



Comprehensive Study Report

Lake Winnipeg East Side Road

(Provincial Road 304 to Berens River All-Season Road Project)

CANADIAN ENVIRONMENTAL ASSESSMENT AGENCY



May 2011

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Executive Summary

The Manitoba Floodway and East Side Road Authority (the Proponent) proposes to construct and operate the Lake Winnipeg East Side Road project (the Project). The Project would be an all-season road commencing at Provincial Road 304 east of Manigotagan, Manitoba, and extending 156 km to the south shore of the Berens River. It would traverse boreal forest, wetlands and several bodies of water along its route. The Project would provide reliable, year-round road access to several communities on the east side of Lake Winnipeg which are currently only served by an increasingly unreliable winter road network.

Fisheries and Oceans Canada (DFO) and Transport Canada (TC) have determined that each would have regulatory decisions to take with respect to the Project under the *Fisheries Act* and the *Navigable Waters Protection Act*, respectively. Indian and Northern Affairs Canada (INAC) may provide financial assistance to the Project. These decisions, which would enable the



Project to proceed, trigger the requirement for an environmental assessment (EA) of the Project in accordance with the *Canadian Environmental Assessment Act* (the Act). As the Project is described under paragraph 29(b) of the Schedule to the *Comprehensive Study List Regulations* under the Act, a comprehensive study is required.

The Project also underwent an environmental impact assessment under Manitoba's *Environment Act*. In accordance with the *Canada-Manitoba Agreement on Environmental Assessment Cooperation*, a cooperative environmental assessment involving both jurisdictions has been conducted.

This comprehensive study report was prepared by the Canadian Environmental Assessment Agency (the Agency) in consultation with DFO, TC, and INAC, following a technical review of the Proponent's environmental impact assessment report and an evaluation of the environmental effects of the Project. Additional expert advice was provided by Environment Canada, Health Canada, and the Parks Canada Agency.

Specific potentially affected valued ecosystem components (VECs) were examined during the environmental assessment process. It was determined that the following would be the project VECs: surface water quality and quantity, fish, fish habitat and aquatic species at risk, wildlife, wildlife habitat, and terrestrial species at risk.

Following the analysis of the nature of the project, the infrastructure associated with the project and the predicted effects on the VECs, the Agency assessed the potential impacts that the Project is likely to have on the environment. This review was completed on the basis of the information provided by the proponent in its environmental impact

assessment and supplemental material, advice provided by federal and provincial experts, and comments provided by Aboriginal groups and public stakeholders through various consultation exercises.

The environmental effects which were determined to have the greatest degree of severity and elicited the most concerns during the comprehensive study process were:

- Potential project interactions with surface water including effects on surface water quality and quantity;
- Effects on fish and fish habitat, including loss of fish habitat, killing of fish by means other than fishing, and increased fishing pressure due to improved access;
- Loss of forest and wetland vegetation through clearing;
- Loss of wildlife habitat, including effects on Moose and Woodland Caribou habitat;
- Disturbance to wildlife due to noise generated during construction activity and operation of the road; and
- Increased hunting pressure due to improved access into the Project study area.

Mitigation measures have been proposed to reduce the predicted severity of the adverse effects of the project. Examples of these measures include minimizing the geographic extent of the project; incorporating the recommended design criteria and construction practices for water crossings to minimize habitat disturbance; applying best management practices for controlling soil erosion during and after construction, and; undertaking extensive environmental monitoring programs to verify the determinations reached as part of the comprehensive study.

A follow-up program is required under the Act to verify the accuracy of the environmental assessment and determine the effectiveness of the proposed mitigation measures. The program would focus on those environmental components where there is a relatively large degree of uncertainty about the precision with which effects have been predicted. The Proponent has committed to provide annual follow-up reports on surface water, fish and fish habitat, wildlife, migratory birds, and species at risk, as part of the follow-up program.

Taking into account the implementation of the mitigation proposed and commitments made by the Proponent in its EIA report, along with the mitigation and follow-up required by *Environment Act* License No, 2929 issued by Manitoba Conservation, the Canadian Environmental Assessment Agency concludes that the Project is not likely to cause significant adverse environmental effects.

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1 Introduction

1.1 Project Overview

The Manitoba Floodway and East Side Road Authority (the Proponent) has proposed to construct, operate, and maintain an all-season road from the junction of the existing Rice River Road and Provincial Road (PR) 304 near Manigotagan to the south shore of the Berens River. As shown on Figure 1, the Lake Winnipeg East Side Road Project (the Project) would extend 156 kilometres north from PR 304.

The Proponent is a special operating agency of the Government of Manitoba. Proponent information can be found at www.eastsideroadauthority.mb.ca.

Table 1: Project Summary

Project Name:	Lake Winnipeg East Side Road (Provincial Road 304 to Berens River All-Season Road Project)
Project Summary:	The East Side Road Authority is proposing to construct, operate and maintain a 156 km all-season road from Provincial Road 304 at Manigotagan to the Berens River in Manitoba. The Project is located on the east side of Lake Winnipeg, approximately 200 km northeast of the City of Winnipeg. The project also includes temporary facilities and associated infrastructure to construct the road.
Proponent:	Manitoba Floodway and East Side Road Authority Mr. Ernie Gilroy, CEO 200 - 155 Carlton Street Winnipeg, MB R3C 3H8 www.eastsideroadauthority.mb.ca
Location:	Provincial Road 304 at Manigotagan to the Berens River in Manitoba (Start point at PR 304 - Latitude 51° 7' 44", longitude 96° 10' 36" W; End point near Berens River I.R.: - Latitude 52° 38' 23", longitude 96° 54' 23" W)
Environmental Assessment Contact:	Canadian Environmental Assessment Agency Project Manager, Kris Frederickson Suite 101, 167 Lombard Ave Winnipeg, MB R3B 0T6 Telephone: 204-983-5127 Fax: 204-983-7174 EastSideRoad@ceaa-acee.gc.ca
Canadian Environmental Assessment Registry:	http://www.ceaa-acee.gc.ca/050/index-eng.cfm CEAR File number: 05-03-8729
Manitoba Conservation – Online Public Registry:	www.gov.mb.ca/conservation/eal/index.html File number 5388

