitoring indicate the presence of fish at crossings previously classified as non-fish-bearing. Describe the thresholds that will be used to indicate that contingency measures may be required, including a detailed rationale for the thresholds chosen.

RESPONSE

a) The aquatics study conducted for the proposed Project was designed to collect the level of information that is consistent with the level of potential impact from the proposed development based on understanding of effects on the aquatic environment from development and maintenance of all season road (ASR) stream crossings. Additional baseline studies would provide little additional information upon which to base impact predictions or to select appropriate mitigation for the proposed Project. As mentioned in Chapter 6, Section 6.1.6.1 of the Environemental Impact Statement (EIS), additional information such as catch per unit effort (CPUE) was not calculated as fish sampling was done to confirm the presence of fish and provide information of species composition and not to estimate populations based on effort. The area within Manitoba that the proposed Project is located in is remote and characterized by abundant lakes and watercourses. Fish and fish habitat data, including information on fish populations such as population abundance, distribution, and movement patterns throughout the LAA and RAA, is limited throughout the region due to minimal development. As described in Chapter 4 of the EIS the Aquatic Local Assessment (LAA) area is 1431km2, and the Aquatic Regional Assessment Area (RAA) is 20,842km2.

The RAA is largely undeveloped except for three First Nations and one Northern Affairs Community and the transmission lines and winter road corridors which service the communities. Mining has historically occurred in the area, but there are no hydroelectric generating stations or other major infrastructure or industries that may impact fish populations. There are no industrial facilities in the region with the only commercial development consisting of a few lodges and outfitters. As noted in Chapter 6 of the EIS, there is currently no commercial fishing as summer fishing ended on God's

Lake over 18 years ago and winter fishing ended 30 years ago and there is no active commercial fishery.

Published literature and existing databases were examined to determine whether additional information describing fish resources or habitat use within the study area had been collected since the EIS was prepared. New information was restricted to a small number of historical records of fish occurrence in major waterbodies within the RAA and adds very little to what had already been prepared for the Project EIS. Detailed information describing the status of fish populations (abundance) or fish movement patterns within the Project footprint, LAA, or RAA is not available. Some information describing fish species distribution is available and can be expanded upon somewhat based upon a general understanding of what types of fish may occur a given aquatic habitat type. Very broad fish movement patterns may also be speculated upon based on an understanding of the basic biology of fish species occurring in the waterbody.

It is anticipated that fish populations in the RAA are generally representative of historic conditions with variation being due to natural factors and not anthropogenic influences. Although fishing lodges are present in the RAA these are not believed to be impacting fish at the population levels and instead focus on catch and release practices with limited harvesting. The only other resource users in the RAA would be the local Indigenous Nations and God’s Lake Narrows Norther Affairs Community. Local harvest is likely similar to what would have occurred in the past and is not anticipated to occur to a degree that is unsustainable or impacting fish at the population level.

No measurable effects to fish populations are anticipated from the proposed all-season road project provided mitigation measures such as maintaining fish passage in fish bearing streams and effective sediment control is applied. Individual crossings will be discussed with Fisheries and Oceans Canada (DFO) prior to construction, and they would decide whether an authorization is required under the Fisheries Act. If an Authorization is required, offsetting may be also required.

A general description of fish in the Local Assessment Area (LAA) and Regional Assessment Area (RAA) is provided in the technical report prepared by North/South Consultants Inc. (Appendix C-1 of the EIS). This report also provides a detailed description of fish habitat and related fish use at the fish-bearing stream crossings within the proposed Project footprint based on field surveys. The potential effect to fish from the loss of habitat as a result of culvert or bridge installation was assessed in this report and given that affected habitat is common and plentiful in the region, potential effects to fish populations were determined to be low risk. In addition, impediments to the movements of large-bodied fish are not predicted as a result of culvert or bridge installation, as crossings will be designed to permit the passage of fish.

As summarized in Table 1 of Appendix C-1 of the EIS, prepared by NSC (2017a), 32 fish species have been confirmed within the five major watercourses in the general Project area, including brook trout, lake whitefish, northern pike, walleye and lake sturgeon. The presence of large bodied (i.e. northern pike) and forage fish (i.e. minnows and sticklebacks) were confirmed at 16 of the proposed

crossing sites and only forage fish were captured at 9 proposed crossings sites. . Of these 25 crossings, 19 streams, all unnamed tributaries consisting of small low gradient boreal streams, only one or two species were identified, with Brook Stickleback found at 16 of the sites, Northern Pearl Dace at four sites, Northern Pike at three sites, Fathead Minnow at two sites and Burbot and Johnny Darter each at one site only. The remaining 28 crossing locations were assessed as lacking habitat that supported fish.

With respect to lake sturgeon, Appendix C-1 of the EIS describes its presence in the God's River, God's Lake, and Hayes River systems. NSC (2017a) note that biological studies confirm its presence as far downstream as the Red Sucker River confluence, approximately 150 km downstream of the Project area, while Traditional Knowledge (TK) from Shamattawa First Nation extends the known range upstream to a set of rapids 4 km downstream of the P6b crossing. God's Lake First Nation and Bunibonibee Cree Nation confidential TK further indicate sturgeon presence within God's Lake and Oxford Lake, respectively (HTFC, 2017a, 2017b). The God's River crossing site is therefore the most likely potential point of interaction between the proposed Project and this species, providing foraging habitat within the crossing area and spawning habitat further downstream.

For other species, Table IR1-64-1 below summarizes the 18 stream crossing sites assessed as supporting fish habitat that is part of or supports a Commercial, Recreational and or Aboriginal (CRA) fishery. The table is an adaptation of Table 2, Appendix C-2 of the EIS (NSC, 2017b) and identifies the life-stage functions (spawning, rearing, feeding) supported at each site, providing a spatial overview of the distribution of fish habitat across the Project footprint and Aquatic LAA.

As noted in Appendix C-2 of the EIS, prepared by NSC (2017b), seven other crossing sites were assessed as not contributing to a CRA fishery (P6a-X005, P6a-X007, P6a-X020, P6a-X022, P6a-X027, P6a-X028 and P6a-X029). However, given fish presence, the are being designed for fish passage. These seven sites were characterized as boreal bog/fen headwater areas of small streams with poor connectivity to downstream fish bearing waters. The habitat at these crossing sites supports forage fish only and are considered unsuitable for large-bodied fish due to restricted access and poor overwintering conditions. The habitat availability and condition at these seven sites were considered widespread and common in the region and the impacts to fish from the project were expected to have no measurable effect on the downstream CRA fishery productivity.

Table IR1-64-1[1]. Life-stage functions supported at proposed stream crossings with fish habitat that is part of or supports a CRA fishery.

Crossing	Watercourse	Fish species and life-stage	Species recorded during field studies
P6a-X002	Unnamed Tributary of Hayes River	Habitat for spring spawning fish species (i.e., walleye, northern pike, suckers) and habitat supporting a range of life requisites for fish that support a CRA fishery	Johnny darter, brook stickleback
P6a-X008	Unnamed Tributary of Michikanes Lake	Spawning, rearing and feeding habitat for northern pike and fish that support a CRA fishery	Northern pike, brook stickleback
P6a-X018	Unnamed Tributary of Knee Lake	Spawning, rearing and feeding habitat for northern pike and fish that support a CRA fishery	Brook stickleback
P6a-X019	Magill Creek	Habitat for spawning and rearing of spring spawning fish species (i.e., walleye, northern pike, suckers) and habitat supporting a range of life requisites for fish that support a CRA fishery	Northern pike, shorthead redhorse, yellow perch
P6a-X023	Unnamed Tributary of Laird Lake	Suitable habitat for spawning and rearing of northern pike, feeding of white sucker and habitat supporting a range of life requisites for fish that support a CRA fishery	Brook stickleback, northern pike
P6a-X031	Unnamed Tributary of Hignell Lake	Spawning, rearing and feeding habitat for Northern Pike and fish which support a CRA fishery are present	Brook stickleback
P6a-X032	Unnamed Tributary of Hignell Lake	Potential Northern Pike spawning habitat and habitat supporting a range of life requisites for fish that support a CRA fishery	Brook stickleback
P6a-X033	Unnamed Tributary of an Unnamed Lake	Potential Northern Pike spawning habitat downstream of the crossing and habitat supporting a	Brook stickleback, northern pearl dace

[1] Adapted form Table 2, Appendix C-2 of the P6 Environmental Impact Statement

Crossing	Watercourse	Fish species and life-stage	Species recorded during field studies
		range of life requisites for fish that support a CRA fishery.	
P6a-X034	Unnamed Tributary of an Unnamed Lake	Habitat supporting a range of life requisites for fish which support a CRA fishery is present and potential Northern Pike spawning habitat downstream of the crossing.	Brook stickleback, northern pearl dace
P6a-X037	Unnamed Tributary of an Unnamed Lake	Downstream habitat suitable for fish supporting a CRA fishery.	Brook stickleback, northern pearl dace
P6a-X038	Unnamed Tributary of an Unnamed Lake	Potential Northern Pike spawning habitat downstream of the crossing.	Northern pearl dace
P6b-X002	Unnamed Tributary of Hawkins Lake	Habitat supporting a range of life requisites for fish which support a CRA fishery is present and potential Northern Pike spawning habitat downstream of the crossing.	Brook stickleback
P6b-X003	Unnamed Tributary of Hawkins Lake	Habitat supporting a range of life requisites for fish which support a CRA fishery is present and potential Northern Pike spawning habitat downstream of the crossing.	Northern pike
P6b-X006	Unnamed Tributary of Opaskaykow Lake	Habitat supporting a range of life requisites for fish which support a CRA fishery is present and potential Northern Pike spawning habitat downstream of the crossing.	Brook stickleback
P6b-X007	Unnamed Tributary of Opaskaykow Lake	Potential Northern Pike spawning habitat. Walleye and sucker spawning habitat may also exist.	Burbot
P6b-X009	Unnamed Tributary of Tapper Lake	Habitat supporting a range of life requisites for fish which support a CRA fishery is present, Northern Pike spawning habitat is present upstream of the crossing site.	Fathead minnow, brook stickleback

Crossing	Watercourse	Fish species and life-stage	Species recorded during field studies
P6b-X013	Unnamed Tributary of God's River	Habitat supporting a range of life requisites, including spawning for fish which support a CRA fishery and Northern Pike.	None
P6b-X015	God's River	Spring, summer and fall spawning fish species present. Potential Lake Sturgeon spawning habitat 4 km downstream. Juvenile Brook Trout found in the area.	Brook trout, longnose sucker, northern pike, white sucker, sculpin spp

Additionally, Appendix 2 included as part of Appendix C-1of the EIS describes the size and abundance for fish captured during the stream crossing assessment surveys.

b) Fish presence/absence was completed at 24 of 25 proposed stream crossings confirmed to be fish-bearing. One site (P6a-X007) was not surveyed due to no visible channel on site at the time of site visit. Three sites (P6a-X022, P6a-X028, P6b-X013) were surveyed, but no fish were caught. Please see Appendix IR1-64-1, Table IR1-64-2 below for more details.

c) Sampling methodology used at each site was selected based on site-specific conditions and included backpack electrofishing, gillnetting, rod angling, visual survey and mussel raking for mollusks. Backpack electrofishing surveys were done at small and medium-sized watercourses. Gillnets were used at larger waterbodies. Mollusk survey methodology was selected based on water depth. Mussel rakes were used at deeper sites, and visual surveys were done in shallow and shoreline habitats. Please see Appendix IR1-64-1, Table IR1-64-2 below for more details.

d) Standard environmental protection measures are provided in Chapter 8 Appendix 2. Given that only one field visit was conducted, the Proponent will assume that fish are present at all 25 potential fish-bearing crossings, whether or not fish were captured during the survey, and appropriate environmental protection measures applied.

e) As noted in the EIS Chapter 9, site-specific follow-up and environmental monitoring plans will be developed prior to construction.

If flowing water is present during instream construction, turbidity will be monitored upstream and downstream of the construction area to ensure that sediment management measures are functioning as intended and corrective actions can be implemented if required.

If construction requires the isolation and dewatering of a section of a watercourse, then fish present will be salvaged and released downstream under permit from Manitoba Fisheries Branch. MTI will obtain the permit in advance of salvages and fish handling; releases and reporting will be conducted in compliance with these permits.

Post construction inspections will be conducted to ensure that the site has been adequately restored and that the watercourse and banks are physically stable.

f) As noted in Chapter 6 of the EIS, individual watercourse crossings would be discussed with Fisheries and Oceans Canada (DFO) prior to construction. DFO and they would decide whether an authorization is required under the *Fisheries Act*. If an Authorization is required, offsetting may be also required.

Crossings classified as non-fish bearing are located in headwater wetlands and have no defined channels connected to downstream waters and therefore are not expected support fish. As noted previously, whether or not fish were captured at a crossing during the field survey was not used to revise the classification to non-fish bearing. As mentioned in response to IR1-66, if fish are observed in a waterbody or watercourse crossing location that was thought to be non-fish-bearing during construction, MTI would discuss with DFO and adhere to the fisheries protection provisions in the Fisheries Act and either avoid work in that watercourse until the risk of impacts is low (e.g. work outside of restricted activity period), mitigate negative impacts that cannot be avoided (e.g. use site isolation and work in the dry, ensure culvert designs meet fish passage requirements), or apply for Authorization for residual adverse impacts that cannot be mitigated, for which DFO may require MTI to provide fish habitat offsetting. The application of offsetting measures if required by DFO, would prevent the potential for cumulative effects. The exact course of action would be determined by an MTI biologist after notification by on-site personnel.

APPENDIX IR1-64-1

Table IR1-64-2. Summary of fish and mussel survey results (2016)

Site	Sample Date	UTM 15		Watercourse	Stream Type[2]	Gear Type[3]	Species		n[4]	Duration (s)	CPUE
		Easting	Northing				Fish	Mussels			
P6a-X002	17-Jun-16	355166	6086046	Unnamed Tributary of Hayes River	S	EF	Brook Stickleback	-	6	280	0.0214
P6a-X002	17-Jun-16	355166	6086046	Unnamed Tributary of Hayes River	S	EF	Johnny Darter	-	1	280	0.0036
P6a-X005	17-Jun-16	357317	6081440	Unnamed Tributary of Hayes River	S	DN	Brook Stickleback		1	-	-
P6a-X007[1]	-	359925	6076546	Unnamed Tributary of Michikanes Lake	W	-	-	-	-	-	-
P6a-X008	16-Jun-16	359963	6076436	Unnamed Tributary of Michikanes Lake	S	V	Brook Stickleback	-	1	89	0.0112
P6a-X008	16-Jun-16	359963	6076436	Unnamed Tributary of Michikanes Lake	S	V	Northern Pike	-	1	89	0.0112
P6a-X008	16-Jun-16	359963	6076436	Unnamed Tributary of Michikanes Lake	S	V	Northern Pike	-	1	89	0.0112
P6a-X018	16-Jun-16	365150	6071363	Unnamed Tributary of Knee Lake	S	V	Brook Stickleback	-	1	279	0.0036
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	GN	Northern Pike	-	1	12000	0.0001
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	GN	Northern Pike	-	1	12000	0.0001
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	GN	Shorthead Redhorse	-	1	11220	0.0001
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	GN	Yellow Perch	-	1	11220	0.0001
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	GN	Yellow Perch	-	1	11220	0.0001
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	GN	Yellow Perch	-	1	11220	0.0001
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	GN	Yellow Perch	-	1	11220	0.0001
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	GN	Yellow Perch	-	1	11220	0.0001
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	GN	Yellow Perch	-	1	11220	0.0001
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	GN	Yellow Perch	-	1	11220	0.0001

Site	Sample Date	UTM 15		Watercourse	Stream Type[2]	Gear Type[3]	Species		n[4]	Duration (s)	CPUE
		Easting	Northing				Fish	Mussels			
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	GN	Yellow Perch	-	1	11220	0.0001
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	MR, V	-	Giant Floater	1	-	-
P6a-X019	21-Jun-16	366392	6069210	Magill Creek	S	MR, V	-	Fat Mucket	1	-	-
P6a-X020	15-Jun-16	367584	6068240	Unnamed Tributary of Magill Creek	S	EF	Fathead Minnow	-	2	377	0.0053
P6a-X020	15-Jun-16	367584	6068240	Unnamed Tributary of Magill Creek	S	EF	Brook Stickleback	-	1	377	0.0027
P6a-X022	15-Jun-16	372798	6063748	Unnamed Tributary of Laird Lake	W	V	no fish captured	-	0	-	-
P6a-X023	14-Jun-16	372935	6063705	Unnamed Tributary of Laird Lake	S	EF	Brook Stickleback	-	1	1072	0.0009
P6a-X023	14-Jun-16	372935	6063705	Unnamed Tributary of Laird Lake	S	V	Northern Pike	-	6	1072	0.0056
P6a-X027	14-Jun-16	379995	6058916	Unnamed Tributary of Wanless Lake	S	V	Brook Stickleback	-	1	291	0.0034
P6a-X027	14-Jun-16	379995	6058916	Unnamed Tributary of Wanless Lake	S	EF	Brook Stickleback	-	1	291	0.0034
P6a-X028	14-Jun-16	381509	6058214	Unnamed Tributary of Wanless Lake	F	EF	no fish captured	-	0	138	-
P6a-X029	15-Jun-16	382770	6057629	Unnamed Tributary of Hignell Lake	S	EF	Brook Stickleback	-	1	269	0.0037
P6a-X031	15-Jun-16	384797	6056689	Unnamed Tributary of Hignell Lake	S	EF	Brook Stickleback	-	1	318	0.0031
P6a-X032	16-Jun-16	387333	6055019	Unnamed Tributary of Hignell Lake	S	EF	Brook Stickleback	-	4	881	0.0045
P6a-X033	17-Jun-16	389260	6054142	Unnamed Tributary of an Unnamed Lake	S	EF	Northern Pearl Dace	-	20	213	0.0939
P6a-X033	17-Jun-16	389260	6054142	Unnamed Tributary of an Unnamed Lake	S	EF	Brook Stickleback	-	3	213	0.0141
P6a-X034	18-Jun-16	390626	6054355	Unnamed Tributary of an Unnamed Lake	FS	EF	Brook Stickleback	-	3	323	0.0093
P6a-X034	18-Jun-16	390626	6054355	Unnamed Tributary of an Unnamed Lake	FS	V	Northern Pearl Dace	-	1	323	0.0031
P6a-X037	17-Jun-16	398766	6048950	Unnamed Tributary of an Unnamed Lake	S	EF	Brook Stickleback	-	5	323	0.0155
P6a-X037	17-Jun-16	398766	6048950	Unnamed Tributary of an Unnamed Lake	S	EF	Northern Pearl Dace	-	7	323	0.0217

Site	Sample Date	UTM 15		Watercourse	Stream Type[2]	Gear Type[3]	Species		n[4]	Duration (s)	CPUE
		Easting	Northing				Fish	Mussels			
P6a-X038	16-Jun-16	399735	6048087	Unnamed Tributary of an Unnamed Lake	S	EF	Northern Pearl Dace	-	11	300	0.0367
P6b-X002	18-Jun-16	383950	6066261	Unnamed Tributary of Hawkins Lake	S	V	Brook Stickleback	-	1	93	0.0108
P6b-X003	18-Jun-16	384030	6067799	Unnamed Tributary of Hawkins Lake	W	V	Northern Pike	-	2	125	0.0160
P6b-X006	18-Jun-16	389409	6069930	Unnamed Tributary of Opaskaykow Lake	S	DN	Brook Stickleback	-	9	2100	0.0043
P6b-X007	19-Jun-16	390380	6069047	Unnamed Tributary of Opaskaykow Lake	S	EF	Burbot	-	1	618	0.0016
P6b-X009	18-Jun-16	409513	6080144	Unnamed Tributary of Tapper Lake	S	EF	Fathead Minnow	-	49	289	0.1696
P6b-X009	18-Jun-16	409513	6080144	Unnamed Tributary of Tapper Lake	S	EF	Brook Stickleback	-	1	289	0.0035
P6b-X013	20-Jun-16	428031	6081141	Unnamed Tributary of God’s River	S	GN	no fish captured	-	0	6000	-
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	A	Northern Pike	-	1	2100	0.0005
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	A	Northern Pike	-	1	2100	0.0005
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	A	Northern Pike	-	6	6000	0.0010
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	A	Brook Trout	-	2	6000	0.0003
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	GN	Longnose Sucker	-	1	9000	0.0001
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	GN	White Sucker	-	1	9000	0.0001
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	GN	White Sucker	-	1	9000	0.0001
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	GN	White Sucker	-	1	9000	0.0001
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	GN	Northern Pike	-	1	9000	0.0001
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	GN	White Sucker	-	1	9000	0.0001
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	GN	White Sucker	-	1	9000	0.0001
P6b-X015	19-Jun-16	429706	6080809	God’s River	R	V	Sculpin spp.	-	2	3060	0.0007

Site	Sample Date	UTM 15		Watercourse	Stream Type[2]	Gear Type[3]	Species		n[4]	Duration (s)	CPUE
		Easting	Northing				Fish	Mussels			
P6b-X015	19-Jun-16	429706	6080809	God's River	R	V	Northern Pike	-	1	3060	0.0003
P6b-X015	19-Jun-16	429706	6080809	God's River	R	DN	Brook Trout	-	17	3060	0.0056
P6b-X015	19-Jun-16	429706	6080809	God's River	R	GN	White Sucker	-	1	6900	0.0001
P6b-X015	19-Jun-16	429706	6080809	God's River	R	GN	White Sucker	-	1	6900	0.0001
P6b-X015	19-Jun-16	429706	6080809	God's River	R	MR, V	-	Giant Floater	20	-	-

1 - No field survey completed; no channel visible, beaver dams present

2 - S - Stream, W - Wetland, F- Fen, FS - Fen stream, R - River

3 - EF - Backpack Electrofisher, GN - Gillnet, DN - Dipnet, V - Visual observation, A - Rod and Reel Angling, MR - Mussel Rake

4 - number of individuals

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

North/South Consultants INC. 2017a. East Side Road Authority Project 6: All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation. Aquatic Environment Report: Existing Environment. Prepared for the Manitoba Infrastructure – Remote Road Operations by North/South Consultants Inc.

North/South Consultants INC. 2017b. East Side Road Authority Project 6: All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation. Aquatic Environment Report: Effects Assessment. Prepared for the Manitoba Infrastructure – Remote Road Operations by North/South Consultants Inc.

QUESTION IAAC IR1-65

EIS Guideline Reference	• Part 2, Section 5.1 and 6.1.11
EIS Reference	• Appendix C-1, Section 4.2.6.1.1
Category	Fish & Fish Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe the current use of land in the Project study areas, including a description of recreational and commercial fishing and any fishing activities practiced by Indigenous peoples.

The EIS notes that, of the 23 streams where culvert crossings are proposed and that are confirmed to be fish-bearing, seven streams were assessed as not contributing to a Commercial, Recreational, or Aboriginal (CRA) fishery, despite the fact that these crossing sites support forage fish. The rationale provided for this conclusion is that these sites provide poor overwintering conditions and restricted access to large-bodied fish. Although these seven crossing sites may not possess suitable conditions to directly support or provide access to large-bodied fish that may contribute to a CRA fishery, the forage fish species present may have the ability to migrate into areas that support large-bodied fish and may act as a food source, thereby supporting the productivity of CRA fisheries. It is also unclear how MI determined the extent of Aboriginal fisheries and whether information from all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines was considered in determining the extent of CRA fisheries and potential Project effects.

Supplementary information is required to support the description of baseline information for fish and fish habitat and the current use of lands and resources for traditional purposes by Indigenous peoples. This information will also aid in the review of the assessment of potential Project effects to fish and fish habitat and Indigenous peoples.

INFORMATION REQUEST

a) Revise the assessment of potential Project effects, residual effects, and cumulative effects for CRA fisheries to include potential adverse effects to fish-bearing streams previously considered as not contributing to a CRA fishery.
b) Describe how MI determined the extent of Aboriginal fisheries that may be adversely affected by the Project and what information MI used to determine their extent.

c) Describe which Indigenous groups MI engaged with to collect information to determine the extent of CRA fisheries.
    i. If MI did not collect information from all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines, provide a clear rationale for why certain groups were excluded or describe when MI plans to collect this information and how this information will be included in the assessment of potential effects to CRA fisheries presented in the EIS.

RESPONSE

a) Although seven of the 23 culvert crossing sites (P6a-X005, P6a-X007, P6a-X020, P6a-X022, P6a-X027, P6a-X028, and P6a-X029) were assessed as not contributing to a Commercial, Recreational, or Aboriginal (CRA) fishery due to poor overwintering conditions and limited access for large-bodied fish, these sites were still included in the assessment of habitat alteration and loss.

As detailed in the Aquatic Environment Report (Appendix C-1, Appendix 5; North/South Consultants Inc. 2017), habitat alteration and loss were calculated for all culvert crossing locations that support fish habitat, including the seven sites mentioned above. These sites were characterized as boreal bog/fen headwater streams with low habitat quality and limited connectivity to downstream CRA fishery areas. While they support forage fish only, the condition and availability of this habitat type was considered widespread and common across the region. As a result, the potential for measurable effects on CRA fishery productivity was considered negligible.

Furthermore, while these streams may not directly support large-bodied fish species targeted in CRA fisheries, their ecological role was still acknowledged. Forage fish presence at these sites was taken into account in the overall assessment of habitat loss (Environmental Impact Statement, Chapter 6, Table 6.41), which contributes to understanding potential residual and cumulative effects on the aquatic ecosystem. However, based on the limited footprint of impacts in these particular watercourses, the low habitat quality, and the abundance of similar habitat types in the region, the risk of serious harm to fish-bearing streams previously considered as not contributing to a CRA fishery was assessed as low.

Therefore, no revisions are required to the assessment of potential Project effects, residual effects, or cumulative effects for fish-bearing streams that were assessed as not supporting a CRA fishery, as the presence of forage fish and associated habitat at these seven sites was already considered in the overall effects analysis.

b) The identification of (Commercial, Recreational, and Aboriginal (CRA) fisheries areas was based on information presented in the Aquatic Environment Technical Reports (Appendix C of the EIS). CRA fisheries areas were delineated as waterbodies and watercourses that contain suitable habitat for spawning, rearing, and feeding of fish species harvested by Indigenous communities, such as northern pike, yellow perch, suckers, and walleye. These areas were also identified as having the potential to support overwintering of large-bodied fish, which is a key ecological function for sustaining fish populations. Manitoba Transportation and Infrastructure (MTI) determined the extent of Aboriginal fisheries that may be adversely affected by the Project by integrating biophysical and Traditional Knowledge (TK) data sources.

As described in response to IR1-77, HTFC Planning & Design acted as the lead consultant for Traditional Knowledge Studies in the Project 6 area and represented the consulting team during the community research. CIER acted as a sub-consultant on the Project 6 Traditional Knowledge work and contributed to developing the workshop and interview materials that were used in each of the communities.

The studies were carried out with recognition that community members hold an intimate knowledge of the areas surrounding the all-season road corridor. Workshops and interviews have been designed to generate conversations around these areas and document what community members are able to share towards developing a better all-season road project.

The study team aimed to develop and implement strong methodology to ensure that research was consistently thorough, respectful, well documented, and defensible. Regular communication was maintained between ESRA, HTFC, the First Nation Facilitator and Community Coordinators. The Facilitator and Community Coordinators were consulted before each workshop and interview trip to confirm the timelines and methods were appropriate from a cultural/ community perspective.

Information documented during these activities was digitized by HTFC and provided to ESRA, the respective communities, and to the individuals interviewed during the study. Upon completion of the studies, a complete set of maps produced from the studies was provided to ESRA and the respective communities along with digital files containing the detailed information documented during the project; traditional knowledge is considered confidential.

Traditional knowledge was also used to inform selection of the valued components used in the EIS and selection of spatial boundaries for the EIS. As discussed in Chapter 4 of the EIS, following the initial screening process of environmental components, a list of preliminary Valued Components (VCs) was identified and presented at community meetings in Round 4 of Indigenous and public engagement for the proposed Project to verify the appropriateness of the proposed VCs and to revise the VC list to be assessed, as needed, based on input from community members. Based on the screening criteria described in Chapter 4, final VCs for a focused EA were selected and the predicted effects on these VCs are discussed in Chapter 6, Section 6.3. The final list of VCs selected reflects feedback from regulatory authorities, First Nations, other Indigenous peoples and

the public through the Indigenous and Public Engagement Program (IPEP), professional judgement and EA practice and guidance documents.

Each watercourse that was assessed as fish habitat included an assessment of fishery users in the individual summary sheets located in Aquatic Environment Report: Existing Environment (Appendix C-2), including which Indigenous Nation's traditional territory each watercourse was located in. A risk assessment was completed for each watercourse as to its degree of contribution to the CRA fisheries in the area based on connectivity and other biological attributes such as ability to provide overwintering habitat for fish.

c) As identified in response to IR1-77, with the exception of Norway House and the MMF, TK was collected and incorporated into the EIS from all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines during the LATNS. This information was used to inform selection of corridors for the east side Lake Winnipeg all-season network.

Additional project specific TK was collected by ESRA from God's Lake First Nation, Bunibonibee Cree Nation, Manto Sipi Cree Nation, and God's Lake Narrows Northern Affairs Community, whose traditional territories the proposed Project resides within, was used to inform the proposed Project alignment and the EIS. Chapter 5 (5.1.3) reports that over 600 participant hours were spent with members of these directly-affected Indigenous Nations on TK workshops and interviews.

i) The approach taken to collect project specific TK for this proposed Project is based upon the understanding that TK is held by the Aboriginal people who live in the area of a proposed project and who have a long relationship with the lands and resources likely to be affected and aligns with CEAA's guidance document Considering Aboriginal Traditional Knowledge in environmental assessments under the Canadian Environmental Assessment Act, 2012. It also provides rationale and purpose as to why similar studies were not undertake with the other Indigenous Groups listed in Part 2, Section 5.1 of the EIS Guidelines. As such, for MTI to scope in an Indigenous Nation for project specific TK, they must demonstrate historical and current occupancy and use of the Project area and identify specific Project effects.

   The other Indigenous groups listed in Part 2, Section 5.1 have not demonstrated use of the project area which aligns with MTI's understanding definition and use of traditional territories in the project area. Pertaining specifically to the MMF (also known as Red River Metis), they have not supplied specific documentation demonstrating use and their recognized and agreed upon harvest area is located far south and west of the proposed Project area. The Red River region of Manitoba is considered their homeland.

   To assist IAAC and EAB in their regulatory review within the environmental assessment process and to inform both the federal and provincial consultation processes being

undertaken for the proposed Project, MTI will carry out future engagement through the Indigenous and Public Engagement Program (IPEP) that will provide opportunities for Indigenous communities to share concerns, provide additional information, and be part of the decision-making process where possible. MTI is responsible for the IPEP and will provide communities with regular updates and open channels for feedback throughout the construction, operation, and maintenance phases of the proposed Project. Any new information obtained through these activities will be documented and incorporated into environmental planning when feasible. MTI will share updates with IAAC and EAB throughout this process. Results will be used by MTI to inform IR responses and project planning and by regulators to inform their regulatory reviews of the project and subsequent consultations with individual communities.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

North/South Consultants INC. 2017. East Side Road Authority Project 6: All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation. Aquatic Environment Report: Existing Environment. Prepared for the Manitoba Infrastructure – Remote Road Operations by North/South Consultants Inc.

QUESTION IAAC IR1-66

EIS Guideline Reference	• Part 2, Section 6.3.1
EIS Reference	• Chapter 6, Section 6.2.4.1.2, 6.4.6.4, and 6.4.6.5
Category	Fish & Fish Habitat

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe any potential adverse effects to fish and fish habitat, including any effects resulting from geomorphological changes, modifications of hydrological and hydrometric conditions, changes to water quality and sediment quality in surface water, and any modifications in migration or local movements.

With respect to potential in-stream activities, the EIS notes that, in the event that construction within or near fish-bearing waterbodies/watercourses is required under unfrozen conditions, cofferdams or other diversions would be installed to separate the dewatered worksite from flowing water and fish salvage would be conducted in the isolated area. The EIS only describes potential effects to fish and fish habitat as a result of sediment re-suspension, channel and bank erosion, and altered channel hydraulics. Potential adverse effects to fish resulting from fish salvage and fish habitat alteration/loss from cofferdam construction, use, decommissioning, and potential breaching events are not described. Further, the EIS does not address the potential need for fish salvage at crossings that were assessed as non-fish-bearing or contingency measures that will be implemented should fish be observed in these areas during construction.

With respect to culvert maintenance, the EIS indicates that any maintenance activities would comply with DFO's restricted activity timing windows unless accumulated material is preventing the passage of water and/or fish through the structure, at which point emergency debris removal may be carried out at any time of year. The potential effects to fish and fish habitat from emergency debris removal within DFO's restricted activity timing window, should it be required, are not described.

Supplementary information is required to support the characterization of potential Project effects to fish and fish habitat and to assess whether further mitigation measures may be required.

INFORMATION REQUEST

a. Revise the assessment of potential Project effects, residual effects, and cumulative effects for fish and fish habitat to include potential adverse effects from:
   i. the construction, use, and decommissioning of cofferdams or other diversions that may be required during construction or maintenance of the Project, including any temporary habitat alteration/loss and potential cofferdam breaches/failures;
   ii. fish salvage; and
   iii. emergency debris removal from culverts during restricted activity periods.
b. Describe the proposed contingency plan and contingency measures that will be implemented in the event that fish are observed at waterbody/watercourse crossing locations thought to be non-fish-bearing.

RESPONSE

a) Project effects to fish and fish habitat may include those associated with the use of temporary in-water site isolation structures and activities (i.e. cofferdam installation and removal, fish salvage and relocation) and emergency debris removal at culvert crossing sites. Manitoba Transportation and Infrastructure (MTI) does not anticipate any residual effects or additions to cumulative effects for these types of short-term activities after the application of mitigation measures, and/or contingency measures if necessary. If residual effects are anticipated, MTI would seek Authorization from DFO and provide fish habitat offsetting. The application of offsetting measures would prevent the potential for cumulative effects.

i) Impacts from cofferdams and other diversions include the temporary loss of in-water habitat for fish as well as the potential for temporary blockage of fish passage around the isolated site. Other impacts can include the introduction of suspended sediments and sediment deposition if the cofferdam erodes or fails. As described in Chapter 6, Section 6.4.6.4 of the Environmental Impact Statement (EIS), the need for and duration of cofferdam or other diversion use is based on detailed design and site-specific conditions experienced during the construction period. As such, estimates related to footprints and durations cannot be provided at this point in the project planning. This information will be provided to DFO when it becomes available in application for Fisheries Act Authorizations where required. If needed, MTI will implement appropriate offsetting measures for Project effects, as described in the response to IR1-63. MTI has extensive experience with the installation of culverts, including planning, constructing, maintaining, and decommissioning cofferdams, As part of its contract administration and financial and risk management responsibilities, MTI must review and approve contractors' plans and oversee all related work to ensure proper implementation and minimize the risk of failure. As mentioned in Chapter 8 of the EIS, the contractor will be

responsible for implementing the environmental protection measures specified in the contract documents and providing specific plans for approval by MTI as to how the contractor will meet the specifications. MTI's Environmental Protection Specifications (ES) – 130 (Chapter 8, Appendix 8-3) outline the specific environmental protection plans that each construction contractor is responsible for providing. These include submission of a Water Quality and Fish Protection Plan that provides details of site isolation and fish salvage methodologies. The ES 130s will be periodically updated to reflect evolving best practices and regulatory requirements.

Although cofferdam failures are not anticipated, mitigations for the use of cofferdams and other diversions for site isolation are included in EP 11 (Culvert Maintenance and Replacement) and ES 130.15.6 (Base Flow, Diversions and Fish Passage). These include the directives to design diversion structures and pumping capacity to accommodate any expected high flows from storm events and to do routine inspections of isolated sites to maintain site isolation and prevent erosion.

ii) Fish salvage will be conducted in isolated areas in accordance with EP10 (Fish Salvage) and ES (130.15.7 Fish Salvage), as described in Chapter 6, Section 6.4.6.5 of the EIS. Fish salvage will require a permit for handling of fish and will include direct oversight of a qualified fish biologist to avoid harm to fish while handling. Fish salvage will occur prior to the commencement of in-water construction activities and/or prior to dewatering of an isolated work area. Fish salvage will be conducted immediately after a watercourse has been isolated. Captured fish will be released downstream of the worksite.

iii) Emergency debris removals will adhere to the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, DFO's measures to avoid causing harm to fish and fish habitat, EP7 (Stream Crossings), EP11 (Culvert Maintenance and Replacement), ES 130.15.5 (Stream Crossings) and ES 130.15.9 (Culvert Maintenance and Replacement), as described in Chapter 6, Section 6.4.4.1.1 of the EIS. The removal of accumulated material (ex: branches, stumps, other woody materials, garbage) would be limited to the area within the culvert, immediately upstream of the culvert and to that which is necessary to maintain culvert function. The accumulated material and debris shall be removed slowly to prevent downstream flooding. Following the implementation of these measures, no adverse effects are anticipated.

In the event that emergency debris removal must be undertaken during DFO's restricted activity timing windows to restore passage of water and/or fish at a crossing site, potential effects to fish would likely be overwhelmingly positive. As DFO's timing windows exist to protect fish during sensitive life cycle events such as spring spawning

migrations, any blockages to fish must be removed for them to complete their migration to preferred spawning areas. Any release of sediments during debris removal would be short-term in duration and likely of limited amounts. Failure to remove debris in a timely manner could result in failure of the road crossing, which would release far more sediment into the system than would have accumulated behind a recent blockage.

If an emergency debris removal is anticipated to have the potential to harm fish or fish habitat, based on the timing of the removal, the sensitivity of the fish or fish habitat at the site, and/or the nature of the blockage and its removal, MTI will apply for an emergency Fisheries Act Authorization from DFO.

b) If fish are observed in a waterbody or watercourse crossing location that was thought to be non-fish-bearing during construction, MTI would adhere to the fisheries protection provisions in the Fisheries Act and either avoid work in that watercourse until the risk of impacts is low (e.g. work outside of restricted activity period), mitigate negative impacts that cannot be avoided (e.g. use site isolation and work in the dry, ensure culvert designs meet fish passage requirements), or apply for Authorization of residual impacts that cannot be mitigated. The exact course of action would be determined by an MTI biologist after notification by on-site personnel.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-67

EIS Guideline Reference	• Part 2, Section 6.6.2
EIS Reference	• Chapter 6, Section 6.6.2 • Chapter 6, Table 6.43 and 6.44
Category	Effects of the Environment on the Project

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe local conditions and natural hazards that could adversely affect the Project and how this could result in effects to the environment.

The EIS identifies, in general terms, local conditions and natural hazards that could have adverse effects on the Project and lists potential accidents and malfunctions that could occur as a result of effects of the environment on the Project. The EIS does not include specific details regarding potential environmental effects to VCs resulting from effects of the environment on the Project and the mitigation measures listed are not verifiable.

Additionally, no rationale is provided for how the proponent arrived at conclusions with respect to the probability and magnitude of potential effects (Table 6.43) or the evaluation of potential risk to the Project and potential significance of residual effects on the Project (Table 6.44).

Supplementary information is required to support the characterization of potential effects of the environment on the Project and any resulting adverse effects to VCs.

INFORMATION REQUEST

a) For each local condition, natural hazard, or event considered, describe potential effects to VCs and describe specific and verifiable mitigation measures and contingency measures that will be implemented to address any potential adverse effects.
b) Describe the methodology used to derive the probability of occurrence and magnitude determinations included in Table 6.43, and provide a rationale for the conclusions with respect to the probability and magnitude for each potential accident and malfunction that could result.

c) Describe the methodology used to evaluate the potential risk to the Project of environmental conditions/hazards/events and potential residual effects on the Project, as presented in Table 6.44. Provide a rationale for the conclusions presented with respect to the evaluation of potential risk to the Project and residual effects of the environment on the Project.

RESPONSE

a) A revised version of Table 6.43 from Chapter 6 of the Environmental Impact Statement (EIS) is provided below as Table IR1-67-1 to provide added detail regarding each of the local conditions, natural hazards, or events considered, further describe the potential effects to each Valued Components, mitigation and contingency measures that will be implemented to address potential effects

Table IR1-67-1. Potential Accidents and Malfunctions and Mitigation Measures

Potential Accident or Malfunction	Potential Effect	Applicable Valued Components	Potential Effects to Valued Components	Preventative / Contingency Mitigation Measures	Probability of Occurrence[3]	Emergency Response Procedure	Magnitude (degree or intensity of change)
Risk of accidental release of hazardous substances (including fuel, oil or pesticides)	Possible release of hazardous substances to soil, surface water or the atmosphere .	Fish and Fish Habitat	Adverse effects on fish and fish habitat due to introduction of deleterious substances into waterbodies	• Adherence to provincial regulations and guidelines regarding hazardous substance storage, use and handling. • Contractor(s) to ensure a copy of the Material Safety Data Sheets are in a location accessible to all workers, including MTI personnel, on the worksite for each hazardous product used and/or kept on site. • Adherence to Environmental Protection Procedures and Environmental Protection Specifications as outlined in Appendices 8-2 and 8-3 in Chapter 8 the EIS, including: ○ EP2 Petroleum Handling and Storage ○ EP3 Spill Response ○ EP5 Materials Handling and Storage ○ EP6 Working Within or Near Fish Bearing Waters ○ EP12 Blasting Near a Watercourse ○ EP16 Erosion and Sediment Control ○ EP17 Concrete Washout Management Practices ○ EP18 Dust Suppression Procedures ○ ES130.3 Submittals ○ ES130.5 Record Keeping ○ ES130.7 Inspections ○ ES130.8 Designated Areas and Access ○ ES130.9 Materials Handling, Storage and Disposal ○ ES130.10 Spills, Remediation and Emergency Response ○ ES130.13 Planned and Unplanned Shutdowns ○ ES130.14 Staff Training and Awareness ○ ES130.15 Working Within or Near Water ○ ES130.16 Erosion and Sediment Control ○ ES130.21 Cement Batch Plant and Concrete Washout Area	Low	Implementation of the Environmental Protection Procedures and Environmental Protection Specifications related to emergency response as outlined in Appendices 8-2 and 8-3 in Chapter 8 the EIS, including: • EP3 Spill Response • ES130.10 Spills, Remediation and Emergency Response Implementation of the applicable contractor's own environmental emergency plan(s)	Low
		Wildlife and Wildlife Habitat[1]	Adverse effects on wildlife and wildlife habitat due to introduction of deleterious substances into aquatic and terrestrial habitats		Low		
		Vegetation[2]	Loss or alteration of vegetation due to direct exposure to hazardous substances, or to contamination in soil		Low		
		Soil	Soil, surface water and groundwater contamination due to introduction of hazardous substances potentially resulting in potential effects on human health from exposure or consumption		Low		
		Surface Water			Low		
		Groundwater			Low		
		Human Health and Safety			Low		

Potential Accident or Malfunction	Potential Effect	Applicable Valued Components	Potential Effects to Valued Components	Preventative / Contingency Mitigation Measures	Probability of Occurrence[3]	Emergency Response Procedure	Magnitude (degree or intensity of change)

Risk of fire or explosion	Possible fire caused by collisions with fuel storage, contact of hot equipment with dry vegetation or explosions from exposure of fuel storage tanks and explosives storage to extreme heat from wildfire or collision with equipment	Wildlife and Wildlife Habitat[1]	Potential mortality of wildlife and/or displacement and disturbance of wildlife from fires or explosions
			
			Potential destruction of wildlife habitat
				• Adherence to federal regulations for the storage of explosives.
				• Adherence to provincial Code of Practice and legislative regulations / requirements for the use of explosives.
				• Contractor(s) to prepare Emergency Response Plan(s) for fires and explosives.
				• Contractor(s) to prepare Safe Work Plan(s).
				• Blasting contractor(s) will be certified.
				• Provision of advance notice to local communities when working near the communities and in advance of blasting.
				• Provide warning signs prior to detonation.
				• Presence and maintenance of on-site fire suppression equipment.
				• Adherence to Environmental Protection Procedures and Environmental Protection Specifications as outlined in Appendices 8-2 and 8-3 in Chapter 8 the EIS, including:
				  ○ EP1 Clearing and Grubbing
				  ○ EP2 Petroleum Storage
				  ○ EP15 Wildfires
				  ○ ES130.3 Submittals
				  ○ ES130.7 Inspections
				  ○ ES130.8 Designated Areas and Access
				  ○ ES130.9.2.5 Petroleum Handling and Storage
				  ○ ES130.13 Planned and Unplanned Shutdowns
				  ○ ES130.20 Wildfires
					Low	ES130.3.2.10 Contractor's Evacuation and Emergency Preparedness Plan in the Event of a Wildfire	Low

		Vegetation[2]	Loss or alteration of vegetation from fire or explosions		Low		
		Human Health and Safety	Risk of impacts to human health due to smoke and emissions from fires Risk of death or injury from explosions		Low		
Risk of forest fires during construction and operation	Possible naturally occurring fire or fire caused by	Wildlife and Wildlife Habitat[1]	Potential mortality of wildlife and/or displacement and disturbance of wildlife from wildfires	• Maintain on-site fire suppression equipment when working under high fire conditions. • Establish procedures to close the road due to proximity to wildfires.	Low	ES130.3.2.10 Contractor's Evacuation and Emergency	Low

Potential Accident or Malfunction	Potential Effect	Applicable Valued Components	Potential Effects to Valued Components	Preventative / Contingency Mitigation Measures	Probability of Occurrence[3]	Emergency Response Procedure	Magnitude (degree or intensity of change)
	construction activities (see Risk of Fire above)		Potential destruction of wildlife habitat	• Adherence to Environmental Protection Procedures and Environmental Protection Specifications as outlined in Appendices 8-2 and 8-3 in Chapter 8 the EIS, including: ○ EP1 Clearing and Grubbing ○ EP15 Wildfires ○ ES130.3 Submittals ○ ES130.7 Inspections ○ ES130.8 Designated Areas and Access ○ ES130.13 Planned and Unplanned Shutdowns ○ ES130.20 Wildfires		Preparedness Plan in the Event of a Wildfire	
		Vegetation[2]	Loss or alteration of vegetation from wildfires		Low		
		Human Health and Safety	Risk of impacts to human health due to smoke and emissions from wildfires		Low		
Increased risk of vehicle collisions during construction, operation and maintenance	Possible collisions between construction equipment or vehicles and wildlife, other vehicles or pedestrians	Wildlife and Wildlife Habitat[1]	Potential wildlife mortality due to collisions with vehicles	• Contractor to provide safe work plan(s) • Provide warning signage, speed control, flag persons near work areas along all-season road, as required. • Adherence to provincial highway safety regulations and codes. • Posting of appropriate speed limit, crossing and wildlife warning signage. • Incorporation of standard safe road design configurations and construction methods in the detailed all-season road design. • Regular construction progress updates to the local communities to communicate which areas along the all-season road route will be under construction and will ensure that emergency service providers are aware of the Project construction schedule.	Low	Implementation of the Environmental Protection Procedures and Environmental Protection Specifications related to emergency response as outlined in Appendices 8-2 and 8-3 in Chapter 8 the EIS (as or if needed), including: • EP3 Spill Response • ES130.10 Spills, Remediation and Emergency Response	Low
		Human Health and Safety	Risk of death or injury to workers or road users from collision between vehicles, or vehicles and pedestrians or workers		Low		

Potential Accident or Malfunction	Potential Effect	Applicable Valued Components	Potential Effects to Valued Components	Preventative / Contingency Mitigation Measures	Probability of Occurrence[3]	Emergency Response Procedure	Magnitude (degree or intensity of change)
						Implementation of the applicable contractor's own environmental emergency plan(s) (if required) Manitoba Public Insurance and Royal Mounted Police procedures as applicable	

[1] Wildlife and Wildlife Habitat includes ungulates, aquatic and terrestrial furbearers, amphibians and reptiles, migratory and non-migratory birds, species at risk (mammals, forest birds, waterbirds) and respective habitat for these species and groups.

[2] Vegetation includes species at risk and key community harvest areas.

[3] Probability of the accident or malfunction occurring and adversely impacting the valued component with application of preventative or contingency mitigation measures.

b) The methodology for assessment of effects related to potential accidents or malfunctions is described in Section 4.5.6.1 in Chapter 4 of the EIS. As described, the assessment considered the implementation of preventative or contingency measures as well as emergency measures used to respond to the identified potential accidents and malfunctions. This approach is similar to the assessment provided in Appendix 6-5 in Chapter 6 of the EIS which assessed potential effects after the application of proposed mitigation measures.

The magnitude determination was based on Chapter 4, Table 4.4 and Table 4.5 of the EIS, included as Appendix IR1-67-1 (Table IR1-67-2, Table IR1-67-3) of this response. The likelihood (probability of occurrence) was determined using the criteria described in Appendix IR1-67-2 (Table IR1-67-4) of this response.

Since preventative and contingency measures identified in Table IR1-67-1 are meant to decrease the probability of accidents and malfunctions from occurring via the implementation of precautionary measures and controls, the probability that these accidents and malfunctions could occur are all deemed to be low, or unlikely to occur.

Similarly, considering the implementation of preventative or contingency measures in addition to emergency response procedures should accidents and malfunctions actually occur, the magnitude of the potential impact has also been deemed to be low. This determination has been made on the basis that even if potential accidents or malfunctions were to occur, the preventative or contingency measures would have decreased the severity of the event. The secondary emergency procedure would act to further control the event or prevent further impact.

c) The methodology for assessment of effects related to potential accidents or malfunctions is described in Section 4.5.6.2 in Chapter 4 of the project environmental impact statement. Similarly, as mentioned above, the magnitude determination was based on Chapter 4, Table 4.4 and Table 4.5 of the EIS, included as Appendix IR1-67-1 (Table IR1-67-2, Table IR1-67-3) in this response. The likelihood (probability of occurrence) was determined using the criteria described in Appendix IR1-67-2 (Table IR1-67-4) of this response.

As shown in Table 6.44 in Chapter 6 of the EIS, the evaluation of potential risks to the Project resulting from potential effects of the environment on the Project are deemed low and residual effects are deemed not significant. This assessment considers the implementation of the identified mitigation measures, which includes specific design considerations to prevent or reduce effects of the environment on the Project, as well as additional identified measures to further prevent the occurrence or severity of effects.

APPENDIX IR1-67-1

Table IR1-67-2 Description of Assessment Criteria and Levels of Potential Environmental Effects (Table 4.4 in the EIS)

Assessment Criteria	Range of Criteria	Level of Effect and Definition[6]
Direction of Change (type of effect)	Neutral or Negligible	No measurable change on the VC.
	Negative	Net loss (adverse or undesirable change) on the VC.
	Positive	Net benefit (or desirable change) on the VC.
Duration (period of time the effect occurs)	Short-Term	**Level I** - The potential effect results from short-term events or activities such as the time required to complete a discrete component during construction, maintenance, or rehabilitation activities (a timeframe of several months up to one year).
	Medium-Term	**Level II** - The potential effect is likely to persist until the completion of construction and rehabilitation activities (> 1 year to 10 years).
	Long-Term	**Level III** -The potential effect is likely to persist beyond the completion of construction and rehabilitation activities into the operations and maintenance phase of the Project (a timeframe of > than 10 years).
Magnitude (degree or intensity of the change)	Negligible or Low	**Level I** - A change that is not likely to have a definable, detectable or measurable potential effect above baseline (potential effect is within a normal range of variation) or is below established thresholds of acceptable change (ex: water quality guideline). See **Table 4.5** for VC specific criteria.
	Moderate	**Level II** – A change that will have a potential measurable effect that can be detected with a well-designed monitoring program; but is only marginally beyond standards/guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
	High	**Level III** – A change that will have potential effects that are easily observed, measured and described (readily detectable without a monitoring program) and are well beyond guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
Timing[7]	No Sensitivity	**Level I** – Effect does not occur during critical life stage / effect does not occur during harvesting times as identified in Harvest Calendars created during Traditional Knowledge Studies.
	Moderate Sensitivity	**Level II** – Effect occurs at the start or end of a critical life stage/ effect occurs during opportunistic harvesting times as identified in Harvest Calendars created during Traditional Knowledge Studies.
	High Sensitivity	**Level III** – Effect occurs during a critical life stage/ effect does occurs during focused harvesting times as identified in Harvest Calendars created during Traditional Knowledge Studies.