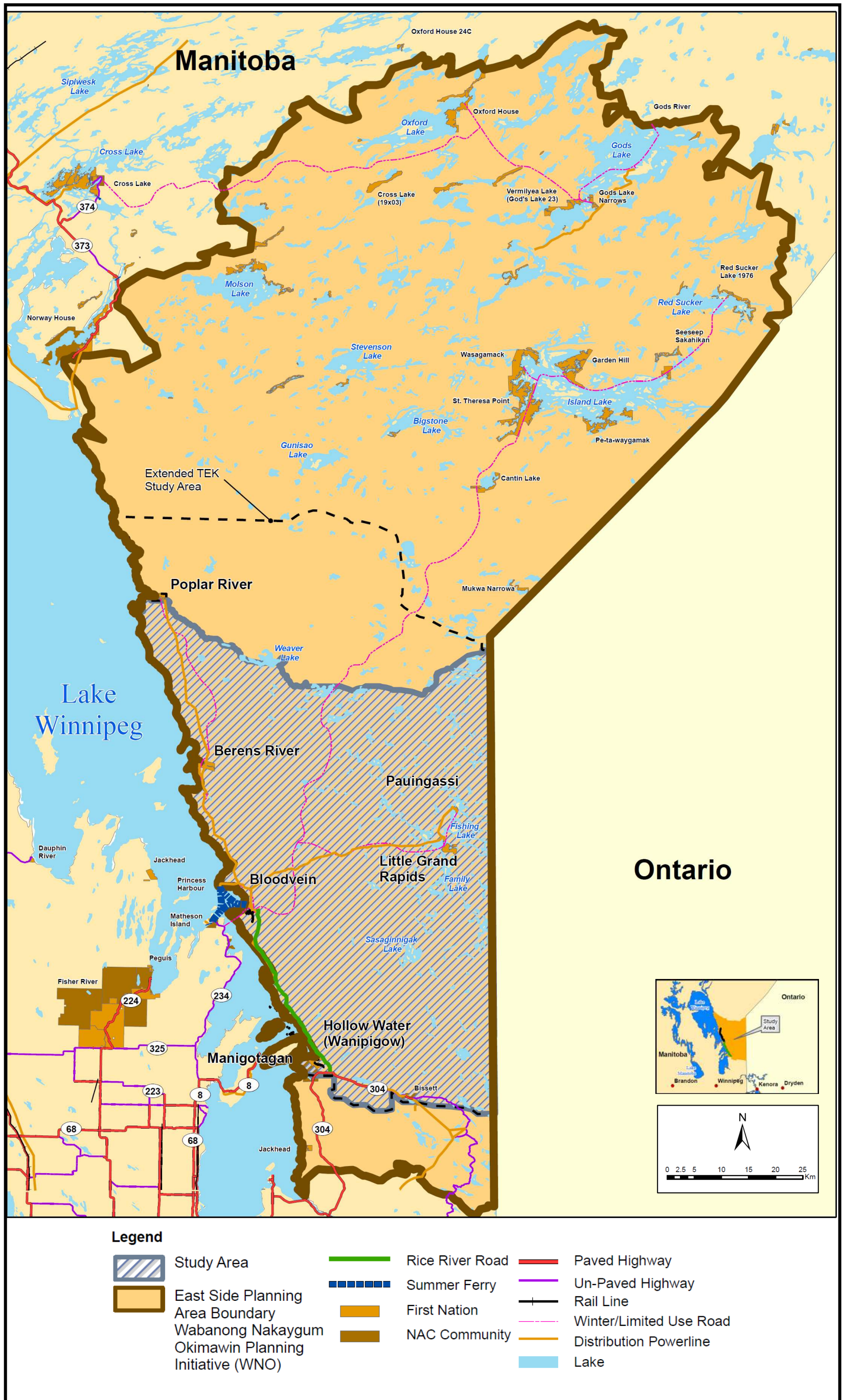


Figure 1 Project Location

1.2 Environmental Assessment

Cooperative EA Process

The Project is subject to an environmental assessment (EA) under the *Canadian Environmental Assessment Act* (the Act) and licensing under Manitoba's *Environment Act*. The Governments of Canada and Manitoba conducted the necessary EAs cooperatively as per conditions of the *Canada-Manitoba Agreement on Environmental Assessment Cooperation* (Cooperation Agreement).

In February 2009, the Proponent commenced the provincial EA with the filing of the "Environment Act Proposal Notification Document and Draft Scoping Document" for the Project with the Government of Manitoba. Pursuant to the Cooperation Agreement, both the provincial and federal governments initiated an EA process for this Project. The Environmental Assessment and Licensing Branch of Manitoba Conservation issued *Environment Act* Licence No.2929 on August 16, 2010, which enables the Project to proceed subject to specifications, limits, terms and conditions.

Federal EA Process

The Act applies to federal authorities when they contemplate certain actions or decisions in relation to a project that would enable it to proceed in whole or in part. A federal EA may be required when a federal authority:

- is the proponent of a project;
- provides financial assistance to the proponent;
- makes federal lands available for the project; or
- issues a permit, license or any other approval pursuant to any of the provisions prescribed by the *Law List Regulations*.

Fisheries and Oceans Canada (DFO) and Transport Canada (TC) have determined that each would have regulatory decisions to take in relation to the Project under the *Fisheries Act* and the *Navigable Waters Protection Act*, respectively. Indian and Northern Affairs Canada (INAC) may provide financial assistance to the Project. These decisions, which would enable the Project to proceed, trigger the requirement for an EA of the Project in accordance with the Act.

The Project is subject to a comprehensive study type EA as it is described under paragraph 29(b) of the Schedule to the *Comprehensive Study List Regulations* under the Act, which includes the construction of an all-season public highway that would be more than 50 km in length, located on a new right-of-way, and would lead to communities that currently lack all-season public highway access.

The Canadian Environmental Assessment Agency (the Agency) which is responsible for the conduct of the comprehensive study, prepared this comprehensive study report (CSR) in consultation with the DFO, TC, and INAC. This CSR is based on the results of a technical review of the Proponent's environmental impact assessment report and an evaluation of the environmental effects of the Project. Environment Canada, Health Canada, and the Parks Canada Agency also provided advice in relation to their respective mandates and areas of expertise.