[6] **Chapter 6** outlines VC specific definitions for the three level ranking system.
7 In terms of **Timing**, the critical life stages include things such as nesting, breeding, spawning and calving which will vary by VC and will vary annually depending on seasonal conditions. For example, it is clear that winter is outside of bird nesting and breeding period and that spring is fully within this critical time period, whereas early spring and late fall is a transitional period that depending on the seasonal conditions may or may not affect the life stage.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[6]
Extent (Spatial Boundary)[8]	Project Footprint	**Level I** - The physical space or directly affected area on which Project components or activities are located and/or immediately adjacent area which is within the defined limits of the 100-m all-season road ROW and permanent and temporary facilities (ex: temporary access routes and quarries) within which potential effects are likely to be measurable.
	LAA	**Level II** - Area within which potential Project effects are measurable and extending beyond the Project Footprint to, but not beyond, the LAA (either a 2 km or 20 km corridor centred on the all-season road alignment depending on the VC) (**Figure 4-1**).
	RAA	**Level III** - The maximum anticipated regional extent of potential direct, indirect and cumulative effects that may extend beyond the LAA. The boundaries of the RAA will vary depending on the VC.
Frequency (how often the effect occurs)	Infrequent	**Level I** - The potential effect occurs once or seldom during the life of the Project (ex: initial clearing of the ROW).
	Sporadic/Intermittent	**Level II** - The potential effect occurs only occasionally and without any predictable pattern during the life of the Project (ex: blasting at quarries; site-specific construction equipment noise; potential wildlife-vehicle collisions).
	Regular/Continuous	**Level III** – The potential effect occurs at regular and frequent intervals during the Project phase in which they occur or over the life of the Project (ex: operations traffic).
Reversibility (the degree of permanence)	Reversible (short-term)	**Level I** – Potential effect is readily reversible over a relatively short period (< than eight years).
	Reversible (long-term)	**Level II** - Potential effect is potentially reversible but over a long period (> than eight years).
	Irreversible	**Level III** - Project-specific potential effects are permanent and irreversible.
Ecological and Social Context (resilience of a VC to adapt to changes as a result of the project)	Low	**Level I** – Ecological - the VC is not rare or unique and is resilient to imposed change. Social - Indigenous people/communities in the RAA are able to adapt with relative ease and maintain pre-project development activities.
	Moderate	**Level II** – Ecological - The VC is moderately/seasonally fragile and has some capacity to adapt to imposed change. Social - Indigenous people/communities in the RAA are able to adapt with some adjustments and maintain pre-project development activities but only with a degree of support.
	High	**Level III** – Ecological - The VC is a protected/designated species under ESEA, SARA and species listed by COSEWIC and by the MBCDC as very rare (S1) to rare (S2) or fragile with low resistance to imposed change or part of a very fragile ecosystem. Social - affected Indigenous people/communities in the RAA will not be able to adapt to changes or maintain-pre-project development activities.

[8] **Figures 4-1** and **4-2** illustrate the VC specific spatial boundaries of the LAA and RAA, which are discussed in greater detail in **Chapter 6**.

Table IR1-67-3: Description of Magnitude Criteria and VC Specific Levels of Potential Environmental Effects (Table 4.5 in the EIS)

Component	Factor	Level I	Level II	Level III
Physical Environment	Air Quality	Emissions are above the baseline but are within CCME Canadian Ambient Air Quality Standards and Manitoba Ambient Air Quality Objectives and Guidelines criteria	Emissions have the potential to exceed Canadian Ambient Air Quality Standards or Manitoba Ambient Air Quality Objectives and Guidelines criteria resulting in the potential for adverse environmental effects to resources (land, water, biota) or residents.	Emissions are likely to exceed Canadian Ambient Air Quality Standards or Manitoba Ambient Air Quality Objectives and Guidelines criteria resulting in unacceptable adverse environmental effects to resources (land, water, biota) or residents.
	Climate	Greenhouse gas emissions of <0.1% of Canada's 2030 target CO2 emission rate of 523 Mt/a.	Greenhouse gas emissions of 0.1 to 1.0% of Canada's 2030 target CO2 emission rate of 523 Mt/a.	Greenhouse gas emissions of >1.0% of Canada's 2030 target CO2 emission rate of 523 Mt/a.
	Terrain, Soils and Geology	Effects considered minor and any soil alteration, loss or contamination is within CCME Soil Quality Guidelines for the Protection of Environmental and Human Health	Any soil alteration, loss or contamination has the potential to exceed a CCME Soil Quality Guidelines for the Protection of Environmental and Human Health resulting in the potential for adverse environmental effects.	Any soil alteration, loss or contamination exceeds CCME Soil Quality Guidelines for the Protection of Environmental and Human Health resulting in unacceptable adverse environmental effects.
	Water Quality - Surface	Water quality effects in receiving waters are within CCME Water Quality Guidelines for Protection of Aquatic Life and Manitoba Water Quality Standards, Objective and Guidelines; or if guidelines exceeded, no anticipated adverse environment effects beyond any defined mixing zones.	Water quality effects in receiving waters exceed CCME Water Quality Guidelines for Protection of Aquatic Life, Manitoba Water Quality Standards, Objective and Guidelines and have the potential to adversely affect drinking water uses, aquatic life and/or wildlife, beyond any defined mixing zones.	Water quality effects in receiving waters exceed CCME Water Quality Guidelines for Protection of Aquatic Life, Manitoba Water Quality Standards, Objective and Guidelines and guidelines and are likely to adversely affect drinking water uses, aquatic life and/or wildlife, beyond any defined mixing zones, likely resulting in unacceptable adverse environmental effects.

Component	Factor	Level I	Level II	Level III
	Water Quantity - Surface	Change to creek and river flows is within the range of natural variation or <15% of the seasonal average.	Change to creek and river flows is outside the range of natural variation and 15 to 25% of seasonal average.	Change to creek and river flows is outside the range of natural variation and >25% of seasonal average.
Physical Environment	Water Quality - Ground	Water quality effects in receiving waters are within applicable federal and provincial regulations and guidelines; or if guidelines exceeded, no anticipated adverse environment effects.	Water quality effects in receiving waters exceed applicable federal and provincial regulations and guidelines and have the potential to adversely affect drinking water uses.	Water quality effects in receiving waters exceed applicable federal and provincial regulations and guidelines and are likely to adversely affect drinking water uses, likely resulting in an unacceptable adverse effect.
	Water Quantity - Ground	Change to groundwater fed creek or river flows or well production is <15% of seasonal average.	Change to groundwater fed creek or river flows or well production is 15 to 25% of seasonal average.	Change to groundwater fed creek or river flows or well production is >25% of seasonal average.
Biological Environment	Aquatic Environment (aquatic life, fish and fish habitat)	In water work or structures necessary but no net loss of the productive capacity of fish habitat and no measurable reduction to fish communities or populations.	In water work or structures necessary resulting in a net loss of the productive capacity of fish habitat affecting local fish communities and populations.	In water work or structures necessary resulting in a net loss of the productive capacity of fish habitat affecting fish communities and populations.
	Aquatic Species at Risk – Lake Sturgeon	In water work or structures necessary but the effect is considered minor, habitat alteration/loss is restricted to non-limiting habitat and considered to be minor relative to availability.	In water work or structures necessary and will have a potential measurable effect on individuals, such as displacement of critical life stages (can be detected with a well-designed monitoring program). The potential effect is considered to be minor relative to population size or habitat availability and does not affect limiting habitat.	In water work or structures necessary and will have potential effects on individuals such as mortality, that are easily observed, measured and described (readily detectable without a monitoring program) and affects limiting habitat.
	Vegetation and Wetlands	Effect considered minor (only affecting common species or communities).	Activity has the potential to measurably affect vegetation communities or species but the	Activity is likely to measurably affect vegetation communities or

Component	Factor	Level I	Level II	Level III
			effect is limited to common species or communities.	species and may affect rare or protected species.
Biological Environment	Wildlife and Wildlife Habitat, including: • Amphibians and Reptiles • Migratory birds • Furbearers • Large game	A change that is not likely to have a definable, detectable or measurable potential effect and considered to occur at the individual level, not affecting population or habitat availability.	A change that will have a potential measurable effect on populations (readily detected with a well-designed monitoring program) and considered to be moderate relative to habitat availability.	A change that will have potential population effects that are easily observed, measured and described (readily detectable without a monitoring program) and considered to have a major effect on habitat availability.
	Wildlife Species at Risk	Effect is considered minor, habitat alteration/loss is limited to non-critical habitat and considered to be minor relative to availability.	A change that will have a potential measurable effect on individuals, such as displacement critical life stages (can be detected with a well-designed monitoring program). The potential effect is considered to be minor relative to habitat availability and does not affect critical habitat.	A change that will have potential effects on individuals such as mortality or destruction of nests, that are easily observed, measured and described (readily detectable without a monitoring program) and affects critical habitat.
Indigenous People (how changes to the environment as a result of the Project will affect activities exercised)	Socio-economic conditions including the use of navigable waters, recreational use and commercial fishing, hunting, trapping and gathering activities.	Indigenous people/communities in the RAA are able to adapt with relative ease and maintain pre-project development activities.	Indigenous people/communities in the RAA are able to adapt with some adjustments and maintain pre-project development activities but only with a degree of support.	Affected Indigenous people/communities in the RAA will not be able to adapt to changes or maintain pre-development activities.
Human Environment (how changes to the environment as a result of the	Current land use in the area including commercial activities, use of waterways and outdoor recreation.	Current land uses in the RAA are able to continue with relative ease and maintain pre-project development levels.	Current land uses in the RAA are able to continue with some adaptation and maintain pre-project development levels but only with a degree of support.	Current land uses in the in the RAA will not be able to continue and maintain pre-project development levels.

Component	Factor	Level I	Level II	Level III
Project will affect land use)	Human Health (noise, air quality, drinking and recreational water quality and country foods).	Selected parameter changes by <10% from baseline conditions within the RAA.	Selected parameter changes by 10 to 20% from baseline conditions within the RAA.	Selected parameter changes by >20% from baseline conditions within the RAA.
Human Environment (how changes to the environment as a result of the Project will affect land use)	Physical and cultural heritage and structures, sites or things of historical, archaeological, paleontological or architectural significance	Resources are disturbed by the proposed Project and are recoverable.	Resources of local importance are disturbed by the proposed Project and are not recoverable.	Resources of regional/national importance are disturbed by the proposed Project and are not recoverable.

APPENDIX IR1-67-2

Table IR1-67-4. Definitions for Categories of Likelihood (Probability of Occurrence) for Accidents and Malfunctions

Category	Description
Remote	Event could occur only in exceptional circumstances: <0.1%; 1-in-1,000 years
Low	Event unlikely to occur in normal circumstances: 0.1-1%; 1-in-1,000 years to 1-in-100 years
Moderate	Event could occur at some point: 1-10%; 1-in-100 to 1-in-10 years
High	Event probably will occur in most circumstances: 10-50%; 1-in-10 to 1-in-2 years
Very High	Event is expected to occur in most circumstances and has a history of occurrence: >50% occurrence; 1-in-2 years or more frequency

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-68

EIS Guideline Reference	• Part 2, Section 6.6.2
EIS Reference	• Chapter 6, Section 6.2.4.1.1 and 6.6.2.2
Category	Effects of the Environment on the Project

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe local conditions and natural hazards that could adversely affect the Project, including flooding and ice jams and consideration of the long-term effects of climate change, and how this could result in effects to the environment. The proponent is also required to provide details of planning, design, and construction strategies intended to minimize the potential effects of the environment on the Project.

The EIS notes that, should ice jams result in a threat to the integrity of Project components due to flooding and scouring of banks, feasible methods to break up ice jams would be considered and contingency measures would be coordinated with Indigenous communities and local law enforcement. It is unclear what "feasible methods" and contingency measures would be implemented to minimize potential environmental effects associated with flooding and ice jams.

The EIS indicates that bridges and culverts have been designed to accommodate 1:50 year flood events. No rationale is provided for why this design standard was chosen or whether culvert and bridge designs took into account the potential effects of climate change, such as potentially worse and more frequent flooding events. MSCN also expressed concerns regarding whether a design to accommodate 1:50 year flood events would be sufficient to protect their community and traditional resource use areas from flooding.

Supplementary information is required to support the characterization of potential effects of the environment on the Project and any resulting adverse effects to VCs, and to determine whether further mitigation or contingency measures may be required to address any adverse effects.

INFORMATION REQUEST

a) Describe specifically what "feasible methods" to breakup ice jams would be implemented to minimize potential adverse effects to VCs.

b) Describe examples of contingency measures that will be coordinated with Indigenous groups and local law enforcement should flooding occur that may compromise the use or safety of the ASR.
c) Provide a rationale for why MI chose to design bridges and culverts to accommodate 1:50 year flood events, whether potential effects of climate change on flooding were considered, and how this capacity will be sufficient to minimize the potential effects on MSCN's and other local Indigenous communities' traditional resource use areas and communities from flooding in areas where bridges and culverts are to be constructed.

RESPONSE

a) While not anticipated, should ice jams result in a threat to the integrity of Project components due to flooding and scouring of banks, methods used to breakup ice jams will depend on exact conditions such as ice thickness or other safety and environmental concerns. However, feasible methods could include blasting with explosives that are not ammonium-nitrate based, and which adhere to DFO's *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters* (Wright and Hopky, 1998). It could also include cutting of ice prior to breakup so as to encourage fracturing of ice into smaller sheets and prevent ice jams. Cutting of ice could be done with augers, or saws (e.g. chainsaws) in select locations.

b) As described in the response to IR1-07, stream crossing locations will be designed to meet a 1 in 50 year flood scenario design, which is seen as and adequate design by Manitoba Transportation and Infrastructure (MTI) for roads such as this. Given this design criteria, the Project footprint is not anticipated to be at risk of flooding and is not expected to impede or impact local and regional drainage.

Nonetheless, should flooding, inclement weather or other events occur and compromise the safety or use of the all-season road, MTI will post signage, and issue alerts to communicate concerns. MTI uses a variety of public facing systems to communicate road conditions and closures, including traditional road signage and Manitoba's 511 system. Manitoba's 511 system provides a call-in telephone services (Telephone Number: 511) as well as online maps (https://www.manitoba511.ca/map) to communicate up-to-date road conditions, closures, and construction/maintenance works. Decisions to close roads due to inclement weather or events such as flooding would ultimately be made by regional MTI personnel.

It is MTI's understanding that ISC is responsible for funding and working with Indigenous Nations communities to mitigate against, prepare for, respond to and recover from emergencies, including flooding.

c) MTI selected a 1:50 year (2% frequency return period), in accordance with the MTI Structures Design Manual (Government of Manitoba, 2011). This standard means that bridges and/or culverts are designed to accommodate flows from a flood event that based on statistical analysis, has a 2% chance of occurring or being exceeded in any given year. Such events may occur more than once within a short timeframe or may not occur for several decades. To ensure that the size of the culvert or bridge is appropriate for the site conditions, each crossing location will be assessed during detailed design using available hydrological data, including historical flood records and observed high-water elevations.

The design frequency is based on known data from representative gauge stations that have characteristics comparable to those at each crossing location. These estimates are based on several decades of recorded flows, from historical through to present day, thereby capturing changes in hydrological patterns that have occurred over the period of record. While there is uncertainty associated with future climate change projections, the use of the 1:50 year design standard provides an level of protection intended to reduce the risk of infrastructure damage and minimize potential disruptions to community access.

Designs also incorporate hydraulic, geotechnical, structural, and environmental criteria to ensure safe operation and to minimize adverse effects. By accommodating a 1:50 year flood event, the risk of future flooding that could impede access to traditional resource use areas or cause damage to infrastructure in proximity to Indigenous communities is reduced, allowing continued exercise of traditional activities by local Indigenous communities.

Therefore, MTI is of the opinion that designing crossings to accommodate a 1:50 year flood event is adequate for anticipated potential conditions along the proposed Project alignment and reduces risk of infrastructure damages to a satisfactory degree.

REFERENCES

Wright, D.G., and G.E. Hopky. 1998. Guidelines for the use of explosives in or near Canadian fisheries waters. Can. Tech. Rep. Fish. Aquat. Sci. 2107: iv + 34p. Accessed June 27, 2025 at: (https://publications.gc.ca/collections/Collection/Fs97-6-2107E.pdf

Government of Manitoba. 2011. Water Control & Structures. Structures Design Manual. Prepared by Manitoba Transportation and Infrastructure. Available at: structures_design_manual_version1.pdf

QUESTION IAAC IR1-69

EIS Guideline Reference	• Part 2, Section 6.6.2
EIS Reference	• Chapter 6, Section 6.6.2.6
Category	Effects of the Environment on the Project

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe local conditions and natural hazards that could adversely affect the Project, including consideration of the long-term effects of climate change, and how this could result in effects to the environment. The proponent is also required to provide details of planning, design, and construction strategies intended to minimize the potential effects of the environment on the Project.

While the EIS indicates that terrain mapping has been conducted for the area of the Project, no information regarding how permafrost conditions and terrain stability, including active layer thickness, will be assessed within the ASR alignment prior to and during construction or how stability will be monitored is provided.

The EIS also describes several road design features that are anticipated to minimize potential effects to permafrost, thereby limiting potential effects of permafrost thaw to the Project. Should areas of permafrost thaw and subside following construction, these would be addressed with road maintenance. The EIS does not explain how the road design features proposed would act to limit potential adverse effects of the Project to permafrost, especially considering potential warming and permafrost thaw associated with climate change. The EIS also does not provide details regarding road maintenance activities that would be used to address any areas of permafrost thaw and subsidence or the potential effects thereof.

Additionally, potential adverse effects to VCs that could result should permafrost thaw and subsidence occur are not described.

Supplementary information is required to support the characterization of potential effects of the environment on the Project and potential effects to VCs that may be adversely affected by road failure in the event of permafrost thaw.

INFORMATION REQUEST

a) Describe the geotechnical investigations that will be conducted prior to and during construction with respect to permafrost and provide information on MI's plans to address uncertainties with respect to active layer thickness and terrain stability to support the final design of Project components.
b) Describe the follow-up and monitoring plan that will be implemented at each Project phase to assess the validity of predictions with respect to the effect of permafrost on the Project, the effect of the Project on permafrost, the effectiveness of mitigation measures, and whether further mitigation or contingency measures may be required.
c) Provide additional detail regarding how the road design features described would limit potential effects of the Project to permafrost.
d) Describe potential adverse effects to VCs that may occur should subsidence or failure of the Project occur due to permafrost thaw. Describe the maintenance activities that would be required to address any damage to the Project and any associated effects to VCs from these maintenance activities. Describe mitigation and/or contingency measures that will be implemented to mitigate any adverse effects identified.

RESPONSE

a) Geotechnical investigations serve to better characterise subsurface geology for use in final design. Geotechnical investigations usually comprise of drilling a core at regularly spaced intervals along the centre of the proposed alignment with occasional "pushouts" to either side of the alignment centreline. Drilling depth may vary but typically includes drilling to the point of refusal (i.e. until the drill depth can no longer advance i.e. hit the bedrock).

Geotechnical investigations are documented as drill logs which can then be evaluated so as to identify the varying soil strata types and depths at each core location along the alignment. Ultimately, geotechnical investigations and the resulting drill logs are used to inform road design by accounting for existing natural conditions (which could include permafrost). Variations in subsurface stratigraphy is unlikely to result in major alignment shifts, but may influence structural design considerations such as the material types to be used (e.g. clay or aggregate) and volumes required.

b) As described in the Project's Environmental Impact Statement (EIS), should the road be constructed over areas of permafrost, and should these areas of permafrost thaw and settle, these issues will be addressed with road maintenance. Maintenance could include adding soils and or aggregate material in select locations where settlement is observed. If this occurs on a larger scale, repairs could include sloping from settled areas to adjacent high ground so that horizonal profiles remain safe for vehicular traffic.

c) As described in Chapter 6, Section 6.6.2.6 of the EIS, proper drainage of the road alignment and avoiding the impoundment of water can prevent the thaw of permafrost. Ponding water can act as a heat sink which may accelerate the thaw of permafrost.

Bush and Lemmen (2019) described that mean annual temperatures in Canada's northern regions has increased by 2.3°C from 1948 to 2016. These increases in mean temperature can result in more rapidly melting snow and ice and therefore larger spring run-off events (The Firelight Group, 2022). Water is known to be a good conductor of temperature and can accelerate the thaw of permafrost if it permeates the ground (Vincent et., al 2017) or if it accumulates and warms at surface, which facilitates heat transfer downward and leads to the formation of unfrozen zones beneath (Walvoord & Kurylyk, 2016).

Similarly, as also described in Chapter 6, Section 6.6.2.6 of the EIS, limiting the removal of overburden such as peat moss can prevent the that of permafrost by maintaining isolation of frozen soils to warmer temperatures at the surface.

d) Unmitigated subsistence of the roadway in areas built over permafrost could result in the following potential effects:

- Potential impacts to surface water, particularly to localized surficial flows.
    - Subsidence of the road may cause localized changes in drainage patterns which could in turn impact bogs, fens or wetlands. Although regularly spaced equalization culverts along and the coarse rock used to build the road base will be designed to allow continued flow of surface water, without maintenance flows could change or be further restricted if the road subsides.
- Impacts to fish and fish habitat at major crossing locations are not anticipated as bridges are expected to be founded on bedrock and/or soils of adequate stability for the structure.
- Effects to fish and fish habitat at small stream crossings, or fish and fish habitat that rely on inflows from surface water drainage may be impacted should surficial flows be interrupted or changed.
- Changes in surface water flows could also impact terrestrial habitat and therefore species at risk, wildlife, migratory birds and non-migratory birds.
- Impacts to groundwater or groundwater-surface water interchange is not anticipated as the groundwater aquifer is considered to be unconfined and in constant interaction with surface water sources in existing conditions (see the response to IR1-38).

With ongoing maintenance and inspection over the lifecycle of the Project, sudden failure of the roadway is not anticipated. As a result, potential impacts to valued components including human health and safety are not anticipated. Should monitoring and maintenance activities identify changes to ground stability, to the road surface, or to drainage, appropriate maintenance measures to address the issue and ensure safe travel will be implemented. These could include adding more borrow or aggregate materials to the road surface or for sloping to and from sunken or settled areas

and modifying or improving drainage. If necessary, portions of the road may require temporary closure or special measures such as reduced speeds or single lane traffic to allow maintenance operations to occur.

Potential effects to valued components resulting from maintenance works performed to address subsidence or failure of the road, or specific sections, would be similar to those identified for maintenance in Appendices 6-4 and 6-5 in Chapter 6 of the EIS. Should portions of the road require re-construction, effects of these activities would be similar to those associated with original construction which are summarized in Appendices 6-4 and 6-5 in Chapter 6 of the EIS.

REFERENCES

Bush, E. and Lemmen, D.S, eds. 2019. Canada's Changing Climate Report. Government of Canada. Ottawa, ON. Available at: Canada's Changing Climate Report

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

The Firelight Group. 2022. The Impacts of Permafrost Thaw on Northern Indigenous Communities. Firelight Research Inc. Vancouver, BC. Accessed at: https://climateinstitute.ca/wp-content/uploads/2022/06/Impacts-permafrost-thaw-Climate-Institute-Firelight-Report.pdf

Vincent, W. F., Lemay, M., & Allard, M. 2017. Arctic permafrost landscapes in transition: towards an integrated Earth system approach. Arctic Science, 3(2), 39–64.

Walvoord, M. A., & Kurylyk, B. L. 2016. Hydrologic Impacts of Thawing Permafrost-A Review. Vadose Zone Journal, 15(6), vzj2016.01.0010.

QUESTION IAAC IR1-70

EIS Guideline Reference	• Part 2, Section 5.1 and 6.6.3
EIS Reference	• Chapter 1, Section 1.2.3 • Chapter 2, Section 2.1.3 • Chapter 6, Section 6.1.11.3.8, 6.6.3.1.1, 6.6.3.1.2, 6.6.3.1.3, and 6.6.3.2 • Chapter 6, Table 6.46
Category	Cumulative Effects

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to identify and assess the Project's potential cumulative effects to VCs. For each VC, the proponent is required to assess the cumulative effects by comparing the future scenario with and without the Project.

The EIS describes several past, present, and future physical activities that were included in the cumulative effects assessment (CEA). The CEA did not consider past, present, and future:

- recreational use and tourism (e.g. ATV use; camping; non-Indigenous hunting, fishing, trapping, and gathering; and lodges) in the Project footprint, LAA, and RAA;
- a potential increase in the volume and duration of recreational use with increased access facilitated by the ASR;
- commercial forestry operations - although there are currently no active commercial forestry operations, the Hayes River and Boreal Shield Forest Management Sections are within the RAA and may become active in the future;
- potential mines or mineral/metal exploration projects other than the diamond exploration claim owned by Altius Resources Inc. referenced in the EIS, including those noted in submissions from MSCN and GLFN and described in the EIS; and
- induced developments that may occur as a result of construction and operation of the Project, such as mines, exploration projects, hydroelectric facilities, and transmission lines, including those noted in submissions from MSCN and GLFN and described in the EIS.

With respect to other potential road projects, the EIS indicates that at this time the Province of Manitoba has no plans to proceed with Provincial Road 373 to Wasagamack (Project 2) and Anderson Junction to Bunibonibee (Project 5) that would link the proposed Project to the ASR network in Manitoba. However, the EIS notes that MI's long-term objective is to complete the regional transportation network and provide communities in the area of the Project with year-round vehicular access to the provincial road network. Based on this information, it would seem that, while there are currently no plans to proceed with Project 2 and Project 5 in the near future, construction of these projects may be anticipated in the longer term. As such, the potential cumulative effects of these and other potential future road projects must either be considered in the CEA or it must be clearly described that the CEA is being undertaken in the absence of those projects. It must be clear which project benefits scenario required in IR1-89 (with or without Projects 2 and 5) is applied in the CEA and any adverse effects associated with that scenario must also be considered.

Table 6.46 of the EIS provides a summary of the CEA for each VC, including a determination of the significance of any residual cumulative effects. The EIS presents limited or no rationale to support the conclusions presented with respect to the duration, magnitude, timing, extent, frequency, reversibility, ecological and social context, significance, or likelihood of potential effects. The EIS also references a Table 6.47. However, there is no table present in the EIS labelled as "Table 6.47".

The EIS indicates that the Indigenous RAA was selected as the spatial boundary to assess VCs identified for the CEA. It is unclear how use of the Indigenous RAA would ensure that potential effects to all VCs are adequately characterized. For instance, the Indigenous RAA may not be sufficiently broad to capture potential downstream effects to water quality and fish and fish habitat. Additionally, the delineation of the RAA may not adequately capture the effects to all potentially impacted Indigenous groups (see IR1-24). A rationale is required to support the use of the Indigenous RAA as the spatial boundary for the CEA.

Supplementary information is required to support the characterization of potential cumulative effects of the Project in combination with other physical activities in the region to VCs. A complete characterization of all potential physical activities that could contribute cumulatively to adverse environmental effects is required to ensure that all potential adverse effects have been identified and considered and to determine whether further mitigation may be required.

INFORMATION REQUEST

a) Include all past, present, and reasonably foreseeable future physical activities, including consideration of those noted in the context piece, in the CEA for the Project and provide a description of any associated cumulative effects.
b) Describe measures that will be implemented to mitigate adverse cumulative effects to VCs from the activities described in the EIS and question a) and follow-up and monitoring that

will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects. Should mitigation measures exist that are outside of the care and control of MI, identify the potential adverse effect and the parties that may have the authority to act.

c) Revise the cumulative effects assessment for each VC, including the conclusions made with respect to the significance of potential cumulative effects and the summary of the CEA for each VC presented in Table 6.46, to include the physical activities identified in a) and mitigation measures identified in b).
d) Provide evidence or rationale to support the conclusions presented in Table 6.46 with respect to the anticipated duration, magnitude, timing, extent, frequency, reversibility, ecological and social context, significance, and likelihood of potential adverse cumulative effects.
e) Provide Table 6.47 or correct the reference to Table 6.47 in the EIS.
f) Provide a rationale for the use of the Indigenous RAA as the spatial boundary for the CEA and a description of how use of the Indigenous RAA adequately captures potential cumulative effects to all VCs and considered traditional use areas and/or the asserted traditional territory of all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines.
    i. Alternatively, revise the spatial boundaries used in the CEA to ensure that potential cumulative effects to all VCs are adequately characterized. Revise the CEA for each VC to account for this change.

RESPONSE

a) All the physical activities listed in the Context and Rationale section of this IR were considered but screened out for various reasons described below. The purpose of the Cumulative Effects Assessment (CEA) is to identify and assess adverse residual Project effects on Valued Components (VCs) that may become significant when they interact with potential effects of past, present and future physical activities in the region. As stated in Chapter 6, Section 6.6.3.1.1 of the Environmental Impact Statement (EIS) in accordance with the Agency guidelines for the proposed Project, VCs that would be affected positively by the proposed Project were omitted from the CEA. As stated in Chapter 6, Section 6.6.3.1.3 of the Environmental Impact Statement (EIS) the cumulative effects assessment considered past, present and future physical activities that are certain and reasonably foreseeable. These include existing infrastructure, existing winter roads, mineral dispositions, Manitoba Hydro transmission and sub-transmission lines, on-reserve community access roads, wireless and wired broadband services, and potential new school construction.

Chapter 6 of the EIS indicates that while the East Side Transportation Initiative (ESTI) outlined plans for other all-season roads in the vicinity of the proposed Project, at that time (2017) and currently

(July 2025) the Province of Manitoba currently has no plans or schedule to proceed with Project 2 (PR 373 to Wasagamack First Nation) and Project 5 (Anderson Junction to Bunibonibee Cree Nation) that would link the proposed Project to the all-season road network in Manitoba. These other all-season roads are therefore not included in the Cumulative Effects Assessment (CEA) as they are currently uncertain, not included in the Provincial budget and not planned to occur in the foreseeable future.

Another all-season road development connecting Wasagamack First Nation and St. Theresa Point First Nation in northern Manitoba (Project 3a) is currently included in Manitoba Transportation and Infrastructure's (MTI) 2024/2025 Multi-year Infrastructure Investment Strategy, 5-year Capital Investment Plan. Project 3a is located nearly 80km south/southwest of God's Lake First Nation (from its nearest point) and is wholly located outside of the Project 6 Regional Assessment Area (RAA). While the proposed Project (Project 6) may overlap temporally with construction of Project 3a, potential effects will not spatially overlap and are therefore not considered to cumulatively interact. Project 3a has therefore not been scoped into the cumulative effects assessment for Project 6.

The only other reasonably foreseeable activity related to all-season road construction that could overlap temporally and spatially with the proposed Project is the construction and operation of an on-reserve community access road in God's Lake First Nation to connect the proposed Project to existing community roads. The Bunibonibee Cree Nation access road to which the proposed Project would connect was built prior to the environmental assessment and considered pre-existing. Since the EIS submission, Manto Sipi now also has an on-reserve community access that would connect to the proposed Project as discussed in response to IR1-26. As described in the response to IR1-26, a community access road has yet to be constructed on God's Lake First Nation reserve lands to provide connection to the proposed Project. However, past experience with road construction on the east side of Lake Winnipeg has shown that funding and timelines of federal and provincial projects differ greatly and the projects would likely not overlap temporally.

Clearing for the P6 ASR is now intended to occur in the winter proceeding regulatory approvals as described in response to IR1-04. Other components of construction of the Project 6 All-Season Road as stated in the EIS would not begin until 2030 at the earliest, whereas the physical activities associated with other certain and reasonably foreseeable projects/activities are anticipated to be in-service prior to the construction of the road.

Similarly, as mentioned in the Project 6 Request for CEAA 2012 Extension, the Mining Exploration and Geoscience 2022-2023 report from Manitoba Natural Resources and Northern Development, identified two potential exploration sites within the Project area: Manitoba Adia Resources Inc. – Knee Lake (Diamonds) and Vision Lithium Inc. – Gods Lake (Godslith) (Li). Adia Resources completed a 2020 drilling program at their Knee Lake Lynx Project, located 30 kilometers east-southeast of BCN (Adia Resources, 2021). This property is located near Knee Lake and consists of >117,000 ha of mineral exploration licences. Adia has shared an Exploration Agreement with

Bunibonibee Cree Nation for the Project since 2018 and according to Adia Resource documents Adia has community support for exploration activity and seeks out local labor and services when possible. In 2018, Altius Minerals Corporation ("Altius") incorporated Adia Resources Inc. to accelerate the ongoing exploration and advancement of the Lynx Diamond Project. As presented in Table 6.45 in Chapter 6 of the EIS, a statement made by Altius and Bunibonibee Cree Nation indicated that the likelihood of developing a mine was only 1:10,000. For the purposes of the cumulative effects assessment this is not considered a reasonably foreseeable activity.

The Godslith site, which is located less than one kilometre from Gods River, was acquired by Vision Lithium in March 2021 (Vision Lithium, 2022). The property covers a total area of 5,560 ha. According to the company's website for the Godslith site "a qualified person has not done sufficient work for Vision Lithium to classify the historical estimates as current "mineral resources" or "mineral reserves" (as defined in NI 43-101)". NI 43-101 refers to National Instrument 43-101 Standards of Disclosure for Mineral Projects, a Canadian securities regulation that governs how mining companies must disclose scientific and technical information about their mineral properties. This instrument ensures transparency and accuracy in reporting to protect investors. Its purpose is to ensure that public disclosure of scientific and technical information related to mineral projects is understandable, consistent, and based on information provided by qualified experts and to prevent the dissemination of misleading, erroneous, or fraudulent information about mineral properties. An exploration agreement was to be negotiated between Vision Lithium and Manto Sipi Cree Nation.

No timelines were identified for the future development of potential mine locations at Knee Lake and Gods River. It is anticipated that exploratory activities would involve drilling small exploratory holes and access would be provided either via access roads or helicopters, but the extent and timing of potential mining exploration is unknown and is an uncertainty in the CEA. As details are unknown, mining exploration is not known to be foreseeable future activities.

Additional infrastructure projects such as new schools in Bunibonibee Cree Nation and Manto Sipi Cree Nation, and a new school and nursing home in God's Lake First Nation have now been completed. Any other on-reserve infrastructure development project that may occur in the future, would be located within the local Indigenous Nations and would be no closer to the all-season road than residences previously identified. Additionally, the previous schools and nursing home are no longer in use following the construction of the new facilities and therefore there was no change or potential cumulative effect. There is no temporal overlap and no need for further assessment. Additional assessment to consider other possibly foreseeable activities listed in the context and rationale for this information request is not required for the reasons described below.

Recreational use and tourism (e.g. ATV use; camping; non-Indigenous hunting, fishing, trapping, and gathering; and lodges) in the Project footprint, Local Assessment Area (LAA), and RAA (including a potential increase in the volume and duration of recreational use) is not anticipated to change as the only current means of access into the RAA is by air, or winter road. Without

construction of additional roads that would link Project 6 to the provincial highway network (i.e. Project 2 and/or Project 5 described earlier) there is no change to access of the region for recreation and tourism. As there are no current plans to construct Project 2 and/or Project 5, there is no pathway to an increase in recreational use above current levels and no further assessment required.

As said in the context and rational for this information request, there are currently no active commercial forestry operations. Even though the Hayes River and Boreal Shield Forest Management Sections overlap the RAA there are no known foreseeable future plans to initiate commercial forestry operations in these forest management units. There is therefore no pathway for cumulative effects and no further assessment required.

Known mine sites at the time of the EIS submission are shown in Figure 6-6 in Chapter 6 of the EIS, (included as Figure IR1-70-1 in Appendix IR1-70- 1) and are located on an island in God's Lake. However, according to the Canada's Minerals and Mining Map, no active mine sites are present in the Project area (Government of Canada, 2021). Although additional mineral exploration may occur in the area, as discussed above, there are no known timelines for this work and are therefore not foreseeable activities for cumulative effects assessment.

Although construction of the road has potential to facilitate other developments such as mines, exploration projects, hydroelectric facilities, and transmission lines, including those noted in submissions from MSCN and GLFN and described in the EIS, there are no such known foreseeable activities to assess or consider at this time.

God's Lake FN and Manto Sipi have requested that MTI better align sections of the current winter road alignment with the proposed Project 6 ASR alignment. The communities identified concerns about safety and constructability challenges associated with the current alignment, particularly in areas where excessive turns and the existing terrain's geometry and topography pose risks to traffic users and difficulties for winter road construction. The timing of clearing for the P6 ASR is now proposed to start in the winter following regulatory approvals to better address safety issues and community requests related to the winter road. Winter road traffic will be maintained and accommodated during ASR construction activities through construction sequencing and phasing or construction temporary shooflies within the road right of way. Decommissioning of the existing network of winter roads that are no longer required due to the presence of the ASR will consist of blocking off unused areas and allowing for natural vegetation regeneration.

The overlap between the ASR and winter road described in the EIS no longer applies to these segments, given that clearing for the ASR will now occur earlier, and the old winter road will be allowed to revegetate approximately 8 to 11 years earlier than originally planned. As such, this constitutes a Project-related change in timing and sequencing, which means that winter road clearing is now considered a direct Project effect rather than a contributing factor to cumulative effects. Additional details of this change are provided in in MTI's response to IR1-04.

b) As described above, it is unlikely that other past, present and future physical activities will interact with the proposed all-season road and cause adverse cumulative effects to Valued Components. Mitigation measures for VCs have already been outlined in the EIS and remain unchanged. These measures are outlined in Chapter 6, Appendix 6-4 and Chapter 7, Appendix 7-1 of the EIS. As described in Section 6.6.3.3 in Chapter 6 of the EIS, it is not anticipated that further mitigation in addition to those listed in Appendices 6-4 and 7-1 as identified above are required.

c) As described in the responses to A and B above, the CEA presented in the EIS already incorporates all reasonably foreseeable physical activities, and no additional revisions to Table 6.46 are necessary.

Table 6.46 already includes potential cumulative effects of Indigenous people's recreational use with increased access facilitated by the ASR. Other recreational use and tourism (e.g. ATV use; camping; non-Indigenous hunting, fishing, trapping, and gathering; and lodges) in the Project footprint, Local Assessment Area (LAA), and RAA (including a potential increase in the volume and duration of recreational use) is not anticipated to change as the only current means of access into the RAA is by air, or winter road. Other foreseeable activities, such as commercial forestry operations within the Hayes River and Boreal Shield Forest Management Sections and potential mining or mineral exploration projects (e.g. Altius Resource diamond exploration), could have indirect effects on Indigenous communities, wildlife, species at risk, and fish habitats. However, as stated in Chapter 6, Section 6.6.3.1.1 of the EIS, the extent and timing of these forestry activities are not in the foreseeable future and remain uncertain – as such, they were screened out for the CEA.

As identified in response to A, infrastructure development projects in the local Indigenous Nations (e.g., schools, nursing homes) will be no closer to the all-season road than previously identified residences and will not contribute to cumulative effects. The cumulative effects assessment presented in Chapter 6 of the EIS identified these sites and they are on-reserve, removed from the road (spatially and temporally) and were screened out of the evaluation. Additionally, past on-reserve infrastructure has been decommissioned and is not included in the cumulative impact.

Mitigation measures outlined in the EIS remain applicable and sufficient to address potential Project effects. These include restricting access to sensitive areas, prohibiting firearm possession to minimize hunting pressure, enforcing hunting prohibitions, among others. As presented in the response to IR1-19 and above in response B, MTI will selectively reassess data validity where legislative changes occur during the preconstruction phase (1-2 years before construction) to ensure that predictions in the EIS remain accurate. If significant changes in baseline data occur, an updated assessment will be conducted.

d) The CEA effects summary for each VC having the potential to combine with residual Project effects and potential residual effects of those past, present and future physical activities are outlined in Table 6.46. Physical activities that are certain and reasonably foreseeable would not overlap temporally with residual effects of the proposed Project given that construction of the all-season road would not begin until 2030. Those which are reasonably foreseeable (such as Project 3a described in response A) and which may overlap temporally, do not overlap spatially with the proposed Project. The rationale for the CEA effects summary is described below.

Fish and Fish Habitat

As described in Chapter 6, Section 6.6.3.2.1, the residual effects of the proposed Project on aquatic resources are expected to be minor due to the limited potential for and short-term duration of interactions with the aquatic environment. The direction of residual effects is considered negative, as construction activities will temporarily disturb fish habitat. These effects will be short-term, limited to the construction period, and associated with discrete activities and sites.

The magnitude of the effects is low, as no measurable reduction in fish populations is expected and there is requirement for habitat offsetting under the Fisheries Act if a serious harm (i.e. HADD) will occur. While the timing of road construction may overlap with fish spawning periods, mitigation measures that will be applied such as adherence to the Department of Fisheries and Oceans' Manitoba restricted activity timing windows for the protection of fish and fish habitat for in-water works will minimize any potential adverse effects. The extent of the impacts is expected to be primarily within the Project Footprint but may extend into the (LAA). These effects are anticipated to be infrequent, occurring mainly during active construction.

The effects are considered reversible in the long term, as natural recovery processes and habitat offsetting (if required) will restore impacted areas. From an ecological and social context, the significance of these effects is low, as fish populations and habitat have the capacity to recover over time. Moreover, the project design does not incorporate features such as boat ramps, docks, or other structures that would facilitate increased access to fish-bearing watercourses, thereby limiting potential fishing pressure. Additionally, the decommissioning of the winter road, once the all-season road is completed, will reduce potential damage to fish and fish habitat at winter road watercourse crossings.

Considering other activities or projects that may overlap with the proposed Project, no indications suggest cumulative adverse effects beyond those already identified in the EIS, and no further mitigation measures are required. Given these factors, the potential adverse cumulative effects are expected to be minor, short-term, and mitigated, with no significant impact beyond the anticipated effects and their respective management measures.

Migratory Birds

Cumulative effects are not anticipated to result in environmental impacts that would lead to habitat loss for migratory birds or increased bird mortality to significantly impact migratory bird populations. Additionally, other overlapping activities or projects do not indicate the potential for cumulative adverse effects that would require further mitigation beyond those already identified in the EIS.

The direction of residual effects is considered negative, as construction activities could cause temporary habitat disturbance and sensory impacts. However, these effects will be short-term, occurring only during discrete activities. The magnitude of these effects is low, as habitat loss is minimal relative to the available habitat, and any impacts are expected to occur at the individual level rather than measurably affecting bird populations. While proposed project activities are scheduled to avoid critical life stages, some birds may still experience sensory disturbances.

The frequency of impacts is considered continuous, particularly because upland game bird hunting can occur year-round, but these effects are reversible over time. In the long term, the effects are expected to be reversible as habitat regenerates and bird populations adapt. From an ecological and social context, the impact is considered low, as migratory bird populations are resilient to temporary habitat disturbances. Given these considerations, the overall significance of the cumulative effects is determined to be not significant, as no adverse effects beyond baseline variability have been identified.

Species at Risk

Cumulative effects on species at risk were discussed in Chapter 6, Section 6.6.3.2.3 of the EIS. The Southern Hudson Bay-James Bay population of Lake Sturgeon, classified as Special Concern by COSEWIC, and listed as Special Concern in Schedule 1 of the Species at Risk Act, overlaps with the Project area but lacks designated critical habitat. Similarly, 14 plant Species at Risk occur within the Vegetation RAA, though none are federally or provincially protected. Mammal Species at Risk in the project area include woodland caribou (Boreal Woodland and Eastern Migratory ecotypes), wolverine, and little brown bat. While Boreal Woodland caribou and little brown bat have Recovery Strategy Plans, Eastern Migratory caribou is currently only assessed by COSEWIC but may be listed under SARA by the time the Project is built. Critical habitat for Boreal Woodland caribou exists within a small portion of the Wildlife RAA but remains outside the LAA.

The direction of residual effects is considered negative, as potential habitat disturbances could impact certain species at risk. However, these effects will be short-term, primarily occurring during discrete construction activities. The magnitude of effects is considered minor for lake sturgeon due to the limited potential for in-water effects and the relatively small number of locations where the species may occur. Similarly, for caribou, the impact is considered minor relative to the overall availability of habitat. The timing of activities may overlap with periods of high sensitivity, such as spawning or calving, but mitigation measures will be implemented to minimize effects.

The extent of these residual effects is expected to be localized to the LAA, though some impacts may extend regionally for mobile species such as caribou. The frequency of disturbances is anticipated to be infrequent, as most species at risk have limited overlap with project activities. While some effects, such as habitat disturbance for nesting sites, may be irreversible, the majority of impacts are expected to be mitigatable through monitoring and adaptive management measures. The ecological and social context is considered moderate, as any decrease in the population of species listed under SARA would be of concern. Although the overall significance of the effects is determined to be not significant, as noted in the Environmental Management Plan Framework for Project 6 in Appendix 8-1 of the EIS, aquatic environment and wildlife monitoring plans will be developed and are anticipated to verify the accuracy of predictions made during the environmental assessment.

Indigenous Peoples

While project-related changes may temporarily affect traditional land use, they are not expected to significantly affect community life, traditional lifestyles, or individual well-being due to the implementation of mitigation measures. Additionally, the road connects four Indigenous communities that already have access to each other via winter roads and waterways, minimizing any major disruptions.

Traditional land and resource use patterns may shift due to increased access, which could be both a challenge and a benefit. The road is expected to provide advantages by improving year-round access for resource users and strengthening connections between the communities. While temporary construction-related disturbances may occur, they will be infrequent and confined to specific project phases. The extent of these effects is regional, as resource harvesting areas extend beyond the immediate project footprint.

The magnitude of impacts is considered low, as traditional practices can continue with some modifications. Effects are reversible in the short term, as Indigenous communities can adapt and access new areas, and mitigation measures will help reduce disruptions. From an ecological and social perspective, communities remain resilient to a degree of change. Overall, cumulative effects are not considered significant, as no adverse effects beyond baseline characteristics have been identified.

Heritage and Archaeological Resources

The potential for cumulative effects is minimal, as the project is unlikely to overlap with other past, present and future physical activities. While there may be some spatial overlap with other activities or projects, there is no temporal overlap between the proposed Project and other anticipated activities in the RAA, with the possible exception of diamond exploration in the Bunibonibee Cree Nation traditional territory. At this time however (and as described above), these activities are not reasonably foreseeable.

Although construction activities for the proposed Project may temporarily disturb areas of cultural or historical importance, these effects will be short-term and primarily associated with discrete activities such as right-of-way clearing. The magnitude of these effects is considered low, as culturally significant areas were avoided through TK studies and HRIA. Since archaeological resource impacts are not seasonally dependent, timing is not a critical factor. The extent of effects is localized to the (LAA), as any impacts will be specific to identified heritage sites. Disturbances are expected to be infrequent, and impacts are considered reversible in the short term through protective measures (i.e. Heritage Resources artifact recovery program), site monitoring, and adaptive management. While these sites hold historical importance, their current use is limited, contributing to a low ecological and social context. Overall, the significance of cumulative effects is not expected to be substantial, as mitigation measures effectively prevent long-term adverse impacts.

Given that no significant adverse cumulative effects are anticipated from past, present, or reasonably foreseeable future activities, additional follow-up studies are not expected to be necessary beyond those outlined in Chapter 6, Appendix 6-4, which will verify the Environmental Assessment's accuracy and the effectiveness of mitigation measures during design, construction, maintenance, and operation. Should unexpected adverse cumulative effects arise as a result of the proposed Project in the future, additional measures can be discussed with Manitoba HRB.

e) There is no Table 6.47 in the EIS. The correct reference should have been Table 6.46.

f) As stated in Chapter 6, Section 6.6.3.1.2 of the EIS, the Indigenous RAA was selected as the spatial boundary to assess VCs identified for the CEA. The CEA spatial boundary encompasses the Traditional Territories of Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation. This CEA spatial boundary considers changes to the environment that cumulatively may indirectly affect the health and socio-economic conditions and traditional use areas and resources of the local Indigenous Nations and people in the region. This includes fish and fish habitat upstream and downstream of the Project Footprint for the all-season road that are connected to watercourses potentially affected by the proposed Project and would be harvested by the Indigenous Nations.

The Indigenous RAA was also selected for the CEA spatial boundary as it contains the smaller Wildlife RAA, addressing Species at Risk and migratory birds. The Wildlife RAA was determined using a multi-disciplinary approach incorporating both biophysical and social factors to ensure home ranges of large ranging species (ex: caribou) and areas of traditional use were considered. Because the Indigenous RAA is larger than the Wildlife RAA, potential cumulative effects to VCs may be limited to only a small portion of the CEA spatial boundary.

Draft chapters of the EIS were distributed to Manto Sipi Cree Nation, Bunibonibee Cree Nation and God’s Lake First Nation, and God’s Lake Narrows Northern Affairs Community prior to formal submission to support early review and feedback (Chapter 5, Section 5.4.1 of the EIS). The full draft EIS was sent out on July 24, 2018, with accompanying cover letters included in Chapter 5, Appendix 5-6 of the EIS, to facilitate review during the public comment period.

APPENDIX IR-70-1

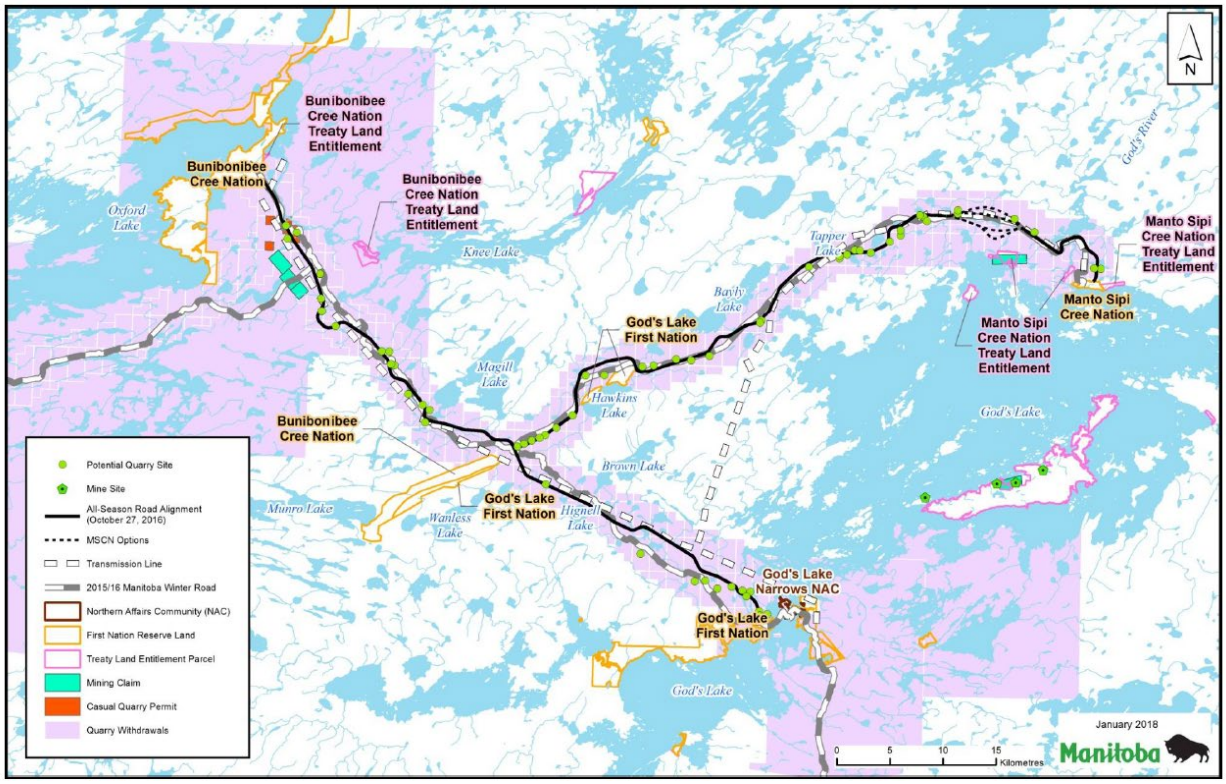


Figure IR1-70-1. Quarry and mining activity in the vicinity of the proposed Project and potential construction quarry sites. (Figure 6-6 in the Project EIS).

REFERENCES

Adia Resources. 2021. Adia Resources Announces Microdiamond Analyses from the 2020 Drilling Program on the Lynx Diamond Property. Available at: https://adiaresources.com/pdf/2021-02-22-Adia-PR-Final.pdf

Government of Canada; Natural Resources Canada;Strategic Policy and Innovation Sector, GeoDiscovery. 2021. Critical minerals advanced projects, mines and processing facilities in Canada. Government of Canada; Natural Resources Canada; Strategic Policy and Innovation Sector, GeoDiscovery.

Government of Manitoba; Manitoba Transportation and Infrastructure; 2024/2025 Multi-year Infrastructure Investment Strategy 5-year Capital Investment Plan. Available at**:** https://www.gov.mb.ca/mti/myhis/pdf/2024_multi-year_infrastructure_investment_strategy.pdf

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QUESTION IAAC IR1-71

EIS Guideline Reference	• Part 2, Section 6.6.3
EIS Reference	• Chapter 6, Section 6.6.3.3.2.1, 6.6.3.2.2, and 6.6.3.2.3 • Chapter 6, Table 6.46
Category	Cumulative Effects

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to identify and assess the Project's potential cumulative effects to VCs.

The CEA for fish and fish habitat presented in the EIS only includes potential residual Project effects resulting from increased fishing access, and therefore fishing pressure. However, as noted in the EIS, potential residual effects to fish and fish habitat may also result from spills of hazardous materials and/or other deleterious substances. Further, while the proponent anticipates residual Project effects to fish passage and habitat connectivity to be minor, cumulative effects to fish passage and habitat connectivity may result in combination with other past, present, and future physical activities. These potential effects must also be considered in the CEA for fish and fish habitat.

In the CEA for migratory birds, the EIS only considers potential residual Project effects resulting from habitat loss/alteration/fragmentation and mortality. However, the EIS notes that residual effects to migratory birds may also result from loss of nests due to vegetation clearing, and increased sensory disturbance and displacement. These potential residual effects must be considered in the CEA for migratory birds.

The EIS also does not describe potential adverse effects of past, present, and reasonably foreseeable future physical activities other than the Project that may act cumulatively to cause adverse effects to fish and fish habitat and migratory birds, indicating that other activities or projects that could overlap with the proposed Project do not have the potential to result in cumulative adverse effects that would require further mitigation. Other past, present, and reasonably foreseeable future physical activities, such as mining exploration and potential future development of mines, could result in adverse effects to fish and fish habitat and migratory birds,

including habitat alteration/loss, sensory disturbance, and the potential release of deleterious substances. These potential adverse effects must be described to assess the significance of potential cumulative effects to fish and fish habitat and migratory birds.

With respect to potential cumulative effects to species at risk, it is unclear which potential residual Project effects were considered in the CEA as no potential effects of the Project are summarized. The CEA must include all potential residual adverse effects to all species at risk resulting from the Project; a summary of the effects considered in this assessment would aid in ensuring that all relevant potential effects are considered.

The EIS does not describe potential adverse effects of past, present, and reasonably foreseeable future physical activities other than the Project that may act cumulatively to cause adverse effects to species at risk, indicating that other activities or projects that could overlap with the proposed Project do not have the potential to result in cumulative adverse effects that would require further mitigation. Other past, present, and reasonably foreseeable future physical activities, such as mining exploration and potential future development of mines, could result in adverse effects to species at risk, including habitat alteration/loss, sensory disturbance, and the potential release of deleterious substances. These potential adverse effects must be described for each species at risk to assess the significance of potential cumulative effects. As each species may be affected differently, potential effects must be described for each species individually.

As described above (see IR1-70), connection of the Project to the broader provincial road network could result in induced developments or increased access to areas important for boreal woodland caribou habitat. As caribou prefer undisturbed habitat, this could result in adverse effects to caribou populations and must be considered in the CEA.

Supplementary information is required to support the characterization of potential cumulative effects of the Project in combination with other past, present, and future physical activities in the region to fish and fish habitat, migratory birds, and species at risk, and to determine whether further mitigation may be required.

INFORMATION REQUEST

a) Summarize the residual effects to fish and fish habitat, migratory birds, and species at risk resulting from the Project, following the implementation of mitigation measures, even if effects are anticipated to be minor.
    i. With respect to species at risk, ensure that all potential residual Project effects are considered for each species individually.
b) Describe potential adverse effects of all past, present, and reasonably-foreseeable future physical activities that may act cumulatively with the Project to result in adverse effects to

fish and fish habitat, migratory birds, and species at risk, including the activities listed in the EIS and those activities referred to in IR1-70.

i. With respect to species at risk, ensure that potential effects are described individually for each species.

c) Describe mitigation measures that will be implemented to address any cumulative effects identified in b) and follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.

d) Update the conclusions presented in the cumulative effects assessment for fish and fish habitat, migratory birds, and species at risk, including the assessment of the significance of cumulative effects and the summary of effects presented in Table 6.46, to consider the potential effects and mitigation measures identified in b) and c).

RESPONSE

a) Residual effects to fish and fish habitat, migratory birds, and species at risk were assessed and considered in Chapter 6 of the Project Environmental Impact Statement (EIS). Appendix 6-5 in Chapter 6 of the EIS summarized the residual effects after the implementation of mitigation measures. Table IR1-71-1included below lists the residual effects to fish and fish habitat, migratory birds, and species at risk as presented in the EIS. With respect to species at risk, Chapter 6, Section 6.1.8 of the EIS demonstrates that all provincially and federally listed wildlife species with potential to occur in the Wildlife Regional Assessment Area (RAA) were assessed. Individual species at risk were therefore considered and reflected under the aggregated heading of Species At Risk in Table IR1-71-1 below.

Table IR1-71-1. Summary of residual effects to fish and fish habitat, migratory birds and species at risk.

Residual effects to fish and fish habitat, migratory birds, and species at risk	
Fish and Fish Habitat	• Alteration and loss of riparian habitat (shorelines) and fish habitat (in-stream) at water crossings. • Decreased quality of fish habitat and effects to fish as a result of previously identified effects (increased suspended solids) from disturbed banks, right-of-way runoff and in-stream works during construction. • Temporary blockage or reduction in fish passage outside of DFO's restricted activity timing windows at temporary construction crossings and permanent culvert crossings during installation of watercourse crossings. • Potential injury or death of fish from compressive shock waves close to blasting activities. • Potential decrease in fish populations as result of reduced surface water quality from accidental spills of fuel or hazardous materials from construction equipment or vehicles and vehicular accidents. • Increased fishing pressures on local fish populations resulting from increased access to watercourses. • Risk during construction, maintenance and operation for introduction of aquatic invasive species (ex: zebra mussel) that can reduce diversity and populations of native species and modify habitat.
	• Alteration, fragmentation and/or loss of migratory (ex: raptors, waterfowl, forest birds) bird habitat due to clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps.

Residual effects to fish and fish habitat, migratory birds, and species at risk	
Migratory Birds	• Loss of nests and mortality to young migratory (ex: raptors, waterfowl, forest birds) birds during construction, maintenance and operation. • Increased sensory disturbance to and displacement of migratory (ex: raptors, waterfowl, forest birds) birds due to vehicle and equipment noise and vibration during construction, maintenance and operation. • Increased mortality of migratory (ex: waterfowl) birds due to increased hunting pressures during construction and with increased access in spring, summer and fall along the all-season road. • Increased mortality of migratory (ex: waterfowl, forest birds) birds due to vehicular collisions during construction, maintenance and operation.
Species at Risk	• Potential decrease in the population and/or habitat of rare fish species (ex: lake sturgeon) as a result of previously identified potential effects (water quality, shock waves fish passage, habitat and invasive species) from construction, maintenance and operation activities. • Disturbance or loss of vegetation Species at Risk resulting from clearing during construction and maintenance. • Decrease in the population and/or habitat of woodland caribou as a result of previously identified effects (clearing, sensory disturbance, hunting pressure, vehicle collisions, predation and disease) from construction, maintenance and operation activities. • Decrease in the population and/or habitat of wolverine, little brown myotis, as a result of previously identified effects (clearing, sensory disturbance and vehicle collisions) from construction, maintenance and operation activities. • Decrease in the population and/or habitat of little brown myotis as a result of previously identified effects (clearing and sensory disturbance) from construction, maintenance and operation activities. • Decrease in the population and/or habitat of bank swallow, barn swallow, Canada warbler, common nighthawk, eastern wood-pewee, olive-sided flycatcher, peregrine falcon, rusty blackbird, and short-eared owl, as a result of previously identified effects (clearing, sensory disturbance, loss of nests and vehicle collisions) from construction, maintenance and operation activities. • Decrease in the population and/or habitat of horned grebe and yellow rail as a result of previously identified effects (drainage alteration, clearing, sensory disturbance, loss of nests, hunting pressure and vehicle collisions) from construction, maintenance and operation activities.

b) As stated in Chapter 6 of the EIS and in response to IR1-70, past, present or future physical activities that are certain and reasonably foreseeable would not overlap temporally or spatially with the proposed Project, with the possible exception of on-reserve community access roads in God's Lake First Nation to connect the proposed Project to existing community roads. However, past experience with road construction on the east side of Lake Winnipeg has shown that funding and timelines of federal and provincial projects differ greatly, and the projects would likely not overlap temporally. Clearing for the P6 ASR is now intended to occur in the winter after regulatory approvals as described in response to IR1-04. Other components of construction of the Project 6 All-Season Road as stated in the EIS would not begin until 2030 at the earliest, whereas the physical activities associated with other certain and reasonably foreseeable projects/activities are anticipated to be in-service prior to the construction of the road.

Additionally, the remote nature of the region has resulted in the limitation of past, present and reasonably foreseeable physical activities. While the East Side Transportation Initiative (ESTI) outlined plans for other all-season roads in the vicinity of the proposed Project, at this time the

Province of Manitoba has no plans or schedule to proceed with Project 2 (PR 373 to Wasagamack First Nation) or Project 5 (Anderson Junction to Bunibonibee Cree Nation) that would link the proposed Project to the provincial highway network in Manitoba. These other all-season roads are not included in the Cumulative Effects Assessment as they are currently uncertain and likely will not occur in the foreseeable future.

New schools in Bunibonibee Cree Nation and Manto Sipi Cree Nation, and a new school and nursing home in God's Lake First Nation have now been finalized. Any other infrastructure development project that may occur in the future, would be within the local Indigenous Nations on federal reserve lands and would be no closer to the all-season road than residences previously identified. Additionally, the previous schools and nursing home are no longer in use following the construction of the new facilities and therefore there was no change or potential cumulative GHG effect.

No timelines were identified for the future development of potential mine locations at Knee Lake and Gods River. It is anticipated that exploratory activities would involve drilling small exploratory holes and access would be provided either via access roads or helicopters, but the extent and timing of potential mining exploration is unknown and is an uncertainty in the CEA. As details are unknown, mining exploration is not known to be foreseeable future activity.

A summary of other past, present or reasonably foreseeable projects was presented in Table 6.45 in Chapter 6 of the EIS and has been included in this response as Table IR1-71-1. Similarly, a summary of the cumulative residual effects on valued components was presented in Table 6.46 of the EIS and has also been included in this response as Table IR1-71-2. These effects are further described in Chapter 6, Section 6.6.3.2 of the EIS. As described in Section 6.6.3.2 of the EIS, other projects or activities that may act cumulatively with the proposed Project do not suggest adverse effects that would require further mitigation beyond those proposed in Appendix 6-4 in Chapter 6 of the EIS. Chapter 6 Section 6.6.3.2 identifies anticipated effects that are predictable and mitigable for species at risk such as boreal woodland caribou, wolverine and brown bat. Other potential cumulative effects such as those listed in the context section for IR1-70 were considered to the extent deemed appropriate (i.e. positive effects were screened out of CEA). As the proposed Project will not increase connectivity to the provincial highway network, an increase in recreational use and tourism is not anticipated, and the other possible developments are not considered reasonably foreseeable future activities (see the response to information request IR1-70).

Table IR1-71-1. Past, Present and Future Physical Activities Considered in the Cumulative Effects Assessment (Table 6.45 in EIS).

Category of Physical Activities	Specific Physical Activity	Description of Physical Activity
Past or Present Physical Activities that have been Carried Out		
Infrastructure	Existing winter road operation and maintenance.	The winter road is built every winter and connects the local Indigenous communities It is only operational during the winter months and is maintained by MI (**Figure 6-6**).
	Manitoba Hydro transmission and sub- transmission lines.	A Manitoba Hydro sub-transmission line from God's Lake to God's River provides power to Manto Sipi Cree Nation. The Kelsey to Oxford House 138 kV transmission line, which originates outside of the area, provides power to Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Northern Affairs Community (**Figure 6-6**). Manitoba Hydro maintains the transmission and sub-transmission lines.
	A new school and nursing station are being constructed in God's Lake First Nation.	Both are located in the community on God's Lake First Nation Reserve Lands. The facilities will be constructed prior to the proposed Project.
Mining and quarry activities	Mineral dispositions related to mining and quarry activities.	The four quarry withdrawals that overlap the all-season road alignment (**Section 6.3.4.1.7**) are used for maintenance at the airports and the Northern Affairs Community.
Hunting and Trapping	Traditional/subsistence hunting and domestic/commercial trapping activities.	Refer to **Section 6.1.9.1**
Fishing	Traditional/subsistence and recreational fishing.	Refer to **Section 6.1.9.1**
Gathering	Traditional/subsistence gathering.	Refer to **Section 6.1.9.1**
Future Physical Activities that are Certain and Reasonably Foreseeable		
Infrastructure	Bell/MTS has committed to providing wireless and wireline broadband services to God's River and God's Lake Narrows.	This is expected to occur in advance of construction of the proposed Project.
	ISC is planning to construct new schools in Bunibonibee Cree Nation and Manto Sipi Cree Nation.	The new schools will be located on Reserve lands and are expected to be constructed prior to the proposed Project.
	ISC is proposing to develop a landfill site for Bunibonibee Cree Nation.	The existing landfill will be upgraded (likely completed in 2019) in the interim with plans for a new landfill to be developed within 10 years depending on funding.

Category of Physical Activities	Specific Physical Activity	Description of Physical Activity
Mining	Bunibonibee Cree Nation has partnered with Altius Resources Inc. to explore diamond claims in the Oxford House area.	No timeframe has been set for exploration. According to a statement from Altius and Bunibonibee Cree Nation regarding the agreement, the potential to develop a mine is about 1:10,000.
Hunting and Trapping	Traditional/subsistence hunting activities and domestic/commercial trapping activities	Refer to **Section 6.1.9.1**
Fishing	Traditional/subsistence and recreational fishing.	Refer to **Section 6.1.9.1**
Gathering	Traditional/subsistence gathering.	Refer to **Section 6.1.9.1**

TableIR1-71-2. Summary of Cumulative Residual Environmental Effects on Valued Components (Table 6.46 from the Project 6 Environmental Impact Statement).

VC	Cumulative Residual Effects								Significance	Likelihood of Significant Effect
	Direction	Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context		
Fish and fish habitat	Negative	Short-term	Low	Moderate Sensitivity	LAA	Infrequent	Reversible – long-term	Low	Not Significant	N/A
Migratory birds	Negative	Short-term	Low	Moderate Sensitivity	RAA	Continuous	Reversible – long-term	Low	Not Significant	N/A
Species at Risk	Negative	Short-term	Low	N/A	LAA	Infrequent	Irreversible	Moderate	Not Significant	N/A

VC	Cumulative Residual Effects								Significance	Likelihood of Significant Effect
	Direction	Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context		
Indigenous People including health and socio-economic conditions (ex: use of navigable waters, recreational use, commercial fishing, hunting, trapping and gathering activities)	Negative	Short-term	Low	N/A	RAA	Infrequent	Reversible – short-term	Low	Not Significant	N/A
Physical and cultural heritage and structures, sites or things of historical, archaeological, paleontological or architectural significance	Negative	Short-term	Low	N/A	N/A	Infrequent	Reversible – short-term	Low	Not Significant	N/A

As described above and in response to IR1-70, there are no current or foreseeable other activities or projects that could overlap with the proposed Project, and that may act cumulatively to result in adverse effects to fish and fish habitat, migratory birds, and species at risk.

c) Since there are no updates regarding other activities or projects that could overlap with the proposed Project's residual effects, further mitigation measures other than those identified in Chapter 6 Appendix 6-4 of the EIS, and summarized in Chapter 7, Appendix 7-1 of the EIS will not be required.

As described in Chapter 8, aquatic environment and wildlife monitoring plans will be developed and are anticipated to verify the accuracy of predictions made during the environmental assessment. As described in Section 8.3 in Chapter 8 of the EIS, the environmental management plan will employ an adaptive management approach to address unanticipated Project effects, should they arise.

d) As stated in Chapter 6 of the EIS and in response to IR1-70, past, present or future physical activities that are certain and reasonably foreseeable would not overlap temporally or spatially with the proposed Project, with the possible exception of on-reserve community access roads in God's Lake First Nation to connect the proposed Project to existing community roads. However, past experience with road construction on the east side of Lake Winnipeg has shown that funding and timelines of federal and provincial projects differ greatly, and the projects would likely not overlap temporally.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-72

EIS Guideline Reference	• Part 2, Section 6.6.3
EIS Reference	• Chapter 6, Section 6.5.9.1.1 and 6.6.3.2.4 • Chapter 6, Table 6.46
Category	Cumulative Effects

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to identify and assess the Project's potential cumulative effects to VCs.

With respect to potential cumulative effects to Indigenous peoples, the EIS describes potential benefits of the Project but does not include potential adverse residual effects of the Project in the CEA. As noted in the EIS, adverse residual effects may include the ability of Indigenous peoples to practice traditional hunting, fishing, trapping, and gathering, leading to a potential reduction in food supply and culturally important species; reduced access to travel routes; reduced trapping income; effects to heritage resources; and effects to Indigenous health.

The EIS does not describe potential adverse effects of past, present, or reasonably foreseeable future physical activities other than the Project that may act cumulatively to cause adverse effects to Indigenous peoples, indicating that other activities or projects that could overlap with the proposed Project do not have the potential to result in cumulative adverse effects that would require further mitigation. Other past, present, or reasonably foreseeable future physical activities, such as mining exploration and potential future development of mines, could affect Indigenous peoples, including navigation and the ability of Indigenous peoples to practice traditional use activities. These potential adverse effects must be described to assess the significance of potential cumulative effects to Indigenous peoples.

Supplementary information is required to support the characterization of potential cumulative effects of the Project in combination with other physical activities in the region to Indigenous peoples and to determine whether further mitigation may be required.

Information Request

a) Summarize the anticipated residual effects to Indigenous peoples from the Project, following the implementation of mitigation measures. Ensure that all potential residual Project effects are considered, including potential effects to the ability of Indigenous peoples to practice traditional hunting, fishing, trapping, and gathering; access to travel routes; trapping income; heritage resources; and Indigenous health.

b) Describe potential adverse effects of all past, present, and reasonably foreseeable future physical activities that may act cumulatively with the Project to result in adverse effects to Indigenous peoples, including the activities listed in the EIS and those activities referred to in IR1-70.

c) Describe mitigation measures that will be implemented to address any cumulative effects identified in b) and follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.

d) Update the conclusions presented in the cumulative effects assessment for Indigenous peoples, including the assessment of the significance of cumulative effects and the summary of effects presented in Table 6.46, to consider the potential effects and mitigation measures identified in b) and c).

Response

a) Residual adverse effects to valued components following the implementation of mitigation measures, were discussed in Chapter 6 of the environmental impact statement (EIS). Adverse residual effects to Indigenous Peoples were presented in Section 6.5.9 and summarized in Appendix 6-5. A summary of the anticipated residual effects to Indigenous peoples from the proposed Project, following the implementation of mitigation measures is described in Table IR1-72-1 below. It should also be noted that although Table IR1-72-1 presents residual adverse effects, the Project will also provide a number of benefits to local Indigenous Nations. As listed in Section 2.1.3 in Chapter 2 of the EIS, positive Project effects would include: providing alternative transportation options for an increasingly unreliable winter road network; improved linkages among communities; reduced transportation costs for people, goods and services; enhanced access to emergency, health and social services; opportunities to benefit from construction employment; and opportunities for local sustainable development initiatives. Project benefits have been identified throughout relevant sections of Chapter 6 in the EIS as part of the potential changes that may result from the Project.

As noted in Chapter 6 of the EIS, guidance was sought from the Agency's "Technical Guidance for Assessing the Current Use of Lands and Resources for Traditional Purposes under the *Canadian Environmental Assessment Act*, 2012" (Canadian Environmental Assessment Agency 2015b) in identifying effects to Indigenous peoples.

Table IR1-72-1. Residual Adverse Effects to Indigenous Peoples Following Mitigation Measures

Anticipated residual adverse effects to Indigenous peoples following the implementation of mitigation measures	
Land and Resource Use	• Reduction in food supply and culturally important species as a result of previously identified effects on ungulates (ex: moose, caribou) and their habitat (clearing, sensory disturbance, hunting pressure, vehicle collisions, predation and disease) from construction, maintenance and operation activities. • Reduction in food supply as a result of previously identified effects on furbearers and birds and their habitat (clearing, sensory disturbance, hunting pressure, vehicle collisions and loss of nests) from construction, maintenance and operation activities. • Reduction in food supply as a result of previously identified effects on fish and their habitat (water quality, shock waves, fishing pressure, fish passage, habitat and invasive species) from construction, maintenance and operation activities. • Reduction in food supply as a result of previously identified effects on harvested vegetation (ex: berries) (clearing, drainage alterations, invasive species and wildfires) from construction, maintenance and operation activities.
Travel Routes	• Decreased access to traditional travel routes used for resource use and recreation during construction, maintenance and operation.
Economy	• Reduction in trapping income for local trappers as a result of reduced trapping harvest from previously identified effects (clearing, sensory disturbance, hunting pressure and vehicle-collision) during construction.
Heritage and Archaeological Resources	• Loss or disturbance to heritage, culture (sacred) or community use resources and sites during ROW clearing and construction activities. • Loss or disturbance to heritage resources as a result of increased access.
Human Health and Safety	• Community member and worker safety risk during construction, maintenance and operation activities. • Loss of medicinal plant harvest areas used by community members for therapeutic or healing purposes due to clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps. • Risk to human health from decreased quality of the community water supply as a result of previously identified effects (surface and/or ground water quality) during construction, maintenance and operation. • Risk to human health and disturbance to local communities as a result of reduced air quality during construction, maintenance and operation. • Disturbance to local communities as a result of increased noise levels during construction, maintenance and operation.

b) As described in Chapter 6 of the Environmental Impact Statement (EIS) and the information provided in IR1-70, the cumulative effects assessment (CEA) considered past, present, and reasonably foreseeable physical activities that may interact with the proposed Project, potentially leading to adverse effects on Indigenous peoples. These activities, which have already been assessed in Chapter 6 of the EIS, include:

Recreational Use and Tourism

Recreational use and tourism (e.g. ATV use; camping; non-Indigenous hunting, fishing, trapping, and gathering; and lodges) in the Project footprint, Local Assessment Area (LAA), and RAA (including a potential increase in the volume and duration of recreational use) is not anticipated to

change as the only current means of access into the RAA is by air, or winter road. Without construction of additional roads that would link Project 6 to the provincial highway network (i.e. Project 2 and/or Project 5 described earlier), there is no anticipated change to access of the region for recreation and tourism. As there are no current plans to construct Project 2 and/or Project 5 in the foreseeable future, there is no pathway to an increase in recreational use above current levels and no further assessment required.

Commercial Forestry Operations

As described in Chapter 6, Section 6.3.4.1.8 of the EIS, there are no commercial forestry operations currently active in the Project area. Even though the Hayes River and Boreal Shield Forest Management Sections overlap the RAA, there are no known foreseeable future plans to initiate commercial forestry operations in these forest management units. There is therefore no pathway for cumulative effects and no further assessment required.

Mining

Known mine sites at the time of the EIS submission are shown in Figure 6-6 in Chapter 6 of the EIS, (included as Figure IR1-70-1 in Appendix IR1-70- 1) and are located on an island in God's Lake. However, according to the Canada's Minerals and Mining Map, no active mine sites are present in the Project area (Government of Canada, 2021). There are no proposed mines within the Project area. For the purposes of the cumulative effects assessment, development of a mine is not considered a reasonably foreseeable activity. As mentioned in response to IR1-70, and as presented in Table 6.45 in Chapter 6 of the EIS, a statement made by Altius (Adia's largest shareholder) and BCN indicated that the likelihood of developing a mine was only 1:10,000.

The only activities that have previously occurred or might occur are exploratory works. Exploration activities by companies like Adia Resources and Vision Lithium Inc. in the proposed Project area could involve drilling small exploratory holes and access would be provided either via access roads or helicopters, but the extent and timing of potential mining exploration is unknown and is an uncertainty in the CEA. As details are unknown, mining exploration is not known to be a foreseeable future activity.

Infrastructure Developments

Additional infrastructure projects such as new schools in Bunibonibee Cree Nation and Manto Sipi Cree Nation, and a new school and nursing home in God's Lake First Nation have now been completed. Any other on-reserve infrastructure development project that may occur in the future, would be located within the local Indigenous Nations and would be no closer to the all-season road than residences previously identified. Additionally, the previous schools and nursing home are no longer in use following the construction of the new facilities and therefore there was no change or potential cumulative effect. There is no temporal overlap and no need for further assessment.

Although construction of the road has potential to facilitate other developments which could lead to increased access, potentially affecting the use of lands and resources for traditional purposes, there are no such known foreseeable activities to assess or consider at this time.

Hydroelectric Generation Facilities

With respect to hydroelectric facilities, there are no existing or proposed hydroelectric generation developments located within the Indigenous CEA RAA. As mentioned in Chapter 6, Section 6.6.3.1.2 of the EIS, this spatial boundary encompasses the Traditional Territories of Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation, and was selected to consider environmental changes that cumulatively may indirectly affect the health, socio-economic conditions, and traditional use areas and resources of local Indigenous communities in the region. Since no hydroelectric facilities are currently present or will be constructed in the future, they were not included in the cumulative effects assessment, as they are not anticipated to result in cumulative residual effects to Indigenous peoples in combination with the proposed Project.

In addition, as mentioned in response to IR1-71 and Table 6.45 from Chapter 6 of EIS, existing Manitoba Hydro transmission and distribution lines were included in the CEA. The Manitoba Hydro distribution line from God's Lake to God's River provides power to Manto Sipi Cree Nation. The Kelsey to Oxford House 138 kV transmission line, which originates outside of the area, provides power to Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Northern Affairs Community (Figure 6-6). Manitoba Hydro maintains these transmission and distribution lines. Residual effects during the construction phase of the transmission lines would have been similar to but less than that of the all-season road – these linear features remain a part of the existing environment that was assessed in the EIS. As these facilities were built long before the filing of the EIS, there is no temporal overlap. Wildlife and Indigenous peoples in the Indigenous Resource Use RAA have since adapted to the presence of the hydro lines on the landscape. The transmission lines, the winter road and the proposed Project 6 ASR facilitate increased access to remote areas, potentially affecting the use of lands and resources for traditional purposes such as hunting, trapping, fishing and gathering. Traditional land and resource use patterns may be altered, which could potentially be a benefit. As mentioned in Chapter 6, Section 6.6.3.4 of the EIS, there is no overlap in temporal boundaries between the proposed Project and physical activities in the CEA RAA; considering that no other future developments are anticipated to occur, there are no anticipated cumulative effects. As mentioned in Chapter 6, Table 6.46, the cumulative residual effects for Indigenous people are expected to be low in magnitude, occur in the short-term, be limited to the RAA, infrequent, reversible in the short term, and not significant.

Landfill sites

As described in response to IR1-26, with regard to landfill sites, Indigenous Services Canada noted that God's Lake, Manto Sipi, and Bunibonibee have newly constructed landfill sites that were constructed after the filing of the EIS. These sites are located in each community within federal

reserve lands. Before mitigation, effects of the landfill sites may include local soil, groundwater, and surface water contamination, which in turn could potentially affect traditional food sources and/ or country foods, and water quality. However, proper design, incorporating liners and leachate management, as well as management and use of landfills in compliance with applicable legislation and policies mitigates these impacts by containing pollutants for treatment. Mitigations applied to the new landfills prevents residual effects that could overlap with the proposed Project's residual effects identified in part A of this response.

MTI will construct and maintain the proposed Project in compliance with applicable legislation and using Environmental Protection Procedures found in Chapter 8, Appendix 8-2 of the EIS and provisions of the Environmental Protection Specifications in Chapter 8, Appendix 8-3 of the EIS to mitigate risk of potential effects to the environment and VCs. As described in Table 6.46 of the EIS, cumulative effects to Indigenous people are expected to be short-term, low in magnitude, infrequent, reversible in the short-term, and overall, not significant.

c) As described in Chapter 6, Section 6.6.3.2.4, the proposed Project is anticipated to have predictable and mitigatable effects on local Indigenous communities. Changes to community life, traditional lifestyles and individual well-being are not expected to dramatically change with the all-season road given the mitigation measures and because the road only connects the four local Indigenous communities that already have access to each other by winter roads and waterways. Traditional land and resource use patterns may be altered due to increased access, which could be a benefit.

The all-season road and on-reserve community access road in God's Lake First Nation that would connect the Project to existing on-reserve community road network is anticipated to benefit local community members by increasing access for resource users and providing improved year-round interaction among the local communities connected by the road. Other activities or projects that could overlap with the proposed Project (i.e. mining exploration activities) do not indicate the potential to result in cumulative adverse effects that would require mitigation in addition to what was previously identified in Chapter 6, Appendix 6-4 of the EIS. and Chapter 7 Appendix 7-1, and hence avoid creation of significant cumulative adverse effects. Examples of mitigation measures to avoid or minimize proposed project effects are listed below.

Travel routes disruption will be mitigated through measures including:

- Implement crossing designs to maintain navigability of navigable watercourses.
- Provide an approach (ramps) for users (ex: boats, snowmobiles, ATVs) to cross the road and post warning signs showing the road crossings.

For increased recreational use and access, mitigation measures include:

- Limit clearing to designated areas within the ROW (EP1 and ES 130.17.1).
- Limit access during construction and decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, ES 130.6.1 and ES 130.8.7).
- Restrict access to operation phase quarry areas (ES 130.8.8).
- Prohibit hunting by MTI employees and contractors working on the Project (EP14 and ES 130.19.1).
- Firearm possession prohibited in construction camps.

Given that no significant cumulative effects are expected from past, present, or future activities on Indigenous peoples' traditional practices, and that adverse cumulative effects are not expected to be significant (EIS Chapter 6, Table 6.46), no additional follow-up studies are planned beyond the ongoing and planned engagement with communities as identified in response to IR1-82. As engagement activities continue, MTI will share any new information learned through this process with regulators and Indigenous communities, and will update relevant information as needed.

d) The conclusions presented in the cumulative effects assessment and in Table 6.46 remain unchanged. As a result, the effects are expected to be short-term, low in magnitude, and potentially extend within the RAA. However, they are anticipated to occur infrequently over the short term, be reversible and not significant.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

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QUESTION IAAC IR1-73

EIS Guideline Reference	• Part 2, Section 5.1 and 6.4
EIS Reference	• Chapter 8, Section 8.2.1
Category	Environmental Protection Measures

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe the Project's environmental protection plan and its environmental management system, through which the proponent will deliver this plan. The plan must provide an overall perspective on how potential adverse effects would be minimized and managed over time. The EIS Guidelines also list Indigenous groups that the proponent must consider in its effects assessment with respect to the Project and with which the proponent is expected to strive towards developing a productive and constructive relationship based on on-going dialogue.

The EIS indicates that Environmental Management Plans (EMPs) for construction and operation of the Project will be finalized during the detailed design and construction phase. While these plans may not be finalized at the time of the submission of the EIS and/or IR responses, an example of a plan from a Project of a similar nature (e.g. Project 1 or Project 4) would be useful to understand what provisions would be included in this plan.

With regard to the development of the EMPs, the EIS indicates that MI will consider community input from GLFN, BCN, and MSCN and that technical committees will be established to plan for and respond to Project environmental management requirements. It is unclear whether and how MI will provide the opportunity for all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines to be involved in the development of EMPs and whether Indigenous groups will be invited to participate on technical committees.

Supplementary information is required to support the Agency's understanding of the EMPs for the Project and to determine if the approach proposed in these plans will be adequate to mitigate and manage potential adverse effects to VCs.

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Information Request

a) If available, provide an example(s) of EMPs used for a project of a similar nature to the Project (e.g. Project 1 or Project 4). Describe what aspects of the plan(s) would be similar to the EMPs developed for the Project and what Project-specific provisions may be added. Alternatively, describe measures and provisions that will be included in the EMPs for the Project.
b) Describe whether and, if so, how MI plans to provide the opportunity for all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines to be involved in the development of EMPs.
c) Describe whether Indigenous groups will be invited to participate on technical committees to plan for and respond to the environmental management requirements of the Project.

Response

a) As described in Chapter 8, Appendix 8-1 of the Environmental Impact Statement (EIS), the Project Environmental Management Plan (EMP) provides an overall management framework to address potential environmental risks associated with the Project. The Environmental Management Plan describes the management system in terms of the why, what, how, who, and when of these plans.

Subject-specific Environmental Protection Procedures (EPs) describe the suite of environmental protection measures for key individual environmental areas (Chapter 8, Appendix 8-2 of the EIS). These are supplemented with standard specifications, Environmental Protection Specifications (Chapter 8, Appendix 8-3 of the EIS), which will be included in each construction contract.

Monitoring plans assess the effects of construction on specific components of the environment (ex: wildlife and aquatic environment). A strategic plan for Wildlife Monitoring and an Aquatic Environment Monitoring Plan will be developed in concert with local liaison committees and appropriate federal and provincial departments to meet regulatory obligations. While these plans are not yet finalized, their proposed tables of contents are included as Appendix IR1-73-1. The Wildlife Monitoring Plan will describe the Project's impact on various species, including ungulates, aquatic and terrestrial furbearers, birds, and species at risk. Similarly, the Aquatic Environment Monitoring Plan will describe potential effects on the aquatic environment, including effects on surface water, groundwater, fish and fish habitat, species at risk (e.g., lake sturgeon). Both monitoring plans will outline the mitigation measures to be implemented, followed by detailed monitoring and follow-up protocols for each applicable species group. The plan will also include an adaptive management component, specifying thresholds and corrective actions if mitigation measures are not sufficient. Additionally, it will present the schedule of activities and outline the reporting procedures.

The EMP will also contain the Construction Phase Environmental Management Plan (CPEMP) and the Operation Phase Environmental Management Plan (OPEMP). The CPEMP will detail individual

environmental protection measures to be implemented during construction. This document will guide Manitoba Transportation and Infrastructure's (MTI) development of the Project's contract documents and subsequently, the Contractor(s) activities, in an environmentally responsible manner and to meet regulatory compliance in constructing the Project. The plan will reference the EPs and will be developed prior to the start of construction.

The purpose of the CPEMP is to describe the environmental management processes and mitigation measures that will be used to minimize potential environmental effects during the construction of the Project. It will detail the responsibilities of involved parties, summarize the planned construction activities and associated environmental risks, and present the strategies for mitigation, monitoring, and reporting. The plan will also include mechanisms for evaluating the effectiveness of mitigation measures and for applying adaptive management when needed. The CPEMP and its supporting plans will guide the Contractor(s) in carrying out construction activities in a manner consistent with Best Management Practices (BMPs) for environmental protection.

The OPEMP outlines the commitments, roles and responsibilities and environmental protection measures to be taken; contract provisions and required practices; monitoring and inspection plans; documentation and reporting; and adaptive management practices. The OPEMP will describe the long-term operation and maintenance procedures and environmental protection measures to be implemented after construction is completed and the road is fully operational for all-season use. Maintenance includes activities such as road upgrades and repair, aggregate production, culvert clean out, sign replacement, erosion protection including revegetation, bridge deck and structure repair and emergency repairs associated with flooding and other events. The plan will reference the Environmental Protection Procedures and will be developed at a later date.

An example of an Environmental Management Plan developed for a project of similar nature is the Operational Phase Environmental Management Plan for Project 1 (All Season Road Linking Bloodvein and Berens River First Nations to Provincial Road 304), which is provided as Appendix IR1-73-2 as part of this response. This plan outlines the long-term environmental protection measures and maintenance procedures required once the all-season road is operational. It serves as a useful precedent for Project 6, given the similarities in project type, geographic context, and environmental considerations.

b) MTI plans to provide opportunities for Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines to be involved in the development of the Environmental Management Plans (EMPs) for the Project. Bunibonibee Cree Nation (BCN), Manto Sipi Cree Nation (MSCN), God's Lake First Nation (GLFN), and the God's Lake Narrows Northern Affairs Community (NAC) will ideally have advanced opportunity and funding support to review and provide comments on the EMPs, including the CEMP, OEMP, wildlife and aquatics EMP.

At this stage, MTI will also share the draft EMPs with Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines for input. Feedback received through this process will be

incorporated into a revised draft, which will be submitted as part of the response to the relevant Information Request (IR) package.

The Operation Phase Environmental Management Plan (OEMP) will be prepared toward the end of the construction phase and prior to the all-season road (ASR) being opened to vehicle traffic. Through these processes, MTI will seek to incorporate Indigenous knowledge and priorities into the EMPs and ensure that the Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines have the opportunity to provide meaningful input.

c) As described in Chapter 8, Appendix 8-1 of the EIS, the Indigenous and Public Engagement Program (IPEP) was developed to provide opportunities for on-going involvement of and dialogue with Indigenous communities and local governments on the Project that MTI will continue to manage. One of the elements of the program is the Local Liaison Committees, MTI is committed to communicating with Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation and God's Lake Northern Affairs Community on the progress of the Project. As stated in Chapter 8, Section 8.2.1 of the EIS, technical committees will be established, as needed, to plan for and respond to the environmental management requirements of the Project.

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APPENDIX IR1-73-2

Environment Act License #2929 – Operational Phase Environmental Management Plan (OPEMP) –All Season Road Linking Bloodvein and Berens River First Nations to Provincial Road 304

September 2018

Manitoba
Transportation and Infrastructure

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Introduction

The operational phase environmental management plan (OPEMP) pertains to the maintenance activities during operation. Maintenance includes activities such as road upgrades and repair, aggregate production, culvert clean out, sign replacement, erosion protection including re-vegetation, bridge deck and structure repair and emergency repairs associated with flooding and other events. Operational activities to maintain operational safety are not addressed as part of this plan; these activities are managed through Manitoba Infrastructure's Traffic Safety Plan.

Maintenance on the section of the all-season road from the Loon Straits Northern Affairs Community (NAC) access Road to Bloodvein First Nation (FN) began in November 2014 when the road was officially opened between those communities. Maintenance of the segment between Bloodvein FN and Berens River FN began in December 2017 when the road was officially opened to Berens River FN.

Manitoba Infrastructure (MI) implemented the following measures to minimize potential environmental effects associated with the maintenance of the All Season Road Linking Loon Straits NAC, Bloodvein FN, and Berens River FN (the Project).

1. An Environmental Management Plan (EMP) for the Project was submitted under Environmental Act License #2929, and has been developed to address the what, how, when, who, and where of integrating environmental mitigation and monitoring measures throughout the Project. The EMP is a tool to ensure that the environmental protection measures are undertaken, monitored, reported, and adapted to account for the new information gathered during the Project. A key component of the EMP is the development of a specific Operational Phase Environmental Management Plan (OPEMP) that addresses maintenance activities conducted for the Project during operation.
2. A standardized set of Environmental Protection Procedures (EPs) have also been developed which specify requirements and measures to minimize the potential for adverse environmental effects. (Note: These will be replaced by a MI Environmental Best Management Practices Manual that is currently being prepared and expected to be distributed in 2019)
3. General Environmental Requirements (GERs) outlining environmental protection measures are included in the specifications packages for construction contracts. These specifications include provisions for Materials Handling, Storage and Disposal, Spills, Remediation and Emergency Response, Working Within or Near Water, Clearing and Grubbing, Noise and Noise Limitations, Wildlife, Dust and Particulate Control, and Erosion and Sediment Control.
4. Special Provisions outlining contract specific environmental protection methodologies are included in the specification packages for maintenance contracts as required (*e.g.* Culvert Replacement, etc.).

A copy of the EPs and General Environmental Requirements are included with this document.

The following OPEMP has been prepared to provide and maintain environmental protection, for maintenance work conducted on the Project. The OPEMP outlines the commitments, roles and responsibilities and environmental protection measures to be taken; contract provisions and required practices; monitoring and inspection plans; documentation and reporting; and adaptive management practices. Included in Appendix A are the relevant map:

- All Season Road Linking Bloodvein and Berens River First Nations to Provincial Road 304 (Project 1)

Primary Responsibilities

In order to maximize environmental protection during maintenance and upgrading activities, it is critical that parties to MI contracts, agreements, permits, and authorizations be aware of the environmental protection requirements and their respective responsibilities for those requirements.

Manitoba Infrastructure

MI will perform the following functions:

- Identify appropriate environmental requirements to the assigned Contractor;
- Review and evaluate, the Contractors' responsibilities under the OPEMP;
- Engage Environmental Consultants as required;
- Liaise with federal and provincial regulators concerning environmental submissions, authorization requirements, monitoring, and follow-up;
- Obtain and comply with the applicable Fisheries Act, Navigation Protection Act, and Environment Act approvals and the related permitting and/or licensing requirements;
- Routinely inspect the work sites
    - Advise the Contractor of deficiencies in the environmental protection measures noted during such inspections;
    - Prepare and retain an inspection report;
- Liaise with the Contractor regarding deficiencies in the submittals, environmental measures implemented, contract documents or other environmental matters that involve the Contractor;
- Order the Contractor to suspend work in cases of a recognized non-compliance with legal requirements or where the Contractor fails to take appropriate and timely measures to protect the environment; and
- Manage data, schedules and reports.

Contractors

The Contractor is responsible for implementing the environmental protection measures stipulated in the contract documents. The following are the primary responsibilities of the Contractor, concerning environmental protection on MI contracts:

- Develop submittals for tendered work in accordance with the related contract documentation (*i.e.* GER), change orders, directions, and advice of MI and submit them to MI for evaluation;
- Implement environmental protection measures in accordance with the related construction documents;
- Monitor the work site in accordance with the related construction documents;
- Maintain environmental protection measures in accordance with the contract documents;
- Take appropriate and timely action to correct deficiencies;
- Take action (*i.e*. shut down work) in consultation with MI and proper authorities where it is recognized that a considerable impact to the environment or a violation of environmental regulation will occur;
- Ensure that Contractor's staff and Subcontractors are trained and empowered to identify, address and report potential environmental problems;
- Report environmental incidents to the proper authorities immediately and provide a copy of the incident report to MI in accordance with the related construction documents;
- Attend meetings initiated by MI to address concerns regarding the performance of the environmental protection measures implemented in accordance with related construction documents;
- Ensure that Subcontractors comply with the related maintenance documents;
- Identify knowledgeable individual(s) who will be present at the work site to act as the on-site emergency response coordinator(s) with the authority to redirect manpower in order to respond in the event of a spill or environmental emergency. The Contractor must identify the individual(s) and their qualifications to MI at the pre-construction meeting; and
- All requests for a change in environmental control measures initiated by the Contractor shall be forwarded to MI for approval prior to implementation.

Activity Description
The work to be done under the Contract consists generally of the maintenance of the all season road (ASR) from Sta. 48+600 to Sta. 155+930 (Figure 1). Material for use such as road gravel will be provided by active quarries adjacent to the road alignment and from solid rock excavation within the right of way (for upgrade work).

Road maintenance along the previously described road will involve up-keep and addition of new road materials. Key activities associated with the maintenance include:

- The addition of road gravel in designated areas;
- Road grading and resurfacing;
- Plowing and snow removal;
- Bridge deck clearing
- Quarrying for road materials within existing quarries;
- Mowing and clearing grass and foliage along road side and shoulder;
- Culvert cleanout and general maintenance, including clearing of blocked beaver cones;
- Beaver control in designated areas;
- Closure or decommissioning of borrow pit and quarry access roads following maintenance activities.

Potential Environmental Effects and Mitigation Measures
Some of the works associated with ASR maintenance have the potential for environment effects and as such, the Contract documents will contain mitigation measures. A comprehensive series of Environmental Protection Procedures (EPs) have been developed which outline steps to be followed as they pertain to the work. The relevant specifications and the EPs associated with the maintenance Contract are outlined in this section.

The potential environmental effects associated with maintenance and upgrades were evaluated with respect to the following areas:

- Fisheries and Aquatic Ecosystems;
- Wildlife;
- Surface Water;
- Ground Water;
- Vegetation;
- Heritage Areas;
- Noise;
- Dust;
- Material Management;

- Waste Management; and
- Accidents, Malfunctions, and Emergencies.

Taking both the nature of the work and the mitigation measures into account, no significant adverse environmental effects are anticipated concerning works conducted in the operation phase.

Fisheries and Aquatic Ecosystems

The maintenance and upgrade work will require regular monitoring and subsequent cleaning or replacement of culverts and bridge crossings within the maintenance area. Some of the culverts will be fish bearing and may require additional monitoring to ensure there are no impediments to fish passage. To mitigate effects to fish and fish habitat the MI maintenance staff and contractors will be required to ensure that no debris or deleterious materials are pushed into water crossings during maintenance activities. Contracts will specify responsibility for MI or the Contractor to contact a qualified Fish Biologist, as approved by MI to conduct the fish salvage and water quality monitoring where required. Prior to the replacement of culverts, the Contractor must submit an Isolation/Erosion Control Plan to MI for review. The Contractor will be required to monitor, maintain and replace erosion and sediment control measures as needed to minimize the deposition of sediments into water bodies. Contractual submission requirements for work associated with fish bearing water bodies may include:

- Environmental Management Plans
- Spill response plans
- Erosion and sediment control plans.

Bridges and large culvert locations for the maintenance and upgrades include:

- Wanipigow River
- English Brook
- Steeprock Creek
- Rice River
- Loon Creek
- Eagle Nest Creek
- Bloodvein River
- Longbody Creek

- Petopeko Creek
- Bradbury River
- Pigeon River

Contract documents that will include key components associated with mitigating potential effects on fisheries and aquatic ecosystems are as follows:

General Environmental Requirements:

- GER 195.2 Construction Environmental Management Plans
- GER 195.3 Erosion and Sediment Control
- GER 195.4 In-Water Work
- GER 195.5 Rip Rap
- GER 195.7 Temporary Water Crossings / Access Pads
- GER 195.8 Blasting Near a Watercourse
- GER 195.4 Machinery, Fuel Storage, and Handling
- GER 195.10 Emergency Response Plan for Spills
- GER 195.12 Dust Particulate Control

Standard Construction Specifications:

- 200 Dust control
- 300 Clearing and Grubbing
- 400 Removing Culverts and Placing Culverts
- 410 Jacking culverts through Embankments
- 1092 Temporary Works
- 1262 Supply and Application of Dust Control
- 1295 Supply and Installation of Geotextile Fabric
- 1296 Supply and Place Silt fence Barrier
- 1297 Stone Rip-Rap
- 1298 Supply and Place Erosion Control Blanket

Key EPs associated with managing potential effects on fisheries and aquatic ecosystems stemming from the deposition of deleterious substances are as follows:

Environmental Protection Procedures:

- EP1 Clearing and Grubbing
- EP2 Petroleum Handling and Storage
- EP3 Spill Response
- EP5 Materials Handling and Storage
- EP6 Working Within or Near Fish Bearing Waters
- EP7 Stream Crossings
- EP9 Fish Passage
- EP10 Fish Salvage
- EP11 Culvert Maintenance and Replacement
- EP 12 Blasting Near a Water course
- EP 16 Erosion and Sediment Control
- EP 18 Dust Suppression Procedures
- EP 24 Water Quality Monitoring

Considering the mitigation measures set out above, the potential for adverse environmental effects to fisheries and aquatic ecosystems are deemed to be not significant.

Wildlife

Construction activities associated with maintenance and upgrades will involve the use of heavy equipment for clearing, re-grading, solid rock excavation, grading and distribution of road gravel, mowing. Most culvert maintenance activities will also involve machinery. Potential effects on wildlife are anticipated to occur in relation to clearing and noise from maintenance and upgrade activities. Noise will likely cause wildlife to vacate the area in the immediate vicinity of the site for the duration of the work. The timing of clearing and mowing is to abide by the wildlife timing windows and regulations referenced in the contract documents. Key components of the contract documents associated with mitigating potential effects on wildlife are as follows:

General Environmental Requirements:

- GER 195.2 Construction Environmental Management Plans
- GER 195.13 Noise and Noise Limitations
- GER 195.14 Wildlife.

Standard Construction Specifications:

- 300 Clearing and Grubbing

Key EPs associated with mitigating potential construction related effects on wildlife are as follows:

Environmental Protection Procedures:

- EP1 Clearing and Grubbing
- EP 4 Noise Control
- EP 14 Wildlife
- EP15 Wildfires

Considering the mitigation measures set out above, the potential for adverse environmental effects to wildlife are deemed to be not significant.

Surface Water

Potential environmental effects stemming from maintenance and upgrade activities include the possibility of contaminant discharge into surface water. Key measures contained within the contract specifications associated with mitigating the potential effects on surface water are as follows:

General Environmental Requirements:

- GER 195.2 Construction Environmental Management Plans
- GER 195.3 Erosion and Sediment Control
- GER 195.4 In-Water Work
- GER 195.5 Rip Rap
- GER 195.7 Temporary Water Crossings / Access Pads
- GER 195.4 Machinery, Fuel Storage, and Handling
- GER 195.10 Emergency Response Plan for Spills
- GER 195.12 Dust Particulate Control

Standard Construction Specifications:

- 200 Dust control
- 300 Clearing and Grubbing
- 400 Removing Culverts and Placing Culverts

- 410 Jacking culverts through Embankments
- 1092 Temporary Works
- 1262 Supply and Application of Dust Control
- 1295 Supply and Installation of Geotextile Fabric
- 1296 Supply and Place Silt fence Barrier
- 1297 Stone Rip-Rap
- 1298 Supply and Place Erosion Control Blanket

Key EPs associated with mitigating potential operational and maintenance related effects on Surface Water are as follows:

Environmental Protection Procedures:

- EP2 Petroleum Handling and Storage
- EP3 Spill Response
- EP5 Materials Handling and Storage
- EP6 Working Within or Near Fish Bearing Waters
- EP7 Stream Crossings
- EP11 Culvert Maintenance and Replacement
- EP 16 Erosion and Sediment Control
- EP 18 Dust Suppression Procedures
- EP 24 Water Quality Monitoring

Considering the mitigation measures set out above, the potential for adverse environmental effects to surface water are deemed to be not significant.

Ground Water

Maintenance and upgrade activities do not involve groundwater. No adverse effects on groundwater will occur.

Vegetation

The removal of vegetation as a result of mowing activities should not increase the potential for erosion and sedimentation as root matter is not removed and slopes should not be compromised. Clearing activities, if required for major maintenance activities, should occur between September 1 and March 31. If removal of nesting vegetation is to occur outside of this timeframe MI approval

is to be obtained before work commences. Key measures contained within the contract specifications associated with mitigating potential effects on vegetation are as follows:

General Environmental Requirements:

- GER 195.2 Construction Environmental Management Plans
- GER 195.6 Revegetation
- GER 195.16 Other

Standard Construction Specifications:

- 300 Clearing and Grubbing
- 540 Seeding
- 550 Landscaping

Key EPs associated with mitigating potential operation related effects on vegetation are as follows:

Environmental Protection Procedures:

- EP1 Clearing and Grubbing
- EP 15 Wildfires
- EP 21 Winter Road Closure and reclamation Plan

Heritage Resources

If a heritage resource is discovered during maintenance or upgrades, work must be halted immediately and the discovery must be reported to MI and the Province of Manitoba's Historic Resources Branch and affected communities. Mitigation measures are recommended when heritage resources are discovered. Key measures contained within the contract specifications associated with mitigating potential effects on heritage resources are as follows:

General Environmental Requirements:

- GER 195.2 Construction Environmental Management Plans
- GER 195.15 Heritage Resources

Key EPs associated with mitigating potential construction related effects on heritage resources are as follows:

Environmental Protection Procedures:

- EP13 Heritage Resources.

Considering the mitigation measures set out above, the potential for adverse effects to Heritage Resources are deemed to be not significant.

Noise and Vibration

The work associated with operation, maintenance and upgrades, will involve the use of heavy equipment. As previously mentioned, noise stemming from maintenance activities have the potential to affect wildlife and fish in the immediate vicinity of the project area. The contract specifications provide for the timing and nature of work in the vicinity of sensitive receptors. In the event there is a complaint by a roadside community, the Contractor may be obliged to modify their work program. Key measures contained within the contract specifications associated with mitigating potential effects of noise and vibration are as follows:

General Environmental Requirements:

- GER 195.2 Construction Environmental Management Plans
- GER 195.8 Blasting Near A Watercourse
- GER 195.12 Noise and Noise Limitations

The key EPs associated with mitigating potential operational and maintenance related effects of noise are as follows:

Environmental Protection Procedures:

- EP4 Noise Control
- EP12 Blasting Near A Watercourse

In consideration of the mitigation measures identified above, the effects on people and wildlife stemming from noise will be localized and temporary.

Dust

Dust and particulate matter stemming from maintenance and upgrade activities is unlikely to have an effect on safety, health or aesthetics of the community. All maintenance and upgrade activities shall be conducted in a manner that minimizes the release of particulate matter into the air. In the event that dust and particulate matter does become problematic, provisions for mitigation are in place, including the application of water where needed and covering trucks hauling materials

with a tarpaulin during transport. Key measures contained within the contract specifications associated with mitigating potential effects associated with dust are as follows:

General Environmental Requirements:

- GER 195.2 Construction Environmental Management Plans
- GER 195.12 Dust Particulate Control

Standard Construction Specifications:

- 1280 Supply and Application of Dust Control

The key EPs associated with mitigating potential operational and maintenance related effects of noise are as follows:

Environmental Protection Procedures:

- EP 18 Dust Suppression Procedures

Considering the mitigation measures set out above, the potential for adverse environmental effects due to dust are deemed to be not significant.