Local, provincial and Aboriginal governments, as well as environmental non-government organizations (ENGOS) and residents of local communities and First Nations within the Project study area, have participated throughout the EA process.

The purpose of this CSR is to provide the Minister of the Environment the information and analysis on whether the Project is likely to cause significant adverse environmental effects. The Minister will consider this report and comments received from the public and Aboriginal groups in issuing an EA decision statement that includes:

- the Minister's opinion as to whether, taking into account the implementation of any mitigation measures that the Minister considers appropriate, the Project is or is not likely to cause significant adverse environmental effects; and
- any mitigation measures or follow-up program that the Minister considers appropriate.

The Minister of the Environment may request additional information or require that public concerns be addressed further before issuing the EA decision statement.

Following the EA decision statement, the Minister will refer the Project back to DFO, TC and INAC in order for them to take the appropriate course of action.

2 Project Description

2.1 Need and Purpose of the Project

The Lake Winnipeg East Side Road Project (the Project) is part of a strategic initiative of the Government of Manitoba to address the unreliable nature of the existing winter road network given current weather trends. Thus, the Project is needed to provide improved, safe and more reliable ground transportation service to and between communities in the region.



2.2 Location

The Project is proposed to be located on the east side of Lake Winnipeg, extending from Provincial Road (PR) 304 at Manigotagan, north to the Berens River (Figure 1). The preferred alignment includes the Rice River Road, an existing forestry road between the Manigotagan and Bloodvein rivers, and a new right-of-way (ROW) between the Bloodvein and Berens rivers.

2.3 Project Components

The Project as proposed includes the following Project components:

- upgrading and re-alignment of 77 km of existing gravel-surfaced road from PR 304 near Manigotagan, Manitoba to the Bloodvein River;
- construction of 79 km of new road from the Bloodvein to Berens Rivers;
- replacement or construction of 136 watercourse crossing structures; and
- construction camps, borrow pits and quarries to support construction, operations and maintenance requirements.

Aggregate for the road bed will be acquired through third-party suppliers from local borrow sources and rock quarries established for the Project. Borrow and quarry areas have been identified for fill, sand, aggregate and crushed rock. To the greatest extent possible, borrow pits would be developed within the 100 metre ROW; however, one quarry near the Pigeon River would be situated approximately 2.5 km from the ROW.

2.3.1 Construction Activities

To build and operate the project, several activities are required including:

- mobilization;
- quarrying and earth-moving;
- access-road construction;
- clearing and grubbing;
- fish habitat compensation works;
- road-grade construction;
- bridge construction and culvert installation;
- waste management and disposal;
- equipment and camp demobilization; and,
- road and structure maintenance

For a detailed description of all project activities see Annex 1.

2.4 Schedule

Construction would be expected to extend over a period of approximately 60 months, with substantial completion by December 2015. It is anticipated that segments of the Project would be completed and operational prior to December 2015. The proposed construction schedule is described in Annex 1.

3 Scope of the Assessment

Scoping establishes the boundaries of the federal EA in order to focus the assessment on relevant issues and concerns.

3.1 Scope of the Project

The scope of the federal EA includes all physical works and activities associated with the construction, operation, modification, decommissioning, abandonment (as appropriate) and reclamation of the Project, as described in Section 2 and Annex 1 of this report.

3.2 Factors to be considered

The following factors are required to be considered as part of the comprehensive study pursuant to subsections 16(1) and 16(2) of the Act:

- the purpose of the project;
- alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means;
- the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
- the capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future;
- the significance of the effects;
- comments from the public that are received in accordance with the Act and the regulations;
- measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project; and
- the need for and the requirements of any follow-up program in respect of the project.

In accordance with paragraph 16(1)(e) of the Act, the Agency determined that the assessment would include the need for the project and alternatives to the project.

3.3 Scope of the Factors

Determination of the scope of factors considered in this comprehensive study was based on the potential for the proposed works and activities to cause adverse environmental effects. The analysis of potential interactions of the project activities on the identified valued ecosystem components (VECs) is presented in Table 2.

Table 2: Project – Environment Interactions Summary

Project Components / Activities	Valued Ecosystem Components									
	Air Quality	Terrain and Soils	Groundwater (quality & quantity)	Surface Water (quality & quantity)	Forest and Wetland Vegetation	Fish and Fish Habitat	Wildlife & Wildlife Habitat (including Migratory Birds)	Species at Risk	Cultural Sites	Navigability
Site Preparation:										
Mobilization and staging	○	○		○	●		●	●	○	
Clearing and grubbing	○	○		○	●		●	●	○	
Construction:										
Culvert crossings	○	○		○	●	●	●	●	○	○
Construction camps	○	○			●		●	●	○	
Borrow pits and quarries	○	○	○	○	●		●	●	○	
Access roads	○	○		○	●		●	●	○	
Road grade	○	○		○	●		●	●	○	
Bridge	○	○		○	●	●	●	●	○	○
Operation and Maintenance	○			●	●	●	●	●	○	○
Accidents and Malfunctions	○	○								
Legend: ○ negligible or minor adverse effect ● likely adverse effect										

Flowing from the analysis demonstrated in Table 2, the Agency identified the VECs likely to be impacted by the Project and included the rationales for their importance (Table 3). Descriptions of the five VECs identified in the table below and the potential environmental effects of the Project on them are provided in Sections 6 and 7 of this report. A discussion of the potential for effects to the full-range of VECs considered in the assessment is included in Annex 2.

Table 3: Potentially Affected Valued Ecosystem Components

VEC	Rationale
Surface water (quality and quantity)	Sensitive environment Habitat suitability Indicator of environmental health Traditional Aboriginal use
Fish and fish habitat	Cultural significance Economic significance Traditional Aboriginal use
Forest and wetland vegetation	Educational interest Habitat suitability Sensitive environment Traditional Aboriginal use
Wildlife and wildlife habitat <ul style="list-style-type: none"> - Moose - Furbearers - Amphibians and reptiles - Migratory birds 	Notable species or species groups Scientific interest Economic significance Educational interest Traditional Aboriginal use
Species at risk <ul style="list-style-type: none"> - Woodland Caribou - Wolverine - Aquatic species - Lake Sturgeon, Shortjaw Cisco, Bigmouth Buffalo, Silver Chub, Maple Leaf Mussel - Bird species – Olive-sided Flycatcher, Canada Warbler, Chimney Swift, Rusty Blackbird, Common Nighthawk 	Protected species Scientific interest Traditional Aboriginal use

3.3.1 Spatial and Temporal Boundaries

In general, the spatial boundary for the comprehensive study reflects the geographic range over which the Project’s environmental effects may occur. Spatial boundaries were considered specific to each VEC in order to effectively assess the potential environmental effects of the Project, as described in Table 4.