Material and Waste Management

Materials and waste management refers to the storage of materials and waste at designated maintenance yards and equipment maintenance sites. Poor management of waste materials may lead to the contamination of soils and surface waters (with possible effects on fish and fish habitat) stemming from (1) accidents, leaks, spills, improper storage of hazardous substances and (2) debris/sediment entering a watercourse. Other effects include worker safety stemming from the accumulation of wastes in the contract area and the attraction of nuisance wildlife due to improper disposal of garbage or food and food containers. Key measures contained within the contract specifications associated with mitigating potential effects associated with material and waste management are as follows:

General Environmental Requirements:

- GER 195.2 Construction Environmental Management Plans
- GER 195.3 Erosion and Sediment Control
- GER 195.9 Machinery, Fuel Storage and Handling

- GER 195.10 Emergency Response Plan for Spills
- GER 195.11 Disposal
- GER 195.12 Dust Particulate Control
- GER 195.14 Wildlife

Standard Construction Specifications:

- 300 Clearing and Grubbing

Key EPs associated with material management are as follows:

Environmental Protection Procedures:

- EP1 Clearing and Grubbing
- EP2 Petroleum Handling and Storage
- EP3 Spill Response
- EP5 Materials Handling and Storage Working Within or Near Fish Bearing Waters;
- EP14 Wildlife
- EP 16 Erosion and Sediment control
- EP 18 Dust Suppression Practices

Considering the mitigation measures set out above, the potential for adverse environmental effects mishandling of materials or waste are deemed to be not significant.

Accidents, Malfunctions and Emergencies

Accidents and malfunctions refer to releases involving dangerous goods or hazardous wastes. Emergencies refer to the potential occurrence of wildfire in the vicinity of the work associated with the maintenance contract. Potential effects stemming from spills or releases of dangerous goods and other hazardous material include contamination of soils and surface waters, as well as being potentially harmful to fish, wildlife and human health. Key measures contained within the contract specifications associated with mitigating potential effects associated with releases are as follows:

General Environmental Requirements:

- GER 195.2 Construction Environmental Management Plans
- GER 195.9 Machinery, Fuel Storage and Handling
- GER 195.10 Emergency Response Plan for Spills
- GER 195.11 Disposal

Standard Construction Specifications:

- 300 Clearing and Grubbing

Key EPs associated with mitigating potential operation and maintenance related effects of accidents, malfunctions and emergencies are as follows:

Environmental Protection Procedures:

- EP1 Clearing and Grubbing
- EP2 Petroleum Handling and Storage
- EP3 Spill Response
- EP5 Materials Handling and Storage;
- EP15 Wildfires.

Considering the mitigation measures set out above, the potential for adverse environmental effects from accidents, malfunctions, and emergencies are deemed to be not significant.

Monitoring, Inspection, Documentation and Reporting

Monitoring, inspecting and reporting are key elements of this OPEMP. These activities are not only to verify that the environmental measures are in place, functioning as designed and maintained, but also to adapt these measures where necessary and to anticipate potential threats of adverse effects to the environmental so that preventative measures can be taken. MI and Contractors each have specific responsibilities for monitoring, inspecting, documenting and reporting as described in this section.

Manitoba Infrastructure

MI's inspectors will routinely inspect active maintenance and upgrade activities to ensure they are managed in accordance with the contract documentation and other applicable statute or regulation that may apply. Inspectors will ensure that environmental protection measures, such as noise, dust, erosion and materials handling facilities, are in accordance with the General Environmental Requirements. An inspection report will be generated for each inspection.

MI Environmental Services Section staff will focus on the establishment and maintenance of environmental protection measures, the adequacy of the measures respecting the level of environmental protection described in the Environmental Impact Statement and supporting documentation, and the review of environmental records discussed in this section.

MI may hire specialist consultants such as archaeologists or other environmental scientists as required in order to carry out supplementary monitoring, inspections or further studies.

Contractors

The Contractor's monitoring responsibilities are prescribed by the contract documents. The primary concerns include erosion and sediment control and fuel containment.

Erosion and sediment control includes, but is not limited to, ensuring sediment fencing, erosion control blankets, and other erosion and sediment mitigation measures are checked for repairs, cleaned and maintained to ensure the proper function, and temporary controls are removed once permanent controls are established.

Fuel containment includes, but is not limited to, inspecting for releases from the fuel storage containers and tank vehicles, taking preventative measures to reduce the risk of release, and responding to releases in a timely manner if they occur. In regards to the fuel storage containers, if a leak is discovered the leak is to be stopped immediately, the spilled material and the contaminated soil must be contained, excavated and transported to an appropriate off-site disposal facility in accordance with GER 195.9 and GER 195.10 in the contract documents.

The Contractor shall maintain on site records relating to:

- Materials handling;
- Environmental performance
- Spills, leaks and releases;
- Environment protection measure implementation and adjustment

All documentation referred to above shall be reported to MI in a timely manner. Furthermore, temporary site drawings, an on-site spill response plan, Material Safety Data Sheets for regulated products stored on site and copies of authorizations obtained for the work shall be available on site and the Contractor must provide these document to MI upon request.

Communication

Communication with public, First Nations or local government will be responsibility of MI. MI will advise the local First Nation leadership of the nature of the work and the environmental protection measures to be used prior to the commencement of maintenance and upgrade activities.

MI will be responsible for reporting to the government agencies as required by the various regulations, authorizations, permits and licenses. The Contractor will be responsible for reporting to regulatory agencies for approvals related to the work that they have applied for (and received) (i.e. concrete batch plant licence).

Adaptive Management: Plan Review and Adjustment

An adaptive management approach will be followed whereby lessons learned will be applied to subsequent documentation and EPs.

MI will review the status of the environmental protection activities on an on-going basis. MI will review and approve adjustments to the environmental protection measures associated with the work. Adjustments to the OPEMP will be made if the monitoring programs identify unforeseen environmental effects or the environmental protection measures are not performing as intended.

DECOMMISSIONING, reclamation, and Emergency Response plans

MI's Emergency Response Plan for accidents and spills is attached as EP3 in Appendix C.

MI's Winter Road Reclamation Plan is attached as EP21 included in Appendix C.

A decommissioning plan was provided to Eastern District Regional Field Supervisor and is attached as Appendix D.

Appendicies

A: All Season Road Linking Bloodvein andBerens River First Nations to Provincial Road 304 (Project 1) (Map)

B: General Environmental Requirements (GER 195)

C: Environmental Protection Procedures (EPs)

- including Winter Road Reclamation Plan (EP21)

- Emergency Response Plan for environmental accidents and spills (EP3)

D: Decommissioning Plan

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-74

EIS Guideline Reference	• Part 2, Section 6.4
EIS Reference	• Chapter 8, Section 8.3.2 • Chapter 8, Appendix 8-2, Environmental Protection Procedures 2 and 3
Category	Environmental Protection Measures

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe the Project's environmental protection plan and its environmental management system through which the proponent will deliver this plan. The plan must provide an overall perspective on how potential adverse effects would be minimized and managed over time.

The EIS indicates that, in addition to the mitigation measures outlined in MI's Environmental Protection Procedures (EPs) and Environmental Protection Specifications, conditions will be included in each construction contract that will be specific to the work being conducted. The EIS also indicates that EPs are reviewed and revised annually and that major changes or additions will be forwarded to local communities, Manitoba Sustainable Development, and the Agency once finalized. As EPs are being proposed in the EIS as mitigation measures to address potential adverse effects of the Project to VCs, it is important for the Agency to understand how changes to EPs may affect the conclusions presented in the EIS with respect to potential environmental effects, including residual and cumulative effects, mitigation, monitoring, and follow-up, which will inform the Environmental Assessment Report for the Project. It is also unclear how Indigenous groups will be involved or will be provided the opportunity to provide input into revisions to EPs, particularly EPs that may pertain to potential effects to Indigenous groups.

Supplementary information is required to support the characterization of the environmental protection plan and its environmental management system for the Project and to determine whether further mitigation measures may be required.

See Annex I for related advice.

INFORMATION REQUEST

a) Describe the conditions that will or may be included in construction contracts. If specific conditions have not been developed at this time, provide examples of conditions that will likely be or are typically included (e.g. conditions that were included in EMPs for Project 1 or Project 4).

b) If revisions have been made to EPs from what is currently described in the EIS, provide updated EPs and/or highlight areas where revisions have been made. Describe how any changes to EPs may affect the conclusions presented in the EIS with respect to potential environmental effects, including residual and cumulative effects, mitigation, monitoring, and follow-up.

   i. Describe how Indigenous groups were/will be involved in current and future revisions to EPs, as they pertain to the Project.

   ii. Describe whether, and if so how, annual updates to EPs will be communicated to Indigenous groups and the public

RESPONSE

a) As described in Chapter 8, Section 8.4 of the Environmental Impact Statement (EIS) environmental protection will be incorporated into the construction phase through the Construction Phase Environmental Management Plan (CEMP) as well as contract specifications, special provisions and contract submittals. The CEMP will highlight specific protection measures to be applied during construction and updated by MTI, as needed. The plan will be created in consultation with government departments that have jurisdiction over aspects of the Project and the local liaison committees. Once finalized, the plan will be forwarded to Manitoba Environmental Approvals Branch (EAB) and the Impact Assessment Agency (IAAC), if required. If major changes or additions to the CPEMP are required, they will be forwarded to EAB and IAAC. The CPEMP will document items as follows.

- Commitments made to environmental protection and sustainable development by the parties responsible to implement the plans.
- Roles and responsibilities of each party in fulfilling that commitment.
- Planned construction activity and the potential environmental effects.
- Environmental protection measures that will be taken.
- Protocols regarding inspection and reactions to inspection findings.
- Emergency plans including training and awareness.
- Monitoring and follow-up to be undertaken.
- Documentation and reporting procedures.
- Auditing, management review, evaluation and adjustment procedures.

Construction contract specifications detail the technical design as well as project-specific restrictions in how the work is to be completed. For the proposed Project, multiple contracts will be tendered for specific Project components (ex: road segment, bridge). Contract specifications will be tailored to the component specific conditions. Each contract will include site-specific requirements for environmental protection. For example, bridge and stream crossing designs incorporate erosion and sediment controls to provide permanent protection for local watercourses.

The Environmental Specification 130s (ES 130s) that are included in MI construction contracts provide general environmental protection direction and requirements for environmental topics encountered for most road construction projects. ES 130s will be periodically updated to reflect evolving best practices and regulatory requirements. ES 130s relevant to the Project are provided in Appendix 8-3 of the EIS (but also available in Appendix IR1-19-1 in the response to IR1-19).

b) The Project's Environmental Management Plan Framework was included in the EIS as Appendix 8-1 and does indicate that Environmental Protection Procedures (EPs) are to be reviewed and revised annually. This commitment was meant to indicate that EPs would be reviewed annually during the construction, and operational phases of the Project. At this time, no changes have been made to the EPs presented in the Project EIS, and there are therefore no associated changes to the conclusions made in the EIS.

In addition, Indigenous groups will be involved in revisions to EPs during engagement activities (i.e. community meetings). In addition to the planned engagement meetings to complete the environmental assessment process, as described in IR1-82, upcoming engagement rounds will involve discussions related to detailed design, construction, and will seek to obtain input on Project-related aspects during construction, which would include any revisions to EPs.

EPs were originally developed for other all-season road projects on the east side of Lake Winnipeg. As indicated in Chapter 8, Appendix 8-1 of the EIS, once finalized, MTI will share updates to the EPs with the local liaison committee, as well as with provincial and federal regulators including Manitoba Environment and Climate Change, and the Impact Assessment Agency of Canada.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-75

EIS Guideline Reference	• Part 2, Section 5.1, 8.1, and 8.2
EIS Reference	• Chapter 3, Section 3.5 • Chapter 8, Table 8.2 • Chapter 9 • Appendix C-2, Section 5.2.3
Category	Follow-up, Monitoring, and Reporting

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to present a preliminary follow-up program and preliminary environmental monitoring program for all phases of the Project and lists aspects of these programs that must be described in the EIS.

While the EIS describes the objectives of the follow-up and monitoring programs for the Project, details are not provided regarding:

- what the follow-up and monitoring programs will consist of;
- where and when follow-up and monitoring programs will be implemented;
- which VCs and aspects of VCs the proponent plans to monitor to verify predicted Project effects and to ensure proposed mitigation measures are effective; or
- how effects to VCs will be monitored, including a description of the parameters to be monitored and details of the monitoring program.

The EIS indicates that it is the proponent's view that post-construction monitoring is not required for the Project. Follow-up and monitoring must occur during all phases of the Project where there is uncertainty regarding the predicted effects or the effectiveness of mitigation measures. Conducting follow-up and monitoring programs only during construction may not be sufficient as adverse Project effects may result during Project operation and maintenance.

Table 8.2 of the EIS identifies, in a general sense, environmental component monitoring programs that have been or will be developed and associated plans, protection procedures, and protection specifications. No Indigenous health components are considered in Table 8.2 and no noise, air quality, or traditional land use monitoring is proposed, including baseline monitoring or monitoring

for potential Project effects. Certain environmental components, such as air quality, may influence Indigenous health and the lack of baseline data reduces certainty with respect to potential Project effects to health. Due to a lack of quantitative baseline data, monitoring plans must be developed and described for potential Project effects to Indigenous health, noise, air quality, water quality, and Indigenous traditional land use in order to verify predictions, monitor the effectiveness of mitigation measures, and determine whether contingency measures may be required.

The EIS notes that results from the follow-up and monitoring programs will be provided as appropriate to community liaison and advisory committees, stakeholders, local Indigenous communities (i.e. MSCN, BCN, GLFN, and God's Lake Narrows Northern Affairs Community), and federal and provincial authorities. It is not clear if all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines who may have an interest in the Project will be provided with the results of follow-up and monitoring programs. Information is also not provided regarding opportunities that will be offered to Indigenous groups to be involved in the development and implementation of the follow-up and monitoring program(s). For instance, MSCN has requested that MI develop an Indigenous community-based monitoring program for the Project, in collaboration with communities to ensure that resources and areas of importance to Indigenous peoples are protected.

Information on the proposed follow-up and monitoring program for the Project in all phases is required to assess how the proponent plans to verify its predictions with respect to potential environmental effects of the Project to VCs, cumulative effects, assess the effectiveness of mitigation measures, and determine whether the program(s) proposed may be adequate.

INFORMATION REQUEST

a) Describe the planned follow-up and monitoring program(s) to be implemented during all phases of the Project. Refer to the EIS Guidelines for details regarding the information that must be provided in the description.
    i. Ensure that monitoring and follow-up plans are described for all VCs, including Indigenous health, noise, air quality, water quality, and Indigenous traditional land use.
    ii. Ensure that follow-up and monitoring plans demonstrate consideration of the fact that construction of the Project is not expected to begin until 2030 (refer to IR1-35).
b) With respect to reporting of the results of the follow-up and monitoring program(s), indicate whether results will be shared with all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines who may have an interest in the Project.
c) Describe opportunities that will be offered to Indigenous communities to be involved in the development, review, and implementation of follow-up and monitoring plans (e.g. Indigenous community based monitoring).

i. If requests of this nature have already been expressed to MI by Indigenous groups, indicate which groups have expressed interest in being involved in follow-up and monitoring and the nature of their proposed involvement.

RESPONSE

a) As described in the response to information request IR1-04, although the EIS originally identified that clearing and construction would likely begin in 2030, clearing of the All-Season Road (ASR) alignment is now intended to start in the winter following regulatory approvals to accommodate rerouting of winter road traffic, in accordance with the request of God's Lake FN and Manto Sipi CN. Once the alignment is cleared to an initial width of 20m, winter road traffic would be re-routed to the new alignment, allowing the former winter road corridor to begin re-naturalizing. Better aligning the existing winter road with the P6 ASR will improve road safety and address requests from local communities. When construction of the all-season road begins, the remaining width of the alignment (i.e. the right-of-way) will be cleared and the all-season road will be constructed. As outlined in Chapter 8, Appendix 8.3 of the Environmental Impact Statement (EIS), contractors will be required to submit their Environmental Protection Plans to Manitoba Transportation and Infrastructure (MTI) for review and approval before starting any work on the Project, in accordance with ES 130.2 (Environmental Protection Plan) and ES 130.3 (Submittals). Contractors will be responsible for preparing and implementing various environmental protection plans, including health and safety, emergency response, erosion and sediment control, and hazardous materials management. The contractor will also be required to draft a Water Quality and Fish Protection Plan in accordance with ES 130.3.2.3 for review prior to commencing work and responsible for completing and reporting on applicable monitoring programs. The contractor will also be responsible for record keeping including keeping records of accidents, spills, leaks and releases, public complaints, and adjustments or improvements to environmental protection measures in accordance with ES 130.5. Relevant information and/or events are to be documented and provided to the Contract Administrator in a timely fashion. This approach aligns with MTI's standard construction monitoring methods, including daily site inspections by the Contract Administrator, audits by MTI environmental staff, safety audits. Planned engagements with Indigenous Nations during the construction phase (Round 8) as identified in table 5.11 of the EIS, are intended to address components of interest to Indigenous Nations including Indigenous health, noise, air quality, water quality, and Indigenous traditional land use. Monitoring objectives will be set to reflect predictions made in the EIS but may also be linked to evolving provincial and federal guidelines, with interventions focused on identifying causes, applying adaptive mitigation, and confirming effectiveness.

Prior to construction, an Aquatic Environment Monitoring Plan and a Wildlife Monitoring Plan will be developed to verify predictions regarding effects on the aquatic environment and wildlife movement, assess the effectiveness of mitigation measures, and monitor for unanticipated effects.

These plans will be developed to meet regulatory obligations and will be shared with community liaison committees, as well as federal and provincial authorities for review and feedback.

MTI will administer the implementation of environmental monitoring activities, including managing contracts with specialized consultants. Additionally, MTI will coordinate the Indigenous and Public Engagement Program (IPEP), providing Indigenous Nations and stakeholders with the opportunity to review and comment on monitoring methodology and resulting data. MTI will be responsible for executing and reporting on this program throughout the Project's construction, operation, and maintenance phases, and will make final decisions on necessary adjustments. It is anticipated that monitoring and follow-up programs will be conducted by specialized consultants and reported to MTI, senior environmental coordinator, and environmental services manager, who will implement corrective actions as needed. MTI will also periodically review the environmental management system at a strategic level to ensure its continuing suitability, adequacy and effectiveness.

b) Monitoring results will be shared with the Manitoba Environmental Approvals Branch and the Impact Assessment Agency of Canada for posting on their respective registries. However, confidential information from Indigenous Nations, such as species at risk or heritage information will not be shared or made public, information may be shared between with regulators and or Indigenous Nations if permissions can be granted and agreements to keep it confidential can be made. As shown in the response to information request IR1-24, the Project's assessment areas are centered on the Project alignment which is located within the traditional territories of Bunibonibee Cree Nation, Manto Sipi Cree Nation, and God's Lake First Nation. As a result, monitoring results are anticipated to be of greatest interest to these Indigenous Nations.

c) MTI will actively engage local communities (Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Northern Affairs Community) through the Indigenous and Public Engagement Program (IPEP) to discuss various aspects of the Project, including seeking input on opportunities for further community participation. MTI will manage the IPEP, ensuring that interested parties receive information and have opportunities to provide feedback on the Project's progress. This engagement will continue throughout the construction, operation, and maintenance phases, with MTI responsible for implementing and reporting on the program, as well as making final decisions on any adjustments to environmental activities.

The primary goals of the IPEP are to exchange information and provide a platform for interested parties to provide their input regarding Project progress, environmental monitoring plans, wildlife monitoring activities, and other topics of interest.

MTI will share monitoring report drafts with the communities for input, incorporate recommendations where feasible, and provide comments to the communities, including the

rationale for any suggestions that are not incorporated. A similar practice of hiring community members to assist with conducting field work and the delivery of services as part of the environmental baseline studies is intended for future monitoring work.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at:

QUESTION IAAC IR1-76

EIS Guideline Reference	• Part 2, Section 5.1
EIS Reference	• Chapter 1, Section 1.4.4 • Chapter 5, Section 5.2.1
Category	Indigenous Traditional Knowledge and Land Use Plans

CONTEXT AND RATIONALE

The EIS Guidelines list Indigenous groups that the proponent must consider in its effects assessment with respect to the Project. Ten Indigenous communities are listed in the EIS.

The EIS describes that the Government of Manitoba signed an agreement with Wabanong Nakaygum Okimawin First Nations (WNO Accord), which consists of 21 member nations including BCN, Garden Hill First Nation, GLFN, MSCN, Norway House Cree Nation, Red Sucker Lake First Nation, St. Theresa Point First Nation, Wasgamack First Nation, and the MMF. Under the WNO Accord, individual member Nations are to develop Traditional Area Land Use Plans. GLFN and MSCN indicated that they have been working on land use plans, including for the area of the Project, and will provide a copy to MI, once complete. The EIS does not describe how plans that are currently in development, or are finalized prior to construction of the Project will be considered with respect to the Project and the EIS.

Supplemental information is required to support the proponent's characterization of how views expressed and information provided by Indigenous peoples has been and will be considered with respect to the Project.

INFORMATION REQUEST

a) Indicate whether any of the groups listed in Part 2, Section 5.1 of the EIS Guidelines have, since the finalization of this EIS, created or are in the process of creating Traditional Area Land Use Plans as they related to the WNO Accord.
    i. Describe how MI has or will consider information presented in these Traditional Area Land Use Plans as they relate to the Project.

RESPONSE

a) The Wabanong Nakaygum Okimawin (WNO) was made up of 16 First Nations on the east side of Lake Winnipeg, and five other members representing the Metis and general public. As described in Chapter 5 of the EIS, the 16 First Nations included: Berens River First Nation, Bloodvein First Nation, Bunibonibee Cree Nation, Garden Hill First Nation, God's Lake First Nation, God's Lake Narrows Northern Affairs Community, Hollow Water First Nation, Black River First Nation, Little Grand Rapids, Manto Sipi Cree Nation, Norway House Cree Nation, Pauingassi First Nation, Poplar River First Nation, Red Sucker Lake First Nation, Sagkeeng First Nation, St. Theresa Point First Nation and Wasagamack First Nation. In 2007, the province signed a transfer agreement with these First Nations on the east side to provide funding every year for five years for traditional land use planning (Government of Manitoba, 2007).

Since the finalization of this EIS, no Traditional Area Land Use Plans (TALUPs) have been created that would apply to the proposed Project area. The proposed Project is located wholly within Treaty 5 which encompasses the traditional lands of the Cree, and more specifically the traditional land use areas of Bunibonibee Cree Nation, Manito Sipi Cree Nation and God's Lake First Nation as shown in Figure IR1-76-1. These communities support the development of the proposed Project and are working on developing land use plans for their respective traditional territories.

Funding provided through the WNO process and other means was utilized to map Wasagamack First Nation's traditional land use and develop a book that contains historical timelines, Anisininew land use, maps and stories (Wasagamack First Nation & Thompson, 2020). Land use occurs within Wasagamack First Nation's registered trapline area and does not overlap with the proposed Project area. It is not known if the other Anishiniwuk communities of Garden Hill, St. Theresa Point and Red Sucker Lake First Nations are actively working to develop land use plans. It is anticipated that TALUPs developed by these communities would be limited to their traditional territories, which do not overlap with the proposed Project.

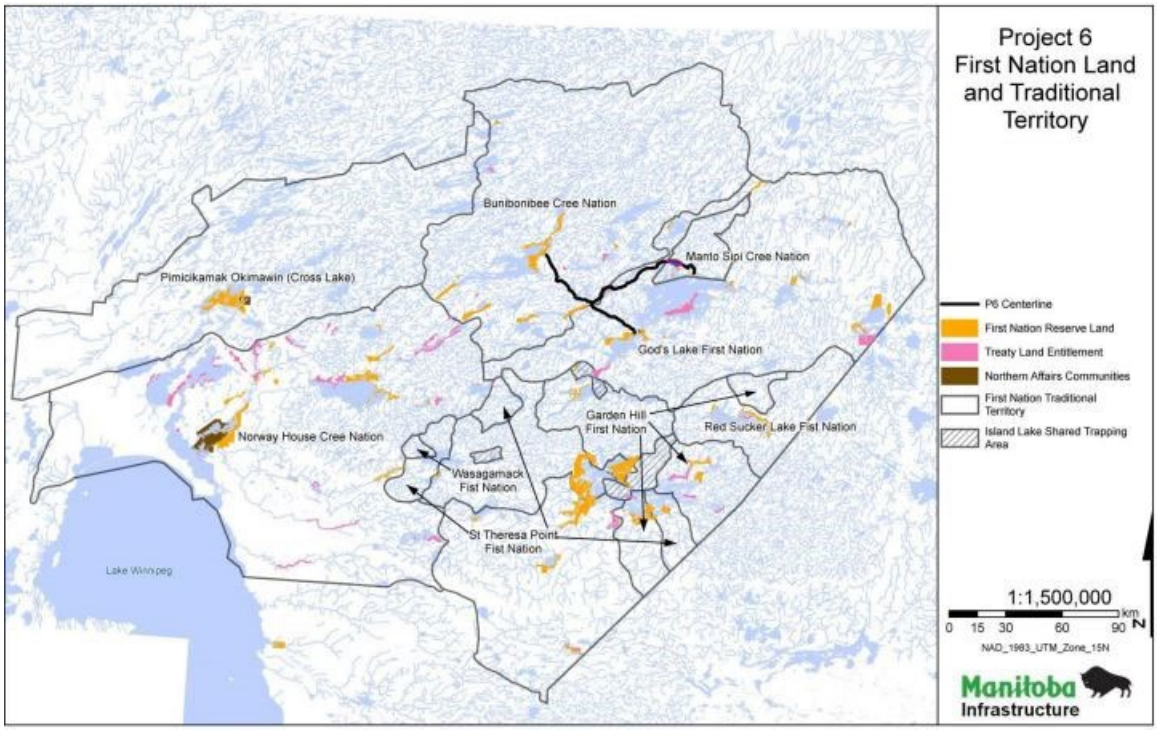


Figure IR1-76-1. Traditional Territories of First Nations listed in Part 2, Section 5.1 of the EIS Guidelines.

No TALUPs have been created by Pimicikamak (Cross Lake) Cree Nation, Norway House Cree Nation or the Manitoba Métis Federaion (MMF) in relation to the WNO Accord in the proposed Project area. Similar to the Island Lake communities, it is anticipated that any TALUPs developed by these communities would be limited to traditional territories of these communities, which do not overlap with the proposed Project.

Pimicikamak and Norway House Cree Nations have Resource Management Boards (RMBs) established through past adverse affects settlement agreements (ex: Northern Flood Agreement and others) to co-manage the natural resources in their traditional territories (ex. Areas of traditional use) as defined by their registered trapline areas (Resource Management Areas). Manitoba Indigenous Relations serves as the provincial lead in the management and implementation of the RMBs established under these agreements. Each RMB typically has about 8–10 people, with half of the members appointed by the province and the other half by the Indigenous community. Each RMB is mandated to develop and implement land use and resource management plans. The focus and priorities of each RMB are unique and vary depending on the area, economy and geographic location. RMB decisions are made by consensus unless a member asks for a vote in which case decisions are made by a majority of those present. In this scenario, an equal number of community and Manitoba members must be present during a vote.

The MMF and the Province of Manitoba entered into an agreement that recognizes Métis rights to harvest for natural resources for food and domestic use as identified in the green shaded area in Figure IR1-76-2 (Manitoba Métis Federation, 2016) below. The pink shaded areas in Figure IR1-76-2 are expansion areas identified by the MMF.

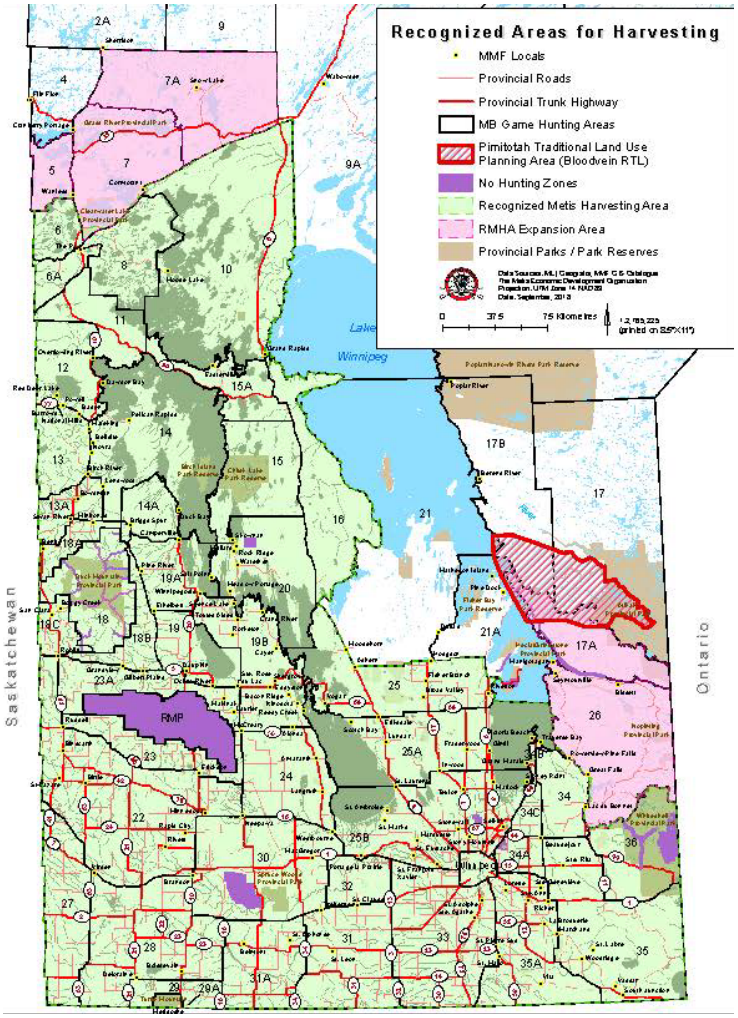


Figure IR1-76-2. Metis Recognized Harvesting Area map including desired expansion areas.

i) Six rounds of engagement were conducted with Bunibonibee Cree Nation, Manito Sipi Cree Nation and God's Lake First Nation and God's Lake Narrows Northern Affairs Community. Input and feedback received through these engagement activities was used to assist with decision-making with respect to project planning (i.e. route alignment, Project design and schedule), as well as to help avoid or minimize potential adverse effects and maximize benefits and opportunities.

Currently no publicly available TLUPs overlap with the proposed Project area. MTI will review and consider Traditional Land Use Plans (TLUPs) from groups listed in Part 2, Section 5.1 of the EIS Guidelines if developed or modified for applicability to the proposed Project. Information would be reviewed and assessed on a case-by-case basis, and MTI would work with communities to try to resolve any potential conflicts should they exist. Cross-checking the proposed Project plans with the TLUPs will promote project alignment with broader community goals and minimize potential for conflicts.

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QUESTION IAAC IR1-77

EIS Guideline Reference	• Part 1, Section 4.2.2 • Part 2, Section 5.1
EIS Reference	• Chapter 5, Section 5.2.4.2
Category	Indigenous Traditional Knowledge and Land Use Plans

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to incorporate into the EIS the community and Indigenous traditional knowledge (TK) to which it has access or that is acquired through engagement with Indigenous groups, including all groups listed under Part 2, Section 5.1 of that document, and to integrate Indigenous TK into all aspects of the assessment of potential Project effects. Agreement should be obtained from Indigenous groups regarding the use, management, and protection of their existing TK during and after the environmental assessment.

The EIS indicates that TK was collected from MSCN, GLFN, BCN, and God's Lake Northern Affairs Community. Concerns were expressed by MSCN regarding how TK collected from their community was used to inform the selection of temporal and spatial boundaries used for the assessment of potential Project effects, particularly the temporal boundaries of the cumulative effects assessment. Concerns have also been expressed by the MMF that to date MI has not made attempts to gather traditional Métis knowledge with respect to the Project. Pimicikamak Okimawin indicated that TK work with their community was completed by MI for the Project between July 2009 and June 2010. However, it is unclear whether and if so, how this information was considered in the EIS. It is also unclear whether TK was collected or whether attempts were made to collect TK from other Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines and, if so, how information collected from these groups was considered in the EIS.

MSCN also expressed concerns that TK knowledge may conflict with scientific, engineering, or technical knowledge, and how any conflicting information may affect the conclusions presented in the EIS. The EIS does not speak to areas where scientific, engineering, or technical knowledge may conflict with Indigenous traditional knowledge.

The EIS also does not describe whether agreement was obtained from Indigenous communities regarding the use, management, and protection of their existing TK information both during and after the environmental assessment.

Supplementary information is required to understand how Indigenous TK collected in relation to the Project has been incorporated into the EIS.

See Annex I for related advice.

INFORMATION REQUEST

a) Describe how Indigenous TK was used to inform the information and assessments presented in the EIS, including the selection of temporal and spatial boundaries.
b) Clarify whether TK has been collected and incorporated into the EIS from all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines.
    i. If so, describe how and where TK from all groups was used to inform the information and assessments presented in the EIS.
    ii. If not, provide a rationale for why this information was not collected from all groups and/or indicate when this information will be collected from groups and incorporated into the EIS.
c) If present, highlight areas where the conclusions presented in the EIS drawn from scientific, engineering, and technical knowledge are inconsistent with the conclusions drawn from traditional knowledge and describe how each perspective was considered and represented in the EIS, including in the cumulative effects assessment.

RESPONSE

a) As a part of the Large Area Transportation Network Study (LATNS), Indigenous Traditional Knowledge (TK) was collected from Pimicikamak Cree Nation, Bunibonibee Cree Nation, Manto Sipi Cree Nation, God's Lake First Nation, God's Lake Narrows Northern Affairs Community, Red Sucker Lake First Nation, Garden Hill First Nation, St. Theresa Pint First Nation and Wasagamack First Nation, as well as Cross Lake Northern Affairs Community. Information collected was used to inform all-season road network planning. The TK studies completed were analyzed and considered in the technical route evaluation to arrive at the preferred corridor for future all season roads in the region. The technical process for developing an all-season road network involved the identification of feasible all-season route alternatives based on important route selection including but not limited to:

- Protection of the natural environment with its important animal, plant and fishery resources
- Protection of historical sites, artifacts, archaeological resources, the proposed UNESCO World Heritage Site, local culture and traditional land uses.
- Enhancement of opportunities for social and economic improvements by providing more reliable access to communities, potential development sites and renewable natural resources.

The TK studies conducted for the LATNS study, and more recently with the God's Lake First Nation, Bunibonibee Cree Nation, Manto Sipi Cree Nation, and God's Lake Narrows Northern Affairs Community for the proposed Project have yielded important information on the local activities such as trapping, berry picking, special gathering/burial/spiritual areas, hunting and fishing. The information was considered and used by the former East Side Road Authority (ESRA; now part of Manitoba Transportation and Infrastructure or MTI) to inform the development of the Project 6 alignment within the corridor identified by the LATNS. These activities have led to improved design and contributed to building enhanced longer-term relationships between the Nations and ESRA and MTI.

The Project 6 Traditional Knowledge Studies were conducted as part of the Project 6 Indigenous and Public Engagement Program. Separate studies were conducted in each of the communities in the Project 6 area: Manto Sipi Cree Nation, God's Lake First Nation, Bunibonibee Cree Nation, and the God's Lake Narrows Northern Affairs Community. The broad purpose of the studies was to document and apply the traditional knowledge, comments and perspectives of community members to the planning and assessment of the proposed all-season road. The studies aimed to document traditional knowledge and land use in areas surrounding the road alignment, including knowledge of vegetation, wildlife and fish habitats; land use by community members; and areas that are particularly important or sensitive for cultural, historical, or other reasons.

For each community, a local Community Coordinator was hired to provide invaluable support for the in-community research activities. They helped by providing ongoing communication with the Chief/Mayor and Council; identifying knowledgeable community members to participate in the study; scheduling the workshops and interviews; and lining up transportation, translation, catering and meeting spaces for the community research. They also provided important cultural and practical guidance to other members of the research team.

The First Nation Facilitator acted as an advisor for portions of the traditional knowledge study. As a member of God's Lake First Nation, the Facilitator provided insight and advice on cultural matters, helped to identify existing studies relevant to traditional knowledge of the area, reviewed and provided input on draft study materials, and participated in the planning and delivery of the in-community workshops.

ESRA personnel were involved throughout the Traditional Knowledge Study. Members from ESRA attended the community initial overview and verification workshops and took on roles as interviewers and note-takers during the workshop mapping exercises. An ESRA staff member also accompanied the traditional knowledge researcher for the duration of the one-on-one interviews, providing note-taking services and interview support. ESRA staff members were able to answer questions related to the road project and to provide other information as needed.

HTFC Planning & Design acted as the lead consultant for Traditional Knowledge Studies in the Project 6 area and represented the consulting team during the community research. CIER acted as a sub-consultant on the Project 6 Traditional Knowledge work and contributed to developing the workshop and interview materials that were used in each of the communities. The studies were carried out with recognition that community members hold an intimate knowledge of the areas surrounding the all-season road corridor. Workshops and were designed to generate conversations around these areas and document what community members were able to share towards developing a better all-season road project.

The study team aimed to develop and implement strong methodology to ensure that research was consistently thorough, respectful, well documented, and defensible. Regular communication was maintained between ESRA, HTFC, the First Nation Facilitator and Community Coordinators. The Facilitator and Community Coordinators were consulted before each workshop and interview trip to confirm the timelines and methods were appropriate from a cultural/ community perspective.

Information documented during these activities was digitized by HTFC and provided to ESRA, the respective communities, and to the individuals interviewed during the study. A complete set of maps produced from the studies was provided to ESRA and the respective communities along with digital files containing the detailed information documented during the project.

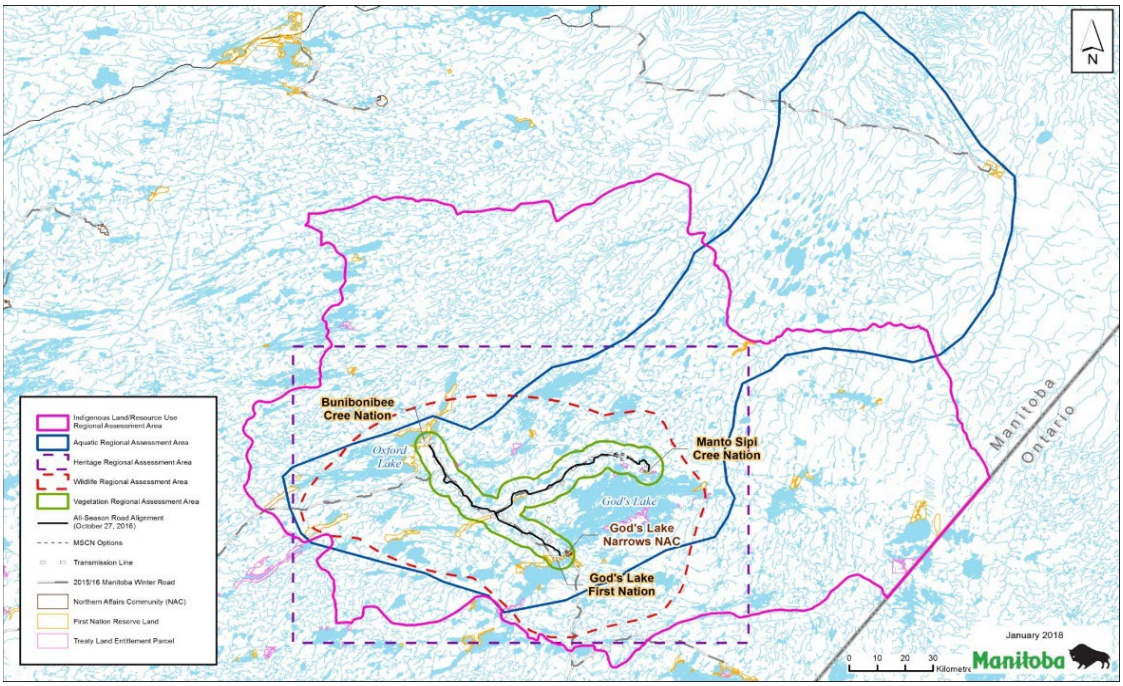
Traditional knowledge was also used to inform selection of the valued components used in the EIS and selection of spatial boundaries for the EIS. As discussed in Chapter 4 of the EIS, following the initial screening process of environmental components, a list of preliminary Valued Components (VCs) was identified and presented at community meetings in Round 4 of Indigenous and public engagement associated with the project to verify the appropriateness of the proposed VCs and to revise the VC list to be assessed, as needed, based on input from community members. Based on the screening criteria described in Chapter 4, final VCs for a focused EA were selected and the predicted effects on these VCs are discussed in Chapter 6, Section 6.3. The final list of VCs selected reflects feedback from regulatory authorities, First Nations, other Indigenous peoples and the public through the Indigenous and Public Engagement Program (IPEP), professional judgement and EA practice and guidance documents.

As described in Chapter 6 of the EIS, the assessment of potential environmental effects on wildlife requires knowledge of the movements and spatial range of the animals of interest. As such, the spatial boundaries used to assess potential environmental effects on wildlife may vary by species. For the assessment of wildlife related effects, the Wildlife Local Assessment Area (LAA) generally considers the area within a 10 km corridor centred on the all-season road alignment, while a larger 20 km corridor was used for caribou and moose. The Wildlife Regional Assessment Area (RAA) for the proposed Project, see Figure IR1-77-1 below, was determined using a multi-disciplinary approach incorporating both biophysical and social factors to ensure home ranges of large ranging species (e.g. caribou) and areas of traditional use were considered. Species of special importance

to local communities were determined through workshops, open houses and community discussions. ESRA's wildlife consulting team for Project 6 conducted community workshops with the Bunibonibee Cree Nation, Manto Sipi Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community that focused on documenting community knowledge to inform the Project 6 wildlife studies. Preliminary data from the traditional knowledge study was provided to the wildlife consultants in advance of the workshop.

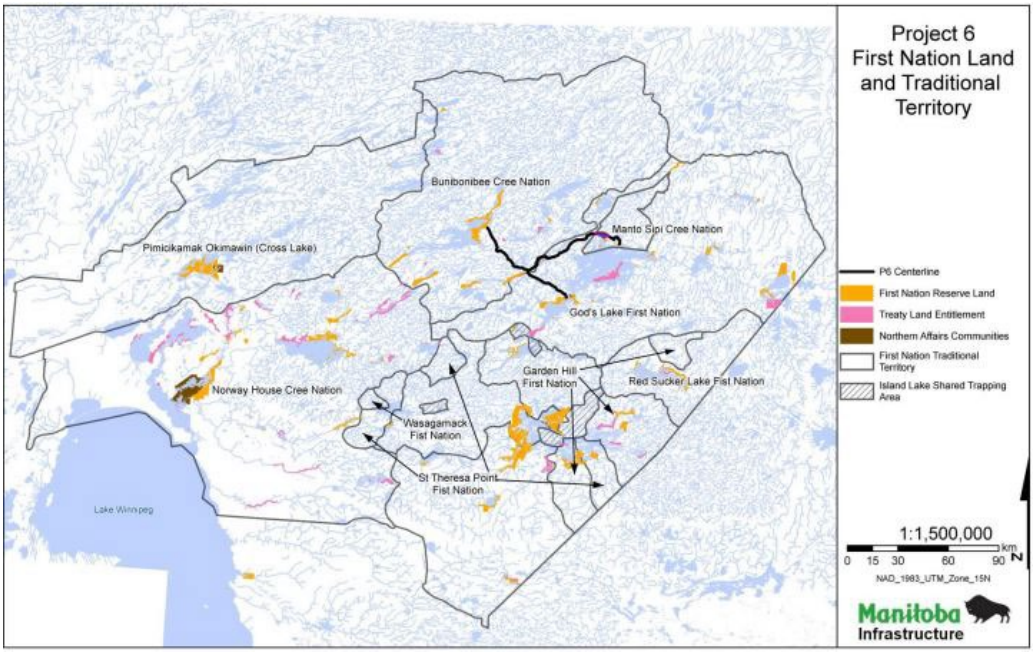
As described in Chapter 6 of the EIS, the Indigenous LAA considers the area within a 10 km corridor centred on the all-season road alignment which includes the local communities and areas where measurable changes to land use are primarily expected. The Indigenous LAA is the same as what is used for fish, birds and furbearers. The Indigenous RAA is the area beyond the LAA that encompasses the Traditional Territories of Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community as identified by traditional knowledge studies and aligns with the trapline areas held by those three communities, see Figure IR1-77-2 below. The Indigenous RAA boundary considers changes to the environment that may indirectly affect the traditional use areas and resources of the local communities and people in the region. The Indigenous RAA was selected as the spatial boundary to assess VCs identified for the CEA.

Figure IR1-77-1. Regional Assessment Areas for the Proposed Project



The CEA spatial boundary encompasses the Traditional Territories of Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community. This CEA spatial boundary considers changes to the environment that cumulatively may indirectly affect the health and socio-economic conditions and traditional use areas and resources of the local Indigenous communities and people in the region. This includes fish and fish habitat upstream and downstream of the Project Footprint for the all-season road that are connected to watercourses potentially affected by the proposed Project and the fish that would be harvested by the Indigenous communities.

Figure IR1-77-2. Traditional Territories of First Nations listed in Part 2, Section 5.1 of the EIS Guidelines.



b) With the exception of Norway House and the MMF, TK was collected and incorporated into the EIS from all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines during the LATNS. This information was used to inform selection of corridors for the east side Lake Winnipeg all-season network.

Additional project specific TK was collected by ESRA from God's Lake First Nation, Bunibonibee Cree Nation, Manto Sipi Cree Nation, and God's Lake Narrows Northern Affairs Community, whose traditional territories the proposed Project resides within, was used to inform the proposed Project alignment and the EIS. These traditional territories are based on registered trapline areas and are typically treated as properties for the exclusive use by the specific community. It is generally

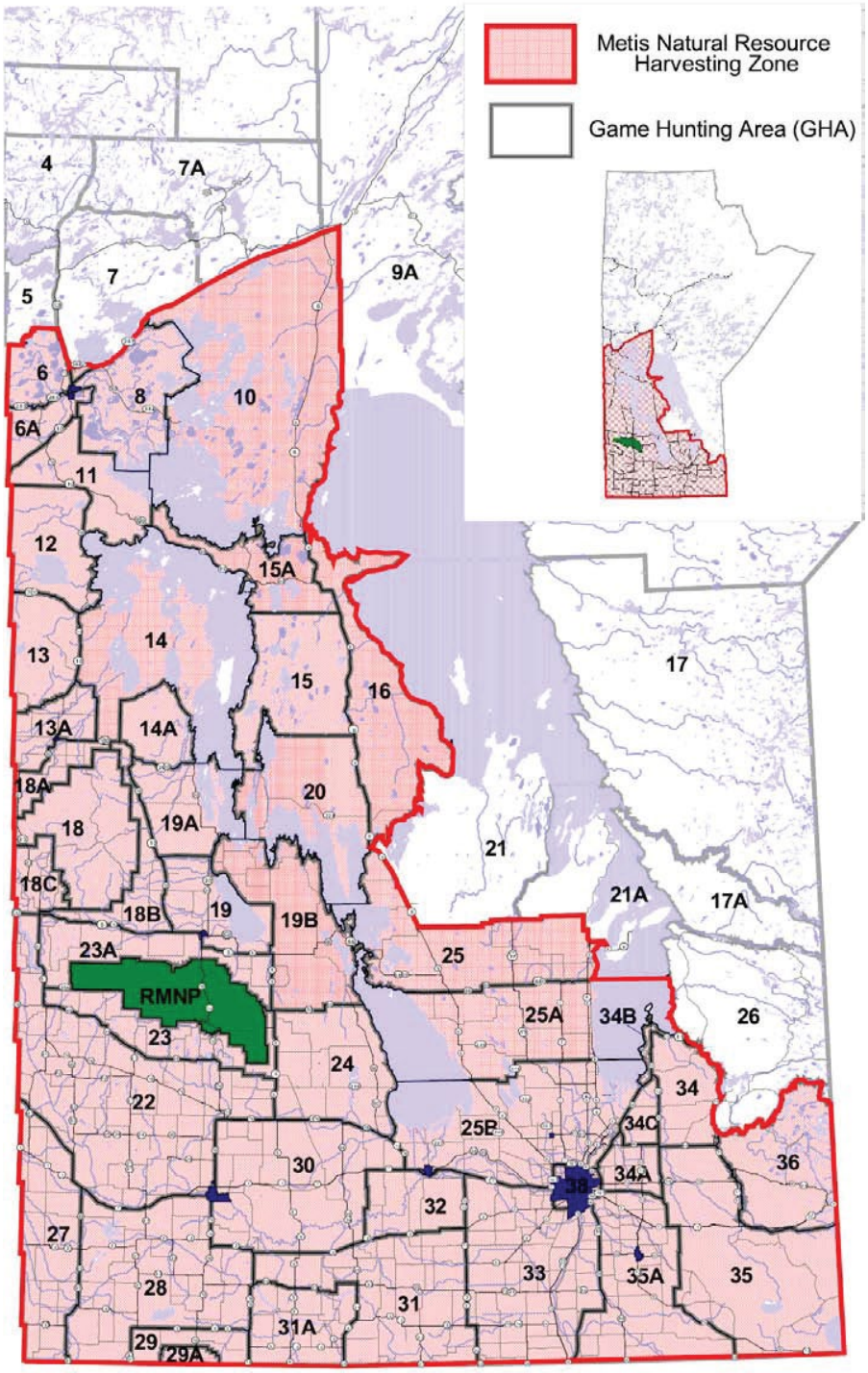
understood that permission from a particular community is required to use lands and resources within their traditional territory. The project falls wholly within Treaty 5 which encompasses the traditional lands of the Cree.

The approach taken to collect project specific TK for this proposed Project is based upon the understanding that TK is held by the Aboriginal people who live in the area of a proposed project and who have a long relationship with the lands and resources likely to be affected and aligns with CEAA's guidance document Considering Aboriginal Traditional Knowledge in environmental assessments under the Canadian Environmental Assessment Act, 2012. It also provides rationale and purpose as to why similar studies were not undertaken with the other Indigenous Groups listed in Part 2, Section 5.1 of the EIS Guidelines. As such, for MTI to scope in an Indigenous Nation for project specific TK, they must demonstrate historical and current occupancy and use of the Project area and identify specific Project effects.

The other Indigenous groups listed in Part 2, Section 5.1 have not demonstrated use of the project area which aligns with MTI's understanding definition and use of traditional territories in the project area. Pertaining specifically to the MMF (also known as Red River Metis), they have not supplied specific documentation demonstrating use and their recognized and agreed upon harvest area is located far south and west of the proposed Project area, see Figure IR1-77-3 below. The Red River region of Manitoba is considered their homeland.

To assist IAAC and EAB in their regulatory review within the environmental assessment process and to inform both the federal and provincial consultation processes being undertaken for the proposed Project, MTI will carry out future engagement through the Indigenous and Public Engagement Program (IPEP) that will provide opportunities for Indigenous communities to share concerns, provide additional information, and be part of the decision-making process where possible. MTI is responsible for the IPEP and will provide communities with regular updates and open channels for feedback throughout the construction, operation, and maintenance phases of the Project. Any new information obtained through these activities will be documented and incorporated into environmental planning when feasible. MTI will share updates with IAAC and EAB throughout this process. Results will be used by MTI to inform IR responses and project planning and by regulators to inform their regulatory reviews of the project and subsequent consultations with individual communities.

Figure IR1-77-3. Metis Nation Resource Harvesting Zone



c) As described above, Traditional Knowledge was considered throughout all stages of the Project and will continue to inform its development. Science also plays a key role, and as noted in response to IR1-19, selective review(s) of data validity will be 1-2 years before construction of the all-season road begins. The review will focus on key topics where legislative changes (e.g. updates to species at risk listings) occur. This process will verify that related key predictions made in the Environmental Impact Statement (EIS) remain accurate and that proposed mitigations and monitoring remain appropriate and applicable. As part of this process, and as detailed engineering for the Project advances, additional field surveys of the biophysical environment, including Species At Risk, may be required. Updates to federal and provincial protections would be accounted for as part of the data validity review process. Should the result of this process identify a change to key predictions made in the EIS, updated mitigation, monitoring and follow-up, or both, will be included in the Project's Environmental Management Plans (EMPs) described in response to IR1-73.

As mentioned in Chapter 5 of the EIS and in response to IR-53, TK workshops and interviews were conducted to gather insights on traditional land use, local resource knowledge, spiritual and cultural practices, and observations about the natural environment. Participants were encouraged to express their views on the potential impacts of the all-season road, both ecological and socio-cultural. As outlined in Chapter 5, Section 5.2.4.2 of the EIS, a TK verification workshop was conducted to review and confirm the collected information. Comments, opinions, and spatial data recorded during earlier workshops and interviews were digitized, analyzed, and mapped to ensure accuracy. Verification workshops with MSCN, GLFN, and BCN took place in 2016.

MTI acknowledges the concerns raised by Indigenous groups where traditional knowledge may differ from scientific, engineering, or technical conclusions. For instance, in TK studies conducted for the three communities, interviewees consistently described the presence of different kinds of caribou (HTFC, 2017a, 2017b, 2017c):

- MSCN noted it would be helpful to compare community knowledge with scientific research to better understand caribou diversity in the region.
- BCN also highlighted the need to explore the presence of potentially non-migratory caribou.
- GLFN observed that while knowledge holders identified distinct categories of caribou, these did not always align with western science classifications.

As mentioned in response to IR1-53, scientific sources, including COSEWIC assessments and provincial recovery strategies, do not currently recognize distinct caribou herds (e.g., Nelson-Hayes, Island Lake) within the Project's Regional Assessment Area (RAA), except for limited overlap with the Norway House herd. While isolated sightings of caribou outside delineated ranges may occur, current scientific data, such as collared movement records, suggest these are infrequent. Nonetheless, the EIS has assessed potential effects on both woodland and migratory caribou, and mitigation measures have been proposed accordingly.

Overall, while there are differences in how caribou are classified and observed, the EIS integrates both TK and scientific evidence to identify and assess potential effects on woodland and migratory caribou. By maintaining a process of ongoing verification, reassessment, and engagement, MTI ensures that both traditional and scientific knowledge systems continue to inform Project development.

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KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

HTFC. 2017a. God's Lake First Nation: Traditional Knowledge Study For the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation. Final Report. Report prepared for Manitoba Infrastructure Remote Road Operations.

HTFC. 2017b. Manto Sipi Cree Nation: Traditional Knowledge Study For the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation. Final Report. Report prepared for Manitoba Infrastructure Remote Road Operations.

HTFC. 2017c. Bunibonibee Cree Nation: Traditional Knowledge Study For the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation. Final Report. Report prepared for Manitoba Infrastructure Remote Road Operations.

QUESTION IAAC IR1-78

EIS Guideline Reference	• Part 2, Section 5.1 and 6.3.4
EIS Reference	• Chapter 6, Section 6.3.4
Category	Current Use of Land and Resources for Traditional Purposed by Indigenous Groups

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe and analyze how changes to the environment caused by the Project may affect Indigenous peoples, including the current use of lands and resources for traditional purposes, Indigenous health and socioeconomic conditions, and physical and cultural heritage. The EIS Guidelines also direct the proponent to assess how changes to the environment caused by the Project may affect the cultural value or importance associated with traditional uses or areas.

The EIS does not describe potential Project effects to Indigenous peoples' ability to access preferred hunting, fishing, trapping, gathering, or cultural sites, or travel routes, including portages. Access to lands and waters is essential for the use of lands and resources for traditional purposes, access to physical and cultural heritage sites, maintenance of health and socio-economic conditions, and the exercise of Aboriginal or Treaty rights.

Supplementary information is required to support the proponent's characterization and analysis of potential Project effects to Indigenous peoples.

INFORMATION REQUEST

a) Describe potential Project effects and proposed mitigation measures to address any potential adverse Project effects to Indigenous peoples' ability to access preferred hunting, fishing, trapping, gathering, and cultural sites, and travel routes, for each Indigenous group listed in Part 2, Section 5.1 of the EIS Guidelines, including:
   i. when, where, and the duration of changes in access during all Project phases; and
   ii. how changes in access to preferred areas may affect Indigenous peoples' ability to practice traditional use activities and exercise their Aboriginal or Treaty rights.
b) Describe measures that will be implemented to mitigate any potential adverse effects identified in a), and follow-up and monitoring that will be conducted.

c) Revise the residual and cumulative effects assessments for Indigenous peoples to include potential Project effects to Indigenous peoples' ability to access preferred hunting, fishing, trapping, gathering, and cultural sites.

RESPONSE

a) Chapter 6 of the Project's Environmental Impact Statement (EIS) considers a variety of potential project effects related to Indigenous people's access to preferred land use, ceremonial or cultural locations and travel routes. These potential effects are described in the sub-section of Section 6.3.4 in Chapter 6 of the EIS but are not necessarily all adverse in nature.

The Project intersects a number of Registered Traplines (RTLs) within the traditional territories of Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, God's Lake Northern Affairs Community, as shown in Figure IR1-78-1 below (Figure 6-17 in the EIS). Without mitigation, access limitations may occur during construction due to clearing, blasting, machinery, and safety restrictions, and may continue into the operational phase through landscape changes.

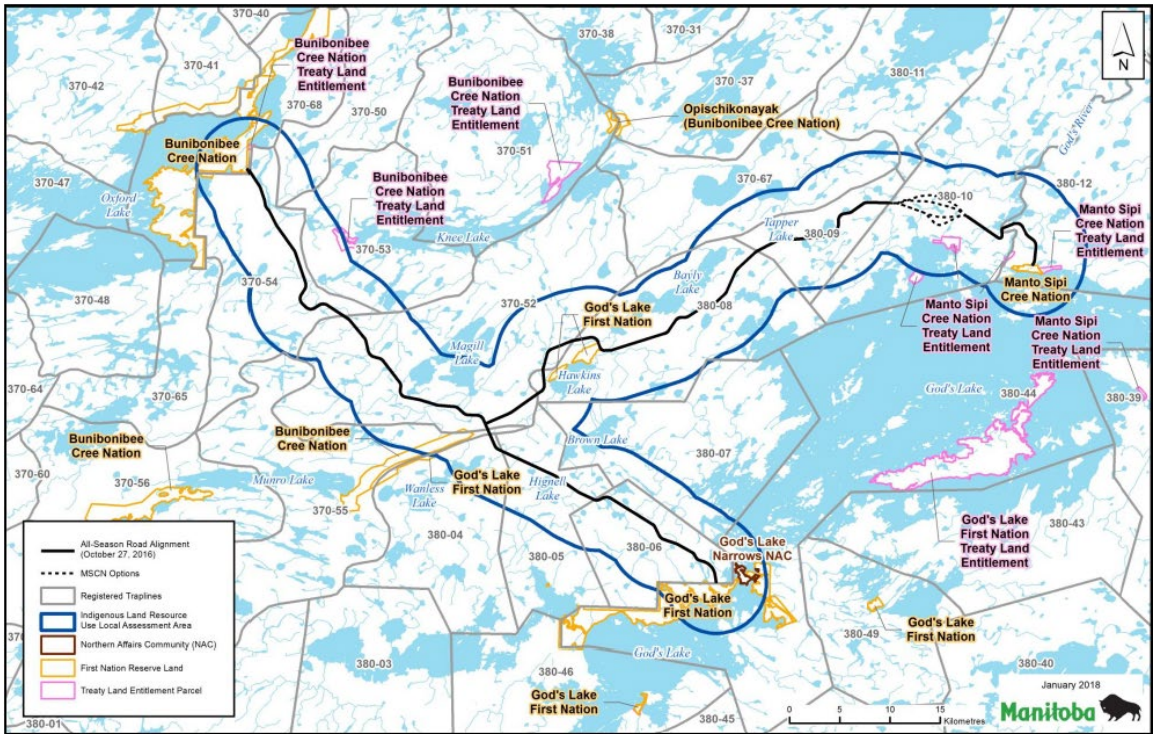


Figure IR1-78-1. Registered Traplines, First Nation Reserve Land and Treaty Land Entitlements in the vicinity of the proposed Project.

As described in response to IR1-88, Section 6.3.4.1 in Chapter 6 of the EIS recognizes that the Project may affect use of lands and resources for traditional purposes including hunting, fishing and gathering. The All-Season Road (ASR) will provide increased access to watercourses, and as described in Section 6.2.5.5.1.3 in Chapter 6 o the EIS could allow for hunting and harvesting beyond the Wildlife Local Assessment Area (LAA) into the Regional Assessment Area (RAA). This increased access provided by the Project could offer a potential benefit to Indigenous peoples, as it would open up new areas for local community members to access resources.

As described in Chapter 6, Section 6.3.4.2 of the EIS, potential effects of construction, maintenance and operation on traditional travel routes used for recreation and resource use, are considered negative prior to the implementation of mitigation measures. Access along these routes would be more restricted when active construction is occurring in the area; however, the access would be modified throughout the life of the Project. Indigenous peoples can adapt with some adjustments to how and where they travel for the sporadic interruption when the access is most restricted during the construction period. Additionally, regular construction updates will be provided to Indigenous communities to support advanced planning.

Trappers and traditional land users will be provided with safe access during construction, and trail crossings will be maintained to ensure continued access to traplines. To address potential disruptions, MTI will work directly with RTL holders whose traplines are crossed by the road to identify specific access needs, including timing of construction, travel routes, and continued use of seasonal infrastructure such as portages and snowmobile trails. Mitigation options may include development of snowmobile access points, rerouting of trails, or maintaining traditional travel routes during key harvesting periods.

Traditional Knowledge (TK) studies were conducted as part of the Project's planning process to gather information on traditional land uses, cultural and spiritual implications, and ecological and biophysical aspects. These studies were carried out at both a regional scale and through community-specific studies. Community-specific TK studies were conducted with Manto Sipi Cree Nation (MSCN), Bunibonibee Cree Nation (BCN), God's Lake First Nation (GLFN), and God's Lake Narrows Northern Affairs Community (GLNAC). The results indicated that community members recognize potential benefits of enhanced access to traditional harvesting areas. Additionally, new areas for berry picking and the gathering of medicinal and cultural plants may be opened, further supporting traditional food systems. For other Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines, TK information was incorporated through regional-scale studies. These broader studies included aspects such as burial and spiritual sites, traditional harvesting areas, and potential environmental and cultural impacts of the Project. Community-specific information can be collected through ongoing engagement efforts.

As mentioned in response to IR1-90, the assessment of potential Project effects on land and resource use that supports the exercise of rights is provided in Chapter 6 of the EIS, as well as various information requests responses (e.g. IR1-39, IR1-72, IR1-84, IR1-85, IR1-88). This includes

predicted effects on hunting, fishing, trapping, plant gathering, and travel routes, as well as cultural and traditional land uses. MTI acknowledges that rights-based assessments are iterative, and as additional information is gathered through ongoing engagement and input from communities identified in Part 2, Section 5.1 of the EIS Guidelines, the assessment will be reviewed and updated as needed (see the response to IR1-19 for more information on MTI's plans to revisit assessment predictions prior to construction).

Therefore, conclusions regarding the level of impact on Indigenous peoples will be revisited and finalized following additional engagement activities, which will include in-community meetings, validation of information received from communities, and collaborative review of proposed mitigation and accommodation measures. Impact levels will be reassessed using the criteria outlined in Appendix IR1-90-1 and in accordance with the Agency's Interim Guidance on the Assessment of Potential Impacts on the Rights of Indigenous Peoples (IAAC, 2024).

Future engagement will be carried out through the Indigenous and Public Engagement Program (IPEP) that will provide opportunities for Indigenous communities to share concerns, provide additional information, and be part of the decision-making process where possible. MTI will oversee the IPEP and provide communities with regular updates and open channels for feedback throughout the construction, operation, and maintenance phases of the Project. Any new information obtained through these activities will be documented and incorporated into environmental planning when feasible.

b) Mitigation measures proposed to address potential impacts to Indigenous peoples' ability to access preferred hunting, fishing, trapping, gathering, and cultural sites, and travel routes are outlined in Chapter 6 (Appendix 6-4), and Chapter 7 (Appendix 7-1) of the EIS which make reference to Environmental Protection Procedures (EP) and Environmental Protection Specifications (ES) which were included in Chapter 8 Appendices 8-2 and 8-3 of the EIS. These measures were developed to reduce or avoid Project-related effects on land and resource use.

These measures include route realignments to avoid important harvesting areas, implementation of environmental protection plans to protect water quality and wildlife habitat, and the application of erosion and sediment control practices to protect culturally important plant-gathering areas and aquatic ecosystems. Specific mitigation measures have also been informed by the results of TK studies and feedback received during community engagement. For instance, BCN recommended the inclusion of access ramps at locations where the road intersects with traditional trails (HTFC, 2017). This measure is incorporated into Chapter 7 and Appendix 7-1 of the EIS. Similarly, as mentioned in Chapter 6, Section 6.4.9.4 of the EIS, to reduce potential effects on heritage and cultural sites, appropriate community and cultural activities would be conducted prior to construction in the vicinity of heritage resources as requested by local communities.

Additionally, as described in Chapter 6, Section 6.4.9.1.1 of the EIS, some additional mitigation measures include providing information to trappers regarding the construction schedule and activities and working with trappers so that their traps are not damaged by construction. If active traps are discovered during construction, work would stop in the area and the trapper would be notified. Access to traplines and trails would be maintained during construction and trail crossings would be designed to maintain trapper access and trails providing greater access for trappers to their traplines during operation.

Additional mitigation measures to reduce the impact of potential effects on travel routes include implementing crossing designs to maintain navigability of navigable watercourses and providing an approach (ramps) for users (ex: boats, snowmobiles, ATVs) to cross the road and post warning signs showing the road crossings.

c) Revisions to the assessment of potential effects regarding changes to access of preferred locations by Indigenous peoples are not required as they have already been considered (see responses to A and B above). Following the application of mitigation measures and the ongoing engagement efforts, residual effects on access are anticipated to be minimal. The Project may temporarily restrict access during active construction, but these effects will be short-term, localized, and reversible. In the long term, the road is expected to improve regional connectivity for both trapline holders and other Indigenous community members by replacing seasonal winter roads with a permanent all-season road.

Cumulative effects related to increased third-party access (e.g., recreational users) are acknowledged, but these will be managed through access controls and community coordination. Given that RTLs are already subject to community-defined rules of access and use, and that the Project lies entirely within traplines of the directly affected Nations, MTI concludes that with the proposed mitigation and engagement efforts in place, there will be no significant adverse residual or cumulative effects on Indigenous peoples' ability to access and use traditional areas. A summary of the anticipated residual effects to Indigenous peoples from the Project, following the implementation of mitigation measures is described in IR1-72.

REFERENCES

HTFC. 2017. Bunibonibee Cree Nation: Traditional Knowledge Study For the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation. Final Report. Report prepared for Manitoba Infrastructure Remote Road Operations.

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

Impact Assessment Agency of Canada. 2024. Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples. Available at: https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance-assessment-potential-impacts-rights-indigenous-peoples.html

QUESTION IAAC IR1-79

EIS Guideline Reference	• Part 2, Section 6.3.4
EIS Reference	• Chapter 6, Section 6.3.4, 6.4.9.1.2, and 6.4.9.2
Category	Current Use of Land and Resources for Tradtional Purposed by Indigenous Groups

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe any changes or alterations resulting from the Project to access to areas used for traditional purposes by Indigenous peoples, including changes to waterways that may affect navigation.

The EIS does not provide information regarding potential Project effects to navigation on waterways by Indigenous peoples. While the EIS indicates that measures will be implemented to mitigate any adverse Project effects to navigation, specific details of these mitigation measures are not provided. As the Project will involve installation and operation of permanent and temporary watercourse crossings and related infrastructure in or near watercourses/waterbodies currently used by Indigenous peoples, navigation could be adversely effected, as noted by GLFN and BCN.

Transport Canada notes that, as bridges, culverts, and temporary water crossings are not minor works, specific details regarding proposed mitigation measures are required to assess their potential effectiveness and to ensure that Project and site specific factors were considered when determining appropriate navigation safety and access mitigation measures through navigable waters. GLFN also expressed concerns regarding potential Project effects to an approximately three kilometre long portage located along the ASR alignment that is used by their community.

Supplementary information is required to support the proponent's characterization of potential Project effects to Indigenous peoples and navigation, and to assess the anticipated effectiveness of proposed mitigation measures.

See Annex I for related advice.

Information Request

a) Describe potential Project effects and mitigation measures to address any potential adverse Project effects to navigation by Indigenous peoples on watercourses/waterbodies for all phases, including recognized portage routes. This must include a characterization of the location, timing, and duration of potential effects, and consider input from all potentially affected Indigenous communities.
b) Demonstrate how Project and site-specific factors were considered when determining appropriate navigation safety and access mitigation measures through navigable waters.
c) Revise the assessment of potential Project effects, residual effects, and cumulative effects for Indigenous peoples to include potential effects to navigation.
d) Describe follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects with respect to Indigenous navigation.

Response

a) Potential Project effects to navigation were discussed and assessed in the Indigenous Peoples sections of the Environmental Impact Statement (EIS) under the Travel Routes subsections, which include decreased access to traditional travel routes used for resource use and recreation during construction, maintenance and operation (Chapter 6, Appendix 6-4 of the EIS). Travel routes in the Indigenous Local Assessment Area (LAA) and Regional Assessment Area (RAA) include ATV and snowmobile trails, as well as open-water (i.e. navigable waters) and frozen waterways. The majority of travel routes documented through the Traditional Knowledge study were associated with the major waterways (e.g. God's Lake and God's River).

Design mitigations include designing bridges to maintain navigability and providing an approach for users to cross the road at key culvert crossings. The primary mitigation measures that would be implemented during the construction and operation phases to reduce potential negative effects to Indigenous peoples' navigation include providing regular project construction progress updates (i.e. how, where and when specific travel routes may be affected) to local communities to facilitate local planning of their activities, providing opportunities for on-going input from these local communities into the Project planning and execution, and providing for navigation of waterways during construction and maintenance work where possible. Manitoba Transportation and Infrastructure (MTI) plans to inform the communities of the location and timing of watercourse crossing installations and repairs that may require alternative travel route planning where navigation cannot be provided (i.e. where safety concerns exist).

As noted in Chapter 6, Section 6.4.9.2 of the EIS, on-going engagement with communities during the Project construction phase would allow for the identification of key travel routes that require continued access during particular seasons. Solutions can be discussed with the communities to

preserve access along travel routes where and when necessary. For example, a member from God's Lake First Nation indicated, during engagement, that each year a traditional canoe quest occurs from God's Lake to Bunibonibee Cree Nation and was concerned about the effect of the proposed Project. In response, MTI indicated that they would work with the communities to accommodate key crossing locations along the route by installing portages. Appropriate signage would be installed to inform both boater and driver.

Efforts to maintain pre-existing access to fishing areas by providing for ongoing navigation of waterways during construction would minimize any adverse effects on sustenance and recreational fishing. Mitigations will be finalized during the functional and detailed design phases of the project to be implemented during construction and operation of the proposed all-season road.

b) While all watercourses to be crossed by the Project are not listed as a navigable water in federal Canadian Navigable Waters Act schedule, MTI would meet Transport Canada's navigation clearance requirements for bridges utilizing information received from Indigenous Nations members on type and size of vessels used and would seek necessary approvals from Transport Canada under the *Canadian Navigable Waters Act*.

Hydraulic and geotechnical investigations will be conducted to finalize crossing locations, and type and size of culverts and bridges and determine site hydraulics and foundation conditions at watercourse crossings. The results of these investigations combined with input from local communities, baseline environmental studies, the EIS and IR responses will be used to develop detailed designs, and where required, additional site-specific mitigations for construction tenders.

c) As mentioned above, the assessment of potential Project effects, residual effects, and cumulative effects for Indigenous peoples related to navigation were assessed under the Travel Routes subsections (Chapter 6 of the EIS). As described in Chapter 6, Section 6.3.4.2 of the EIS, potential effects of construction, maintenance and operation on traditional travel routes used for recreation and resource use, are considered negative prior to the implementation of mitigation measures. Access along these routes would be more restricted when active construction is occurring in the area; however, the access would be modified throughout the life of the Project. Indigenous peoples can adapt with some adjustments to how and where they travel for the sporadic interruption when the access is most restricted during the construction period. As mentioned above, regular construction updates will be provided to Indigenous communities to support advanced planning.

In addition, as noted in Chapter 6, Section 6.4.9.2 of the EIS, contractors must provide or identify alternative access during crossing construction. As a result, after the implementation of mitigation measures, the residual effect is a decrease in access to traditional travel routes during

construction, maintenance and operation. However, these effects are considered not significant, as they are expected to occur infrequently, be reversible, and allow Indigenous peoples to adapt while maintaining traditional land use practices. While some structures will be permanent, MTI is committed to designing bridge crossings to maintain navigability and working with the communities to accommodate key crossing locations along the route through the installation of portages and adding appropriate safety signage. The proposed Project will also result in increased access to watercourses, and as described in Chapter 6, Section 6.3.4.1 of the EIS, during Traditional Knowledge (TK) studies, members from Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community indicated that this could be a benefit to the communities. Therefore, a revised assessment is not required at this this time.

d) MTI is committed to implementing follow-up and monitoring measures to confirm the accuracy of Project effects and effectiveness of mitigation measures on Indigenous navigation. The Construction Phase Environmental Management Plan (CPEMP) and the Operations Phase Environmental Management Plan (OPEMP) will include inspection and reporting requirements for infrastructure such as water crossings and portage routes, which may affect navigation.

Additionally, MTI will continue engaging with local Indigenous Nations through the Indigenous and Public Engagement Program (IPEP). Local liaison committees established with God's Lake First Nation, Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake Narrows Northern Affairs Community will also help identify concerns and confirm whether mitigation measures are being effective. MTI has committed to using an adaptive management approach, which provides a mechanism for MTI to revise or apply additional mitigation measures in response to unanticipated effects, in consultation with Indigenous Nations and regulators.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-80

EIS Guideline Reference	• Part 2, Section 6.3.4 and 6.5
EIS Reference	• Chapter 6, Section 6.3.4 and 6.5.9
Category	Current Use of Land and Resources for Tradtional Purposed by Indigenous Groups

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe potential Project effects to Indigenous peoples including the current use of lands and resources for traditional purposes and any residual effects following the implementation of mitigation measures.

With regard to potential residual effects to Indigenous peoples and the anticipated significance of those effects, the EIS concludes that Indigenous peoples will be able to easily adapt to Project effects that may affect their ability to hunt, trap, fish, gather, and access areas used for traditional, cultural, and recreational purposes with some adjustments. It is unclear whether this conclusion and its underlying assumptions were confirmed with all potentially affected Indigenous groups. Viewing all traditional use and cultural sites within the RAA as equally important and easily accessible without consideration of Indigenous peoples' site preference and ability does not allow for a full understanding of potential Project effects to Indigenous peoples and their use of and connection with the landscape. For instance, GLFN noted the importance of maintaining community access to areas currently used to harvest medicinal and other valued plant species, and indicated that members of the community have differential abilities to locate and switch to alternative locations for plant harvest.

The EIS also indicates that residual effects to areas used for the harvest of medicinal plants by Indigenous peoples are anticipated to be reversible over a long period as areas disturbed by the Project are reclaimed. However, as indicated elsewhere in the EIS, there are currently no plans to decommission the proposed ASR and other permanent Project components that will be required for operation and maintenance of the Project.

Supplementary information is required to support the proponent's characterization of potential residual Project effects, and the anticipated significance of those effects, to Indigenous peoples.

See Annex I for related advice.

INFORMATION REQUEST

a) Provide a clear rationale for the conclusion that Indigenous peoples will be able to easily adapt to Project effects that may affect their ability to hunt, trap, fish, gather, and access areas used for traditional, cultural, and recreational purposes with some adjustments. Demonstrate how Indigenous TK was used to inform this conclusion, including consideration of site preferences.
   i. Describe engagement activities that have taken place with potentially affected Indigenous groups to confirm this conclusion, including a description of the outcome of these engagement activities.
   ii. If these engagement activities have not taken place, provide a rationale for why not and indicate when and how MI plans to engage with all Indigenous groups on this topic.

b) Should Indigenous groups not agree that they will be able to easily adapt to Project effects with some adjustments and/or should monitoring indicate that groups are not able to locate suitable alternative locations to practice traditional use activities, describe mitigation and/or contingency measures that will be implemented to address potential effects to Indigenous peoples.
   i. Revise the residual and cumulative effects assessments with respect to Indigenous peoples, including the assessment of the anticipated significance of effects to Indigenous peoples, to reflect the fact that Indigenous peoples may not be able to adapt to residual Project effects.

c) If reclamation of both temporary and permanent Project components was used for the residual effects assessment for medicinal plant harvesting by Indigenous peoples, revise the residual and cumulative effects assessments to reflect the fact that areas disturbed by permanent Project infrastructure, including the ASR and components required for Project operation and maintenance, will not be reclaimed.

RESPONSE

a) As described in Chapter 6 of the Environmental Impact Statement (EIS), the potential effects of the Project 6 All-Season Road on Indigenous Peoples' ability to hunt, trap, fish, gather, and access lands used for traditional, cultural, and recreational purposes are not anticipated to be significant. While the location of some activities may shift with construction of the road, it is expected that Indigenous Peoples will be able to adapt to these effects with some adjustments to the timing or location of their traditional use activities.

Through the traditional knowledge (TK) studies, local Indigenous Nations identified the areas where plants of sustenance and cultural value are harvested within the Project Footprint and the Vegetation Local Assessment Area (LAA). There was no overlap among the communities for the

areas that were harvested and the total areas accounted for 31.6% (8.9 km^2), 31.9% (90.5 km^2) and 25.7% (367.6 km^2) of the Project Footprint, Vegetation LAA and Vegetation Regional Assessment Area (RAA), respectively (Chapter 6, Section 6.1.11.3.4 of the EIS). Therefore, as concluded in Chapter 6, Section 6.3.4.1.3 of the EIS, Indigenous Peoples can adapt with some adjustments to where they gather plants in part because the Projects effects on vegetation would be sporadic during construction and maintenance activities and the harvested species are available throughout the area. In addition, a potential beneficial effect from the P6 All-Season Road Project will be increased access to new botanical resource areas by local community members.

Similarly, the Project's effects on hunting and trapping are expected to occur sporadically and in a portion of a Registered Trapline at any given time (Chapter 6, Section 6.3.4.1.1 of the EIS). Effects to access are expected to be temporary and limited to periods of active construction. Following completion, the road is anticipated to enhance year-round access to land for harvesting and cultural activities (Chapter 6, Section 6.3.4.2 of the EIS).

For wildlife, the scale of habitat removal is low. For moose, 5.5 km^2 of habitat will be removed, which represents 0.4% of available habitat in the LAA and only 0.06% in the RAA. For boreal woodland caribou, the total disturbance in the Pen Islands range remains under the Environment Canada threshold of 35%, with Project-specific disturbance contributing less than 1% (Joro, 2018). Additionally, high-quality modeled habitat for beaver and marten will be reduced by 0.008% and 0.028%, respectively, and is not considered limiting (Joro, 2018). For migratory waterfowl, Habitat modelling indicates that nesting habitat is not limiting across the LAA or RAA, providing opportunity for nesting and staging by waterfowl (Joro, 2018).

Similarly, for aquatic resources, while habitat at crossings such as God's River and Magill Creek may be temporarily affected, the type of habitat present is common across the RAA and is not considered limiting for culturally important species such as Walleye, Northern Pike, and sucker (Chapter 6, Section 6.3.3 of the EIS; NSC, 2017). Therefore, as stated in Chapter 6, Section 6.3.4.1.2 of the EIS, Indigenous Peoples can adapt with some adjustments to where they fish in part because the Projects effects on fish and fish habitat would be sporadic during construction and maintenance activities at watercourse crossings.

While localized effects will occur, community members will be able to adapt based on the availability of similar resources elsewhere in their territories and based on increased access provided by the Project.

i. Chapter 5, Section 5.2 of the EIS describes the engagement efforts including community meetings, Traditional Knowledge (TK) studies, Workshops and Interviews. TK studies conducted through the Aboriginal and Public Engagement Program with Manto Sipi Cree Nation, God's Lake First Nation, Bunibonibee Cree Nation, and God's Lake Narrows Northern Affairs Community provided valuable insights on local practices such as trapping, fishing, berry picking, and the location of special spiritual and burial areas.

These TK studies and discussions with local communities were key to the design and routing of the Project 6 alignment within the corridor identified by the Larger Area Transportation Network Study (LATNS), helping to avoid sensitive areas and minimize adverse effects. TK studies focused on understanding vegetation, wildlife, and fish habitats, as well as identifying culturally or historically sensitive areas. This information directly informed environmental assessments and mitigation planning.

As described in Chapter 6, Section 6.3.4.1 of the EIS, the Project has the potential to affect use of lands and resources for traditional purposes such as hunting, trapping, fishing and gathering as a result of changes in land use and increased access to previously isolated areas by both locals and non-residents. However, members from Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community indicated during the TK studies that increased access could be a benefit to the communities. Members from these communities also noted that additional land access may shift patterns of travel and harvesting.

As documented in Chapter 6 and Chapter 5, Appendix 5-6 of the EIS, members of all four communities reviewed and verified the TK data and were provided with opportunities to comment on draft chapters of the EIS. As described in Section 5.2.4.2 of the EIS, a verification workshop was conducted, and draft chapters of the EIS were distributed to all Indigenous groups prior to formal submission to support early review and comment (see Chapter 5, Section 5.4.1 of the EIS). The full draft EIS was sent out on July 24, 2018, with cover letters included in Chapter 5, Appendix 5-6, to facilitate input during the public comment period.

ii. MTI remains committed to ongoing engagement with Indigenous Nations, including all those listed in Part 2, Section 5.1 of the EIS Guidelines. Engagement efforts will continue under the Project 6 Indigenous and Public Engagement Program, which will remain in effect through and beyond August 2026. This program was developed to ensure continued engagement with Indigenous Nations through regular updates, consultation meetings, and open channels for feedback. MTI is committed to sharing relevant project information with regulators and Indigenous communities, and any new information gathered during this period will be documented and made available to stakeholders as appropriate. Additionally, in comments submitted to the Impact Assessment Agency of Canada (Annex 1), God's Lake First Nation (GLFN) further requested the opportunity to salvage resources of value to their community prior to and during construction, including plant species, timber, peat moss, and topsoil. In response, MTI is committed to continuing engagement with GLFN to explore feasible

and safe options for facilitating this salvage effort and will work with the community to discuss how and when this may be arranged. MTI is also committed to discussing this possibility with other Indigenous groups that may express a similar interest in salvaging such resources in advance of construction.

b) The P6 All-Season Road was initiated in response to requests from the communities it intends to serve. As documented in Chapter 5, Section 5.2.2 of the EIS, in 2000, under Manitoba Highways and Government Services, the *East Side of Lake Winnipeg All Weather Road Justification and Scoping Study* reviewed transportation needs for residents of the east side (Dillon Consulting Limited and H.N. Westdal & Associates 2000). The study assessed various transportation modes and the economics of an all-season road network on the east side of Lake Winnipeg with local community and stakeholder input.

Throughout the engagement program, community support for the Project has been consistently documented. As noted in Chapter 5, Section 5.2.3.1, major benefits identified by community members include improved year-round access, decreased cost of living, enhanced mobility to health and education services, and improved inter-community connections. Section 5.2.4.2 of the EIS further documents that, while some changes to traditional land use practices are anticipated, many community members expressed optimism regarding the benefits the Project would bring to their communities.

Given that the Project was requested by and is intended to better serve the communities, MTI does not anticipate the need for additional accommodations at this time. The local Indigenous communities are in support of the proposed Project, as is the Grand Chief of the Keewatin Tribal Council.

In addition, should monitoring or feedback from Indigenous Nations indicate that groups are unable to locate suitable alternative areas for traditional use activities due to Project-related changes, MTI is committed to engaging directly with the affected community to understand the specific challenges and discuss context-specific mitigation, contingency measures and adaptive management approaches.

c) As described in Chapter 3, Section 3.2.5 of the EIS, there are no plans to decommission or abandon the proposed Project as it will provide all-season road access between Manto Sipi Cree Nation, Bunibonibee Cree Nation, God’s Lake First Nation, and God’s Lake Narrows Northern Affairs Community for the foreseeable future (> 50 years). The effects of the road footprint were considered in perpetuity, with the determination of effects already addressing temporary works separately.

The residual effects on vegetation, including culturally important plant species, were assessed with the road footprint considered in perpetuity, while temporary disturbances (e.g., laydown areas, construction access) were evaluated separately. As such, no revision to the residual or cumulative effects assessments is required.

This approach is demonstrated in Chapter 6 of the EIS and supporting Appendices 6-4 and 6-5, where residual effects are characterized after mitigation. In these tables, the loss of vegetation is identified as long-term, corresponding to the duration of the Project and beyond. As described in Section 6.2.5.1.1. in Chapter 6 of the EIS, effects to vegetation were deemed reversible on the basis that vegetation removed as part of initial clearing may re-establish within the right-of-way, and particularly in areas where sightlines do not need to be maintained.

REFERENCES

Dillon Consulting Limited and H.N. Westdal & Associates. 2000. East Side of Lake Winnipeg All Weather Road Justification and Scoping Study. Report prepared for Manitoba Transportation and Infrastructure.

Impact Assessment Agency of Canada. 2021. Project 6- All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation. Technical Review Information Requests- Round 1, Package 2.

Joro Consultants Inc. 2018. Project 6: Wildlife Characterization and Effects Assessment Of the Proposed All-Season Road. Submitted to KGS for the P6 Environmental Impact Assessment Report.

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

North/South Consultants INC. 2017. East Side Road Authority Project 6: All Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation. Aquatic Environment Report: Existing Environment. Prepared for the Manitoba Infrastructure – Remote Road Operations by North/South Consultants Inc.

QUESTION IAAC IR1-81

EIS Guideline Reference	• Part 2, Section 5.1 and 6.1.9
EIS Reference	• Chapter 3, Section 3.3.5 • Chapter 5, Table 5.8 • Chapter 6, Section 6.1.9.4, 6.4.9.4, and 6.5.9.4
Category	Physical and Cultural Heritage

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to provide baseline information for physical and cultural heritage, including any structure, site, or thing of archaeological, paleontological, historical, or architectural significance to Indigenous peoples.

With respect to potential Project effects to physical and cultural heritage, the EIS focusses on the requirements of the Manitoba Heritage Resources Act and indicates that Heritage Resource Impact Assessments (HRIA) were conducted for the Project and will be completed for potential quarry sites and borrow areas with high and moderate heritage potential. It is unclear whether Indigenous communities were or will be involved in the HRIAs already conducted for the Project or future HRIAs. The EIS also references information contained within an HRIA report prepared by AMEC Foster Wheeler Environment and Infrastructure for the Project. The HRIA report referenced is not provided in the EIS.

It is unclear whether Indigenous monitors will be involved during construction of the Project to identify any undocumented physical and cultural heritage resources/sites of importance to Indigenous peoples.

The EIS indicates that effects to physical and cultural heritage of Indigenous peoples should be reversible with a Heritage Resources Artifact Recovery Program. The details of this program have not been provided, therefore the adequacy of this program for protecting physical and cultural heritage resources of importance to Indigenous peoples cannot be assessed. Concerns have also been expressed by Indigenous communities with respect to the conclusion that effects are reversible, as they feel that the EIS underestimates the cultural significance of the Project footprint, LAA, and RAA.

Supplementary information is required to support the proponent's characterization of potential Project effects to physical and cultural heritage resources of importance to Indigenous peoples including all Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines.

See Annex I for related advice.

INFORMATION REQUEST

a) Describe the involvement of Indigenous communities in the HRIAs conducted for the Project to date and if and how MI intends to include Indigenous peoples in future HRIAs and other physical and cultural heritage resource monitoring for the Project. Describe which communities were involved and the extent of their involvement.
b) Provide the HRIA report prepared by AMEC Foster Wheeler Environment and Infrastructure for the Project that is referenced in the EIS. Discuss with the Agency prior to submission if there are confidentiality concerns.
c) Describe monitoring that will be conducted during construction of the Project for any unanticipated and/or undocumented sites or resources with respect to physical and cultural heritage resources/sites of importance to Indigenous peoples and what actions will be taken, should resources be identified.
    i. Describe whether, and if so how, Indigenous groups will be involved in follow-up and monitoring, particularly with respect to monitoring for any undocumented physical and cultural heritage resources or sites of importance.
d) Describe in detail what the Heritage Resources Artifact Recovery Program will consist of, including any proposed mitigation measures, and provide a clear rationale for how this program will reverse any potential effects to physical and cultural heritage resources of importance to Indigenous peoples.
    i. Describe if and how Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines will be engaged in this program.

RESPONSE

a) Specific Traditional Knowledge (TK) information has been collected from Bunibonibee Cree Nation, God's Lake First Nation, God's Lake Northern Affairs Community, and Manto Sipi Cree Nation for the area within the project corridor of the proposed road alignment. One of the focuses of the TK data collection exercises was to collect information of locations along the proposed road alignment related to historical and culturally important sites and areas.

Through the TK studies, members from the Indigenous Nations situated in the Heritage Regional Assessment Area (RAA) indicated that culture is part of all community activities. The Indigenous

Nations indicated that in the past, family members would be buried wherever a family was in their seasonal travel if a member passed away.

During interview, members from Manto Sipi Cree Nation indicated that there are sites that are considered special or sacred. Special areas include areas to pray and the old Hudon's Bay Company posts in the area. Members from Bunibonibee Cree Nation stated that sites that are special of sacred include pictograph/rock painting sites and the old settlement where Treaty 5 was signed. Members from God's Lake First Nation indicated that special areas include former mine sites, a trading outpost, old settlement sites, a dam, a former fish plant, the site of treaty signing and locations where artifacts were found. None of these areas are in the vicinity of the proposed all-season preferred road alignment.

In support of the proposed project, a Heritage Resources Impact Assessment (HRIA) was conducted. A flyover of the preferred alignment was conducted in May 2016, a baseline desktop study was completed in July 2016, and a HRIA report was completed to identify archaeological sites potentially affected by the proposed preferred road alignment (AMEC Foster Wheeler Environment and Infrastructure, 2016). Notifications were provided to the local communities in advance of field work with offer for an individual to work with the heritage consultants. Thomas McKay from Manto Sipi assisted the heritage consultant when conducting field work for the HRIA. Copies of the heritage reports were provided to Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community leaderships and Heritage Resources Branch.

If any additional HRIAs for the proposed all-season road are required in the future in conjunction with the proposed Project, Manitoba Transportation and Infrastructure (MTI) will follow a similar approach to that used for the original HRIA. Information gathered from the TK studies, past and future engagement activities with Indigenous Nations will be used to inform any future HRIAs and planned mitigation measures for the proposed Project.

b) Heritage resources and their locations are protected under Manitoba legislation (The Heritage Resources Act, C.C.S. M c.H39.1). The Province of Manitoba's Historic Resources Branch (HRB) administers the Heritage Resources Act. Copies of the final HRIA report were provided to Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community leaderships and HRB. HRB may be able to issue extra copies to leaderships provided information is kept confidential.

c) Heritage resources are an important component of Manitoba's historical legacy which may be uncovered during a wide range of construction activities. Heritage resources may include human remains, a heritage site, a heritage object, and any work or assembly of works of nature or human

endeavor that is of value for its archeological, paleontological, pre-historic, historic, cultural, natural, scientific, or aesthetic features, and may be in the form of sites or objects or a combination thereof.

As noted in Chapter 6 of the Environmental Impact Statement (EIS), mitigation measures to reduce the potential effects of the Project on heritage, archaeological, cultural and sacred sites include conducting further investigations where required and either avoidance or mitigation of two sites as recommended by the HRIA prior to construction and conducting construction in accordance with EP13 (Heritage Resources) and ES 130.18 (Heritage Resources). Protection measures for known sites (e.g. avoidance, maintaining buffers, access controls, mitigation) will be confirmed during detailed design in consultation with the HRB and local communities. The location of any known heritage and archaeological sites, or those found during construction, will not be publicly disclosed to minimize potential disturbance in the future. Appropriate community and cultural activities would be conducted prior to construction in the vicinity of heritage resources as requested by local communities. In addition to limiting equipment and workers to construction areas (ES 130.6.1), temporary access roads and winter road access points would be decommissioned and reclaimed following construction in accordance with EP21 (Road Closure and Reclamation Plan Temporary), EP22 (Site Decommissioning) and ES 130.8 (Designated Areas and Access).

In the event that archaeological or historic artifacts are encountered through visual observation during construction and maintenance activities, work at that location will immediately cease, a 50 m buffer around the find will be established and the discovery will be reported to the Contract Administrator. The Contract Administrator will inform MTI, HRB and any affected Communities. A recovery or protection plan will be developed and implemented by a qualified archaeologist in consultation with HRB and the local communities. Work at the location will be suspended until mitigation measures are confirmed with the Manitoba Historic Resources Branch. Reporting to document mitigations applied for known heritage resources and any discoveries and mitigation of chance finds will be developed and submitted to MTI in accordance with HRB requirements. MTI will discuss with regulatory authorities the appropriateness of releasing reports/data to various groups if requested in consideration of legal requirements under the Heritage Resources Act.

i) Status updates information on the status of heritage mitigations and chance finds prior to and during construction will be provided to local Indigenous Nations (i.e., Bunibonibee Cree Nation, God's Lake First Nation, God's Lake Northern Affairs Community, and Manto Sipi Cree Nation) and the general public and may include Project briefs (e.g., newsletters) and or updates to MTI's website for the Project. More detailed confidential site-specific information will be shared with local community leaderships and HRB. MTI is committed to on-going dialogue with local Indigenous Nations and intends to take an adaptive managements approach in addressing feedback received from affected Indigenous Nations.

d) As described in Chapter 6 of the EIS, the residual environmental effects to heritage and archaeological resources are reversible with a managed heritage resources artifact recovery protocol. MTI anticipates the Heritage Resources Artifact Recovery Program will consist of mitigating heritage resources (i.e. artifact removal, cleaning, protection, storage) in accordance with standard archaeological practices, recommendations provided in the HRIA, and chance find protocols (to be developed with local communities) to a level that satisfies the requirements of Manitoba's HRB and the Heritage Resources Act (which are the regulatory body and legislation concerning heritage resources in Manitoba). The Program plan along with notification protocols and processes for chance finds, including chance finds of human remains, will be developed by MTI with support from a qualified archaeologist and in consultation with local communities shortly upon completion of detailed design.

Removal (i.e. excavation, cataloguing and safeguarding) of heritage resources is a commonly accepted process to mitigate potential effects to heritage resources in Manitoba. Knowledge and cultural value of the heritage site and any artefacts found are preserved through the archaeological excavation. This work is considered mitigation and includes heritage object (artifact) removal, to protect artifacts from being lost to construction activities, analysis, and detailed recording to document the process and outcomes of mitigation work. Recovered materials will be managed using culturally appropriate protocols and, where requested of and agreed to by Manitoba Historic Resources Branch, returned to Indigenous communities, helping maintain cultural connections. These measures ensure that unavoidable disturbance is reversible, with physical and cultural heritage values are preserved for present and future generations. The draft plan will be developed before construction but after detailed design and vetted through HRB and local communities and once finalized the plan can be shared with IAAC. MTI will participate in a ceremony, or other activities if recommended by local Indigenous communities prior to any heritage mitigative work conducted for the proposed Project.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-82

EIS Guideline Reference	• Part 2, Section 5.1 and 6.3.4
EIS Reference	• Chapter 3, Section 3.4.1.3 • Chapter 6, Section 6.4.9.1
Category	Communication with Indigenous Groups

CONTEXT AND RATIONALE

The EIS Guidelines list Indigenous groups that have the potential to be most affected by the Project and with whom the proponent is required to strive towards developing a productive and constructive relationship based on on-going dialogue in order to support information gathering and the effects assessment. The proponent is also required to describe potential adverse effects of the Project to Indigenous peoples, including to the current use of lands and resources for traditional purposes, health and socioeconomic conditions, and any changes to the environment that may affect cultural value or importance associated with traditional uses or areas affected by the project.

The EIS indicates that Indigenous communities will be informed by the construction contractor through local radio and/or posted material in the community prior to quarry operation in areas where Indigenous peoples are likely to be present. No further details are provided regarding which communities will be informed, how far in advance of these Project activities communities will be notified, and how MI will document areas where Indigenous peoples are likely to be present. Additionally, Project construction, operation, and maintenance will also involve other disruptive activities that communities may wish to be informed of. It is unclear whether Indigenous groups will be notified prior to conducting potentially disruptive Project activities other than those associated with quarry operation. As quarry operation and other potentially disruptive Project activities may adversely affect Indigenous peoples, such as the current use of lands and resources for traditional purposes, health and socioeconomic conditions (e.g. sensory disturbance, hazards associated with explosives and blasting, etc.), and cultural value of areas, further details regarding MI's proposed communication plan with Indigenous groups are required to assess the anticipated effectiveness of this mitigation measure.

Supplementary information is required to support the proponent's characterization of proposed measures to mitigate adverse effects to Indigenous peoples.

See Annex I for related advice.

INFORMATION REQUEST

a) With respect to all potentially disruptive Project activities that may result in adverse effects to Indigenous peoples, describe:
   i. which Indigenous communities MI and/or its contractors will notify prior to carrying out these activities;
   ii. the mechanism by which Indigenous groups may request to be notified of Project activities and how MI and/or its contractors will respond to these requests;
   iii. how far in advance Indigenous groups will be notified of these activities, including a clear rationale for how this will allow sufficient time for communities to factor these potential disruptions into their plans for traditional use activities;
   iv. how MI and/or its contractors will document and be informed of areas where Indigenous peoples are likely to be present and/or currently practicing traditional use activities;
   v. the mechanism by which Indigenous groups may express concerns regarding the timing of potentially disruptive Project activities and how MI and/or its contractors will respond to these concerns; and
b) If MI and/or its contractors do not plan to notify all groups listed in Part 2, Section 5.1 of the EIS Guidelines, provide a clear rationale for why.

RESPONSE

a)

i. Manitoba Transportation and Infrastructure (MTI) and its contractors will directly notify the three Indigenous communities most directly affected by the proposed Project: Bunibonibee Cree Nation (BCN), Manto Sipi Cree Nation (MSCN), and God's Lake First Nation (GLFN) as Project activities will be occurring within their respective traditional territories. Notifications will also be provided to God's Lake Narrows Northern Affairs Community (GLNAC). These communities have been actively engaged throughout the environmental assessment process and will continue to receive advanced notice of construction and other potentially disruptive activities.

   As described in Chapter 6 of the Environmental Impact Statement (EIS), communication will be facilitated through multiple channels including in-community meetings, a Communications Plan, and notices regarding construction activities including blasting schedules and temporary effects on water travel and snowmobile access. For other

Indigenous communities not directly located in the proposed Project area, MTI will provide regular updates via monthly or quarterly newsletters and public postings on the MTI website. The future engagement plans for both directly affected and other Indigenous communities are detailed in Tables IR1-82-1 and IR1-82-2 below (updated from Chapter 5 EIS).

Table IR1-82-1: Summary of Proposed Future Engagement Activities and Notifications for Directly Affected Communities

Activity	Description
Meetings	• MTI intends to meet with community leaderships during the environmental assessment phase to discuss proposed Project, environmental assessment, engagement and consultation processes and throughout detailed design, construction, and operation of the proposed Project.
In-Community Meetings/Public Open Houses*	• Round 7 is intended to commence in fall 2025 during the environmental assessment phase and serve as a re-introduction to the proposed Project given the gap in timeline since MTI last met with Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community in 2017. • Round 8 is intended to commence in summer 2026 during the environmental assessment phase and will involve discussions related to the environmental assessment, and proposed Project with Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community. • Round 9 will commence during detailed design following the approval of the EA and will involve discussions related to detailed design, Project updates post EA and confirmation of final design with community members in Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community. • Round 10 will take place during construction with members of these communities. Engagement activities will provide construction updates and seek to obtain input on construction and Project-related aspects during construction.
Notices/Communications Plans	• MTI will have a Communications Plan for local community members, including resource users, during construction. • MTI will also provide advanced notice of construction activities, particularly when there could be short periods of reduced access for water travel and snowmobile routes.
Other	• Engagement will be ongoing with the use of established communication channels including but not limited to the MTI website, email and telephone.

*These meetings/open houses will be scheduled based on community leadership's direction.

Note: Activities listed above relate to planned proponent engagement and may not be inclusive of activities identified through Manitoba Crown Consultation processes.

Table IR1-82-2: Summary of Proposed Future Engagement Activities and Notifications for Other Indigenous Communities

Activity	Description
Meetings	• MTI intends to meet with community leaderships during the environmental assessment phase to discuss proposed Project, environmental assessment, engagement and consultation processes and interest in proposed Project; meeting with communities may be warranted based on community leadership direction. • Upon community request, MTI will meet with community leadership in Winnipeg, via conference call or via video conferencing applications to discuss project updates and will consider comments received when planning and executing the project during design, construction and maintenance phases.
Other	• MTI will post key updates on design planning and construction activities on its website. • Engagement will be ongoing with the use of established communication channels including but not limited to the MTI website, email, and telephone.

Note: Activities listed above relate to planned proponent engagement and may not be inclusive of activities identified through Manitoba Crown Consultation processes.

ii. MTI has implemented several mechanisms through which Indigenous communities may request to be notified of specific Project activities. Invitation letters will be distributed through the Indigenous Participation and Engagement Program (IPEP) include detailed information about upcoming public open houses, the purpose of meetings, and how communities can submit specific requests. Indigenous groups may also initiate contact through MTI's established communication channels, including a website, email address, telephone, and fax numbers. Local Community Coordinators will play a key role in maintaining this two-way communication, ensuring community members are informed and supported in requesting further information or expressing preferences for additional notifications.

iii. In line with potential regulatory conditions for similar road projects (e.g., Project 4- All-Season Road), MTI will provide at least 30 days' notice to Indigenous communities before initiating construction or other disruptive activities in or near identified traditional use areas. This notification will include the timing, duration, and expected noise levels of such activities. The 30-day window is designed to give communities sufficient time to adjust or reschedule planned traditional use activities, including hunting, harvesting, and ceremonial practices. MTI is also committed to notifying communities in advance of construction to accommodate traditional ceremonies and facilitate respectful coordination of land-based activities.

iv. Through Traditional Knowledge (TK) studies undertaken with MSCN, BCN, GLFN, and GLNNAC. MTI developed seasonal calendars and confidential maps identifying culturally and environmentally significant traditional use areas. These resources were intended to be used as a reference for the Proponent and contractors in considering the timing of construction activities, and levels of harvesting activity at different times of the year. Additionally, past engagement rounds, including Round 3 workshops, contributed to identifying additional environmental, cultural, and historical areas of importance. During future engagement activities, communities will have the opportunity to provide more information, so MTI and Contractors are aware of any other specific areas, and evolving uses and timeframes.

v. The mechanism by which Indigenous groups may express concerns are through the same established communication channels mentioned above (e.g., community meetings, MTI's public contact information). Feedback gathered through these mechanisms will be reviewed and integrated into ongoing planning where feasible. MTI and contractors are committed to responding to concerns in a timely manner, that may include further dialogue to better understand the concern and or potential adjustments to activity timing or mitigation strategies to minimize disruption to traditional practices. Community feedback will continue to inform how construction is phased and scheduled to respect Indigenous land use and seasonal patterns.

b) As mentioned above, MTI will provide direct notification and engagement to Indigenous communities that will be directly affected by Project activities, specifically MSCN, BCN, GLFN and GLNAC as Project activities will be occurring within their respective traditional territories and trapline areas. For other Indigenous communities, regular notifications will still be made available, including through newsletters and publicly accessible platforms. Additionally, any community that was scoped into the EIS may opt out of receiving Project notifications by issuing a letter to MTI and may opt back in ay any time should their interest change.

REFERENCES

Dillon Consulting. 2016. Project 4- All Season Road Connecting Berens River to Poplar River First Nation Environmental Impact Statement. Available at: https://www.iaac-aeic.gc.ca/050/evaluations/proj/80094

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-83

EIS Guideline Reference	• Part 2, Section 5.1, 6.1.9, and 6.3.4
EIS Reference	• Chapter 6, Section 6.1.9.2 and 6.1.9.3
Category	• Indigenous Health and Socioeconomic Conditions

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe baseline information and potential Project effects to the health and socioeconomic conditions of Indigenous peoples.

As noted in IR1-24 and IR1-25, Indigenous groups other than MSCN, BCN, and GLFN may use lands and resources within the Project footprint, LAA, and RAA for traditional purposes. As such, the Project may result in adverse effects to the health and socioeconomic conditions of members of these communities.

Supplementary information is required to support the proponent's characterization of potential Project effects to the health and socioeconomic conditions of Indigenous peoples.

INFORMATION REQUEST

a) Based on the baseline information provided in IR1-25, describe for each Indigenous group listed in Part 2, Section 5.1 of the EIS Guidelines:
   i. potential effects of the Project to Indigenous health and socioeconomic conditions;
   ii. mitigation measures to address any adverse effects identified;
   iii. potential residual Project effects to Indigenous health and socioeconomic conditions;
   iv. potential cumulative effects of the Project with other potential past, present, and reasonably foreseeable future physical activities in the region; and
   v. engagement activities that have taken place or will take place to verify the accuracy of the baseline data presented and the appropriateness of the accommodation/mitigation measures proposed.

RESPONSE

a) As described in response to IR1-25, the Indigenous Regional Assessment Area (RAA) is not expected to be used by Indigenous groups other than Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation. Norway House, Cross Lake, Garden Hill, Red Sucker Lake, St. Theresa point, and Wasagamack are located outside of the RAA but situated in north-eastern Manitoba. Garden Hill, Wasagamack, St. Theresa Point, and Red Sucker Lake were part of a single First Nation until 1969 (Four Arrows Regional Health Authority Inc., 2017), and as such, they share the Island Lake Registered Trapline (RTL) District. The proposed Project will not connect to these communities. Additionally, none of these communities have Reserve Lands or Treaty Land Entitlements (TLEs) within the Indigenous Land/Resource Use regional assessment area (RAA), and the region does not fall within their Resource Management Areas or RTL Districts. Regarding the Manitoba Metis Federation (MMF) in Manitoba, they have constitutional rights to hunt for food for subsistence use. In 2012, the Government of Manitoba and the MMF signed a Métis Harvesting Agreement, which designated a Métis Natural Resource Harvesting Zone. The Indigenous RAA for the proposed Project is significantly distant from the Métis Natural Resource Harvesting Zone as was shown in Appendix IR1-24-2 in the response to information request IR1-24.