Table 4: Spatial Boundaries for Potentially Affected VECs

VEC	Spatial Boundary
Surface water quality	Within 3 kilometres downstream from water crossing
Fish and fish habitat (including aquatic species at risk)	Within 75 metres upstream and 150 metres downstream of each water crossing
Forest and wetland vegetation	Effects are experienced within the rights-of-way and work areas identified for the Project and analysed in the context of the study area identified in Figure 1
Wildlife and wildlife habitat (include terrestrial and bird species)	Effects are experienced within the rights-of-way and work areas identified for the Project and analysed in the context of the study area identified in Figure 1
Species at risk	Effects are experienced within the rights-of-way and work areas identified for the Project and analysed in the context of the study area identified in Figure 1

The temporal boundaries will encompass the entire lifespan of the Project. The EA includes a description of the effects of the Project on each VEC beginning with the construction and continuing through the operations phase including maintenance and modifications.

4 Project Alternatives

4.1 Alternatives to the Project

Three alternatives to the Project were considered by the Proponent during the assessment, including:

- the “status quo” - maintaining the existing transportation system to provide access to communities on the east side of Lake Winnipeg i.e. air, winter roads, and seasonal ferry systems;
- providing other means of transportation (e.g. boat, enhanced air transport, or rail);
or
- developing an all-weather road to provide year-round road access to communities on the east side of Lake Winnipeg.

It was determined that only the development of an all-weather road would be capable of fully meeting the project need and purpose, which is to provide an improved, safe and more reliable transportation service to and between communities located on the east side of Lake Winnipeg.

A detailed discussion on alternatives to the Project can be found in Annex 3.

4.2 Alternative Means of Carrying Out the Project

In accordance with paragraph 16(2)(b) of the Act, the comprehensive study process must include consideration of the alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means.

Nine alternative routing options were assessed in the planning exercise to determine the overall recommended route. Separate consideration was given to routing options for the portion of the project located between PR 304 and the Bloodvein River (Rice River Road upgrade and extension), and the portion located between the Bloodvein River and Berens River. The Proponent determined that all route options were considered to be technically and economically feasible.

The assessment indicated that at a regional level, the predicted environmental effects associated with each of the technically and economically viable alternative routes would be similar and that those of the preferred alternative only varied in degree of severity given the proximity of the routes to each other and the uniformity of the receiving environment.

The preferred routes generally minimize the adverse effects on watercourses, and previously undisturbed terrestrial habitat by aligning with existing roads or right-of-ways. They also address human health and safety concerns of dust and noise generation by reducing heavy truck traffic through communities.

Table 5: Summary of Alternative Route Selection Analysis

	Manigotagan to Bloodvein Section				Middle Section	Northern Section				Bloodvein to Berens River Section			
	Route					Route				Route			
Selection Criteria	A 16.4 km	B 19.6 km	C 12.1 km	D 11.7 km	Rice River Road	A 12.0 km	B 11.0 km	C 16.1 km	D 10.0 km	Shoreline Route 75.4 km	Inner- shoreline Route 71.1 km	Central Route 73.8 km	Revised Shoreline Route 75.6 km
Technical Considerations	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Natural Environment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Use of existing ROW	✓	✗	✗	✗	✓	✗	✗	✗	✓	✓	✗	✗	✓
Social/Cultural Environment	✓	✓	✓	✓	✓	✗	✗	✗	✓ ¹	✗	✗	✗	✓ ²
Capital and Maintenance Costs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Preferred Route	✓				✓				✓ ¹				✓ ²

Note: ✓ – Feasible / Acceptable; ✗ – Unfeasible / Unacceptable

1. Alternative selected by the Bloodvein First Nation to minimize effects to cultural and recreational areas used by the people of the First Nation (confirmed by Chief and Council in a Band Council Resolution on October 27, 2009).
2. Alternative selected with input of the Bloodvein First Nation and Berens River First Nation.

The Agency is satisfied that the Proponent identified the technically and economically viable alternative means of carrying out the project and considered the environmental effects of the alternatives and their acceptability in identifying a preferred alternative.

A detailed discussion of the alternatives evaluation, including figures depicting the locations, can be found in Annex 3.

5 Consultation

Consultations with the people and communities potentially affected by the Project have been on-going since the all-season road concept was first introduced in 1999. Annex 4 contains a summary of public and Aboriginal consultation exercises on the Project that were conducted to engage the public and Aboriginal peoples in the assessment of potential environmental effects of the proposed road.

The Act requires that the public be provided with three formal participation opportunities – one at the outset of the process, one during the comprehensive study and a final opportunity to review and comment on this report. Furthermore, the Crown has a duty to consult, and where appropriate accommodate, when it has knowledge that its proposed conduct might adversely impact an established or potential Aboriginal or Treaty right.

5.1 Summary of Comments Received

The Government of Canada participated in the provincially-led consultation process until its conclusion in August 2010 when Manitoba issued *Environment Act* Licence No. 2929 for the Project.

Comments received from the public and Aboriginal groups generally related to the methodology of the EA process as well as specific environmental concerns. Comments received during the public review of the scoping document are detailed in Annex 4.

Key issues that were heard include:

- ensuring Aboriginal traditional use is assessed;
- concerns for Project impacts to Moose and Woodland Caribou;
- ensuring cumulative effects are assessed appropriately;
- concerns with new access to the area resulting in over-hunting;
- concerns with respect to accidents (fuel spills) impacting water and fish;
- questions on land-use and Aboriginal governance in the area once the Project is completed; and
- questions about the methodology used to assess the greenhouse gas contributions of the Project.