Table IR1-83-1 below presents a summary of potential effects of the Project to Indigenous health and socioeconomic conditions, mitigation measures, residual effects and cumulative effects. These effects were identified in Chapter 6, Appendix 6-4 and 6-5 of the Environmental Impact Statement (EIS). For communities other than MSCN, BCN, and GLFN, the potential effects were identified based on their comments and concerns provided as part of the engagement meetings, described in Chapter 5, Table 5.8 of the EIS. For cumulative effects, as described in response to IR1-70, while increased recreational use or other activities, such as commercial forestry operations, may occur in the region, they are unlikely to act cumulatively with the Project activities, especially when mitigation measures are taking place.

Other foreseeable activities, such as commercial forestry operations within the Hayes River and Boreal Shield Forest Management Sections and potential mining or mineral exploration projects (e.g. Altius Resource diamond exploration), could have indirect effects on Indigenous communities, wildlife, species at risk, and fish habitats. However, as stated in Chapter 6, Section 6.6.3.1.1 of the EIS, the extent and timing of these projects remain uncertain for the CEA.

As identified in response to IRI-70, infrastructure development projects in the local Indigenous Nations (e.g., schools, nursing homes) will be no closer to the all-season road than previously identified residences and will not contribute to cumulative effects. Additionally, past infrastructure has been decommissioned and is not included in the cumulative impact assessment.

Mitigation measures outlined in the EIS remain applicable and sufficient to address any potential cumulative effects. These include restricting access to sensitive areas, prohibiting firearm possession to minimize hunting pressure, enforcing hunting prohibitions, among others.

While project-related changes may temporarily affect traditional land use, they are not expected to significantly affect community life, traditional lifestyles, or individual well-being due to the implementation of mitigation measures. Additionally, the road connects Indigenous communities that already have access to each other via winter roads and waterways, minimizing any major disruptions.

Traditional land and resource use patterns may shift due to increased access, which could be both a challenge and a benefit. Overall, the All-Season Road will provide various benefits to the communities. These include a reduction in average freight costs by up to 50% as freight shifts from air to road, access to lower-cost goods and services, consolidated social services, healthcare, education, recreation facilities, employment opportunities, airports, and improved access to traditional culture and land use activities (SNC Lavalin, 2011). While temporary construction-related disturbances may occur, they will be infrequent and confined to specific project phases. The extent of these effects is regional, as resource harvesting areas extend beyond the immediate Project footprint.

The magnitude of impacts is considered low, as traditional practices can continue with some modifications. Effects are reversible in the short term, as Indigenous communities can adapt and access new areas, and mitigation measures will help reduce disruptions. Overall, cumulative effects are not considered significant, as no adverse effects beyond what was already assessed have been identified.

As described in the response to information request IR1-19, Manitoba Transportation and Infrastructure (MTI) will conduct selective review(s)of data validity before construction of the all-season road begins. The review will focus on key topics where legislative changes (e.g. updates to species at risk listings) occur. This process will verify that related key predictions made in the Environmental Impact Statement (EIS) remain accurate and that proposed mitigations and monitoring remain appropriate and applicable. This process may include a desktop exercise incorporating detailed design, newly collected data available to MTI (if any), and may include field studies if required. Should there be significant changes in baseline data, a review of potential effects may also be conducted.

MTI provided copies of draft chapters of this EIS as they became available to Manto Sipi Cree Nation, Bunibonibee Cree Nation, God’s Lake First Nation and God’s Lake Northern Affairs Community to allow further time for review and comment, prior to the formal submission to regulators and other stakeholders.

As outlined in Chapter 5, Section 5.7 of the EIS, the Indigenous and Public Engagement Program will continue throughout the project's development, ensuring ongoing opportunities for Indigenous Nations and other stakeholders to provide input. Additionally, as described in response to IR1-25, an Engagement and Consultation Plan has been developed to facilitate continued engagement with all Indigenous Nations identified in Part 2, Section 5.1 of the EIS Guidelines.

MTI is committed to ongoing engagement efforts through and beyond the completion of the Project, providing regular updates, consultation meetings, and open channels for feedback. Any new information obtained through these activities will be documented and shared with regulators. Planned engagement activities include in-community meetings, public open houses, and a structured communications plan to maintain collaboration. Furthermore, additional socio-economic information will be gathered through a socio-economic study, which is currently under consideration for funding.

Table IR1-83-1. Summary of potential effects, mitigation measures, residual and cumulative effects on Indigenous peoples.

Summary of Project effects to Indigenous health and socioeconomic conditions				
Indigenous group	**Potential effects**	**Mitigation Measures**	**Residual effects**	**Cumulative effects**
Bunibonibee Cree Nation, Manto Sipi Cree Nation and God's Lake First Nation	Increase in economic conditions (ex: employment, services, improved access) for local communities during construction, maintenance and operation.	N/A	N/A	N/A
	Increase in trapping income for local trappers as a result of improved access along the all-season road during operation.	N/A	N/A	N/A
	Reduction in trapping income for local trappers as a result of reduced trapping harvest from previously identified effects (clearing, sensory disturbance, hunting pressure and vehicle-collision) during construction	• Follow the mitigation measures to minimize effects to furbearers due to habitat loss, sensory disturbance and vehicle collisions. • TK interviews, workshops and studies were conducted to identify and minimize interaction with areas of importance to trappers. • Provide current Project information to affected trappers to minimize potential for traps to be set in areas to be disturbed by construction. • Maintain trapper access to traplines and trails during construction; design trail crossings to maintain trapper access and trails (EP1 and ES 130.17.3.3). • If active traps are discovered during construction, work will stop and the trapper will be notified. • Construction contracts will require indigenous involvement to increase economic opportunities for local communities.	Reduction in trapping income for local trappers as a result of reduced trapping harvest from previously identified effects (clearing, sensory disturbance, hunting pressure and vehicle-collision) during construction.	The all-season road is expected to have predictable and mitigatable effects. While increased access may alter traditional land use patterns, it will enhance resource access and year-round interaction among local Indigenous communities without significant disruptions. No additional cumulative adverse effects requiring further mitigation have been identified beyond those in Appendix 6-4.
	Reduction in food supply as a result of previously identified effects on harvested vegetation (ex: berries) (clearing, drainage alterations, invasive species and wildfires) from construction, maintenance and operation activities.	• Identify and map areas of cultural importance prior to clearing for Project planning and design (routing and setbacks). • Design and adjust alignment where there are equitable conditions in the immediate vicinity based on community input to avoid loss of important harvesting areas. • Limit clearing to designated areas within the ROW using existing cutlines, routes and trails where they are present (EP1 and ES 130.17.1). • Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1). • Clean construction equipment and vehicles prior to bringing them to site to control spread of invasive species (EP25 and ES 130.15.1). • Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7). •	Reduction in food supply as a result of previously identified effects on harvested vegetation (ex: berries) (clearing, drainage alterations, invasive species and wildfires) from construction, maintenance and operation activities.	The all-season road is expected to have predictable and mitigatable effects. While increased access may alter traditional land use patterns, it will enhance resource access and year-round interaction among local Indigenous communities without significant disruptions. No additional cumulative adverse effects requiring further mitigation have been identified beyond those in Appendix 6-4.
	Reduction in food supply and culturally important species as a result of previously identified effects on ungulates (ex: moose, caribou), furbearers, birds and their habitat (clearing, sensory disturbance, hunting pressure, vehicle collisions, predation and disease) from construction, maintenance and operation activities.	• Design and adjust alignment where there are equitable conditions in the immediate vicinity based on community input to avoid loss of important habitat and hunting areas. • Alignment selected so no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (EP6 and ES 130.15.1). • Follow clearing and grubbing (EP1 and ES 130.17.1) and blasting (EP14 and ES130.19.6) timelines and restrictions to avoid important nesting and breeding times. • Limit clearing to designated areas within the ROW using existing cutlines, routes and trails where they are present (EP1 and ES 130.17.1). • Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1) • apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and ES 130.11) techniques. • Limit access during construction and decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7). • Restrict access to operation phase quarry areas (ES 130.8.8). • Design road to optimize sightlines with reduced speed and signage to reduce the potential for accidental wildlife-vehicle collisions. • Prohibit hunting by MTI employees and contractors working on the Project (EP14 and ES 130.19.1). • Firearm possession prohibited in construction camps. • Schedule maintenance activities to avoid sensitive life stages unless required for safety reasons	Reduction in food supply and culturally important species as a result of previously identified effects on ungulates (ex: moose, caribou) and their habitat (clearing, sensory disturbance, hunting pressure, vehicle collisions, predation and disease) from construction, maintenance and operation activities.	The all-season road is expected to have predictable and mitigatable effects. While increased access may alter traditional land use patterns, it will enhance resource access and year-round interaction among local Indigenous communities without significant disruptions. No additional cumulative adverse effects requiring further mitigation have been identified beyond those in Appendix 6-4.

Summary of Project effects to Indigenous health and socioeconomic conditions				
Indigenous group	**Potential effects**	**Mitigation Measures**	**Residual effects**	**Cumulative effects**
		•		
	Reduction in food supply as a result of previously identified effects on fish and their habitat (water quality, shock waves, fishing pressure, fish passage, habitat and invasive species) from construction, maintenance and operation activities.	• Install erosion and sediment control measures (EP16 and ES 130.16, ex: silt fencing, erosion control blanket, straw wattle, geotextile). • Alignment selected so no work within 100 m of a waterbody (retained vegetated buffer) except at crossings (EP6 and ES 130.15.1). • Adhere to DFO timing windows for in-stream work (EP6, EP7, EP11, and ES 130.15.2). • Bridges and culverts at watercourse crossings will accommodate 1:50 year flood events. • Regular culvert maintenance and cleanouts (EP11 and ES 130.15.9). • Apply typical noise (EP4 and ES 130.12) and dust suppression (EP18 and ES 130.11) techniques. • Decommission and rehabilitate disturbed areas not required for Project. • Operation and maintenance to prevent access (EP22 and ES 130.8.7)). • Restrict fishing access of the construction crews. • Restrict access to potential parking areas at watercourse crossings. • Install large riprap/aggregate on slopes to limit access to streams at crossing sites where access did not exist prior to the Project. • Designated re-fuelling areas and fuel handling procedures (EP2, EP3, ES 130.9.2.5 and ES 130.10, ex: at least 100 m from water bodies, secondary containment, approved storage tanks, maintain spill control and clean-up equipment, emergency response plan with spill containment/clean-up procedures). • Equipment and vehicles will be clean and free of leaks upon arrival to site and kept in good repair (EP6 and ES 130.15.3). • Schedule maintenance activities to avoid sensitive life stages unless required for safety reasons.	Reduction in food supply as a result of previously identified effects on fish and their habitat (water quality, shock waves, fishing pressure, fish passage, habitat and invasive species) from construction, maintenance and operation activities.	The all-season road is expected to have predictable and mitigatable effects. While increased access may alter traditional land use patterns, it will enhance resource access and year-round interaction among local Indigenous communities without significant disruptions. No additional cumulative adverse effects requiring further mitigation have been identified beyond those in Appendix 6-4.
	Loss of medicinal plant harvest areas used by community members for therapeutic or healing purposes due to clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps.	• Identify and map important medicinal and cultural plants and harvesting areas prior to clearing for Project planning and design (routing and setbacks). • Adjust alignment where possible to avoid the loss of important harvesting areas. • Limit clearing to designated areas within the ROW (EP1 and ES 130.17.1). • Restrict equipment and vehicle use outside of cleared areas (ES 130.6.1). • Clean construction equipment and vehicles prior to bringing them to site to control spread of invasive species (EP25 and ES 130.15.1).	Loss of medicinal plant harvest areas used by community members for therapeutic or healing purposes due to clearing of native vegetation within the ROW, temporary access roads, quarries, borrow pits, work areas and camps.	The all-season road is expected to have predictable and mitigatable effects. While increased access may alter traditional land use patterns, it will enhance resource access and year-round interaction among local Indigenous communities without significant disruptions. No additional cumulative adverse effects requiring further mitigation have been identified beyond those in Appendix 6-4.
	Risk to human health from decreased quality of the community water supply as a result of previously identified effects (surface and/or ground water quality) during construction, maintenance and operation.	• Alignment selected so no work within 100 m of a waterbody (retained vegetated buffer) except at crossings where in-stream work will be conducted during winter months or low flow conditions (EP6, ES 130.15.1 and ES 130.15.2) to the extent possible. • Equipment and vehicles will be clean and free of leaks upon arrival to site and kept in good repair (EP6 and ES 130.15.3). • minimize clearing and soil disturbance and limit vehicle/equipment use to ROW (ES 130.6.1). • Install erosion and sediment control measures (EP16 and ES 130.16, ex: silt fencing, erosion control blanket, straw wattle, geotextile). • Maintain natural drainage and re-grade disturbed areas to limit erosion. • Conduct clearing during winter months (EP1 and ES 130.17.1). • Suspend construction activities during extreme weather events (EP6 and ES 130.16). • Energy dissipation controls (ex: ditching, rip-rap, collection ponds). • Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7). • Designated re-fuelling areas and fuel handling procedures (EP2 and ES 130.9.2.5, ex: at least 100 m from water bodies and away from existing wells, secondary containment, approved storage tanks, maintain spill control and clean-up equipment, emergency response plan with spill containment/cleanup procedures). • Improved road conditions, sight lines and approaches will reduce likelihood and frequency of accidents and improve access for spill response crews. • Soil and groundwater remediation to CCME guidelines (EP3 and ES 130.10).	Risk to human health from decreased quality of the community water supply as a result of previously identified effects (surface and/or ground water quality) during construction, maintenance and operation	N/A. Infrastructure development projects in the local Indigenous Nations (e.g., schools, nursing homes) will be no closer to the all-season road than previously identified residences and will not contribute to cumulative GHG effects. Additionally, past infrastructure has been decommissioned and is not included in the cumulative impact assessment. The extent and timing of other activities (forestry, mining, mineral exploration) remain uncertain for the CEA.

Summary of Project effects to Indigenous health and socioeconomic conditions				
Indigenous group	**Potential effects**	**Mitigation Measures**	**Residual effects**	**Cumulative effects**
	Risk to human health and disturbance to local communities as a result of reduced air quality during construction, maintenance and operation.	• Dust suppression (EP18 and ES 130.11). • Activities that generate dust or smoke (ex: blasting, burning) will not take place during high wind conditions. • Vehicle speed limits at construction sites and quarries within close proximity to local communities when dust problems occur. • Use low sulphur fuels. • Require a high standard of maintenance of equipments and vehicles. • Limit unnecessary long-term idling. • Decommission and rehabilitate disturbed areas not required for Project operation and maintenance (EP22 and ES 130.8.7). • Control aggregate size and use of granitic material to reduce dust generation from roadbed.	Risk to human health and disturbance to local communities as a result of reduced air quality during construction, maintenance and operation.	N/A. Infrastructure development projects in the local Indigenous Nations (e.g., schools, nursing homes) will be no closer to the all-season road than previously identified residences and will not contribute to cumulative GHG effects. Additionally, past infrastructure has been decommissioned and is not included in the cumulative impact assessment
	Disturbance to local communities as a result of increased noise levels during construction, maintenance and operation.	• Apply typical noise suppression techniques (EP4 and ES 130.12) locate quarry activities as far away from local communities as reasonably possible. • Forest buffers will be retained, unless clearing is required for safety reasons, around quarries to reduce noise from quarry operations. • Limit quarrying and blasting to daytime hours when working close to local communities.	Disturbance to local communities as a result of increased noise levels during construction, maintenance and operation	N/A. Infrastructure development projects in the local Indigenous Nations (e.g., schools, nursing homes) will be no closer to the all-season road than previously identified residences and will not contribute to cumulative GHG effects. Additionally, past infrastructure has been decommissioned and is not included in the cumulative impact assessment
Manitoba Metis Federation	Interference with the Metis Natural Resource Harvesting Zone	• Indigenous RAA located far from this zone	N/A	N/A. The Indigenous RAA is far from the Métis Natural Resource Harvesting Zone, and as there are no foreseeable future activities that would impact this zone, cumulative effects are not expected
Norway House Cree Nation	Potential to affect Norway House Resource Management Area and members from increased traffic along PR 373 and the winter road to transport supplies and equipment for construction and operation.	• Project materials will be sources from the Project area or manufactured at a major center. • Heavy equipment used by the local communities for building the winter road every year may also be used to build the Project, further reducing the amount of potential traffic increase along the winter road.	N/A	N/A. While the project could lead to decreased access to traditional resources due to increased access by non-community members, other physical activities that could exacerbate these impacts are not currently foreseeable in the long-term. While there is potential for increased traffic along existing roads, but mitigation measures are in place to minimize adverse effects.
	Potential for spills or products like explosives or fuels for construction as they will be hauled into the Project area using the existing road network.	• Transportation and handling of dangerous goods will be carried out in accordance with applicable legislation and mitigation measures will be in place to prevent spills, with additional care and precautions taken around water. • In the event of a spill, procedures will be in place to ensure the spill is cleaned up. • Material and equipment used for the Project and temporary facilities and work areas will be located within 500 m of the Project ROW, well outside of Norway House Resource Management Area.	N/A	
	Potential to affect Norway House Resource Management Area and members from effects to resources including fish, fish habitat, spawning, wetlands, traditional medicines, caribou, moose, wolves and other game/fur bearing animals.	• Project not located within Norway House Resource Management Area. • Mitigation measures will be implemented to minimize effects to VCs, maintain current travel routes and limit new access beyond the Project footprint.		
Pimicikamak Okimawin	Decrease in fish, aquatic species, migratory birds, game, furbearers due to increased harvesting by non-community members.	• Project not located within Pimicikamak territory. • Mitigation measures will be implemented to minimize effects to VCs, maintain current travel routes and limit new access beyond the Project footprint.	N/A	N/A. While the project could lead to decreased access to traditional resources due to increased access by non-community members, other physical activities that could exacerbate these impacts are not
	Decrease in traditional activities including fishing,			

Summary of Project effects to Indigenous health and socioeconomic conditions				
Indigenous group	**Potential effects**	**Mitigation Measures**	**Residual effects**	**Cumulative effects**
	trapping and hunting due to resource depletion by non-community members with increased access.			currently foreseeable in the long-term.
Garden Hill First Nation	Decrease in fish, aquatic species, migratory birds, game, furbearers due to increased harvesting by non-community members. Decrease in traditional activities including fishing, trapping and hunting due to resource depletion by non-community members with increased access.	• Project not located within Garden Hill First Nation territory or RTL areas. • Mitigation measures will be implemented to minimize effects to VCs, maintain current travel routes and limit new access beyond the Project footprint.	N/A	N/A. While the project could lead to decreased access to traditional resources due to increased access by non-community members, other physical activities that could exacerbate these impacts are not currently foreseeable in the long-term.
Red Sucker First Nation	Decrease in fish, aquatic species, migratory birds, game, furbearers due to increased harvesting by non-community members. Decrease in traditional activities including fishing, trapping and hunting due to resource depletion by non-community members with increased access.	• Project not located within Red Sucker FN territory. • Mitigation measures will be implemented to minimize effects to VCs, maintain current travel routes and limit new access beyond the Project footprint.	N/A	N/A. While the project could lead to decreased access to traditional resources due to increased access by non-community members, other physical activities that could exacerbate these impacts are not currently foreseeable in the long-term.
St. Theresa Point First Nation	Decrease in fish, aquatic species, migratory birds, game, furbearers due to increased harvesting by non-community members. Decrease in traditional activities including fishing, trapping and hunting due to resource depletion by non-community members with increased access.	• Project not located within St. Theresa Point FN territory. • Mitigation measures will be implemented to minimize effects to VCs, maintain current travel routes and limit new access beyond the Project footprint.	N/A	N/A. While the project could lead to decreased access to traditional resources due to increased access by non-community members, other physical activities that could exacerbate these impacts are not currently foreseeable in the long-term.
Wasagamack First Nation	Decrease in fish, aquatic species, migratory birds, game, furbearers due to increased harvesting by non-community members. Decrease in traditional activities including fishing, trapping and hunting due to resource depletion by non-community members with increased access.	• Project not located within Wasagamack FN territory. • Mitigation measures will be implemented to minimize effects to VCs, maintain current travel routes and limit new access beyond the Project footprint.	N/A	N/A. While the project could lead to decreased access to traditional resources due to increased access by non-community members, other physical activities that could exacerbate these impacts are not currently foreseeable in the long-term.

References

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

SNC Lavalin. 2011. East Side of Lake Winnipeg (ESLW) Large Area Transportation Network Study. https://www.gov.mb.ca/mti/hpd/environment/pdf/project6/baseline/final_report.pdf. Accessed November 29, 2024.

QUESTION IAAC IR1-84

EIS Guideline Reference	• Part 2, Section 6.3.4
EIS Reference	• Chapter 6, Section 6.3.4
Category	Indigenous Health and Socioeconomic Conditions

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe how changes to the environment caused by the Project may affect the health and socioeconomic conditions of Indigenous peoples and the current use of lands and resources for traditional purposes by Indigenous peoples.

Although the EIS references the importance of culture and cultural values, the EIS does not present an assessment of potential Project effects to Indigenous peoples' cultural experience on the landscape, including potential changes to spiritual and cultural connections with the affected environment and associated effects to use and well-being. As cultural connection to the land and cultural values are an important component of the current use of lands a resources for traditional purposes by Indigenous peoples and Indigenous health and well-being, potential effects of the Project to Indigenous culture and cultural values must be assessed. MSCN also identified concerns with this omission, including potential Project effects to the quality of use experience and associated changes in cultural practices; human health and community well-being; and individual and community identity resulting from changes to the environment, culture, land use, and intergenerational transfer of knowledge.

Supplementary information is required to support the proponent's characterization of potential Project effects to the current use of lands and resources for traditional purposes and the health and socioeconomic conditions of Indigenous peoples.

INFORMATION REQUEST

a) Describe and present an assessment of potential effects of the Project to cultural experience and cultural values of Indigenous peoples, including:
    i. a description of cultural experience/experiential values identified by each Indigenous group listed in Part 2, Section 5.1 of the EIS Guidelines and potential

changes to the environment as a result of the Project that may interact with these;

ii. a description of each Indigenous group's views regarding the potential impacts of the Project to community well-being and their cultural landscape;

iii. mitigation measures identified by Indigenous groups who may experience these effects, and any commitment made to these mitigation measures; and

iv. a clear explanation of the methodology for integrating Indigenous knowledge into this assessment.

b) Revise the residual and cumulative effects assessments for Indigenous peoples to include potential Project effects to cultural experience/experiential values.

RESPONSE

a)

i. The cultural experience and values of Indigenous peoples are deeply rooted in traditional activities, spiritual sites, and the intergenerational transfer of knowledge. The proposed Project may bring changes to the environment that could interact with these cultural experiences, affecting traditional practices, spiritual connections to the land, and community identity. Traditional Knowledge (TK) studies were conducted as part of the Large Area Transportation Network Study (SNC Lavalin, 2011). Comments regarding cultural activities and values included burial or spiritual areas, gathering and berry picking activities, and special gathering areas for traditional medicines. Participants from Oxford House area (Bunibonibee Cree Nation), Manto Sipi Cree Nation, God's Lake Narrows, St. Theresa Point, Red Sucker Lake First Nation, Wasagamack and Garden Hill shared locations of these sites. At least 50% of participants from each Indigenous Nation indicated that they believe the Project will have a positive impact on cultural areas and activities (SNC Lavalin, 2011). Responses from the TK survey suggested that traditional activities such as hunting, trapping, and fishing are highly valued by local Indigenous Nations, with most participants actively engaged in these practices. Many communities are actively supporting and encouraging trapping activities, recognizing their significance in preserving Indigenous culture and maintaining essential skills within their communities.

Additionally, as part of the ongoing Project 6 Indigenous and Public Engagement Program, separate TK studies were conducted in each of the communities in the Project area. TK data generated through the studies are considered confidential and the property of the individual community. With the permission of the people interviewed, all original materials (maps and notes) were returned to the community shortly after the study was conducted and MTI is using the TK information collected only to inform the design, environmental approvals, construction and future maintenance of the proposed Project and winter road network. MTI has committed to keeping TK information confidential.

Manto Sipi Cree Nation (MSCN)

For MSCN, traditional activities such as hunting, fishing, trapping, and gathering are key to cultural identity (HTFC, 2017a). These activities provide not only sustenance but also reinforce family and community ties, serving as a means of passing down knowledge from elders to younger generations. The land is central to their identity, and any changes to it directly impact their cultural experience.

Community members identified several culturally significant locations, including two areas near the community where people traditionally engaged cultural or ceremonial activities. Another significant site along the God's River also holds cultural and historical value. There are also old Hudson's Bay Company posts in the area, which remain important cultural landmarks (HTFC, 2017a).

One major cultural concern raised by MSCN members is that increased access to external people could weaken traditional ways of life, particularly for the younger generation, who may become more interested in outside opportunities rather than their cultural traditions. Language retention was also highlighted as a critical issue, with members recognizing that the community's relative isolation has helped sustain high rates of Cree language use. Increased access to external influences could pose a risk to language retention and, consequently, cultural identity (HTFC, 2017a).

The construction of the all-season road may lead to physical changes in the environment, including land clearing, increased accessibility, and potential disturbances to sacred or historical sites. Although burial sites are not currently known to be present along the Project route, community members acknowledge that gravesites could exist anywhere, so archaeological investigations are required.

God's Lake First Nation (GLFN)

GLFN members identified several culturally significant locations, including beaches, youth camps, fishing tournament sites, a sweat lodge, and a smudging and sundance area. These sites serve as gathering places for spiritual and community activities that are crucial to maintaining cultural identity. Additionally, historic meeting places for trappers and travelers were identified, as they were once essential sites for trade and social interaction (HTFC, 2017b).

Several sacred sites hold spiritual meaning, and other locations are believed to be inhabited by spirits (HTFC, 2017b). These places play an important role in community members' spiritual practices and connection to the land.

While many GLFN members acknowledge the benefits of improved accessibility, some expressed unease about potential disruptions to traditional land use and community well-being. The increased presence of external people and the potential introduction of drugs

and alcohol were major concerns, with participants stressing the importance of addressing these issues before the road is completed (HTFC, 2017b). The environmental changes from road construction, such as habitat disturbance and increased traffic, may alter the use of these sites and impact cultural practices associated with them.

God's Lake Narrows Northern Affairs Community (GLNAC)

Workshop participants from God's Lake Narrows identified historically significant burial sites and artifacts in specific locations. These areas are the ancestral homeland of many members of God's Lake First Nation and Manto Sipi Cree Nation (HTFC, 2017c). Given that burials and artifacts may be found in this area, the Project poses potential risks to cultural heritage preservation if no mitigation measures are applied.

Bunibonibee Cree Nation (BCN)

BCN members identified historic family settlement areas that were once occupied year-round. These sites remain culturally important, even though they are no longer permanently inhabited, as community members still visit them for harvesting and social gatherings (HTFC, 2017d). The all-season road may facilitate greater access to these areas, which could be beneficial, but could also lead to increased external pressures that alter traditional land use.

Similar to MSCN and GLFN, BCN members are concerned about external influences that may come with increased accessibility. Many community members recognize that isolation has played a role in preserving the Cree language, and there is concern that the road could contribute to language loss over time (HTFC, 2017d). Additionally, members expressed interest in economic development opportunities associated with the road but emphasized that development should be carried out in a way that respects environmental and cultural values.

Potential environmental changes from the project, such as land clearing, changes to wildlife movement, and increased human activity, could impact traditional activities such as hunting, trapping, and fishing. Although no special areas were noted in immediate proximity to the road, BCN members emphasized the need for careful planning to protect sensitive areas.

Therefore, before mitigation measures are applied, construction and operation of the all-season road could introduce several environmental changes that interact with Indigenous cultural values, including:

- Land clearing and habitat disturbance, which could affect sacred sites, burial grounds, and areas of cultural significance.

- Increased access to traditional land, which could alter hunting, trapping, and fishing practices by bringing in non-community members and increasing competition for resources.
- Potential for language and cultural loss due to greater exposure to external influences and decreased reliance on traditional land-based activities.
- Concerns about increased access to drugs and alcohol, which could impact community well-being and youth engagement in cultural traditions.
- Changes to intergenerational knowledge transfer, as ease of access to modern infrastructure may reduce reliance on traditional skills and land-based learning.

As discussed in MTI's response to IR1-77, other Indigenous groups listed in Part 2, Section 5.1 of the Project 6 EIS Guidelines have not demonstrated use of the project area. To assist IAAC and EAB in their regulatory review within the environmental assessment process and to inform both the federal and provincial consultation processes being undertaken for the proposed Project, MTI is currently and will continue to carry out engagement through the Indigenous and Public Engagement Program (IPEP). The IPEP will provide opportunities for Indigenous communities to share concerns, provide additional information, and be part of the decision-making process where possible. MTI is responsible for the IPEP and providing communities with regular updates and open channels for feedback throughout the construction, operation, and maintenance phases of the Project. Any new information obtained through these activities will be documented and incorporated into environmental planning when feasible. As stated above however, community input from TK studies dating back to 2011 have been considered in the environmental assessment for the proposed Project, as and where appropriate.

ii. While Indigenous communities have expressed their concerns about how the Project could impact their way of life, cultural traditions and their land, many members from communities have expressed their perspectives on the benefits of the road, such as better access to services, lower costs, and new economic opportunities. Community members indicated that the Project could lead to increased participation rates, which in turn would be considered an enhancement of traditional culture, yet at the same time, if there is a corresponding drop in the quantity of resources, participation rates could drop, and with it the traditional connection to the land, and connection to the language (SNC Lavalin, 2011).

Manto Sipi Cree Nation

Members of MSCN recognize that the all-season road will bring various changes to their way of life. One elder expressed concern that if the road is built, younger generations may

become more interested in external influences and disengage from their traditional ways of life.

Language retention is a primary concern for MSCN members. Many believe that the community's isolation has played a role in preserving the Cree language, and there is concern that increased access to external influences could lead to a decline in its use. Participants emphasized the need for proactive measures to reinforce Cree language use as the community becomes more connected to outside influences (HTFC, 2017a).

There are also concerns about the increased accessibility of drugs and alcohol. Participants stressed the importance of addressing this issue before the road is built, as easier access could introduce new social challenges, particularly for younger generations. While concerns remain, many MSCN members also acknowledge the potential benefits of the road, particularly in terms of economic opportunities, better access to healthcare and education, and lower costs of goods and services (HTFC, 2017a).

God's Lake Narrows Northern Affairs Community

Participants from God's Lake Narrows raised concerns about the protection of burial sites and other historical areas. One location was recognized as an important settlement area where ancestors of GLFN and MSCN members once lived. Community members indicated that while there are no known burial sites along the proposed road alignment, artifacts and gravesites could still exist in the region (HTFC, 2017c). They emphasized that any discoveries of cultural or historical significance must be carefully managed to ensure their preservation.

God's Lake First Nation

GLFN members have expressed both optimism and concerns regarding the all-season road. Of the 19 participants interviewed, 17 spoke positively about the project's potential benefits, including enhanced mobility, economic growth, and improved access to essential services (HTFC, 2017b).

However, a key concern for GLFN members is the protection of culturally significant sites, including beaches, youth camps, fishing tournament sites, sweat lodges, and sundance areas. There are concerns that increased accessibility may lead to disruptions in the use of these areas, impacting the spiritual and cultural well-being of community members (HTFC, 2017b).

Another issue raised was the potential for increased access to drugs and alcohol, which some community members believe could negatively impact youth and lead to new social challenges. One participant noted that current substance management programs are already inadequate and need to be improved before the road is completed. Participants

stressed the importance of strengthening community services and providing education and support programs to mitigate these risks (HTFC, 2017b).

Several participants also emphasized that the long-term effects of the road will be most significant for younger generations. One participant expressed that the youth should be involved in discussions regarding the road, as they will be the ones who experience its full impacts in the years to come.

Bunibonibee Cree Nation

BCN members are largely supportive of the all-season road but have emphasized the need for careful planning to ensure that it is constructed in a way that respects their cultural and environmental values. The road is seen as an opportunity to facilitate economic growth, but members also recognize the need to balance development with cultural preservation (HTFC, 2017d).

Similar to MSCN and GLFN, there is concern that increased accessibility could contribute to language loss. BCN members noted that their isolation has helped maintain strong rates of Cree language use, and there is apprehension that outside influences could gradually lead to a decline in language retention. Participants emphasized the need for programs that reinforce Cree language and cultural traditions to ensure their continuation for future generations (HTFC, 2017d).

Another issue raised was the potential impact of increased traffic on traditional hunting, fishing, and trapping areas. Some members fear that non-community members may take advantage of improved access, leading to increased hunting and fishing pressures in areas that local families rely on. Participants emphasized the importance of regulating access to these areas to prevent overuse by external resource users. BCN members also raised concerns about the accessibility of drugs and alcohol (HTFC, 2017d).

As discussed in MTI's response to IR1-77, the other Indigenous groups listed in Part 2, Section 5.1of the EIS Guidelines have not demonstrated use of the project area. MTI will carry out future engagement through the Indigenous and Public Engagement Program (IPEP) that will provide opportunities for Indigenous communities to share concerns, provide additional information, and be part of the decision-making process where possible. This process will assist IAAC and EAB in their regulatory review of the environmental assessment process and inform both the federal and provincial consultation processes being undertaken for the proposed Project. MTI will be responsible for the IPEP and provide communities with regular updates and open channels for feedback throughout the construction, operation, and maintenance phases of the Project. Any new information obtained through these activities will be documented and incorporated into environmental planning when feasible.

iii. The mitigation measures identified by Indigenous groups to address potential effects of the Project on cultural values, traditional land use, and community well-being are consistent with those outlined in Appendix 6-4 of the Environmental Impact Statement (EIS).

The selection of the alignment for the proposed Project was informed through discussions with BCN, MSCN, GLFN, and God's Lake Narrows Northern Affairs Community. Heritage Resource Impact Assessments were conducted for the proposed Project. Mitigation measures identified by the archaeologists will be incorporated into Project design. Construction tenders will have requirements to address archaeological or historic artifacts if encountered and include stop work, contact Manitoba Historic Resources Branch and implement recommended mitigation measures. Mitigation measures will be implemented to limit new access beyond the proposed Project's footprint.

To restrict unauthorized access to traditional hunting, trapping, and fishing areas, the following measures will be implemented:

- Restrict fishing access of the construction crews.
- Restricting access to potential parking areas at watercourse crossings.
- Limit access during construction and decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7).
- Restrict access to operation phase quarry areas (ES 130.8.8).
- Where appropriate, implement access controls to adjacent heritage sites.
- Post "no entry" warning signs and restrict access around active construction sites.
- Provide safe access for trappers and other traditional users.
- Provide updates to local communities regarding location and timing of construction and maintenance activities.
- Identify and map important medicinal and cultural plants and harvesting areas prior to clearing for Project planning and design (routing and setbacks).
- Adjust alignment where possible to avoid the loss of important harvesting areas.

Additional mitigation measures identified in the EIS include ongoing engagement with Indigenous Nations, maintaining communication regarding project progress, and incorporating Indigenous knowledge into environmental management practices. This will provide communities with an active role in monitoring and decision-making processes, helping to address concerns as they arise., maintaining communication regarding project progress, and incorporating Indigenous knowledge into environmental management practices. This will provide communities with an active role in monitoring and decision-making processes, helping to address concerns as they arise.

The Project has also recognized the need to address social challenges that may arise with increased access to external influences, such as drugs and alcohol. Community-led initiatives, including the potential establishment of checkpoints and patrols, have been discussed as a means of managing these concerns effectively.

iv. Traditional Knowledge studies were carried out with the main purpose of gathering local knowledge on traditional land uses, cultural and spiritual implications, ecological and biophysical aspects, etc. This information was shared with the project team and used to support other environmental baseline studies, the selection of the route alignment, VC identification, the environmental assessment and EIS development and other project planning. This information will continue to be used to support future engineering design, construction planning and implementation of mitigation measures. Traditional Knowledge studies consisted of regional-scale studies with the local First Nations, along with community-specific studies focusing on the preferred alignment, developed with input from community members of MSCN, BCN, GLFN and GLNAC.

As described in Chapter 5, Section 5.2.4.2 of the EIS, the TK data collection aimed to document key locations along the proposed road alignment that were significant for local ecological features, historically and culturally important sites, and resource and land use practices by community members. Within MSCN, BCN, and GLFN, the data collection process involved several key activities. The TK study was first introduced to community leadership, who selected a local Community Coordinator to assist the former East Side Road Authority's (ESRA's; now MTI) consultants in organizing and delivering TK workshops and interviews.

An introductory workshop was held, where community knowledge holders collected and mapped biophysical and historical information based on their expertise in fishing, hunting, trapping, plant harvesting, wildlife, and cultural sites. Additional information was gathered through one-on-one interviews, which helped validate and refine landscape features of local significance. A verification workshop followed, where collected data, including spatial information and recorded comments, was digitized, analyzed, and mapped. Participants reviewed this information to ensure accuracy, resolve outstanding questions, and provide clarifications.

For GLNAC, while the original approach included multiple TK workshops and interviews, the Council members opted for a single workshop due to difficulties in arranging individual interviews. Furthermore, Heritage Resource Impact Assessments were carried out to identify and avoid sensitive sites of high and medium priority. Proposed mitigation measures suggested by Indigenous groups were considered and implemented where feasible.

b) The assessment of the Project's potential negative impacts on the cultural experiences and values of Indigenous peoples has been included in Appendix IR1-84-1 below to better describe the adverse effects considered in Chapter 6 of the EIS, and specifically those related to the loss or disturbance to heritage, culture or community use resources and sites. This evaluation considers the adverse effects on traditional ways of life, the introduction of drugs and alcohol, the decline of traditional activities, and other concerns arising from increased access by external individuals. The proposed Project is intended to provide enhanced mobility to connect BCN, MSCN, and BCN who have familial ties, provide economic growth, and improved access to essential services. Appendix IR1-84-2 and Appendix IR1-84-3, provide tables to describe the criteria used for Appendix IR1-84-1, and are reproductions of Tables 4.4 and 4.5 from Chapter 4 of the EIS.

APPENDIX IR1-84-1. Environmental assessment summary table showing the assessment of residual effects to cultural experiences and values of Indigenous peoples.

System / VC / Feature	Area of Federal Jurisdiction	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
						Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Indigenous and Human Environment													
Cultural experience and cultural values of Indigenous peoples	5 (1) (c) (iii)	ROW clearing and general construction activities	Increased access to external people could weaken traditional ways of life	• Restrict fishing access of the construction crews. • Restricting access to potential parking areas at watercourse crossings. • Limit access during construction and decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7). • Restrict access to operation phase quarry areas (ES 130.8.8). • Where appropriate, implement access controls to adjacent heritage sites. • Post “no entry” warning signs and restrict access around active construction sites. • Provide safe access for trappers and other traditional users. • Provide updates to local communities regarding location and timing of construction and maintenance activities. • Identify and map important medicinal and cultural plants and harvesting areas prior to clearing for Project planning and design (routing and setbacks). • Adjust alignment where possible to avoid the loss of important harvesting areas.	Disturbance to local communities as a result of increased access during construction, maintenance and operation	Long-Term, life of Project	Indigenous people/ communities in the Indigenous/ Resource Use RAA are able to adapt with relative ease and maintain predevelopment activities	Moderate sensitivity	Limited to the Project Footprint	Sporadic	Reversible over a long period	No adverse social effects	Not Significant
						Level III	Level I	Level II	Level I	Level II	Level II	Level II	

[1] The description of assessment criteria and levels of potential environmental effects were provided in Chapter 4 Table 4.4 of the Environmental Impact Statement, but are also included in Appendix IR1-84-2 of this response.

System / VC / Feature	Area of Federal Jurisdiction	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
						Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Indigenous and Human Environment													
	-	General construction, maintenance and operation activities	The increased presence of external people and the potential introduction of drugs and alcohol	• Restrict fishing access of the construction crews. • Restricting access to potential parking areas at watercourse crossings. • Limit access during construction and decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7). • Restrict access to operation phase quarry areas (ES 130.8.8). • Where appropriate, implement access controls to adjacent heritage sites. • Post "no entry" warning signs and restrict access around active construction sites. • Ongoing collaboration with Indigenous communities to discuss the possibility of adding a check point to monitor the drug/alcohol intake when entering communities. *Law enforcement items to be discussed between Chief and Council, the RCMP and Manitoba Natural Resources and Indigenous Futures	Disturbance to local communities as a result of increased access during construction, maintenance and operation	Long-Term, life of Project	Indigenous people/communities in the RAA are able to adapt with relative ease and maintain pre-project development activities.	Moderate sensitivity	Effects may extend beyond the Project Footprint within the LAA	Continuous	Reversible over a long period	No adverse social effects	Not Significant
						Level III	Level I	Level II	Level II	Level III	Level II	Level I	

System / VC / Feature	Area of Federal Jurisdiction	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
						Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Indigenous and Human Environment													
		General construction, maintenance and operation activities	Increased access could disrupt culturally significant sites, including beaches, youth camps, sundance areas, impacting the spiritual and cultural well-being of community members	• Restrict fishing access of the construction crews. • Restricting access to potential parking areas at watercourse crossings. • Limit access during construction and decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7). • Restrict access to operation phase quarry areas (ES 130.8.8). • Where appropriate, implement access controls to adjacent heritage sites. • Post “no entry” warning signs and restrict access around active construction sites. • Provide safe access for trappers and other traditional users. • Provide updates to local communities regarding location and timing of construction and maintenance activities. • Identify and map important medicinal and cultural plants and harvesting areas prior to clearing for Project planning and design (routing and setbacks). • Adjust alignment where possible to avoid the loss of important harvesting areas.	Disturbance to local communities as a result of increased access during construction, maintenance and operation	Long-Term, life of Project	Indigenous people/ communities in the Indigenous/ Resource Use RAA are able to adapt with relative ease and maintain predevelopment activities	Moderate sensitivity	Limited to the Project Footprint	Sporadic	Reversible over a long period	No adverse social effects	Not Significant
						Level III	Level I	Level II	Level I	Level II	Level II	Level II	

System / VC / Feature	Area of Federal Jurisdiction	Project Activity	Potential Effects	Proposed Mitigation	Residual Effects	Key Criteria for Determining Significance[1]							Significance of Residual Effect
						Duration	Magnitude	Timing	Extent	Frequency	Reversibility	Ecological and Social Context	
Indigenous and Human Environment													
		General construction, maintenance and operation activities	Loss of traditional practices and language as a result of a drop in traditional activities	• Restrict fishing access of the construction crews. • Restricting access to potential parking areas at watercourse crossings. • Limit access during construction and decommission and reclaim temporary access roads and winter road access points following completion of construction (EP21, EP22, and ES 130.8.7). • Restrict access to operation phase quarry areas (ES 130.8.8). • Where appropriate, implement access controls to adjacent heritage sites. • Post “no entry” warning signs and restrict access around active construction sites. • Ongoing communication with local communities. • Identify and map important medicinal and cultural plants and harvesting areas prior to clearing for Project planning and design (routing and setbacks). • Adjust alignment where possible to avoid the loss of important harvesting areas.	Loss of traditional practices and language as a result of a drop in traditional activities	Long-Term, life of Project	Indigenous people/ communities in the Indigenous/ Resource Use RAA are able to adapt with relative ease and maintain predevelopment activities	Moderate sensitivity	Limited to the Project Footprint	Sporadic	Reversible over a long period	No adverse social effects	Not Significant
						Level III	Level I	Level II	Level I	Level II	Level II	Level II	

APPENDIX IR1-84-2

Description of assessment criteria and levels of potential environmental effects (Table 4.4 from Chapter 4 of the Project EIS)

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
Direction of Change (type of effect)	Neutral or Negligible	No measurable change on the VC.
	Negative	Net loss (adverse or undesirable change) on the VC.
	Positive	Net benefit (or desirable change) on the VC.
Duration (period of time the effect occurs)	Short-Term	**Level I** - The potential effect results from short-term events or activities such as the time required to complete a discrete component during construction, maintenance, or rehabilitation activities (i.e., a timeframe of several months up to one year).
	Medium-Term	**Level II** - The potential effect is likely to persist until the completion of construction and rehabilitation activities (i.e., > 1 year to 10 years).
	Long-Term	**Level III** -The potential effect is likely to persist beyond the completion of construction and rehabilitation activities into the operations and maintenance phase of the Project (i.e., a timeframe of greater than 10 years).
Magnitude (degree or intensity of the change)	Negligible or Low	**Level I** - A change that is not likely to have a definable, detectable or measurable potential effect above baseline (i.e., potential effect is within a normal range of variation) or is below established thresholds of acceptable change (e.g., water quality guideline). See **Table 4.5** for VC specific criteria.
	Moderate	**Level II** – A change that will have a potential measurable effect that can be detected with a well-designed monitoring program; but is only marginally beyond standards/guidelines or established thresholds of

[2] **Chapter 6** of the Environmental Impact Statement outlines VC specific definitions for the three level ranking system.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
		acceptable change. See **Table 4.5** for VC specific criteria.
	High	**Level III** – A change that will have potential effects that are easily observed, measured, and described (i.e., readily detectable without a monitoring program) and are well beyond guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
Timing[3]	No Sensitivity	**Level I** – Effect does not occur during critical life stage.
	Moderate Sensitivity	**Level II** – Effect occurs at the start or end of a critical life stage.
	High Sensitivity	**Level III** – Effect occurs during a critical life stage.
Extent (Spatial Boundary)[4]	Project Footprint	**Level I** - The physical space or directly affected area on which Project components or activities are located and/or immediately adjacent area which is within the defined limits of the P6 all-season road ROW (i.e., 100 m) and permanent and temporary facilities (e.g., temporary access routes and quarries) within which potential effects are likely to be measurable.
	LAA	**Level II** - Area within which potential Project effects are measurable and extending beyond the Project Footprint to, but not beyond, the LAA (either a 2 km or 10 km corridor centred on the all-season road alignment depending on the VC (**Figure 4-1**).
	RAA	**Level III** - The maximum anticipated regional extent of potential direct, indirect and cumulative effects that may

[3] In terms of **Timing**, the critical life stages include things such as nesting, breeding, spawning and calving which will vary by VC and will vary annually depending on seasonal conditions. For example, it is clear that winter is outside of bird nesting and breeding period and that spring is fully within this critical time period, whereas early spring and late fall is a transitional period that depending on the seasonal conditions may or may not affect the life stage.

[4] Environmental Impact Statement **Figures 4-1** and **4-2** illustrate the VC specific spatial boundaries of the LAA and RAA, which are discussed in greater detail in **Chapter 6**.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
		extend beyond the LAA. The boundaries of the RAA will vary depending on the VC.
Frequency (how often the effect occurs)	Infrequent	**Level I** - The potential effect occurs once or seldom during the life of the Project (e.g., initial clearing of the ROW).
	Sporadic/Intermittent	**Level II** - The potential effect occurs only occasionally and without any predictable pattern during the life of the Project (e.g., blasting at quarries; site-specific construction equipment noise; potential wildlife-vehicle collisions).
	Regular/Continuous	**Level III** – The potential effect occurs at regular and frequent intervals during the Project phase in which they occur or over the life of the Project (e.g., construction traffic; operations traffic).
Reversibility (the degree of permanence)	Reversible (short-term)	**Level I** – Potential effect is readily reversible over a relatively short period (< than eight years).
	Reversible (long-term)	**Level II** - Potential effect is potentially reversible but over a long period (> than eight years).
	Irreversible	**Level III** - Project-specific potential effects are permanent and irreversible.
Ecological and Social Context (resilience of a VC to adapt to changes as a result of the project)	Low	**Level I** – The VC is not rare or unique and is resilient to imposed change. Social – Indigenous people/communities in the RAA are able to adapt with relative ease and maintain pre-project development activities.
	Moderate	**Level II** – The VC is moderately/seasonally fragile and has some capacity to adapt to imposed change. Social - Indigenous people/communities in the RAA are able to adapt with some adjustments and maintain pre-project development activities but only with a degree of support.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
	High	**Level III** – The VC is a protected/designated species under MESEA, SARA and species listed by COSEWIC and by the MBCDC as very rare (S1) to rare (S2) or fragile with low resistance to imposed change or part of a very fragile ecosystem. Social - affected Indigenous people/ communities in the RAA will not be able to adapt to changes or maintain-pre-project development activities.

APPENDIX IR1-84-3

Description of Magnitude Criteria and VC Specific Levels of Potential Environmental Effects (Table 4.5 from Chapter 4 of the Project EIS)

Component	Factor	Level I	Level II	Level III
Physical Environment	Air Quality	Emissions are above the baseline but are within CCME Canadian Ambient Air Quality Standards and Manitoba Ambient Air Quality Objectives and Guidelines criteria	Emissions have the potential to exceed Canadian Ambient Air Quality Standards or Manitoba Ambient Air Quality Objectives and Guidelines criteria resulting in the potential for adverse environmental effects to resources (land, water, biota) or residents.	Emissions are likely to exceed Canadian Ambient Air Quality Standards or Manitoba Ambient Air Quality Objectives and Guidelines criteria resulting in unacceptable adverse environmental effects to resources (land, water, biota) or residents.
	Climate	Greenhouse gas emissions of <0.1% of Canada's 2030 target CO2 emission rate of 523 Mt/a.	Greenhouse gas emissions of 0.1 to 1.0% of Canada's 2030 target CO2 emission rate of 523 Mt/a.	Greenhouse gas emissions of >1.0% of Canada's 2030 target CO2 emission rate of 523 Mt/a.
	Terrain, Soils and Geology	Effects considered minor and any soil alteration, loss or contamination is within CCME Soil Quality Guidelines for the Protection of Environmental and Human Health	Any soil alteration, loss or contamination has the potential to exceed a CCME Soil Quality Guidelines for the Protection of Environmental and Human Health resulting in the potential for adverse environmental effects.	Any soil alteration, loss or contamination exceeds CCME Soil Quality Guidelines for the Protection of Environmental and Human Health resulting in unacceptable adverse environmental effects.

Component	Factor	Level I	Level II	Level III
	Water Quality - Surface	Water quality effects in receiving waters are within CCME Water Quality Guidelines for Protection of Aquatic Life and Manitoba Water Quality Standards, Objective and Guidelines; or if guidelines exceeded, no anticipated adverse environment effects beyond any defined mixing zones.	Water quality effects in receiving waters exceed CCME Water Quality Guidelines for Protection of Aquatic Life, Manitoba Water Quality Standards, Objective and Guidelines and have the potential to adversely affect drinking water uses, aquatic life and/or wildlife, beyond any defined mixing zones.	Water quality effects in receiving waters exceed CCME Water Quality Guidelines for Protection of Aquatic Life, Manitoba Water Quality Standards, Objective and Guidelines and guidelines and are likely to adversely affect drinking water uses, aquatic life and/or wildlife, beyond any defined mixing zones, likely resulting in unacceptable adverse environmental effects.
	Water Quantity - Surface	Change to creek and river flows is within the range of natural variation or <15% of the seasonal average.	Change to creek and river flows is outside the range of natural variation and 15 to 25% of seasonal average.	Change to creek and river flows is outside the range of natural variation and >25% of seasonal average.
Physical Environment	Water Quality - Ground	Water quality effects in receiving waters are within applicable federal and provincial regulations and guidelines; or if guidelines exceeded, no anticipated adverse environment effects.	Water quality effects in receiving waters exceed applicable federal and provincial regulations and guidelines and have the potential to adversely affect drinking water uses.	Water quality effects in receiving waters exceed applicable federal and provincial regulations and guidelines and are likely to adversely affect drinking water uses, likely resulting in an unacceptable adverse effect.
	Water Quantity - Ground	Change to groundwater fed creek or river flows or well production is <15% of seasonal average.	Change to groundwater fed creek or river flows or well production is 15 to 25% of seasonal average.	Change to groundwater fed creek or river flows or well production is >25% of seasonal average.

Component	Factor	Level I	Level II	Level III
Biological Environment	Aquatic Environment (aquatic life, fish and fish habitat)	In water work or structures necessary but no net loss of the productive capacity of fish habitat and no measurable reduction to fish communities or populations.	In water work or structures necessary resulting in a net loss of the productive capacity of fish habitat affecting local fish communities and populations.	In water work or structures necessary resulting in a net loss of the productive capacity of fish habitat affecting fish communities and populations.
	Aquatic Species at Risk – Lake Sturgeon	In water work or structures necessary but the effect is considered minor, habitat alteration/loss is restricted to non-limiting habitat and considered to be minor relative to availability.	In water work or structures necessary and will have a potential measurable effect on individuals, such as displacement of critical life stages (can be detected with a well-designed monitoring program). The potential effect is considered to be minor relative to population size or habitat availability and does not affect limiting habitat.	In water work or structures necessary and will have potential effects on individuals such as mortality, that are easily observed, measured and described (readily detectable without a monitoring program) and affects limiting habitat.
	Vegetation and Wetlands	Effect considered minor (only affecting common species or communities).	Activity has the potential to measurably affect vegetation communities or species but the effect is limited to common species or communities.	Activity is likely to measurably affect vegetation communities or species and may affect rare or protected species.
	Wildlife and Wildlife Habitat, including: • Amphibians and Reptiles • Migratory birds • Furbearers Large game	A change that is not likely to have a definable, detectable or measurable potential effect and considered to occur at the individual level, not affecting population or habitat availability.	A change that will have a potential measurable effect on populations (readily detected with a well- designed monitoring program) and considered to be moderate relative to habitat availability.	A change that will have potential population effects that are easily observed, measured and described (readily detectable without a monitoring program) and considered to have a major effect on habitat availability.

Component	Factor	Level I	Level II	Level III
Biological Environment	Wildlife Species at Risk	Effect is considered minor, habitat alteration/loss is limited to non-critical habitat and considered to be minor relative to availability.	A change that will have a potential measurable effect on individuals, such as displacement critical life stages (can be detected with a well-designed monitoring program). The potential effect is considered to be minor relative to habitat availability and does not affect critical habitat.	A change that will have potential effects on individuals such as mortality or destruction of nests, that are easily observed, measured and described (readily detectable without a monitoring program) and affects critical habitat.
Indigenous People (how changes to the environment as a result of the Project will affect activities exercised)	Socio-economic conditions including the use of navigable waters, recreational use and commercial fishing, hunting, trapping and gathering activities.	Indigenous people/communities in the RAA are able to adapt with relative ease and maintain pre-project development activities.	Indigenous people/communities in the RAA are able to adapt with some adjustments and maintain pre-project development activities but only with a degree of support.	Affected Indigenous people/communities in the RAA will not be able to adapt to changes or maintain pre-development activities.
Human Environment (how changes to the environment as a result of the Project will affect land use)	Current land use in the area including commercial activities, use of waterways and outdoor recreation.	Current land uses in the RAA are able to continue with relative ease and maintain pre-project development levels.	Current land uses in the RAA are able to continue with some adaptation and maintain pre-project development levels but only with a degree of support.	Current land uses in the in the RAA will not be able to continue and maintain pre-project development levels.
	Human Health (noise, air quality, drinking and recreational water quality and country foods).	Selected parameter changes by <10% from baseline conditions within the RAA.	Selected parameter changes by 10 to 20% from baseline conditions within the RAA.	Selected parameter changes by >20% from baseline conditions within the RAA.

Component	Factor	Level I	Level II	Level III
Human Environment (how changes to the environment as a result of the Project will affect land use	Physical and cultural heritage and structures, sites or things of historical, archaeological, paleontological or architectural significance	Resources are disturbed by the proposed Project and are recoverable.	Resources of local importance are disturbed by the proposed Project and are not recoverable.	Resources of regional/national importance are disturbed by the proposed Project and are not recoverable.

REFERENCES

SNC Lavalin. 2011. East Side of Lake Winnipeg (ESLW) Large Area Transportation Network Study. https://www.gov.mb.ca/mti/hpd/environment/pdf/project6/baseline/final_report.pdf. Accessed March 2025.

HTFC. 2017a. East Side Road Project 6. Manto Sipi Cree Nation: Traditional Knowledge Study for the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation.

HTFC. 2017b. East Side Road Project 6. God's Lake First Nation: Traditional Knowledge Study for the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation.

HTFC. 2017c. East Side Road Project 6. God's Lake Narrows: Traditional Knowledge Study for the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation.

HTFC. 2017d. East Side Road Project 6. Bunibonibee Cree Nation: Traditional Knowledge Study for the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation.

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-85

EIS Guideline Reference	• Part 2, Section 6.3.4
EIS Reference	• Chapter 6, Section 6.3.4.5
Category	Indigenous Health and Socioeconomic Conditions

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe how changes to the environment caused by the Project may affect the health and socioeconomic conditions of Indigenous peoples.

Indigenous groups, including BCN, MSCN, GLFN, and Pimicikamak Okimawin, have expressed concerns regarding the potential for the Project to facilitate easier access to drugs and alcohol into their communities. In response to this concern, the EIS indicates that these are issues for law enforcement to address and no further information is provided. While mitigation measures to address these potential Project effects may be outside of the care and control of the proponent, the EIS must describe how changes to the environment caused by the Project may affect the health and socioeconomic conditions of Indigenous peoples, including the potential for increased access to drugs and alcohol as a result of the Project.

Based on past experiences from other similar ASR projects, MSCN also expressed concerns regarding the following potential Project effects, which have not been discussed in the EIS:

- increased criminal activity;
- negative interactions with workers from outside of local Indigenous communities;
- increased prevalence and spread of diseases from outside workers; and
- increased violence against community members, particularly women.

Supplementary information is required to support the proponent's characterization of potential Project effects to the health and socioeconomic conditions of Indigenous peoples.

See Annex I for related advice.

INFORMATION REQUEST

a) Describe and provide a clear rationale for all conclusions with respect to Project effects to the health and socioeconomic conditions of Indigenous peoples, including all groups listed in Part 2, Section 5.1 of the EIS Guidelines, as a result of potential:
   i. increased access to drugs and alcohol in communities, facilitated by the Project;
   ii. increased criminal activity due to an influx of outside workers and/or increased access to drugs and alcohol;
   iii. negative interactions with workers from outside of local Indigenous communities;
   iv. increased prevalence and spread of diseases from outside workers; and
   v. increased violence against community members, particularly women.

b) Revise the assessment of potential Project effects, residual effects, and cumulative effects for Indigenous peoples to include any potential adverse effects identified in a).

RESPONSE

a) The potential Project effects regarding health and socioeconomic conditions of Indigenous peoples does include risks associated with an influx of workers, including the potential for increased access to drugs and alcohol, criminal activity, and negative interactions between Indigenous communities and outside workers. There is also concern about the spread of diseases from workers to community members, and the potential for increased violence. As stated in Chapter 6 of the Environmental Impact Statement (EIS), Manitoba Transportation and Infrastructure's (MTI) role is to design and build the road in a manner that minimizes impacts to the environment and people.

To minimize potential adverse project-related effects, MTI will require all of its employees and contractors employed to construct and maintain the Project to attend Indigenous Awareness Training, as requested by Manto Sipi Cree Nation (MSCN), to help reduce and avoid conflicts between Indigenous and non-Indigenous employees. MTI is committed to working in partnership with local communities, their leadership (Chief and Council) and Elders to forge engagement processes that reflect the priorities of each community. MTI intends to use feedback received through ongoing engagement activities to assist with decision-making with respect to Project planning and schedule, as well as to help avoid or minimize potential adverse effects and maximize benefits and opportunities.

During construction camp operation, the presence of the temporary camp workforce would be the primary effect pathway for potential effects on Indigenous health and well-being, particularly those that are close to the road. The nearest residences are approximately 250 m in MSCN, 1.5 km in Bunibonibee Cree Nation (BCN) and God's Lake First Nation (GLFN) and 3 km in God's Lake Narrows Northern Affairs Community. Potential stress and disturbance may occur because of the presence of these camps, especially at the peak of construction since many workers will be

residing in these facilities. Although these effects may persist throughout the camp's operation, they are reversible once the construction phase is complete.

There is also a risk of disease transmission from the workforce to Indigenous communities, including respiratory diseases, gastrointestinal diseases, rashes and STDs. The potential pathways for disease spread include exposure at a workcamp or construction site that is experiencing an infection outbreak, community transmission, and person to person direct contact. Although Contractors will be responsible for the preparation and implementation of health and safety plans, MTI will follow the guidelines set by the Canadian Centre for Occupational Health and Safety (CCOHS) about COVID-19 and work camps (CCOHS, 2020). During construction, concerns of Indigenous Nations regarding the Project workforce can be raised to MTI through ongoing engagement, regular update meetings or community contacts so that these can be address as best possible.

MTI is committed to ongoing dialogue with Indigenous communities regarding concerns about increased gang-related influences, including the spread of drugs and alcohol, and working within its jurisdiction to assist communities where possible. Communities have options to further reduce potential effects, such as establishing a checkpoint to monitor and regulate the entry of visitors, drugs, alcohol, and contraband into the communities.

In addition to these measures, MTI will continue to consult with the Indigenous groups to identify and address any additional effects to well-being, health, and socio-economic conditions created as a result of the Project.

b) Revision of the assessment of potential Project effects, residual effects, and cumulative effects for Indigenous peoples will not be necessary as the concerns have been addressed through mitigation measures outlined in Chapter 6, Appendix 6-4, Chapter 7, Appendix 7-1 of the EIS, and response IR1-84. These measures include providing updates to local communities regarding location and timing of construction and maintenance activities, developing and implementing Site Health and Safety Plans prior to construction and conducting regular site safety meetings and inspections. While some of the issues raised can be mitigated, many are opinions and perceptions that may not be as easily addressed through specific actions and are reflective of societal issues and concerns. Many of these topics can be associated with roads and construction projects, and as previously mentioned in Chapter 5 of the EIS, are law enforcement items to be discussed between Chief and Council, the RCMP and Manitoba Environment and Climate.

REFERENCES

Canadian Centre for Occupational Health and Safety (CCOHS). 2020. Coronavirus (COVID-19)- Tips- Work Camps. Available at: https://www.ccohs.ca//images/products/pandemiccovid19/pdf/work_camps.pdf

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-86

EIS Guideline Reference	• Part 2, Section 5.1 and 6.3.4
EIS Reference	• Chapter 6, Section 6.2.5.1.5 and 6.3.5
Category	Indigenous Health and Socioeconomic Conditions

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe how changes to the environment caused by the Project may affect the health and socioeconomic conditions of Indigenous peoples.

The EIS indicates that the Project may increase the risk of wildfires in the Project footprint, LAA, and RAA. The EIS does not describe how an increased risk of wildfires may affect Indigenous community services, such as fire response services and medical services, including the ability of Indigenous community members to access these services and the ability of existing services to accommodate the increased risk of wildfire and associated demands on resources.

Supplementary information is required to support the proponent's characterization of potential Project effects to Indigenous health and socioeconomic conditions.

INFORMATION REQUEST

a) Describe potential effects to community services, including fire response and medical services, should the Project result in increased wildfire frequency for each potentially impacted Indigenous group. This must include a description of potential effects to Indigenous peoples' ability to access these services and the capacity of these services to accommodate increased demands that may be associated with the Project.
b) Describe mitigation measures that will be implemented to address any adverse effects identified in a) and follow-up and monitoring that will be conducted to confirm predictions, assess the effectiveness of mitigation measures, and monitor for any unanticipated effects.
c) Revise the residual and cumulative effects assessments for Indigenous health and socioeconomic conditions to include effects to community services resulting from potential increased wildfire occurrences that may be associated with the Project.

RESPONSE

a) The potential effects of the Project on community services, such as fire response and medical services, could vary depending on the phase of the Project, but it is important to note that the effect of naturally occurring wildfire applies both with and without the Project. Wildfires could occur sporadically throughout the life of the Project and have the potential to cover large areas and therefore extend beyond the Local Assessment Area (LAA) into the Regional Assessment Area (RAA). During the construction phase, these effects could be more severe, as communities would still rely heavily on aerial transportation for emergency evacuations. In the event of a wildfire, evacuating people to nearby communities or cities (Winnipeg/Thompson) for medical treatment could be challenging due to smoky conditions that prevent aircraft visibility. This reliance on air transport could lead to delays in emergency response. In the event of a wildfire, communities with larger population densities, like Bunibonibee Cree Nation may face significant pressure if evacuation is needed, while communities like Manto Sipi Cree Nation might manage evacuations more efficiently due to smaller community population.

However, once the road is built between the three communities, the situation is anticipated to improve considerably. The new road would allow for quicker emergency responses from nearby communities and opportunities for a firefighting ground response, significantly enhancing the capacity to handle emergencies. Therefore, the proposed road will benefit from increased access to regional firefighting resources and provide opportunities to deploy firefighting resources along the all-season road alignment. The proposed road would also provide additional options should an evacuation of a particular community be required. In this scenario, community members could choose to drive to a neighbouring community to seek shelter or access that other community's airport to leave the region.

The road would facilitate faster transfers of patients to external health care facilities, reducing the risks associated with delays in medical treatment. Additionally, the improved access could potentially lead to further infrastructure and emergency services development within these communities.

During the construction phase, Emergency Response Plans will be developed by contractor(s) prior to construction, which will outline specific procedures for handling unanticipated emergency situations. This plan will comply with provincial Workplace Safety and Health regulations and will include fire response methods and emergency measures to be implemented in the event of a wildfire.

Overall, while there are potential adverse effects on community services during the construction phase, the long-term benefits of the Project, including improved emergency response capabilities and better access to health care, are expected to outweigh these challenges. The road will ultimately enhance the overall safety and well-being of the communities by providing more reliable access to essential services and resources.

b) Mitigation measures include the development of an Emergency Response Plan by the contractor, which will detail procedures for various emergency situations, including wildfires. Other mitigation measures focusing on wildfire prevention are outlined in Appendix 6-4 of the EIS, which include:

- Combustible materials and explosives will be stored and handled in a safe manner (EP2 and ES 130.9).
- Burning will only be done under controlled conditions (monitored), according to burning permits and avoid windy and dry conditions (EP1, EP15 and ES 130.20).
- Wildfires will be immediately reported to MSD and construction activities stopped until safe to resume (ES 130.20.11).
- Reasonable attempts will be made to extinguish wildfires (ES 130.20.12)

As described in Chapter 6, Section 6.4.5.1.5 of the EIS, other mitigation measures to reduce the potential for wildfires due to construction and maintenance activities include only conducting burning under controlled (monitored) conditions and in adherence to EP1 (Clearing and Grubbing), EP15 (Wildfires) and (ES 130.20 Wildfires).

Prior to the commencement of construction, an evacuation and emergency preparedness plan addressing wildfires would be prepared by the contractor for their crews. The decision to evacuate or respond to an emergency or wildfire would be made by or based on current conditions or emergency orders. Cleared and grubbed material that is to be burned shall be piled for burning and located a minimum of 15m from other wood and brush piles and standing timber. No burning of debris piles shall occur on deep organic soils. No fire would be started without first taking sufficient precautions to ensure that the fire can be kept under control. Burning would be limited during the dry season (April 1 to November 15) and only done with a burning permit obtained from MSD. All conditions imposed by the burning permit would be adhered to.

It is MTI's understanding that Indigenous Services Canada is responsible for funding and working with Indigenous Nations communities to mitigate against, prepare for, respond to and recover from emergencies, including wildfires. However, in the event of an emergency the province of Manitoba will work with Indigenous communities and the government of Canda to the degree possible.

Monitoring and reporting wildfires will occur during construction, as the risk from the Project is highest at this time. Additional site-specific monitoring may be conducted if needed to ensure early detection and response. MTI will monitor the implementation of emergency response procedures to ensure their effectiveness. Additionally, communication and coordination with Indigenous communities and local authorities will be maintained to adapt emergency response plans to the specific needs of each community should a wildfire occur. These procedures will be revised as required throughout construction.

c) As discussed in the EIS, the residual effects on community services resulting from increased wildfire risks were anticipated to be minimal. MTI recognizes that these services, such as emergency response, may face additional pressure due to the increased potential of wildfires during Project activities. While the effects may extend beyond the Local Assessment Area, the implementation of mitigation measures, including wildfire monitoring and reporting, ongoing communication, coordination with Indigenous communities, and the enforcement of the wildfire-related specifications of the Environmental Protection Plan and Environmental Projection Specifications (Appendices 8-2 and 8-3 in Chapter 8 of the EIS), along with the contractor's Emergency Response Plan will help minimize the potential for wildfires. Although the possibility of increased wildfires exists, the expected effects are likely to be infrequent, sporadic, and more readily mitigated through the presence of the road.

Fire prevention efforts will be reinforced through the application of appropriate fire codes during construction and maintenance activities. Provincial fire hazard and risk assessments will also guide construction and maintenance activities during the forest fire season. Given these preventative and emergency response measures, the magnitude of the effects is expected to be low.

Once the road is built, the improved access provided by the new road will enable faster connections to medical facilities and increased access to firefighting resources, thereby reducing overall risks to community services and enhancing the long-term health and socioeconomic conditions of the affected Indigenous communities. A summary of the effects assessment regarding potential impacts on community services due to increased wildfire occurrences is provided in Appendix IR1-86-1. Appendix IR1-86-2 and Appendix IR1-86-3, provide tables to describe the criteria used for Appendix IR1-86-1, and are reproductions of Tables 4.4 and 4.5 from Chapter 4 of the EIS.

APPENDIX IR1-86-1

Selection of Appendix 7-1 from the Project 6 Environmental Impact Statement: Environmental assessment summary table showing the assessment of Indigenous Health and Socioeconomic conditions due to wildfires.

Assessment of potential, residual and cumulative Project Effects for Indigenous Health and Socioeconomic Conditions												
Factor	**Project Activity**	**Potential Effects**	**Proposed Mitigation**	**Residual Effects**	**Key criteria for determining significance[1]**							**Significance of Residual Effect**
					Duration	**Magnitude**	**Timing**	**Extent**	**Frequency**	**Reversibility**	**Ecological and Social Context**	
Indigenous Health and Socioeconomic Conditions	Blasting, burning and use of equipment during construction and maintenance	Increased risk of wildfires from fires and explosions, affecting community services, including fire response and medical services	• Combustible materials and explosives will be stored and handled in a safe manner (EP2 and ES 130.9) • Burning will only be done under controlled conditions (monitored), according to burning permits and avoid windy and dry conditions (EP1, EP15 and ES 130.20) • Wildfires will be immediately reported to MSD and construction activities stopped until safe to resume (ES 130.20.11) • Reasonable attempts will be made to extinguish wildfires (ES 130.20.12) • Continuous communication and coordination with Indigenous communities and local authorities	Increased wildfire risk from fires and explosions can increase demand on fire and medical services, limiting access for Indigenous communities.	Long-Term, life of Project	Indigenous communities in the Indigenous/Resource Use RAA may face moderate challenges in accessing fire and medical services but are likely able to adapt following mitigation measures.	N/A	Effect may extend beyond the LAA	Sporadic	Reversible over a long period	No adverse ecosystem and social effects	Not Significant
					Level III	Level II	N/A	Level III	Level II	Level II	Level I	

[1] The description of assessment criteria and levels of potential environmental effects were provided in Chapter 4 Table 4.4 of the Environmental Impact Statement, but are also included in Appendix IR1-86-2 of this response.

APPENDIX IR1-86-2

Description of assessment criteria and levels of potential environmental effects (Table 4.4 from Chapter 4 of the Project EIS)

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
Direction of Change (type of effect)	Neutral or Negligible	No measurable change on the VC.
	Negative	Net loss (adverse or undesirable change) on the VC.
	Positive	Net benefit (or desirable change) on the VC.
Duration (period of time the effect occurs)	Short-Term	**Level I** - The potential effect results from short-term events or activities such as the time required to complete a discrete component during construction, maintenance, or rehabilitation activities (i.e., a timeframe of several months up to one year).
	Medium-Term	**Level II** - The potential effect is likely to persist until the completion of construction and rehabilitation activities (i.e., > 1 year to 10 years).
	Long-Term	**Level III** -The potential effect is likely to persist beyond the completion of construction and rehabilitation activities into the operations and maintenance phase of the Project (i.e., a timeframe of greater than 10 years).
Magnitude (degree or intensity of the change)	Negligible or Low	**Level I** - A change that is not likely to have a definable, detectable or measurable potential effect above baseline (i.e., potential effect is within a normal range of variation) or is below established thresholds of acceptable change (e.g., water quality guideline). See **Table 4.5** for VC specific criteria.
	Moderate	**Level II** – A change that will have a potential measurable effect that can be detected with a well-designed monitoring program; but is only marginally beyond standards/guidelines or established thresholds of

[2] **Chapter 6** of the Environmental Impact Statement outlines VC specific definitions for the three level ranking system.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
		acceptable change. See **Table 4.5** for VC specific criteria.
	High	**Level III** – A change that will have potential effects that are easily observed, measured, and described (i.e., readily detectable without a monitoring program) and are well beyond guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
Timing[3]	No Sensitivity	**Level I** – Effect does not occur during critical life stage.
	Moderate Sensitivity	**Level II** – Effect occurs at the start or end of a critical life stage.
	High Sensitivity	**Level III** – Effect occurs during a critical life stage.
Extent (Spatial Boundary)[4]	Project Footprint	**Level I** - The physical space or directly affected area on which Project components or activities are located and/or immediately adjacent area which is within the defined limits of the P6 all-season road ROW (i.e., 100 m) and permanent and temporary facilities (e.g., temporary access routes and quarries) within which potential effects are likely to be measurable.
	LAA	**Level II** - Area within which potential Project effects are measurable and extending beyond the Project Footprint to, but not beyond, the LAA (either a 2 km or 10 km corridor centred on the all-season road alignment depending on the VC (**Figure 4-1**).
	RAA	**Level III** - The maximum anticipated regional extent of potential direct, indirect and cumulative effects that may

[3] In terms of **Timing**, the critical life stages include things such as nesting, breeding, spawning and calving which will vary by VC and will vary annually depending on seasonal conditions. For example, it is clear that winter is outside of bird nesting and breeding period and that spring is fully within this critical time period, whereas early spring and late fall is a transitional period that depending on the seasonal conditions may or may not affect the life stage.

[4] Environmental Impact Statement **Figures 4-1** and **4-2** illustrate the VC specific spatial boundaries of the LAA and RAA, which are discussed in greater detail in **Chapter 6**.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
		extend beyond the LAA. The boundaries of the RAA will vary depending on the VC.
Frequency (how often the effect occurs)	Infrequent	**Level I** - The potential effect occurs once or seldom during the life of the Project (e.g., initial clearing of the ROW).
	Sporadic/Intermittent	**Level II** - The potential effect occurs only occasionally and without any predictable pattern during the life of the Project (e.g., blasting at quarries; site-specific construction equipment noise; potential wildlife-vehicle collisions).
	Regular/Continuous	**Level III** – The potential effect occurs at regular and frequent intervals during the Project phase in which they occur or over the life of the Project (e.g., construction traffic; operations traffic).
Reversibility (the degree of permanence)	Reversible (short-term)	**Level I** – Potential effect is readily reversible over a relatively short period (< than eight years).
	Reversible (long-term)	**Level II** - Potential effect is potentially reversible but over a long period (> than eight years).
	Irreversible	**Level III** - Project-specific potential effects are permanent and irreversible.
Ecological and Social Context (resilience of a VC to adapt to changes as a result of the project)	Low	**Level I** – The VC is not rare or unique and is resilient to imposed change. Social – Indigenous people/communities in the RAA are able to adapt with relative ease and maintain pre-project development activities.
	Moderate	**Level II** – The VC is moderately/seasonally fragile and has some capacity to adapt to imposed change. Social - Indigenous people/communities in the RAA are able to adapt with some adjustments and maintain pre-project development activities but only with a degree of support.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[2]
	High	**Level III** – The VC is a protected/designated species under MESEA, SARA and species listed by COSEWIC and by the MBCDC as very rare (S1) to rare (S2) or fragile with low resistance to imposed change or part of a very fragile ecosystem. Social - affected Indigenous people/ communities in the RAA will not be able to adapt to changes or maintain-pre-project development activities

APPENDIX IR1-86-3

Description of Magnitude Criteria and VC Specific Levels of Potential Environmental Effects (Table 4.5 from Chapter 4 of the Project EIS)

Component	Factor	Level I	Level II	Level III
Physical Environment	Air Quality	Emissions are above the baseline but are within CCME Canadian Ambient Air Quality Standards and Manitoba Ambient Air Quality Objectives and Guidelines criteria	Emissions have the potential to exceed Canadian Ambient Air Quality Standards or Manitoba Ambient Air Quality Objectives and Guidelines criteria resulting in the potential for adverse environmental effects to resources (land, water, biota) or residents.	Emissions are likely to exceed Canadian Ambient Air Quality Standards or Manitoba Ambient Air Quality Objectives and Guidelines criteria resulting in unacceptable adverse environmental effects to resources (land, water, biota) or residents.
	Climate	Greenhouse gas emissions of <0.1% of Canada's 2030 target CO2 emission rate of 523 Mt/a.	Greenhouse gas emissions of 0.1 to 1.0% of Canada's 2030 target CO2 emission rate of 523 Mt/a.	Greenhouse gas emissions of >1.0% of Canada's 2030 target CO2 emission rate of 523 Mt/a.
	Terrain, Soils and Geology	Effects considered minor and any soil alteration, loss or contamination is within CCME Soil Quality Guidelines for the Protection of Environmental and Human Health	Any soil alteration, loss or contamination has the potential to exceed a CCME Soil Quality Guidelines for the Protection of Environmental and Human Health resulting in the potential for adverse environmental effects.	Any soil alteration, loss or contamination exceeds CCME Soil Quality Guidelines for the Protection of Environmental and Human Health resulting in unacceptable adverse environmental effects.

Component	Factor	Level I	Level II	Level III
	Water Quality - Surface	Water quality effects in receiving waters are within CCME Water Quality Guidelines for Protection of Aquatic Life and Manitoba Water Quality Standards, Objective and Guidelines; or if guidelines exceeded, no anticipated adverse environment effects beyond any defined mixing zones.	Water quality effects in receiving waters exceed CCME Water Quality Guidelines for Protection of Aquatic Life, Manitoba Water Quality Standards, Objective and Guidelines and have the potential to adversely affect drinking water uses, aquatic life and/or wildlife, beyond any defined mixing zones.	Water quality effects in receiving waters exceed CCME Water Quality Guidelines for Protection of Aquatic Life, Manitoba Water Quality Standards, Objective and Guidelines and guidelines and are likely to adversely affect drinking water uses, aquatic life and/or wildlife, beyond any defined mixing zones, likely resulting in unacceptable adverse environmental effects.
	Water Quantity - Surface	Change to creek and river flows is within the range of natural variation or <15% of the seasonal average.	Change to creek and river flows is outside the range of natural variation and 15 to 25% of seasonal average.	Change to creek and river flows is outside the range of natural variation and >25% of seasonal average.
Physical Environment	Water Quality - Ground	Water quality effects in receiving waters are within applicable federal and provincial regulations and guidelines; or if guidelines exceeded, no anticipated adverse environment effects.	Water quality effects in receiving waters exceed applicable federal and provincial regulations and guidelines and have the potential to adversely affect drinking water uses.	Water quality effects in receiving waters exceed applicable federal and provincial regulations and guidelines and are likely to adversely affect drinking water uses, likely resulting in an unacceptable adverse effect.
	Water Quantity - Ground	Change to groundwater fed creek or river flows or well production is <15% of seasonal average.	Change to groundwater fed creek or river flows or well production is 15 to 25% of seasonal average.	Change to groundwater fed creek or river flows or well production is >25% of seasonal average.

Component	Factor	Level I	Level II	Level III
Biological Environment	Aquatic Environment (aquatic life, fish and fish habitat)	In water work or structures necessary but no net loss of the productive capacity of fish habitat and no measurable reduction to fish communities or populations.	In water work or structures necessary resulting in a net loss of the productive capacity of fish habitat affecting local fish communities and populations.	In water work or structures necessary resulting in a net loss of the productive capacity of fish habitat affecting fish communities and populations.
	Aquatic Species at Risk – Lake Sturgeon	In water work or structures necessary but the effect is considered minor, habitat alteration/loss is restricted to non-limiting habitat and considered to be minor relative to availability.	In water work or structures necessary and will have a potential measurable effect on individuals, such as displacement of critical life stages (can be detected with a well-designed monitoring program). The potential effect is considered to be minor relative to population size or habitat availability and does not affect limiting habitat.	In water work or structures necessary and will have potential effects on individuals such as mortality, that are easily observed, measured and described (readily detectable without a monitoring program) and affects limiting habitat.
	Vegetation and Wetlands	Effect considered minor (only affecting common species or communities).	Activity has the potential to measurably affect vegetation communities or species but the effect is limited to common species or communities.	Activity is likely to measurably affect vegetation communities or species and may affect rare or protected species.
	Wildlife and Wildlife Habitat, including: Amphibians and Reptiles Migratory birds Furbearers Large game	A change that is not likely to have a definable, detectable or measurable potential effect and considered to occur at the individual level, not affecting population or habitat availability.	A change that will have a potential measurable effect on populations (readily detected with a well-designed monitoring program) and considered to be moderate relative to habitat availability.	A change that will have potential population effects that are easily observed, measured and described (readily detectable without a monitoring program) and considered to have a major effect on habitat availability.

Component	Factor	Level I	Level II	Level III
Biological Environment	Wildlife Species at Risk	Effect is considered minor, habitat alteration/loss is limited to non-critical habitat and considered to be minor relative to availability.	A change that will have a potential measurable effect on individuals, such as displacement critical life stages (can be detected with a well-designed monitoring program). The potential effect is considered to be minor relative to habitat availability and does not affect critical habitat.	A change that will have potential effects on individuals such as mortality or destruction of nests, that are easily observed, measured and described (readily detectable without a monitoring program) and affects critical habitat.
Indigenous People (how changes to the environment as a result of the Project will affect activities exercised)	Socio-economic conditions including the use of navigable waters, recreational use and commercial fishing, hunting, trapping and gathering activities.	Indigenous people/communities in the RAA are able to adapt with relative ease and maintain pre-project development activities.	Indigenous people/communities in the RAA are able to adapt with some adjustments and maintain pre-project development activities but only with a degree of support.	Affected Indigenous people/communities in the RAA will not be able to adapt to changes or maintain pre- development activities.
Human Environment (how changes to the environment as a result of the Project will affect land use)	Current land use in the area including commercial activities, use of waterways and outdoor recreation.	Current land uses in the RAA are able to continue with relative ease and maintain pre-project development levels.	Current land uses in the RAA are able to continue with some adaptation and maintain pre-project development levels but only with a degree of support.	Current land uses in the in the RAA will not be able to continue and maintain pre-project development levels.
	Human Health (noise, air quality, drinking and recreational water quality and country foods).	Selected parameter changes by <10% from baseline conditions within the RAA.	Selected parameter changes by 10 to 20% from baseline conditions within the RAA.	Selected parameter changes by >20% from baseline conditions within the RAA.

Component	Factor	Level I	Level II	Level III
Human Environment (how changes to the environment as a result of the Project will affect land use	Physical and cultural heritage and structures, sites or things of historical, archaeological, paleontological or architectural significance	Resources are disturbed by the proposed Project and are recoverable.	Resources of local importance are disturbed by the proposed Project and are not recoverable.	Resources of regional/national importance are disturbed by the proposed Project and are not recoverable.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-87

EIS Guideline Reference	• Part 2, Section 5.1 and 6.3.4
EIS Reference	• Chapter 3, Section 3.1.4.14 • Chapter 6, Section 6.2.1.3, 6.2.5.1.1, and 6.3.4
Category	Indigenous Health and Socioeconomic Conditions

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe how changes to the environment caused by the Project may affect the socioeconomic conditions of Indigenous peoples, including recreational use, employment, and potential Project benefits.

The EIS indicates that recreation areas identified by BCN, MSCN, and GLFN are not anticipated to be adversely affected by the Project as the nearest recreation area is located approximately 700 metres from the ASR. The EIS also indicates that potential Project effects to certain VCs may extend into the LAA, the radius of which extends between two kilometres and 20 kilometres from the ASR, depending on the VC. As such, the Project may result in adverse effects to recreation areas identified by BCN, MSCN, and GLFN.

The EIS indicates that Indigenous groups will benefit economically from the Project as MI will require a percentage of construction tenders to be supplied from local content (e.g. equipment, services, employment), including from Indigenous communities should they be interested. No details are provided regarding which communities MI will offer contracts to, which groups have requested contracts, the target percentage of the Project workforce and/or construction tenders to be sourced from Indigenous groups, or training that will be provided to increase opportunities for Indigenous peoples' employment. With regard to the distribution of potential Project benefits, BCN expressed concerns that, although the Project may provide employment and economic benefits to some members of the community, benefits may not be realized by the community as a whole, resulting in further internal economic division.

GLFN also expressed concerns that construction/operation of the Project and increased access may lead to a demotion of the status of local Indigenous groups from "remote" to "semi-remote", with an accompanying decrease in government funding for the community. As noted in the EIS,

many Indigenous peoples living in local communities in the area of the Project rely on government funding as their primary source of income due to low employment rates. As such, the Project may result in adverse socio-economic effects should it result in a funding decrease.

The EIS also states that operation of the Project will result in overall long-term positive effects on local trapping income, as the ASR would increase access to certain areas for trapping activities. Although easier access to certain previously remote areas may be facilitated by the Project, this may not necessarily correlate to increased trapping income. As noted in the EIS, many species previously trapped for income are no longer trapped or trapped less frequently due to very low pelt prices.

Supplementary information is required to support the proponent's characterization of potential Project effects to the socioeconomic conditions of Indigenous peoples.

INFORMATION REQUEST

a) Compare the distance of recreation areas directly with the radius of anticipated effects of the Project, to reconcile or describe why recreation areas that are approximately 700 metres away would not experience effects that could extend as far as 2 to 20 kilometres from the Project footprint.
b) Should the potential exist for Project effects to overlap with recreation areas identified by Indigenous groups, describe potential effects to these areas. This must include a consideration of potential effects to the physical environment and potential effects to the practice of recreational activities in these areas.
c) Indicate which Indigenous communities MI plans to offer contracts to with regard to the provision of local equipment, services, and employment. If this does not include all Indigenous groups listed under Part 2, Section 5.1 of the EIS Guidelines, provide a rationale as to why.
d) Indicate the target percentage of the Project workforce and/or construction tenders to be sourced from Indigenous groups. Describe any training opportunities that may be provided to Indigenous peoples to increase opportunities for Indigenous peoples' employment, including employment related to construction and operation of the Project.
e) Clarify if the construction of the Project would lead to a change from "remote" to "semi-remote" for any Indigenous community. Indicate whether construction/operation of the Project may result in a reduction in government funding for each of the Indigenous groups listed in Part 2, Section 5.1 of the EIS Guidelines.
    i. If so, describe by how much funding could decrease for each community and describe potential mitigation measures that will be implemented to compensate for this decrease in funding and mitigate for any resulting adverse socio-economic effects.

f) Revise the assessment of potential Project effects, residual effects, and cumulative effects for Indigenous peoples to reflect that the Project:
   i. may result in potential effects to recreation areas and the practice of recreation activities;
   ii. may not benefit Indigenous communities as a whole and/or may cause adverse effects by exacerbating economic disparity within communities;
   iii. may not result in increased trapping income over time; and
   iv. may result in a decrease in government funding to Indigenous groups currently classified as “remote”.

g) Discuss how pelt prices are considered in the conclusion that there will be a positive effect on trapping income resulting from the Project and the significance of this positive effect.

RESPONSE

a) Recreation activities are considered traditional activities in the Human Environment section of the Environmental Impact Statement (EIS) (Chapter 6) alongside hunting, trapping fishing, camping, and food and medicine gathering. While some broader environmental changes such as wildlife population shifts and cumulative resource availability should they occur would be detectable within the 2-20 km Local Assessment Area (LAA), these extents do not necessarily translate into site-specific recreational disruptions that could occur from noise and dust. Project effects and mitigations related to noise and dust The EIS concludes that the specific recreational sites identified by BCN, MSCN, GLFN, and GLNAC will not experience significant adverse effects due to their distance from the ASR, natural landscape buffering, and the localized nature of direct project impacts.

As noted in Chapter 6 of the EIS, the closest recreational area to the all-season road (ASR) is a beach in Manto Sipi Cree Nation, that is approximately 700 m away, while most other identified recreational areas are more than 3 km from the proposed alignment. This and areas identified by the local communities during the TK studies as important to recreation (ex: beaches, family gathering sites, educational areas) are not anticipated to be adversely affected by the proposed Project because of the spatial separation. Existing Manto Sipi First Nation reserve infrastructure and regular ongoing on-reserve activities would be occurring between the proposed Project and the closest recreational area identified, as the proposed Project is planned to connect to an existing on-reserve community access road on the north side of the community as discussed in response to IR1-26, and God’s Lake is located on the south side of community, see Figure IR1-87-1.

As discussed in Chapter 6 of the EIS, noise levels associated with all-season road construction, measured during Project 1 (another new all-season road project, located in a similar boreal forest environment) as part of safety and health audits, ranged from 80 to 110 dB with drilling generating the highest levels at 110 dB. The effects of noise would decrease with increasing distance from the

source, as described in Section 6 of the EIS, such that with the exception of drilling, sound levels would be below 70 dB approximately 50 m away. Health Canada considers sounds below 70 dBA to be generally safe for prolonged exposure. Likewise, noise levels above existing baseline conditions are not expected to occur beyond 300 meters of construction activities. Contractors must adhere to MTI's Environmental Specification 130.12 (Noise and Noise Limitations), as it will form part of the construction contracts.

Dust suppression will be conducted as necessary to control dust on the proposed Project during construction and operation phases using water or other approved dust suppressants. Dust suppression would be used in accordance with EP18 (Dust Suppression Practices) and ES 130.11 (Dust and Particulate Control).

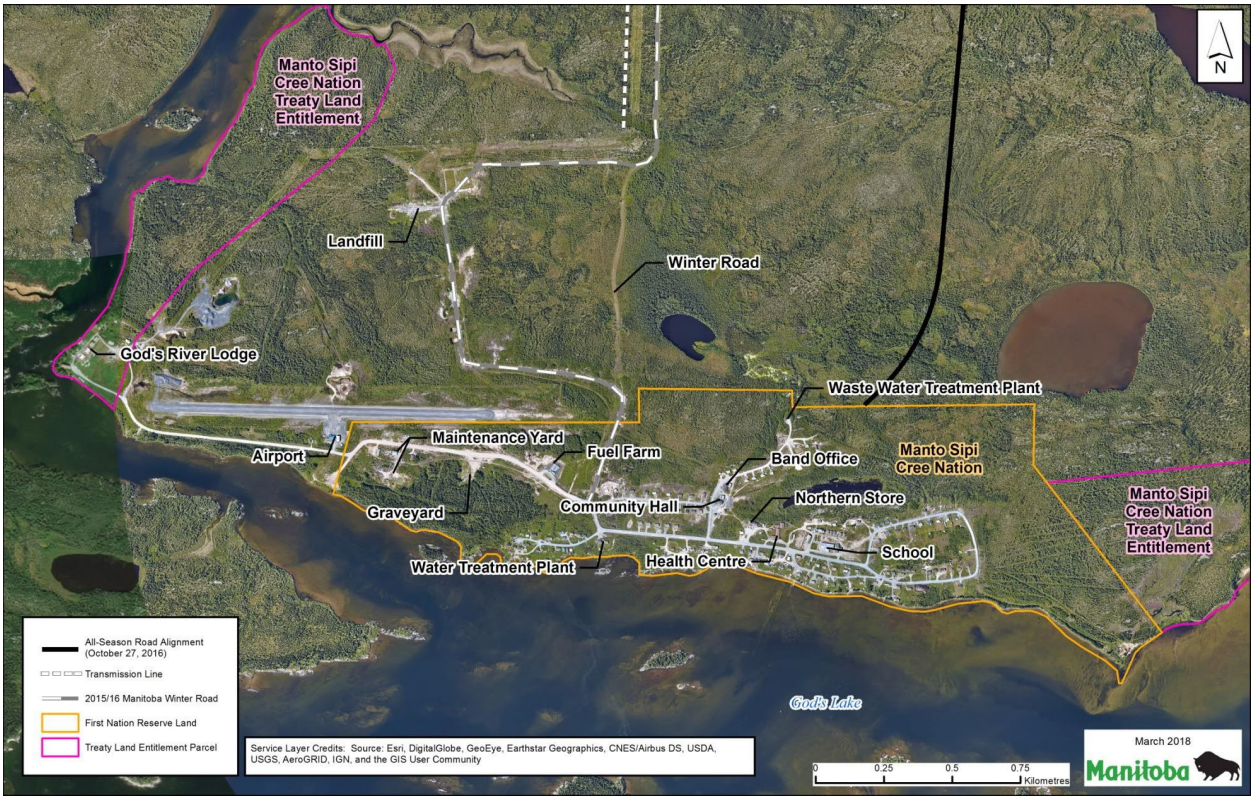


Figure IR1-87-1. Location of Project 6 – proposed All-Season Road in relation to God's Lake

b) While the only close recreational site is a beach in Manto Sipi Cree Nation, located approximately 700 meters from the ASR, most other identified recreational areas are more than 3 km away, placing them well beyond the range of direct project disturbances. The beach's proximity means it could experience some localized effects such as temporary noise, dust, and minor air quality changes during construction, but these impacts are expected to diminish with distance and

be further minimized through mitigation measures like dust suppression, noise control, and other mitigation measures found in Chapter 6, Appendix 6-4 and Chapter 7, Appendix 7-1 of the EIS. With proposed mitigation. While changes in water flow and habitat disturbance could affect fish and wildlife availability, the EIS indicates that these effects are not expected to significantly impact recreational activities. Changes in flows resulting from Project construction or maintenance activities would be within the range of natural variation, and the timing of any flow alterations is not anticipated to negatively affect fish so there are no critical life stage concerns. Additionally, access to traditional travel routes and recreational areas will be maintained, and the ASR may improve accessibility, potentially leading to increased recreational use by local communities.

Overall, while some localized effects may occur near the ASR, recreational areas are not anticipated to be adversely affected by the proposed Project because of the spatial separation, natural landscape buffering, and proposed mitigation measures. Continued engagement with Indigenous groups and stakeholders will help MTI identify and address any emerging concerns. New information on potential effects and key mitigations will be shared with regulators.

c) Construction tenders for the Project will be issued using standard MTI's tendering practices. Competitive bids will be sought, and tenders will be posted on MERX. Separate contracts will be tendered for each of the two potential major water crossings at God's River and Magill Creek.

Contracts will include a condition that a minimum percentage of the total work is to be delivered through Indigenous involvement and resources. This includes labour from Indigenous communities and hiring of equipment from or purchasing of supplies sold or produced by companies listed in the Government's Indigenous Business Directory. Therefore, contracts will be open tenders, accessible to all Indigenous Groups, and won by the lowest bidder. MTI is not able to identify the capacity and interest of each community to provide both human and physical resources to construction and or consulting contracts.

d) It is anticipated that a high percentage of the Project 6 workforce will be Indigenous and locally sourced based on experience with Project 1- PR 304 Berens River All-Season Road, which had aFirst Nation workforce of approximately 40%. Manitoba Transportation and Infrastructure uses established in-house practices, which include mandatory Indigenous Involvement clauses for construction projects. Involvement can include undertaking the work as a Contractor, Subcontractor or Joint Venture, and/or the provision of services, materials, fuel, labour, and equipment from the local community. Indigenous involvement targets within MTI's construction contracts are typically 10%, but additional percentages may be considered for projects including both general and specific community involvement as a set-aside. As stated in Chapter 3, Section 3.4.1.14 of the EIS, the percentage of community involvement can be modified for each contract based on discussions with the community to identify and confirm its capacity to deliver equipment,

services and or manpower, which is converted to a dollar figure and becomes a percentage of the entire project.

e) The communities connected by the P6 All-Season Road will remain classified as remote as they are not yet integrated into the broader all-season provincial road network. Achieving full connectivity will depend on the construction of other all season connections to connect Project 6 to the provincial highway network.

f) The current assessment of potential project effects, residual effects, and cumulative effects for Indigenous peoples remains unchanged, as these considerations have already been accounted for in the EIS. While potential effects on recreation areas could exist, the only identified recreational area in close proximity to the ASR is a beach in Manto Sipi Cree Nation, located 700 meters away. As previously assessed, any localized effects, such as temporary noise, dust, or minor air quality changes, are expected to be minimal and mitigated through measures outlined in the EIS (Chapter 6, Appendix 6-4, and Chapter 7, Appendix 7-1). Additionally, most other identified recreational areas are more than 3 km away, placing them beyond the range of direct project disturbances. Therefore, the potential effects on recreational areas and activities have already been considered and do not require further revision.

The EIS also acknowledges that the Project may not benefit Indigenous communities equally, as participation in economic opportunities will depend on each community's capacity and interest. At this time, MTI is not able to determine the specific capacity and interest of each community to provide labor, equipment, or consulting services for the Project. However, Indigenous participation is encouraged through contract conditions requiring a minimum percentage of work to be allocated to Indigenous businesses and labor, as seen in previous projects. Given that similar numbers are expected for Project 6, the current assessment accurately reflects these economic considerations.

With respect to trapping income, the assessment that the Project would have a positive effect on trapping was based on improved access along the ASR rather than fluctuations in pelt prices. While the EIS acknowledges that Level II effects, such as habitat disturbance and increased hunting pressure, could affect furbearer populations, the overall conclusion remains that enhanced access could provide greater trapping opportunities. This approach remains consistent with the methodology used in the EIS and does not require revision.

Finally, the communities connected by the ASR will remain classified as remote, as they are not yet integrated into the broader all-season provincial road network. As the Project is still considered remote, no reduction in government funding to Indigenous groups is anticipated based on accessibility changes at this stage.

Therefore, the assessment in the EIS remains accurate and does not require revision. Potential effects on recreation areas, economic disparities, and trapping income have already been addressed, and the Project's remote classification remains unchanged. Ongoing engagement with Indigenous communities and regulators will ensure that any emerging concerns continue to be monitored and addressed as needed.

g) Pelt prices were not factored into the conclusion that the Project would have a positive effect on trapping income. Instead, the assessment considered the increase in trapping income as a result of improved access along the all-season road.

REFERENCES

KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

QUESTION IAAC IR1-88

EIS Guideline Reference	• Part 2, Section 6.3.4
EIS Reference	• Chapter 6, Section 6.2.1.1.1 and 6.3.4.5.6
Category	Indigenous Health and Socioeconomic Conditions

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe how changes to the environment caused by the Project may affect Indigenous peoples, including Indigenous health and the current use of lands and resources for traditional purposes, and any resources used for traditional purposes. The proponent is also required to describe any changes to environmental quality or perceived disturbance of the environment that could detract from use of an area or lead to avoidance of an area.

With regard to potential Project effects to Indigenous health as a result of effects to country foods, the EIS only describes potential effects related to chemical exposure pathways, effects to the quality of country foods, and related effects to human receptors. MSCN expressed concern regarding the lack of information provided regarding the role of country foods in physical, mental, and spiritual health of Indigenous peoples.

The EIS indicates that the quality of country foods and medicinal plants is not expected to be adversely affected by dust from the Project if foods are thoroughly rinsed prior to ingestion. Health Canada notes that this conclusion does not consider potential contaminants associated with dust. Typical contaminants that may be released from vehicles burning fossil fuels include polycyclic aromatic hydrocarbons, metals, and potentially harmful trace elements. Washing of foods does not necessarily protect human health from contaminants and does not consider the accumulation over time of contaminants in soil and subsequent uptake in plant tissues as a potential pathway of effects. Health Canada also notes that, although the proponent plans to communicate the risk of dust settling on country foods to local Indigenous communities through the Indigenous and Public Engagement Program, limiting recommendations to the rinsing of harvested plants may not be adequately protective of human health.

The EIS also does not consider potential adverse effects of the Project on the current use of lands and resources by Indigenous peoples due to potential avoidance of certain areas currently used for the harvest of country foods. Even if resources are deemed safe for consumption by MI, the use/harvest of country foods may be adversely affected or altered due to perceived disturbance of the environment or fear of contamination of country foods. This must be considered in the assessment of potential Project effects to Indigenous peoples.

Supplementary information is required to support the proponent's characterization of potential Project effects to Indigenous health and the current use of lands and resources for traditional purposes by Indigenous peoples.

INFORMATION REQUEST

a) Describe potential Project effects to the availability of and access to country foods of importance for each Indigenous group listed in Part 2, Section 5.1 of the EIS Guidelines, including consideration of:
   i. the role of country foods from a holistic health perspective that accounts for physical, mental, and spiritual health of individuals and communities;
   ii. the role of country foods and the practices of collection as a form of intergenerational knowledge and cultural transmission; and
   iii. the role of country foods in Indigenous food sovereignty as it relates to health, wellbeing, governance, and rights.

b) Describe and assess potential Project effects to Indigenous health and the current use of lands and resources for traditional purposes resulting from:
   i. the deposition of contaminants that may be present in dust onto vegetation, including a description of the types of contaminants potentially present and any potential adverse effects to human health;
   ii. contaminants from road dust and vehicle emissions accumulating in soil, being taken up by plants, and consumed by human receptors or wildlife that Indigenous peoples may subsequently consume; and
   iii. potential avoidance of certain areas currently used for the harvest of country foods due to perceived disturbance of the environment or fear of contamination of country foods.

c) Describe mitigation measures that will be implemented to address any potential Project effects identified in a) and b).

d) Revise the assessment of potential Project effects, residual effects, and cumulative effects for Indigenous peoples to include potential effects identified in a) and b) and any mitigation measures proposed to address those effects.

> For these assessments, refer to Health Canada's *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods (2018).* Health Canada is available to provide input to communications to Indigenous groups regarding potential health risks associated with the consumption of contaminated country foods.

RESPONSE

a) According to Health Canada (2018), country foods refer to all foods obtained outside of commercial food systems, including those sourced through trapping, fishing, hunting, harvesting, or grown for medicinal purposes. The availability and accessibility of country foods during the Project's development could be affected if Project activities interfere with areas used for fishing, hunting, trapping, or harvesting medicinal plants. However, Joro (2018) indicated that habitat loss for species important to Indigenous peoples, such as moose, beaver, marten, birds, and caribou, accounts for less than 1% of high-quality habitat. While the Project may result in localized impacts on the availability of country foods due to habitat disturbance and increased access, the overall effects are expected to be minimal due to the large area available for traditional harvesting and the proposed mitigation measures.

Potential Project effects including those to Indigenous Peoples and Human Health are presented in Section 6.3.4 in Chapter 6 of the environmental impact statement (EIS). As presented in the EIS, potential impacts to land and resource use are anticipated to apply to Manto Sipi Cree Nation (MSCN), Bunibonibee Cree Nation (BCN), God's Lake First Nation (GLFN), and God's Lake Narrows Northern Affairs Community (GLNAC) as the Regional Assessment Area (RAA) overlaps with the traditional territory of these three Indigenous Nations.

Section 6.3.4.1 in Chapter 6 of the EIS recognizes that the Project may affect use of lands and resources for traditional purposes including hunting, fishing and gathering, and therefore the availability and access of country foods. The All-Season Road (ASR) will provide increased access to watercourses, and as described in Section 6.2.5.5.1.3 in Chapter 6 of the EIS could allow for hunting and harvesting beyond the Wildlife Local Assessment Area (LAA) into the Regional Assessment Area (RAA). This increased access has the potential to benefit Indigenous communities by facilitating easier or new access to country foods. Section 6.3.4.1.2 in Chapter 6 of the EIS states that the Project has potential to adversely affect traditional and recreational fishing and an associated potential reduction in food supply due to impacts on fish habitat and fish populations. Section 6.3.4.1.3 in Chapter 6 of the EIS speaks to potential impacts to gathering, and states that the Project could result in a reduction in supply of harvested vegetation (e.g. berries) and medicinal plants.

Traditional Knowledge (TK) studies were conducted as part of the Project's planning process to gather information on traditional land uses, cultural and spiritual implications, and ecological and biophysical aspects. These studies were carried out at both a regional scale and through

community-specific studies. Community-specific TK studies were conducted with MSCN, BCN, GLFN, and GLNAC to collect detailed information including their relationships with the land and country foods. The results indicated that community members recognize potential benefits of enhanced access to traditional harvesting areas. Additionally, new areas for berry picking and the gathering of medicinal and cultural plants may be opened, further supporting traditional food systems. Trappers and traditional land users will be provided with safe access during construction, and trail crossings will be maintained to ensure continued access to traplines.

For other Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines, TK information was incorporated through regional-scale studies. These broader studies included aspects such as burial and spiritual sites, traditional harvesting areas, and potential environmental and cultural impacts of the Project. Community-specific information can be collected through ongoing engagement efforts.

Future engagement will be carried out through the Indigenous and Public Engagement Program (IPEP) that will provide opportunities for Indigenous communities to share concerns, provide additional information, and be part of the decision-making process where possible. Manitoba Transportation and Infrastructure (MTI) will oversee the IPEP and provide communities with regular updates and open channels for feedback throughout the construction, operation, and maintenance phases of the Project. Any new information obtained through these activities will be documented and incorporated into environmental planning when feasible.