5.2 Consultation Follow-up

The Crown will continue to monitor the Project and the required mitigation measures to ensure that consultation and accommodation obligations remain commensurate with the Crown's assessment of the potential adverse impacts of the Project on potential or asserted Aboriginal rights. If new information is presented following the completion of the comprehensive study that would result in changes to the Crown's assessment, additional consultation and accommodation measures may be considered.

Specifically, the Proponent's conceptual fish habitat compensation plan represents a technically feasible but worst-case scenario. This plan is acceptable to DFO for the EA

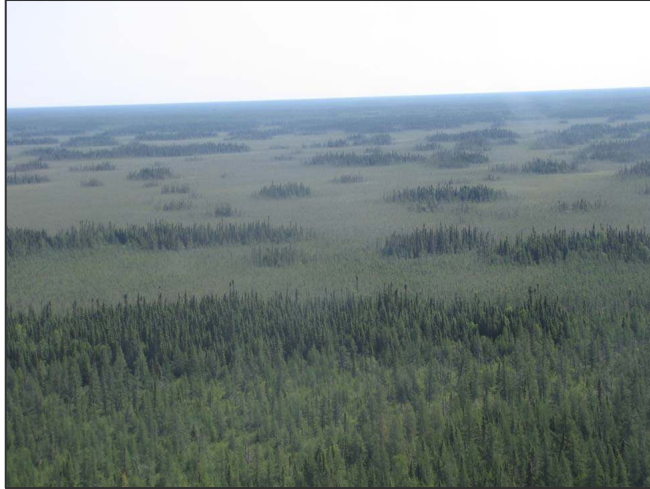
phase of the Project; however, modifications could occur once additional information is gathered. First Nation and Métis groups will be provided an opportunity to review the final fish habitat compensation plan during the regulatory phase of the Project approval, prior to the issuance of a *Fisheries Act* subsection 35(2) authorization.

6 Description of the Environment

6.1 Biophysical

The Project study area falls within the Lac Seul Upland Ecoregion. The ambient air quality is excellent with occasional local or regional air quality reductions as a result of major fires. Summers are short and warm with cold winters. Annual precipitation is estimated to be around 550 mm.

Soils consist of a mixture of peat, clay, silt and sand with occasional bedrock outcrops. The extensive wetlands in the Project study area are comprised of fens and bogs. The better drained soils between the wetlands and rock outcrops support mixed forests of coniferous and deciduous trees. Well-drained uplands along the rivers provide better growing conditions which results in a higher density and height of the trees.



Aquifers are scarce within the Project study area. Where present, the water quality varies considerably depending on local conditions. Groundwater resources are not considered to be an important contributor to surface water flows or as potable water sources as there are no continuous bedrock aquifers.

6.2 Ecosystem Components

6.2.1 Surface Water

Surface waters in the Project study area flow westward to Lake Winnipeg through wetlands and into rivers and streams. The high water-storage capacity in the lakes and wetlands of the region results in continuous releases causing watercourses to flow throughout the year.



There are fifteen named watercourses in the Project study area: Manigotagan River, Wanipigow River, English Brook, Steeprock Creek, Rice River, Loon Creek, Leyond River, Pakasekan Creek, Bloodvein River, Long Body Creek, Bradbury River, Pigeon River, Berens River, Etomami River and North Etomami River.

The naturally occurring

concentrations of some metals in the surface water, including copper, lead, and iron, have been found to occasionally exceed Manitoba Water Quality Standards, Objectives and Guidelines.

6.2.2 Fish



Approximately 60 species of fish are known to inhabit Lake Winnipeg and its tributaries throughout the Project study area. Walleye and Lake Whitefish are the principle species harvested in the commercial and domestic fisheries associated with Lake Winnipeg.

A number of aquatic species at risk have the potential to be present at Project water crossings. These include Lake Sturgeon and Mapleleaf Mussel.

6.2.3 Wildlife and Wildlife Habitat

The Project study area provides boreal forest habitat for numerous mammal species including Moose, Woodland Caribou, Beaver, Black Bear, Lynx, Grey Wolf and Wolverine.

Eight amphibian and reptile species, including the Common Snapping Turtle which is listed in Schedule 1 of the federal *Species at Risk Act* (SARA), can be found in the Project study area. However, the majority of the study area has little habitat for turtles, and the habitat that does exist is limited to areas associated with the major rivers.

Approximately 300 bird species may occur in the study area. The list includes species such as Sharp-Tailed Grouse, Bald Eagle and Great Blue Heron. The Project study area is considered of low-quality for nesting waterfowl according to the Canada Land Inventory classifications. Generally, waterfowl prefer marsh environments to the extensive fen habitat found in the Project study area.

A number of bird species such as the Canada Warbler, Chimney Swift, Common Nighthawk, Rusty Blackbird and the Olive-sided Flycatcher have potential summer breeding ranges along the east side of Lake Winnipeg and are listed in Schedule 1 of the SARA.

Moose

Moose are the most common large mammal in the Project study area. The Moose population is relatively high. The numbers are attributed to the relatively high habitat quality and low level of disturbance. Preferred calving spots for the Moose are located in densely covered areas near water, particularly on islands and peninsulas into lakes, fens, and bogs.

Woodland Caribou (Boreal population)

Woodland Caribou has been identified as “Threatened” by COSEWIC and is listed on Schedule 1 of SARA. It is also listed as “Threatened” under the *Manitoba Endangered Species Act*.



The range of the Atikaki-Berens Woodland Caribou herd includes the Project study area. The region east of Lake Winnipeg is one of the most important habitats for Woodland Caribou in Manitoba. The Proponent identified high habitat value areas for Woodland Caribou and confirmed projection for these areas with continuing surveys and tracking information. Results indicate that the Woodland Caribou herd in the Project study area is located primarily to the east of the proposed footprint of the road. Woodland Caribou activity was also observed to increase based on the distance from Lake Winnipeg. No calving areas have been identified in the Project study area.

Woodland Caribou do not undergo large-scale migrations into tundra areas but live entirely within the boreal forest, preferring large tracts of coniferous boreal forest that contain lichens. Lichens comprise most of the Woodland Caribou diet during the winter months. Woodland Caribou generally avoid areas with human activity.