As outlined in Chapter 5, Section 5.7 of the EIS, ongoing engagement efforts will allow Indigenous Nations to raise concerns and propose mitigation measures as the Project progresses. Additionally, as described in response to IR1-25, an Engagement Plan has been developed to facilitate continued dialogue with all Indigenous Nations identified in the EIS Guidelines. MTI has developed a draft questionnaire based on the questions it received from IAAC in Round 1 packages 1 & 2. MTI intends to share this questionnaire with the Indigenous groups listed in Part 2, Section 5.1 as a starting point to co-developing the questionnaire that will be used to obtain the community's views which may improve the understanding of the Project's impacts on Indigenous socioeconomic and health conditions. Results will be used by MTI to inform IR responses and project planning and by regulators to inform their regulatory reviews of the project and subsequent consultations with individual communities.

i. Traditional foods such as moose, fish, berries, and waterfowl are not only a significant dietary component but are also connected to cultural identity and community well-being. For example, members of MSCN mentioned that moose is a staple food source and is celebrated annually through a community feast, where people gather to share traditional foods (HTFC, 2017a). Fishing is also important to the community's way of life, both for sustenance and income, they often practice gill netting, ice fishing, and fly fishing. Similarly, in GLFN, moose meat is commonly shared within the community (HTFC, 2017b).

ii. The practices associated with obtaining country foods, hunting, fishing, trapping, and gathering, serve as key mechanisms for intergenerational knowledge transfer and cultural continuity. Elders and experienced harvesters pass down traditional skills, and ecological knowledge to younger generations through hands-on experience. For BCN, berry harvesting has historically been a family activity, though its practice has declined over time (HTFC, 2017c). Similarly, in GLFN, community members have noted a decline in berry picking traditions. However, they recognize that the continuation of these practices is important for preserving cultural identity and traditional knowledge (HTFC, 2017c). The ASR could provide increased opportunities for younger community members to participate in these activities by providing increased access to harvesting areas.

iii. Indigenous food sovereignty is deeply connected to health, well-being, governance, and rights. For God's Lake community members, fishing remains a crucial part of the diet, with sharing catch being an integral social and cultural practice. For BCN members, moose hunting is also highly valued, where its sustainability is a key concern for the community. However, the Project could enhance Indigenous food sovereignty by providing expanded access to traditional lands while ensuring that hunting and harvesting rights are maintained. Additionally, MTI is committed to continued engagement and consultation to ensure Indigenous governance over these resources.

Continued engagement with Indigenous Nations may help define their perspectives on correlations between country foods and physical, mental, and spiritual health of individuals and communities as well as it's role in intergenerational knowledge and cultural transmission and health, wellbeing, governance, and rights. As described in the response to IR-19, MTI will conduct a reassessment of data validity during the immediate preconstruction phase (1-2 years before construction begins). This process will verify that key predictions made in the Environmental Impact Statement (EIS) remain accurate and that proposed mitigations and monitoring such as the Environmental Protection Procedures (Chapter 8, Appendix 8-2 of the EIS; Appendix IR1-19-1) and the Environmental Protection Specifications (Chapter 8 Appendix 8-3 of the EIS; Appendix IR1-19-1) remain relevant and applicable. Should there be significant changes in baseline data, including expressed perspectives and input from Indigenous Nations through the ongoing engagement process, a reassessment of related potential effects may also be conducted.

b) Potential Project effects to Indigenous health and the current use of lands and resources could occur through the deposition of contaminants, such as methylmercury, polycyclic aromatic hydrocarbons (PAHs), and metals. However, with the implementation of mitigation measures, including dust suppression techniques during construction, maintenance, and operation, adverse effects on human health are not anticipated. The distance between the Project site and community residences further reduces the likelihood of health impacts. As outlined in Chapter 6, Section 6.3.4.5 of the EIS, the nearest residences to the alignment are located in communities near the

ends of each section of road and are approximately 250 m in Manto Sipi Cree Nation, 1.5 km in Bunibonibee Cree Nation and God's Lake First Nation and 3 km in God's Lake Narrows Northern Affairs Community. Similarly, there are only two lodges that are located in the Indigenous LAA, with God's River Lodge being the closest, approximately 2.9 km from the all-season road alignment and then Healy's God's Lake Narrows Lodge located approximately 3.3 km from the all-season road alignment.

Contaminants from road dust and vehicle emissions might accumulate in the soil, be absorbed by plants, and enter the food chain through country foods that Indigenous communities rely on. Although the potential for these contaminants to affect human health exists, the application of mitigation measures will minimize any significant adverse effects.

There is also a possibility that Indigenous communities may avoid certain areas used for harvesting country foods due to concerns about environmental disturbance or contamination. While this could reduce access to traditional food sources, it is more likely that Indigenous people shift their harvesting locations, as suitable areas for country foods are not limiting, and the ASR is expected to improve access to new hunting areas, potentially increasing local resource use. Additionally, as stated in the EIS, communications of the risk of dust settling on country foods will be communicated to the community through the IPEP program. Overall, as long as mitigation measures are implemented, no significant effects on local community resource use are expected. Any temporary increases in fugitive dust and emissions are unlikely to have significant adverse effects on Indigenous health.

c) Potential Project effects and associated mitigation measures are documented in Chapter 6 Appendix 6-4 of the EIS, some of them include:

- Dust suppression techniques (EP18 and ES 130.11).
- Activities that generate dust or smoke (ex: blasting, burning) will not take place during high wind conditions.
- Use low sulphur fuels.
- Require a high standard of maintenance of equipment and vehicles.
- Control aggregate size and use of granitic material to reduce dust generation from roadbed.
- Ongoing communication through the IPEP program.

Additionally, as described in response to IR1-39, aggregate size control and use of granitic material reduces dust generation from the roadbed. MTI's EP18 (Dust Suppression Procedures) and ES 130.11 (Dust and Particulate Control) would be adhered to (Chapter 8, Appendix 8-2 of the EIS).

Additional mitigation measures listed in ES 130.11 (Chapter 8, Appendix 8-2 of the EIS) include using only approved suppressants (no use of waste petroleum or petroleum by-products) and covering of loads with tarps during transport. Stockpiles or spoil piles are to be maintained as to minimize the potential for wind erosion. Additional risks and measures to prevent or mitigate

potential effects related to acid rock drainage is discussed in the response to IR1-09 and includes plans to identify and test for acid rock drainage/metal leaching as part of quarry site selection and prior to quarry development.

As part of the follow-up program described in Chapter 9 of the EIS, environmental inspections will be conducted to confirm compliance with license and permit conditions, as well as adherence to the Environmental Protection Specifications (ES 130s) and Environmental Protection Procedures (EPs) mentioned above. Additionally, inspections during the construction phase will assess and monitor particulate levels and determine the need for wetting or other adaptive management strategies. MTI will continue collaborating with Indigenous Nations to identify any unanticipated impacts and adjust mitigation measures accordingly.

d) The effects and mitigations related to the current use of lands and resources by Indigenous peoples have already been addressed and considered as part of the assessment presented in Chapter 6, Appendix 6-4, and Chapter 7, Appendix 7-1 of the EIS, so further revision will not be required. The project covers a large area that offers plenty of suitable land for harvesting country foods. Even if some areas are avoided due to concerns about dust and contaminant deposition, the impact on Indigenous people is expected to be minimal, as they can access other unaffected areas in close proximity. The construction of the road will also provide access to previously inaccessible areas, making it easier for people to harvest and use local resources. Additionally, ongoing communication with Indigenous communities, along with other mitigation strategies, will help reduce any risks to their health and access to these resources.

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KGS Group. 2019. Project 6 – All Season Road Environmental Impact Statement. Prepared for Manitoba Transportation and Infrastructure. Available at: https://iaac-aeic.gc.ca/050/evaluations/proj/80138

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HTFC. 2017a. East Side Road Project 6. Manto Sipi Cree Nation: Traditional Knowledge Study for the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation.

HTFC. 2017b. East Side Road Project 6. God's Lake First Nation: Traditional Knowledge Study for the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation.

HTFC. 2017c. East Side Road Project 6. Bunibonibee: Traditional Knowledge Study for the All-Season Road Linking Manto Sipi, Bunibonibee, and God's Lake First Nation.

QUESTION IAAC IR1-89

EIS Guideline Reference	• Part 2, Section 2.1
EIS Reference	• Chapter 1, Section 1.2.3 • Chapter 2, Section 2.1.3 • Chapter 6, Section 6.6.3.1.1
Category	Potential Project Benefits to Indigenous Peoples

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe the predicted economic and social benefits of the Project, including any potential benefits to Indigenous peoples.

The EIS indicates that the anticipated benefits of the proposed Project to BCN, MSCN, and GLFN will include a reduction of transportation costs for goods and services and enhanced access to emergency, health, and social services. These benefits will be enhanced once MI's long-term objective to complete the regional transportation network and provide communities with year-round vehicular access to Manitoba's provincial road network is achieved. However, the EIS also notes that the Government of Manitoba currently has no plans to proceed with Project 2 and Project 5, which comprise part of the proposed regional transportation network that would link the proposed Project to the provincial road network. Several Indigenous groups have expressed concerns that without connection of the Project to the provincial road network, certain economic and social benefits may not be realized or may not be as anticipated in the EIS.

BCN also expressed concerns that construction and operation of the Project may not benefit their community as markedly as other local communities and may act to increase the costs of goods and services in their community. For instance, as the Project would facilitate easier access to the BCN reserve by individuals from MSCN, GLFN, and the surrounding area, the influx of people may result in an increased demand for fuel or food, causing prices to increase.

Supplementary information is required to support the proponent's characterization of potential Project benefits to Indigenous peoples.

INFORMATION REQUEST

a) Conduct two separate analyses of the potential benefits of the Project to Indigenous communities, with and without connection to the provincial road network.
b) Describe the predicted economic and social benefits of the Project separately for each of the three Indigenous communities to be connected by the Project, as the communities are unlikely to experience identical benefits. Include consideration for the Project to increase the cost of goods and services in certain communities.
c) Revise the assessment of potential Project effects, residual effects, and cumulative effects to the health and socioeconomic conditions of Indigenous peoples to consider the potential for the cost of goods and services to increase in certain communities as a result of the Project.

RESPONSE

a) **Potential Benefits to Indigenous communities with connection to the provincial road network**

Although the timeline for the construction of Project 2 (PR 373 to Wasagamack) and P5 (Anderson Junction to Bunibonibee) remains uncertain, their completion along with the other proposed all-season roads is the ultimate objective of the provincial transportation network aimed at connecting communities on the east side of Lake Winnipeg. As described in response to IR1-87, the Northern Connectivity Strategy Group has prioritized P6 ahead of both P2 and P5 in the project sequence. Despite this, the long-term vision remains to establish an east-west connection that provides strategic travel options at the junction of PR 373 and PTH 6, allowing access both north to Thompson and south to Winnipeg. This route would not only facilitate personal travel but also improve the efficient movement of freight into the Northern Sector, helping to keep communities connected to essential goods and services.

A key economic benefit of the provincial network is the potential reduction in transportation costs, leading to a lower cost of living for Indigenous communities. Freight costs could be reduced by up to 50%, decreasing reliance on expensive air transport and lowering overall living expenses (SNC Lavalin, 2011). According to the Large Area Transportation Network Study (SNC Lavalin, 2011), the aggregate reduction in costs for passenger travel is about 8%, assuming a $10/h value of time for road passenger and $20/h for air, and typical vehicle and aircraft costs. The entire East Side All Season Road project, consisting of seven projects, is estimated to create 22,000 person-years (PY) of direct employment, translating to approximately 3,000 construction jobs. Indirect and induced employment for the entire East Side ASR is expected to generate 15,000 PY. Additionally, the Provincial input/output model estimates that the project will generate approximately $2.1 billion in gross domestic product (GDP), close to the net present value (NPV) of the project (SNC Lavalin, 2011).

The project is expected to boost local businesses and create employment opportunities, particularly in road construction and maintenance, freight and passenger transportation, fuel supply, food and accommodation services, tourism, hunting and fishing operations, resource development, and healthcare. Centralized services may also become more viable, further enhancing regional economic sustainability.

Therefore, beyond economic benefits, the network will increase access to healthcare, education, employment opportunities, and inter-community travel, enhancing quality of life. As part of the Multi-Year Infrastructure Investment Strategy of the Government of Manitoba, the construction of a new airport at Wasagamack is currently planned, further strengthening emergency response capabilities. Additionally, lower transportation costs will support infrastructure development, accelerating the construction of new schools and the rehabilitation of older buildings, ultimately contributing to long-term community development.

It is also anticipated that there will be approximately a 30% reduction or 16,000 tonnes/yr of greenhouse gas emissions as a result of a shift from air freight and private vehicle freight to commercial road transport. Increasing truck payload capacity without raising the number of vehicles on the road will further contribute to this reduction, alongside a shift in travel options, where more private vehicle trips will be directed to Thompson instead of Winnipeg (SNC Lavalin, 2011).

Additionally, the provincial network will provide improved access to traditional lands and more opportunities for engaging in cultural practices. Similarly, it will improve access to heritage resources such as the Hayes River System. The all-season road network will also reduce the risks associated with the winter road system, offering a safer transportation option (SNC Lavalin, 2011).

Potential Benefits to Indigenous communities without connection to the provincial road network

If the P6 ASR is not connected to the provincial network, it would still bring several benefits to Indigenous communities. The road would primarily connect the communities of Manto Sipi Cree Nation, Bunibonibee Cree Nation, God’s Lake First Nation, and God’s Lake Narrows Northern Affairs Community. One of the primary challenges faced by these communities is the inter-community isolation caused by the reliance on winter roads. Travel from one community to another, for most of the year, requires either chartering a plane or flying to Winnipeg on a scheduled service and then back to the destination community, which is expensive and has broken contact between communities (SNC Lavalin, 2011). Therefore, the ASR would improve local access and mobility, providing a more reliable transportation alternative compared to the unpredictable winter road system. While freight costs might decrease slightly, they would not be as significantly reduced as they would with a direct provincial connection. Economic development would be more localized, with fewer opportunities for large-scale infrastructure projects or access to broader markets and

services. Despite these limitations, the ASR would still offer several advantages to the local communities.

The P6 ASR would strengthen local linkages, allowing for easier travel and cultural exchange among communities, while also enhancing access to emergency, healthcare, education, and social services. As described in Chapter 5 of the EIS, lower transportation costs would contribute to a reduced cost of living, particularly for goods, fuel, and construction materials needed for housing and community infrastructure. The ASR could also support local economic growth by generating employment opportunities during construction and enabling small-scale commercial activities such as tourism and local market development.

Further benefits could include enhanced emergency response capacity, with potential improvements to RCMP and community dispatch services, as well as emergency evacuations in the event of natural disasters such as wildfires by providing connectivity to nearby communities and airports. The road may also help on-reserve residents without permanent full-time jobs by providing greater mobility and employment opportunities, potentially leading to a decrease in on-reserve populations as individuals gain access to work in nearby communities.

As mentioned above, the entire provincial network, consisting of seven projects, is estimated to create 22,000 person-years (PY) of direct employment, translating to approximately 3,000 construction jobs. Indirect and induced employment for the entire East Side ASR is expected to generate 15,000 PY, with around 2,000 jobs created for this specific project, assuming an equal distribution among projects. While the absence of a provincial connection limits large-scale economic transformation, the ASR would still offer significant improvements in transportation reliability, community connectivity, and access to essential services, ultimately improving quality of life for the residents of the three communities.

b) **Manto Sipi Cree Nation**

Manto Sipi Cree Nation, with the smallest population among the three Indigenous communities (967 in 2024), is anticipated to significantly benefit from the road project, particularly in areas related to education and employment. With a high percentage of people (74%) obtaining less than high school education (CEDP, 2016), the road will improve access to educational facilities, enabling more community members to pursue opportunities for higher education. The construction industry, which is already one of the largest and fastest-growing sectors in Manto Sipi, will likely benefit from job opportunities during the road's construction and maintenance phases. This could lead to long-term improvements in local infrastructure and a more skilled workforce. Additionally, easier access to healthcare and other essential services in nearby areas will contribute to better overall well-being for the community. In addition, moose and fish are valuable food sources, and by having the ASR, access to new harvesting areas could be beneficial to Indigenous groups.

God's Lake First Nation

God's Lake First Nation's economy is largely driven by public sector employment, including education, healthcare, and social services (CEDP, 2016). This community will likely benefit from improved transportation routes, making it easier to bring in goods and services. Additionally, community members have reported that moose hunting is often done by boat around the shorelines of water so that the moose can be transported back to the community, and that sometimes, hunters will fly to moose hunting areas near more remote lakes. Therefore, through the ASR this community will have increased access to more remote areas and could avoid spending extra money on transportation. Given the recent construction of a new school and nursing station, and potentially other projects in the future, the road will facilitate the transport of materials and labor, potentially speeding up projects. The community's increasing population, 2874 people in 2024 (Government of Canada, 2024) and low unemployment rate compared to the others indicates that the road could further strengthen local employment, particularly in the public and construction sectors.

Bunibonibee Cree Nation

Bunibonibee Cree Nation is the largest and most developed of the three communities and is likely to see various substantial benefits in terms of infrastructure and healthcare access. The community has expressed concerns that the Project might not benefit them as significantly as other local communities and could lead to increased costs. The easier access to BCN facilitated by the Project might result in an influx of people from MSCN, GLFN, and surrounding areas, increasing demand for fuel, food, and other goods, which could increase prices. While these effects are possible, the overall benefits of improved access and reduced living expenses are expected to outweigh the costs in the long run, contributing to the community's economic growth.

In addition, with a growing population of 3,413 people in 2024 (Government of Canada, 2024) compared to 1950 people in 2016, and a diverse economy, including significant employment in healthcare, education, retail, and construction (CEDF, 2016), the road project will support the community's expansion by improving access to healthcare facilities and enabling the development of new infrastructure. The road will also enhance the movement of goods and services, reducing costs and potentially boosting local businesses. The road will be particularly beneficial in supporting further economic growth and improving the quality of life for Indigenous people.

Overall, the ASR is expected to bring many benefits, but it could also lead to an increase in the cost of goods and services in some communities. For Manto Sipi, higher transportation costs could have a more significant impact on prices due the smaller population and limited infrastructure. In contrast, Bunibonibee, with its larger population and more diverse economy, is better equipped to handle potential cost increases while still benefiting from improved access and lower living costs. God's Lake First Nation may see moderate cost increases, but the overall, benefits of better access

to goods, services, and job opportunities are expected to outweigh these increases for all three communities.

God's Lake Narrows Northern Affairs Community

God's Lake Narrows Northern Affairs Community is located adjacent to God's Lake First Nation, with the two communities connected via an existing all-season road. Project development is expected to generate economic benefits for the community, including employment and contract opportunities, as well as direct and indirect local business opportunities such as accommodations, purchase of food, and guiding services. Once constructed, the proposed all-season road will benefit the community due to the cost-efficient and reliable form of transportation for peoples, goods and services. Land use consists mainly of traditional activities including hunting, trapping, fishing, camping, recreation activities, sacred/ceremonial use and food and medicine gathering. Traditional land use is expected to benefit from the development of the proposed all-season road due to improved access.

c) Although it is difficult to precisely quantify how much the cost of goods and services could change as a result of the Project, based on the population sizes and economic conditions of the communities MSCN's smaller population and more limited infrastructure make it more susceptible to higher transportation costs, which could lead to an increase in the cost of goods and services. God's Lake First Nation may also be impacted by some cost increases, though its more developed economy may help mitigate some of these effects. Bunibonibee Cree Nation might experience an increase in prices as a result of an influx of people from surrounding areas, increasing demand for fuel, food, and other goods, which could increase prices. However, with its larger population and more diverse economy, this community is better positioned to deal with potential cost increases.

Therefore, while some cost increases may occur, particularly in the early stages of the Project, these are likely to be outweighed by the long-term benefits. These effects are expected to be reversed as the Project progresses and finalizes and are likely to cause a minimal impact to communities. As a result of the ASR, improved access to goods, services, infrastructure development and employment opportunities will enhance the overall socioeconomic conditions in these communities.

Additionally, as described in response to IR1-88, future engagement will be carried out through the Indigenous and Public Engagement Program (IPEP), ensuring that Indigenous communities have continued opportunities to share concerns, provide additional information, and be part of the decision-making process. MTI will oversee the IPEP and ensure that communities receive regular updates, consultation meetings, and open channels for feedback throughout the construction, operation, and maintenance phases of the Project. Any new information obtained through these activities will be documented and incorporated into environmental planning when feasible.

As outlined in Chapter 5, Section 5.7 of the EIS, ongoing engagement efforts will allow Indigenous Nations to raise concerns and propose mitigation measures as the Project progresses. Additionally, as described in response to IR1-25, an Engagement and Consultation Plan has been developed to facilitate continued dialogue with all Indigenous Nations identified in the EIS Guidelines. A socio-economic study is also under consideration for funding, to improve the understanding of the Project's impacts on Indigenous socioeconomic and health conditions.

REFERENCES

Economic Profiles – CEDF – Communities Economic Development Fund. 2016. Communities Economic Development Fund. Available at: https://cedf.mb.ca/economic-profiles/

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QUESTION IAAC IR1-90

EIS Guideline Reference	• Part 2, Section 5.0
EIS Reference	• Chapter 5
Category	Impacts to Aboriginal and Treaty Rights

CONTEXT AND RATIONALE

The EIS Guidelines require the proponent to describe the following information for each Indigenous group identified in Part 2, Section 5.1 of that document: potential or established Aboriginal rights that are recognized and affirmed by section 35 of the Constitution Act, 1982 (section 35 rights); potential adverse impacts of each Project component and physical activity to section 35 rights; mitigation or accommodation measures to address potential impacts to section 35 rights; and any potential Project impacts to section 35 rights that have not been fully mitigated or accommodated. The EIS Guidelines also require the proponent to consider input provided by Indigenous groups regarding potential impacts to potential or established section 35 rights.

The EIS does not describe each Indigenous group's views regarding their Aboriginal or Treaty rights and how each Indigenous group was engaged in developing or applying the methodology for the assessment of potential impacts to rights. Additionally, the conclusions presented in the EIS regarding potential impacts to rights do not consider each Indigenous group identified in Part 2, Section 5.1 of the EIS Guidelines.

The EIS indicates that an assessment of potential Project effects to land and resource use upon which the exercise of Aboriginal or Treaty rights depends is an appropriate proxy for potential impacts to rights. Therefore, as effects of the Project on lands and resources used for traditional purposes are predicted to be not significant, impacts on potential or established Aboriginal or Treaty rights are not expected. Indigenous groups have indicated that they understand Aboriginal or Treaty rights to be more than the right to the use of lands and resources for traditional purposes and have expressed concerns regarding the conclusions presented in the EIS and the validity of this methodology for evaluating potential impacts to Aboriginal or Treaty rights. Indigenous groups are of the view that an assessment of impacts to Aboriginal or Treaty rights must include consideration of experience, culture, governance, knowledge, and other socio-cultural components. These factors are not considered in the EIS.

Indigenous groups, including MSCN, have also requested that the proponent consider the development of a methodology for the assessment of potential impacts to Aboriginal or Treaty

rights similar to that co-developed by the Government of Canada and Mikisew Cree First Nation and available on the Agency's website: https://ceaa-acee.gc.ca/050/documents/p65505/122764E.pdf. Other guidance includes the Agency's following document: *Interim Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples*.

Supplementary information is required to support the proponent's characterization of potential impacts of the Project to Aboriginal or Treaty rights.

INFORMATION REQUEST

a) Describe each Indigenous group's views of their Aboriginal or Treaty rights as they relate to the Project or potential Project effects, including all groups listed in Part 2, Section 5.1 of the EIS Guidelines, and the conditions that support each community's exercise of their rights. This should include a description of how historic, existing, and approved activities have affected these conditions.
    i. If these views are not available to MI, describe efforts to engage each Indigenous group on this topic.
b) Identify the pathways for potential impacts of the Project (positive and negative) on the exercise of Aboriginal or Treaty rights, accounting for the nature of rights, regional/historic/cumulative impacts, community thresholds (if known), cultural landscape, preferred expression of rights, distribution of benefits/impact equity, and present and future generations.
c) Define the criteria used for assessing the severity of impacts to rights. The criteria may be different from the criteria used to assess the significance of environmental effects and may vary between Indigenous groups.
d) Considering each of the pathways identified and the criteria developed, provide analysis, discussion, and conclusions on whether the Project will have a low, medium, or high level of impact on the exercise of rights for each Indigenous group.
e) Describe proposed mitigation measures that will be implemented that specifically address potential impacts to rights and accommodation measures that have been identified through engagement with Indigenous groups.

RESPONSE

a) Specific information about Aboriginal and Treaty Rights is currently limited to the information previously acquired for the Environmental Impact Statement (EIS) development. For the assessment of potential effects to Aboriginal and Treaty rights, MTI followed the same approach implemented for Project 4 (All-Season Road Connecting Berens River to Poplar River First Nation). These effects were addressed through the assessment and mitigation of potential Project effects

on resource use (e.g., hunting, fishing, trapping, water use) and cultural or traditional activities and sites in the proposed Project area.

Efforts to engage each Indigenous Nations are identified in Chapter 5 of the EIS. Additionally, as discussed further in response to IR1-77, Traditional Knowledge (TK) studies were conducted as part of the proposed Project's planning process to gather information on traditional land uses, cultural, ecological and biophysical aspects. These studies were carried out at both a regional scale for road network planning and more local scale for project-specific planning. Community-specific TK studies were conducted with Manto Sipi Cree Nation (MSCN), Bunibonibee Cree Nation (BCN), God's Lake First Nation (GLFN), and God's Lake Narrows Northern Affairs Community (GLNAC) to collect detailed information regarding potential impacts on fishing, hunting, gathering, and the use of lands and resources. A summary of these comments and views can be found in Chapter 5 and 6 of the EIS, and in Table IR1-90-1 below. Studies with each of the First Nation communities included initial overview and verification workshops and one on one interviews.

For other Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines, TK information was incorporated through regional-scale studies. These broader studies included aspects such as traditional harvesting areas, and potential environmental and cultural impacts of the potential all-season road network. These comments and views are available in Chapter 5, Table 5.9 of the EIS.

Additional information regarding Aboriginal and Treaty Rights will be sought through the Indigenous and Public Engagement Program (IPEP), using methods similar to those employed during the development of the EIS. The process may involve a combination of the following activities: providing Project status updates, requesting information, sending invitation letters, holding in-community meetings and/or open houses, and conducting TK exercises, in addition to maintaining regular communication with the local communities. Engagement activities will provide opportunities for open dialogue and allow communities to raise specific concerns at any point in the process. This approach has been effective in the past; input from past engagements has significantly influenced project decisions, such as the alignment location, identification of valued components, and development of mitigation measures.

Additional information received through the ongoing IPEP process will be recorded and used to inform project planning, provincial and federal environmental regulatory requirements and support the Crown-Indigneous consultation processes. As with previous engagement processes, MTI will compile the gathered information into reports and send them to the communities for review and confirmation. Once the communities have confirmed (or verified) the information, MTI will return the finalized documents to them, adhering to any applicable confidentiality agreements. Based on the findings, MTI will review and update any relevant Project information as needed.

Table IR1-90-1. Summary of Indigenous group's views of Aboriginal and Treaty Rights

Assessment of Impacts on Rights			
God's Lake Narrows Northern Affairs Community	**Rights Being Exercised**	**Location Information**	**Additional context**
	Hunting and Trapping		
	Moose	Moose hunting primarily occurs in the fall along the shoreline of lakes and rivers.	• Moose are hunted for the purpose of food, where every part of the animal is used.
	Furbearers (e.g., mink, otter, beaver, marten, wolverine, lynx)	Members from God's Lake Narrows currently trap at various places within God's Lake trapping block within traplines 2, 4, 7, 8, 9, 44, 45 and 47. Trapline 44 is also used by members of Manto Sipi Cree Nation and God's Lake First Nation.	• Trapping is still practiced by elders and youth, particularly trapline 44 because of its proximity to God's Lake Narrows.
	Waterfowl	Waterfowl hunting primarily occurs in the spring along the shoreline of lakes and rivers.	• Waterfowl and game bird hunting is common in God's Lake Narrows. The most common species are geese, and ducks.
	Fishing		
	Walleye, northern pike, lake trout, brook trout, and whitefish	Fishing primarily occurs around the entirety of God's Lake.	• Sharing catch is a common practice among the community. • Ice fishing occurs for trout.
	Travel Routes		
	Routes	Associated with the major waterways, including God's Lake. Travel by boat occurs on God's Lake.	• Important to God's Lake Narrows members as they provide seasonal access for traditional activities of cultural importance including hunting, trapping, fishing, and gathering. Include walking, ATV, and snowmobile trails, as well as open-water and frozen waterways.
	Plant Gathering		
	Plant species used for food and/or medicine	Harvesting of plants that are consumed for sustenance such as blueberries, cranberries, and saskatoon berries. A common blueberry gathering spot is around Little God's Lake. Harvesting of plants that are used for medicinal purposes such as Labrador tea, poplar tree sap, and ginger root.	• Plants such as diamond willow are gathered and trees like birch are harvested for crafting purposes.
	Cultural Practices and Sites		
	Sacred sites	A historical settlement site was identified on the north shore of God's Lake. Burial sites were identified; none were identified in the vicinity of the proposed all-season road alignment.	• Community members expect artifacts to be found near the historical settlement site. There are crosses to indicate burial sites.
Manto Sipi Cree Nation	**Hunting and Trapping**		
	Moose	Moose hunting primarily occurs in the fall along the shoreline of lakes and rivers in the Indigenous RAA that extends east to the Ontario border.	• Moose is an extremely important food source for Manto Sipi Cree Nation members and is celebrated for its connection to their traditional way of life. Successful hunters will share the moose harvested with family and community members. • Annual community feast where people share moose meat as well as other traditional foods like fish, blueberries, geese and ducks.
	Furbearers (e.g., fox, lynx, marten, muskrat, rabbit, wolf, wolverine, beaver, otter, mink)	Members from Manto Sipi Cree Nation currently trap at various places north and east of God's Lake within traplines 10 to 13, 15, 18, 20, 33 and 50. Manto Sipi Cree Nation shares the Registered Trapline (RTL) District with God's Lake First Nation. Traplines within the God's Lake RTL District that are at least partially located within the Indigenous LAA are 4 to 12 and 44.	• The community has a long history of trapping and selling furs at the Hudson Bay Company's post in God's Narrows. Trapping has been a source of income for members.
	Waterfowl	Various places along God's River, Semmens Lake, Semmens River, Edmund Lake, and along the north shore of God's Lake.	• Waterfowl and game bird hunting is common in Manto Sipi. The most common species are Goose, mallard duck, and prairie chicken.
	Fishing		
	Fishing	Fishing primarily occurs around the community and God's Lake and in other areas outside of the Indigenous LAA.	• Community members conduct gill netting, ice fishing, angling and fly fishing, both for recreation and when guiding for the God's River Lodge. • The community has relied upon fish as a main source of food both historically and currently.

Assessment of Impacts on Rights			
	Travel routes		
	Routes	The majority of travel routes documented through the TK study were associated with the major waterways (ex: God's Lake and God's River). Snowmobile and ATV trails; major waterways; ice roads.	• Travel routes in the Indigenous RAA are important to Manto Sipi Cree Nation as they provide seasonal access for traditional activities of cultural importance including hunting, trapping, fishing and gathering. • Travel routes in the Indigenous LAA and RAA include ATV and snowmobile trails, as well as open-water and frozen waterways.
	Plant gathering		
	Plants species used for food and/or medicine (Chapter 6, Table 6.5 of the EIS)	Harvesting primarily occurs around the community and God's Lake and in areas outside of the Indigenous LAA.	• Members from Manto Sipi Cree Nation identified at least 10 plant species (e.g., Labrador tea, sweet flag, blueberries) used for food, medicine and other uses.
	Cultural Practices and Sites		
	Practices and sacred sites	Traditional youth camps, feasts, and cookouts around Johnson Bay. One of the special sites is the Old Hudson's Bay Company posts.	• Annual events pass on knowledge, support youth engagement, maintain land connection.
Bunibonibee Cree Nation	**Hunting and Trapping**		
	Moose	Moose hunting areas occur in entire watersheds near Oxford Lake, Hayes River, and along the winter roads.	• Moose harvest is highly valued by Bunibonibee Cree Nation community members and the continued health of moose populations and harvest is critical from a community perspective (TK studies).
	Waterfowl	Waterfowl hunting occurs on lakes and rivers in the Oxford House and Knee Lake areas.	• Members have stated that geese hunting is one of the most important species hunted
	Fishing		
	Walleye, whitefish, northern pike, and trout	Ice fishing takes place in winter on Oxford Lake, Knee Lake and lakes to the south of the community.	• Members indicated that fishing occurs for food as well as recreation. • Occurs year-round with gillnets, angling and ice fishing. • Fish guiding at fishing lodges in the area has provided a source of employment for many members.
	Travel Routes		
		Travel routes generally include walking, ATV and snowmobile trails, as well as open-water and frozen waterways. The majority of travel routes documented through the TK study were associated with Oxford Lake and major waterways in the Indigenous LAA and RAA (ex: Knee Lake).	• Travel routes in the Indigenous RAA are important to Bunibonibee Cree Nation as they provide seasonal access for traditional activities of cultural importance including hunting, trapping, fishing and gathering. • Members indicated that traveling and staying overnight on the traditional lands surrounding the community is common.
	Plant Gathering		
	Plants species used for food (Chapter 6, Table 6.5 of the EIS)	Most of the harvesting of plants occurs outside of the Indigenous LAA but there are a few small sites within the LAA.	• Berry picking is an important traditional activity for Bunibonibee Cree Nation members. Some members continue to harvest berries in the summer and fall. Berries picked include strawberries, gooseberries, bog cranberry, raspberries and blueberries. • Plant medicine harvesting is not as common as it was prior to the establishment of the Oxford House Reserve and the introduction of the biomedical system in the 1940s.
	Cultural Sites		
	Burial sites, sacred sites, educational or gathering areas.	Sites that are special or sacred include pictograph/rock painting sites and the old settlement where Treaty 5 was signed.	
	Hunting and Trapping		

Assessment of Impacts on Rights			
God's Lake First Nation	Moose	Moose hunting is often done by boat around the shorelines of water so that the moose can be transported back to the community. Sometimes, hunters will fly into moose hunting areas near more remote lakes.	• Moose is a valuable food source, and its meat is often shared with other members, making moose hunting a valuable social/cultural practice. Moose hunting also provides a significant dietary component for members.
	Furbearers (e.g., beaver, fisher, fox, lynx, marten, mink, muskrat, otter, wolf and wolverine)	Trappers from the community trapped on registered traplines 1 to 4, 6, 10, 27, 44, 48 and 49. Trapline 44 is a community trapline that is used by elders and others.	• Trapping is valued as a source of income and a connection to traditional practices. God's Lake First Nation shares a RTL District with Manto Sipi Cree Nation.
	Waterfowl	Waterfowl hunting occurs on lakes and rivers in the God's Lake area.	• Waterfowl and game birds are an important food source to community members. • Species include ducks, geese, grouse, ptarmigan, spruce grouse, merganser, black ducks (scoter) and fall ducks (ring necked ducks).
	Fishing		
	Brook trout, northern pike, lake trout, sturgeon, walleye and whitefish	The entire God's Lake is used for fishing.	• Fishing is an important activity for harvesting food and fish represents a main dietary component of God's Lake First Nation members. Sharing catch is common in God's Lake. • Fishing serves a social and cultural function by bringing families and friends together, connecting community members to the land and providing an opportunity for passing on knowledge.
	Travel Routes		
	Routes	Associated with the major waterways, including God's Lake. Travel by boat occurs on God's Lake.	• Important to GLFN members as they provide seasonal access for traditional activities of cultural importance including hunting, trapping, fishing, and gathering. • Include walking, ATV, and snowmobile trails, as well as open-water and frozen waterways.
	Plant Gathering		
	Plants species used for food and/or medicine	Harvesting of plants occurs in the vicinity of God's Lake and the community, as well as along the winter road.	• Gathering of food (e.g. berries) and medicinal plants is a traditional activity that provides a cultural connection to the land, which is practiced in the Indigenous RAA by many community members.
	Cultural Sites		
	Special areas	None of these areas are in the vicinity of the proposed all-season road alignment.	• Members indicated that special areas include former mine sites, a trading outpost, old settlement sites, a dam, a former fish plant, the site of treaty signing and locations where artefacts were found.

b) The proposed Project could positively and/or adversely impact the exercise of rights through the pathways included below, and which are discussed in Chapter 6 and, Appendix 6-4 of the EIS.

Potential impacts of the proposed Project on the exercise of Aboriginal and Treaty rights has been assessed by applying the same methodology used in Project 4 (All-Season Road Connecting Berens River to Poplar River First Nation), where rights were considered through the assessment and mitigation of potential effects on resource use (e.g., hunting, fishing, trapping, water use) and culturally significant practices and areas. This approach has been supplemented by Traditional Knowledge (TK) studies, both regional and community-specific, as well as by engagement with Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community. This approach aligns with the Canadian Environmental Assessment Act, 2012 requirement to assess environmental effects on Aboriginal peoples' use of lands and resources for traditional purposes, in contrast to the Impact Assessment Act's requirement for a broader assessment of rights.

The effects of the proposed Project on rights have also been considered across multiple components of the EIS, as well as various information requests (IRs) (IR39, IR72, IR84, IR85, IR88) including assessments of country foods, human health, socio-economic conditions, and cultural and heritage values. MTI acknowledges that rights-based assessments are iterative, and additional information gathered through ongoing engagement, including further input and TK information provided by communities identified in Part 2, Section 5.1 of the EIS Guidelines, will be used to inform Project planning and will be shared with provincial and federal regulators responsible for Crown-Indigenous consultations and environmental approval decisions.

Hunting and Trapping

The proposed Project may lead to a reduction in food supply from previously identified effects on furbearers and birds and their habitat (clearing, sensory disturbance, hunting pressure, vehicle collisions and loss of nests) from construction, maintenance and operation activities**.** Similarly, it may lead to a reduction in food supply and culturally important species from previously identified effects on ungulates (e.g. moose, caribou) and their habitat (clearing, sensory disturbance, hunting pressure, vehicle collisions, predation and disease) from construction, maintenance and operation activities. The development of the proposed all-season road will improve local access to hunting and trapping areas, which may in turn result in an increase in food supply.

Fishing

The proposed Project may lead to a reduction in food supply from previously identified effects on fish and their habitat (water quality, shock waves, fishing pressure, fish passage, habitat and invasive species) from construction, maintenance and operation activities. The development of the proposed all-season road may improve access to lakes preferred by community members for fishing which may in turn result in an increase in food supply.

Travel Routes

The proposed Project may lead to a decreased access to traditional travel routes used for resource use and recreation during construction, maintenance and operation. The development of the proposed all-season road may improve access to areas used for traditional practices and ceremonies.

Plant Gathering

The proposed Project may lead to a loss of medicinal plant harvest areas used by community members for therapeutic or healing purposes due to clearing of native vegetation within the proposed Project right of way, temporary access roads, quarries, borrow pits, work areas and camps. Similarly, it may lead to the reduction in food supply from previously identified effects on harvested vegetation (e.g. berries) (clearing, drainage alterations, invasive species and wildfires) from construction, maintenance and operation activities. The development of the proposed all-season road may improve access to areas for gathering by community members which may in turn lead to new medicinal and plant harvest areas being identified and used.

Cultural Sites

The proposed Project may lead to a loss or disturbance to heritage, culture (sacred) or community use resources and sites during right-of-way (ROW) clearing and construction activities. It may also lead to the loss or disturbance to heritage resources from increased access. The proposed all-season road alignment will not interfere with any known sacred sites identified by Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community. Information provided by engagement and TK studies were used to avoid areas of cultural importance when developing the proposed all-season road alignment.

Knowledge and Experience

Through the TK studies conducted as a part of the Large Area Transportation Network Study (LATNS) (SNC Lavalin, 2011), some participants expressed concerns that improved road access that would be provided by the All-Season Road Network could result in a decline in the use and transmission of traditional knowledge. This includes knowledge of traditional medicine and other traditional skills, language, and ways of life. Others disagreed, indicating that the All-Season Road Network would increase community participation/interest in hunting, trapping, and fishing.

The development of the proposed all-season road would also provide improved between Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community. This may promote knowledge sharing and cultural experiences between the communities.

Governance

The proposed Project will improve year-round access to traditional lands and interaction among local communities. It also may lead to non-Indigenous access to traditional lands.

As noted in the Heritage Resource Impact Assessment conducted for the proposed Project, archaeological data indicates cultural continuity and occupation of the area by historic populations of people now identified as Cree. As described in Chapter 6 of EIS and response to IR1-77, the Indigenous Regional Assessment Area encompasses the Traditional Territories of Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, and God's Lake Narrows Northern Affairs Community as identified by traditional knowledge studies and aligns with the trapline areas held by those communities. These traditional territories are based on registered trapline areas and are typically treated as properties for the exclusive use by the specific community. It is generally understood that permission from a particular community is required to use lands and resources within their traditional territory. The remaining Indigenous communities listed in Part 2, Section 5.1 of the EIS Guidelines are located outside the Regional Assessment Area (RAA) boundaries and therefore are not anticipated to be directly affected by the proposed Project.

c) To assess severity of potential impacts to the exercise of Aboriginal and Treaty rights, the Crown considers a number of questions:

- Are there any First Nation reserve lands, recognized or asserted traditional territories or recognized Indigenous communities in the area where the activity will take place of which will be affected by the activity?
- Are there existing agreements or protocols with communities that require consideration?
- Will the proposed activity likely change the current land use?
- What is the potential impact of the activity on the land or natural resources?
- What are the potential adverse effects of the proposed activity on the exercise of Aboriginal and Treaty rights?
- What are the potential adverse effects of the proposed activity with respect to historical/archaeological sites, burial grounds or other areas of Indigenous interest?
- Is there concern regarding the cumulative effects of the proposed activity/initiative in combination with others in the area?
- What are the known issues/concerns?
- What actions did the proponent take to understand and mitigate impacts to Aboriginal and Treaty Rights?

An example of criteria for assessing the severity of potential impacts to the exercise of Aboriginal and Treaty rights is outlined in Appendix IR1-90-1 of this response that is based on currently available information from the EIS, TK studies, and the criteria outlined in the assessment of

potential impacts to Aboriginal or Treaty rights co-developed by the Government of Canada and Mikisew Cree First Nation (CEAA, 2018).

Conclusions regarding the severity of impacts to the exercise of Aboriginal and Treaty rights have not been made at this time, as the Project's Guidelines for the preparation of an EIS pursuant to the Canadian Environmental Assessment Act, 2012 (CEAA, 2017) did not required it. Further consultation with Indigenous communities is required to discuss the criteria and apply them in a manner that reflects each community's specific perspectives, values, and thresholds of concern. The input received through upcoming engagement activities may inform development and application of the criteria and guide future updates to the rights-based assessment to be completed by the Crown-Indigenous consultation process.

d) The assessment of potential Project effects on the environment and land and resource use that supports the exercise of rights is provided in Chapter 6 of the EIS. This includes predicted effects on hunting, fishing, trapping, plant gathering, and travel routes, as well as cultural and traditional land uses. MTI acknowledges that while these effects have been assessed and corresponding mitigation measures have been proposed, the broader implications for Aboriginal and Treaty rights, including cultural continuity, governance, and intergenerational knowledge transfer require further community feedback through the federal and provincial consultation processes.

Further engagement and consultation with Indigenous Nations is necessary to ensure that any conclusions regarding severity are supported by community perspectives and values. Federal and provincial Crowns' conclusions regarding the level of impact on the exercise of rights will be informed through proponent engagement activities as identified in response to IR1-88 as well as federal and provincial Crown-Indigenous consultation processes, which will include in-community meetings, validation of information received, and collaborative review of proposed mitigation and accommodation measures. Impact levels will be assessed in accordance with the Agency's Interim Guidance on the Assessment of Potential Impacts on the Rights of Indigenous Peoples (IAAC, 2024), which is pertinent to the Impact Assessment Act and was published after the EIS which was filed under the Canadian Environmental Assessment Act, 2012, and 2009 Interim Provincial Policy for Crown Consultations with First Nations, Métis Communities and Other Aboriginal Communities (Indigenous and Northern Relations) respectively.

e) Mitigation measures proposed to address potential impacts to the environment and land and resource use that supports the exercise of rights the exercise of Aboriginal and Treaty rights are outlined in Appendix 6-4, and Appendix 7-1 of the EIS. These measures were developed to reduce or avoid Project-related effects on land and resource use, including hunting, fishing, trapping, plant gathering, cultural sites, travel routes, governance, knowledge and experience.

These measures include route realignments to avoid important harvesting areas, implementation of environmental protection plans to protect water quality and wildlife habitat, timing restrictions on construction activities to avoid critical harvesting periods, and the application of erosion and sediment control practices to protect culturally important plant-gathering areas and aquatic ecosystems. Specific mitigation measures have also been informed by the results of TK studies and community feedback received through engagement meetings such as maintaining trails, providing accesses for trappers and portages at key watercourse crossings.

At this stage, MTI has not finalized any formal accommodation measures beyond the mitigation strategies identified in the EIS. Given that the proposed Project was requested by and is intended to better serve Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation and God's Lake Narrows Northern Affairs Community, MTI does not anticipate the need for additional accommodations at this time. However, ongoing engagement with Indigenous communities is expected to assist in identifying the need for accommodations and the potential measures themselves should they be required, particularly where residual effects may persist after mitigation. MTI is committed to working collaboratively with Indigenous Nations to identify and implement accommodations for project effects related to the exercise of rights throughout the lifecycle of the proposed Project.

APPENDIX IR1-90-1

Example of assessment criteria and levels of potential environmental effects

Assessment Criteria	Range of Criteria	Level of Effect and Definition[1]
Direction of Change (type of effect)	Neutral or Negligible	No measurable change on the VC.
	Negative	Net loss (adverse or undesirable change) on the VC.
	Positive	Net benefit (or desirable change) on the VC.
Duration (period of time the effect occurs)	Short-Term	**Level I** - The potential effect results from short-term events or activities such as the time required to complete a discrete component during construction, maintenance, or rehabilitation activities (i.e., a timeframe of several months up to one year).
	Medium-Term	**Level II** - The potential effect is likely to persist until the completion of construction and rehabilitation activities (i.e., > 1 year to 10 years).
	Long-Term	**Level III** -The potential effect is likely to persist beyond the completion of construction and rehabilitation activities into the operations and maintenance phase of the Project (i.e., a timeframe of greater than 10 years).
Magnitude (degree or intensity of the change)	Negligible or Low	**Level I** - A change that is not likely to have a definable, detectable or measurable potential effect above baseline (i.e., potential effect is within a normal range of variation) or is below established thresholds of acceptable change (e.g., water quality guideline). See **Table 4.5** for VC specific criteria.
	Moderate	**Level II** – A change that will have a potential measurable effect that can be detected with a well-designed monitoring program; but is only

[1] **Chapter 6** of the Environmental Impact Statement outlines VC specific definitions for the three level ranking system.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[1]
		marginally beyond standards/guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
	High	**Level III** – A change that will have potential effects that are easily observed, measured, and described (i.e., readily detectable without a monitoring program) and are well beyond guidelines or established thresholds of acceptable change. See **Table 4.5** for VC specific criteria.
Timing[2]	No Sensitivity	**Level I** – Effect does not occur during critical life stage.
	Moderate Sensitivity	**Level II** – Effect occurs at the start or end of a critical life stage.
	High Sensitivity	**Level III** – Effect occurs during a critical life stage.
Extent (Spatial Boundary)[3]	Project Footprint	**Level I** - The physical space or directly affected area on which Project components or activities are located and/or immediately adjacent area which is within the defined limits of the P6 all-season road ROW (i.e., 100 m) and permanent and temporary facilities (e.g., temporary access routes and quarries) within which potential effects are likely to be measurable.
	LAA	**Level II** - Area within which potential Project effects are measurable and extending beyond the Project Footprint to, but not beyond, the LAA (either a 2 km or 10 km corridor centred on the

[2] In terms of **Timing**, the critical life stages include things such as nesting, breeding, spawning and calving which will vary by VC and will vary annually depending on seasonal conditions. For example, it is clear that winter is outside of bird nesting and breeding period and that spring is fully within this critical time period, whereas early spring and late fall is a transitional period that depending on the seasonal conditions may or may not affect the life stage.

[3] Environmental Impact Statement **Figures 4-1** and **4-2** illustrate the VC specific spatial boundaries of the LAA and RAA, which are discussed in greater detail in **Chapter 6**.

Assessment Criteria	Range of Criteria	Level of Effect and Definition[1]
		all-season road alignment depending on the VC (**Figure 4-1**).
	RAA	**Level III** - The maximum anticipated regional extent of potential direct, indirect and cumulative effects that may extend beyond the LAA. The boundaries of the RAA will vary depending on the VC.
Frequency (how often the effect occurs)	Infrequent	**Level I** - The potential effect occurs once or seldom during the life of the Project (e.g., initial clearing of the ROW).
	Sporadic/Intermittent	**Level II** - The potential effect occurs only occasionally and without any predictable pattern during the life of the Project (e.g., blasting at quarries; site-specific construction equipment noise; potential wildlife-vehicle collisions).
	Regular/Continuous	**Level III** – The potential effect occurs at regular and frequent intervals during the Project phase in which they occur or over the life of the Project (e.g., construction traffic; operations traffic).
Reversibility (the degree of permanence)	Reversible (short-term)	**Level I** – Potential effect is readily reversible over a relatively short period (< than eight years).
	Reversible (long-term)	**Level II** - Potential effect is potentially reversible but over a long period (> than eight years).
	Irreversible	**Level III** - Project-specific potential effects are permanent and irreversible.
Ecological and Social Context (resilience of a VC to adapt to changes as a result of the project)	Low	**Level I** – The VC is not rare or unique and is resilient to imposed change.
	Moderate	**Level II** – The VC is moderately/seasonally fragile and has some capacity to adapt to imposed change.
	High	**Level III** – The VC is a protected/designated species under MESEA, SARA and species listed

Assessment Criteria	Range of Criteria	Level of Effect and Definition[1]
		by COSEWIC and by the MBCDC as very rare (S1) to rare (S2) or fragile with low resistance to imposed change or part of a very fragile ecosystem.
Way of Life (values, practices, traditions)	Low	**Level I** – No or little indication that there would be any impact to practice of rights, traditional resources or ecosystem and cultural services of the impacted group. Little to no reduction in value of culturally important locations or ability of group to obtain quality and quantity of resources.
	Moderate	**Level II** – There may be an impact to practice of rights but impacts are unlikely extend to preferred areas, preferred or scarce resources or to ecosystem and cultural services of high value to the impacted community. The impact may impede or alter access to practice cultural activities but without limiting connection to an area or sense of place. There may be some loss of habitat or availability of culturally important species. The disturbance may be of a physical or sensory nature (noise, visual quality, etc.)
	High	**Level III** – Impacts are likely to cause an interference with the meaningful exercise rights in the preferred manner, including limited use of, or access to, preferred quality and quantity of resources and or limitations on scarce or high community value areas. Multiple impacts could occur to one area of high importance. The Project may cause effects on a species that is culturally important, that has limited availability or high sensitivity to change or that is also a federally or provincially listed species at risk. Access to practice cultural activities would likely be disrupted or limited. The disturbance may be of a spiritual, cultural, social, physical or sensory nature (noise, visual quality, etc.)

Assessment Criteria	Range of Criteria	Level of Effect and Definition[1]
Regional/Historic/ Cumulative context (Impacts of past, existing and future projects or activities)	Low	**Level I** – There is little development in the community's territory that has created restraints on the exercise of rights and the Project or activity would be in an area with few existing impacts. The Project is not likely to contribute to further cumulative effects
	Moderate	**Level II** – There are other land uses, including proposed or existing projects, in the community's territory which impact the practice of rights.
	High	**Level III** – There are multiple other land uses, including proposed or existing projects, which impact the community's practice of rights. The Project may interact with the exercise of rights in an area highly valued given cumulative context. The rights which may be impacted by the Project are not currently practiced in the preferred manner because of conservation issues, lack of access or government policy/programs.
Stewardship/Nationhood & Community Thresholds (Planning and management or stewardship of traditional lands and resources)	Low	**Level I** – There is a high level of cooperation between the proponent and impacted group. The community has formally indicated to the Crown that risks from the Project are acceptable or have been accommodated or the Project falls into an area already considered for industrial development in the plans of the community.
	Moderate	**Level II** – The impacted community has expressed concern about impacts of the Project. The community has stated that some impacts remain after mitigation and/or accommodation. The community has indicated that the Project may not be compatible with certain aspects of their land use plans or application of traditional laws.
	High	**Level III** – The Project would likely prevent or restrict use of areas identified as high

Assessment Criteria	Range of Criteria	Level of Effect and Definition[1]
		stewardship and nationhood priorities. Project may cause interference in traditional land management regime and values. The community has indicated that the Project is not compatible with its land use plans or application of traditional laws.
Impact Inequity (including future generations)	Low	**Level I** – Vulnerable sub-groups (such as elders, children, youth, women, specific families and/or households) are unlikely to experience impacts from the Project and are likely to maintain the exercise of rights. The impacts allow intergenerational transfer of knowledge and exercise of right to continue into the future. Strong benefits will be experienced by each sub-group of the population.
	Moderate	**Level II** – Transfer of knowledge between generations may be interrupted for a moderate period of time by the Project. Vulnerable sub-groups of the population are likely to experience a higher impact on the ability to exercise rights. Rights may be resumed broadly within one generation.
	High	**Level III** – One or more vulnerable sub-groups will be disproportionately impacted by the Project, and mitigations and benefits unlikely to preserve the ability of sub-groups to benefit from their rights. Intergenerational transfer of knowledge would be interrupted for an extended time period and may not be reversed either in whole or part

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