Species at Risk

A number of rare and/or endangered species may exist within the Project study area. Species considered in this assessment have been classified by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and in some cases, listed under the SARA. A list of the species at risk identified as potentially occurring within the Project study area is provided in Annex 5 of this report.

6.3 Socio-economic Environment

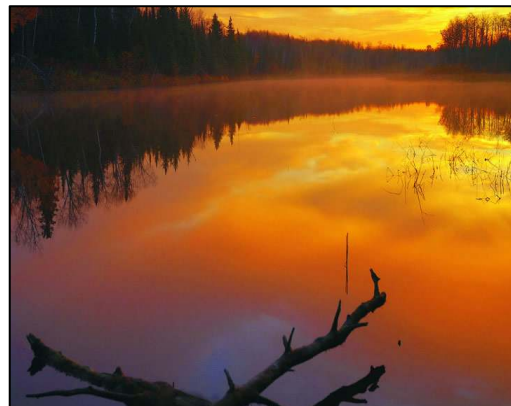
The Project will serve six First Nation communities including Berens River, Bloodvein, Hollow Water, Little Grand Rapids, Pauingassi, and Poplar River and eight Manitoba Northern Affairs communities (NACs) located in the Project study including Aghaming, Berens River, Little Grand Rapids, Loon Straits, Manigotagan, Pine Dock, Princess Harbour, and Seymourville.

The total First Nations population is estimated at 3,722 people, with Little Grand Rapids being the most populous First Nation community. The total population of the NACs within the Project study area is 517 residents.

Commercial resource harvesting activities within the Project study area include: wild rice harvesting; trapping; fishing and fish management; forestry/forestry operations; mineral exploration; winter road maintenance; air and ferry transportation; outfitting and tourism; and road-material quarrying.

The Project study area is generally comprised of provincial Crown land. Atikaki Provincial Park is located in the south-western part of the Project study area. The park includes three river corridors and associated shorelines, including the Pigeon and Leyond Rivers and the Manitoba portion of the Bloodvein Canadian Heritage River.

Two wildlife refuge areas have been set up, with one near Rice River, the other near the Wanipigow River. Provincial forests, wildlife



management areas, park reserves, and areas of special interest also exist on the east side of Lake Winnipeg.

The Pimachiowin Aki World Heritage Project has been proposed in the area east of Lake Winnipeg extending into Ontario. More information can be found on the Project's website at: www.pimachiowinaki.org.

Archaeological sites, including sites with pictographs, campsites and sites with petroforms, have been identified along waterways and well-traveled trails in the Project study area. However, only four sites are located within the Project study area. These sites are listed in the Manitoba Archaeological Sites Database maintained by Manitoba Historic Resources.

6.4 Current Use of Lands and Resources by Aboriginal People

The Project study area is predominately included with lands described in Treaty 5. The boundaries of the traditional territories divide the area amongst six communities, including (from north to south): Poplar River, Berens River, Pauingassi, Little Grand Rapids, Bloodvein, and Hollow Water. The northern parts of the Project study area are within Poplar River's park reserve. Registered Trapping Areas are used as approximations of First Nation (FN) traditional lands within the Project study area (Figure 2).

Aboriginal residents in the Project study area actively pursue traditional activities such hunting, fishing, and trapping, as well as gathering of berries and plants for medicines. The Proponent has reported that, based on the responses received to its traditional and ecological knowledge (TEK) survey, the local Aboriginal community members place a very high value on the traditional activities of hunting (all game), trapping and fishing. The majority of TEK survey respondents are active participants in all of these activities.

Respondents indicated that hunting and fishing are important as they serve to supply a highly valuable source of food. Most communities actively support trapping activities in recognition of its importance to Aboriginal culture and to preserve the skills.



Figure 2 Registered Trapping Areas

7. Environmental Effects Assessment

The environmental effects assessment focuses on valued ecosystem components (VECs) that are considered to be most likely impacted by the Project.

7.1 Approach

The potential adverse environmental effects of the Project on VECs were identified and assessed based on information provided by the Proponent in its EIA, technical reference documents, information obtained through the provincial review process, and the provincial *Environment Act* Licence No. 2929.

Mitigation measures were identified to reduce the overall impact of potential adverse environmental effects. Many of these measures have been integrated into the project design or construction and operational plans. The environmental effects remaining after the implementation of mitigation measures (i.e. residual effects), were evaluated based on the following specific characteristics or attributes:

- **Magnitude** - The size or degree of the effects compared against baseline conditions or reference levels, and other applicable measurement parameters (i.e. standards, guidelines, objectives).
- **Extent** - The geographic area over or throughout which the effects are likely to be measurable.
- **Duration** - The time period over which the activities that result in adverse environmental effects are likely to last.
- **Frequency** - The rate of recurrence of the effects (or conditions causing the effect).
- **Permanence** - The degree to which the effects can or will be reversed (typically measured by the time it will take to restore the environmental attribute or feature).
- **Ecological Context** - The importance of the environmental attribute or feature in terms of ecosystem health and function.

The effects assessment methodology is described in further details in Annex 6. The residual adverse environmental effects that were considered in the overall assessment of significance of the Project are described in Table A6-2 in the annex. Key government and public comments resulting from the provincial EA and the conduct of the federal EA were also taken into account in determining the significance of the potential adverse environmental effects.

7.2 Forest and Wetland Vegetation

The Project potentially provides a corridor for northward dispersion of invasive plant species and non-native weeds. The Proponent's vegetation survey found evidence of invasive species in the southern part of the Project study area near PR 304. However, these invasive species would not be expected to thrive in the wet environments found

north of the Bloodvein River, and would therefore pose little risk of invading fen and bog communities within the Project study area.

Mitigation measures built into Project planning to minimize the northward spread of non-native and invasive species include local sourcing of growing medium for reclamation activities and the use of native species for re-vegetation, sourced from local seed stocks (where possible).

The degree of severity of the residual adverse effect on forest and wetland vegetation due to dispersion of non-native plants would be “moderate”, as summarized in Table A6-2 in Annex 6.

Government, Public and Aboriginal Comments

Manitoba Conservation recommended that access road development be kept to a minimum and that plans for access road development be restricted to the immediate vicinity of the road alignment. The Proponent would be required to submit access road plans for provincial government review prior to approval. The Proponent would also decommission and rehabilitate borrow pits, quarry roads and temporary facility sites using native plant species.

Environment Canada commented that it is satisfied that the Proponent has chosen to use existing ROWs for the road alignment and that wetland water connectivity will be maintained.

Agency Conclusions on Significance of the Residual Environmental Effects

Taking into account the implementation of the mitigation proposed, as well as the mitigation and follow-up required by *Environment Act* License No. 2929 issued by Manitoba Conservation, the Agency concludes that the Project is not likely to cause significant adverse environmental effects on forest and wetland vegetation.

7.3 Fish and Fish Habitat

The Project would cross many water bodies resulting in potential impacts on fish and fish



habitat. Adverse effects of the Project on fish are associated with loss of fish habitat, altered water flows, increased sediment loading, and increased sport fishing.

Prior to construction of these stream crossings, the Proponent would require authorizations under the *Fisheries Act*. Compliance monitoring to determine the effectiveness of mitigation measures employed in protecting fish and fish habitat is required in these authorizations.

In order to achieve “no net loss” of aquatic habitat as outlined in DFO’s Policy for the Management of Fish Habitat, compensation projects are proposed to offset the losses to habitat that would result from the Project.

The compensation projects focus on enhancement of in-stream habitat and riparian vegetation on both the east and west sides of Lake Winnipeg.

Structures installed at watercourse crossings, particularly culverts, have the potential to create barriers to fish passage by constricting stream flows. Potential seasonal or permanent barriers could also develop over time as a result of poorly installed and/or maintained structures.

Suspended sediment can negatively affect both fish and fish habitat, and can adversely affect fish productivity if the sediment is deposited on fish-spawning habitat. The potential for adverse effects would exist until vegetation cover has been established on disturbed soils adjacent to watercourses.

To mitigate adverse effects, all watercourse crossings would be developed in accordance with federal and provincial advice and regulations to avoid impacting fish and fish habitat.

As noted in Section 6, five fish species (Chestnut Lamprey, Lake Sturgeon, Shortjaw Cisco, Silver Chub, and Bigmouth Buffalo) and two mollusc species (Mapleleaf Mussel and Lake Winnipeg Physa Snail) either occur or have the potential to occur in the Project study area and have been assessed by COSEWIC as endangered. The Proponent has developed protocols for handling aquatic species at risk should they be encountered during construction activities, including mussel relocation and fish salvage and release programs.

The Project has the potential to increase fishing pressures on local fish populations by improving access to stream and river sites. To mitigate this potential adverse effect, points of access will be decommissioned and reclaimed after Project construction.

After taking into account the proposed mitigation measures, the Project would result in short-term impacts to fish. Overall, the degree of severity of the residual adverse effects on fish and fish habitat would range from “negligible” to “moderate”, as summarized in Table A6-2 in Annex 6.

Government, Public and Aboriginal Comments

Manitoba Water Stewardship indicated that the Proponent would be required to determine the presence of mussels prior to the start of in-stream construction activities and relocate any mussels found by hand.

DFO has confirmed that the information provided by the Proponent adequately describes the potential impacts to fish and fish habitat and that there is sufficient detail in respect of the proposed mitigation measures for DFO to conclude that impact to fish and fish habitat can be minimized.

Concerns were raised by Aboriginal community members on the potential for fuel spills to impact Lake Winnipeg and construction impact on Lake Sturgeon in the Bloodvein River. The proposed mitigation in the Proponent's EMP, as well as DFO's regulatory requirements, are expected to address these potential impacts.

Agency Conclusions on Significance of the Residual Environmental Effects

Taking into account the implementation of the mitigation proposed, as well as the mitigation and follow-up required by Environment Act License No. 2929 issued by Manitoba Conservation, the Agency concludes that the Project is not likely to cause significant adverse environmental effects on fish and fish habitat.

7.4 Wildlife and Wildlife Habitat

The Project is likely to affect wildlife in the area through loss and fragmentation of habitat, noise disturbance, vehicle collisions, increased hunting, and increase predation by wolves. The Project is not expected to result in significant changes to the existing situation for wildlife or wildlife habitat in previously disturbed areas thus only new areas of disturbance are considered.

The Project would involve, to the extent possible, clearing and construction along the existing winter road route and electrical power line ROW. Where the proposed alignment would not follow an existing ROW, the winter road would be returned to a natural condition. The net habitat loss would be approximately 4 km² of boreal forest, which would constitute less than 0.03% of boreal habitat identified within the Project study area.

Interactions between the Project activities and Woodland Caribou (Boreal population) have been minimized to the extent possible through route selection. The proposed route avoids areas of habitat including the areas of highest Woodland Caribou activity for calving and wintering. The assessment determined that Woodland Caribou interactions with the Project would be limited to areas in the vicinity of the Pigeon River.

Project construction activities would result in increased noise, vibration and dust levels within the areas of active construction of the road and the associated facilities (e.g. quarries, borrow pits, construction access roads). Large mammals, such as ungulates, would typically be displaced 200 metres to 300 metres from the activity. All wildlife would likely avoid the immediate area of the construction activities but are expected to remain in the region and return to the vicinity following construction.

Clearing activities would be scheduled between September 1 and March 31 to facilitate equipment access and to avoid the breeding seasons of birds and many mammals. As such, no disturbance of nesting migratory birds, including species at risk, would be expected to occur. With the possible exception of the Common Nighthawk, bird species at risk would not be expected to nest within the ROW based on their nesting preferences.

The potential for vehicles to collide with ungulates (Moose and Woodland Caribou) has been assessed. Although Woodland Caribou are attracted to roadways in winter as a relief area from deep snow, the major wintering area for this species is a considerable distance to the east. Experience with the existing Rice River Road demonstrates that Woodland Caribou do not approach or use the road corridor in winter. A greater potential for vehicle collisions with Woodland Caribou could occur in summer when Woodland Caribou movements occur in the vicinity of the Pigeon River.

The number of vehicle collisions with ungulates would be minimized through appropriate sight lines, posting and enforcing speed limits, and installing wildlife crossing signage.

Increases in traditional, licensed and/or illegal hunting facilitated by the Project would be expected to occur, but would be generally limited to an area within 1 km of the Project ROW. Based on experience elsewhere, the number of Moose would be expected to decrease through hunting in this corridor. While there is no licensed hunting season for Boreal Woodland Caribou on the east side of Lake Winnipeg, traditional use hunting and illegal hunting of this species could occur. To minimize access, temporary roads will be reclaimed and vehicle access barriers installed. Furthermore, Project workers would not be permitted to hunt or trap wildlife while on the job, and personal firearms would not be permitted in the construction camps.

Extending the Chief Barker Wildlife Reserve from the existing Rice River Road to cover the new Project alignment would further inhibit hunting activity directly along the ROW. Wildlife Reserve signage and hunting-restriction signage along the Project would communicate the area's "no hunting" designation to Project users.

Although the Project may enable enhanced wolf movements north of the Rice River Road to Berens River, any effect on predation rates would be limited to the cleared ROW during the non-winter months. Any increase in predation rates would be localized, likely restricted to within 1 km of the ROW, and would not likely exceed those experienced by pre-Project conditions.

The Proponent plans to conduct a three-year wildlife tracking study including Woodland Caribou and wolf in an effort to apply adaptive management measures if found necessary.

Overall, the degree of severity of the residual adverse effects on wildlife and wildlife habitat would range from "negligible" to "moderate" as summarized in Table A6-2 in Annex 6.

Government, Public and Aboriginal Comments

Provincial government technical reviewers focussed comments on the potential increased hunting pressure. Mitigation measures suggested included prohibiting construction workers from hunting, restricting access to temporary roads, and implementing annual wildlife surveys as part of an overall monitoring program.

Manitoba Wildlands recommended the development of a comprehensive monitoring program specific to species at risk in the Project study area. Manitoba Wildlands commented that the Woodland Caribou information provided by the Proponent in the EIA lacked information on the current science regarding Woodland Caribou in relation to highway projects and should include analysis as to wintering, calving areas, female mortality, size of herds and range areas over time. Manitoba Wildlands also provided comments regarding the importance of considering the effects to Woodland Caribou within a cumulative effects context.

Some Aboriginal groups expressed concerns that Moose populations would migrate away from their communities due to the construction and operation of the road.

In order to address these concerns, Manitoba Conservation included the development of an environmental monitoring plan specific to wildlife and vegetation monitoring as an enforceable condition of *Environment Act* License No. 2929. The Proponent's plan provides a multi-stakeholder framework to monitor and assess potential adverse effects of

the Project on these VECs over a three-year period. The program would allow for the identification of adverse effects and application of adaptive management measures during the Project, as required.

The Manitoba *Environment Act* license also includes an enforceable condition directing the Proponent to ensure the protection of species identified under the *Manitoba Endangered Species Act* and the federal *Species at Risk Act*.

Agency Conclusions on Significance of the Residual Environmental Effects

Taking into account the implementation of the mitigation proposed, as well as the mitigation and follow-up required by *Environment Act* License No. 2929 issued by Manitoba Conservation, the Agency concludes that the Project is not likely to cause significant adverse environmental effects on wildlife and wildlife habitat.

7.5 Effects of the Environment on the Project

Under the Act, an EA must consider the potential effects the environment may have on the Project as part of the evaluation of effects. The potential effects of the environment on the Project would be largely related to severe weather events and forest fires, as described below.

The Project was developed in part to address the uncertainties in long-term climate patterns, particularly reduced duration of ice-road operation. Variations or long-term changes in climatic trends such as precipitation, wind, water levels, temperature, humidity and ice conditions have the potential to affect the Project. It would be expected that the severity and frequency of extreme weather events would also increase as a result of global warming. The structural integrity of the highway, bridges and culverts would not likely be affected as these types of occurrences have been considered within Project design. However, severe weather events could temporarily affect access to the transportation corridor and associated structures during the construction and operation phases.

The Project could benefit fire fighting efforts given the forest fire frequency on the east side of Lake Winnipeg. It is very likely that portions of the Project would be subject to forest fires several times over its lifetime. The physical components of the road (e.g. rock and concrete) would be relatively fire resistant; however, forest fires could result in damage to infrastructure such as bridges, maintenance compounds, and equipment. Forest fires and reduced visibility resulting from smoke could also lead to temporary road closures for local portions of the road or, in the event of a large fire, a total road closure. Much of the road alignment would pass through wetland areas and away from upland forest areas, which could serve to reduce the frequency and intensity of forest fires in those areas.

A number of elements have been included in the design of the Project to mitigate potential effects of the environment on the Project. Bridges and culverts have been designed to effectively handle surface water drainage during periods of high run-off (1 in 100 year storm) to ensure efficient passage of storm water and to minimize the potential for backwater ponding and flooding. Regular maintenance activities such as culvert clean-outs and beaver dam removal would reduce the potential adverse effects to

the road and culvert crossings. The road design includes consideration for safe traffic operation and snow clearing in accordance with applicable Manitoba Infrastructure and Transportation standards.

Severe weather events, seasonal flooding, forest fires, and climate change could affect the Project within the construction and operation phases. However, with proper design, construction practices and implementation of mitigation measures, the extent of the effects would be limited in area and would be short-term in duration.

Taking into consideration the likelihood of extreme weather events and the implementation of the mitigation measures identified above, no residual adverse effects of the environment on the Project would be anticipated.

Government, Public and Aboriginal Comments

There were no specific comments regarding the effects of the environment on the Project provided by government reviewers or the public.

As a condition of Manitoba *Environment Act* Licence No. 2929, the Proponent has developed and will follow an Environmental Management Plan (EMP). In addition to general best-management practices for construction, operation and maintenance of the road, project-specific Environmental Protection Procedures for Wildfires have been developed. The procedures will ensure appropriate measures are in place to prevent and/or minimize effects caused by wildfires during construction and operation.

Agency Conclusions on Significance of the Residual Environmental Effects

Taking into account the implementation of the proposed mitigation, the Agency concludes that the environment will not likely cause significant adverse environmental effects on the Project.

7.6 Effects of Accidents and Malfunctions

Under the Act, an EA must consider the potential effects of accidents and malfunctions.

Hazardous materials would be transported, stored, and used during the construction and operation of the Project, with fuel, lubricants, and domestic waste being the most common materials. Accidental release of hazardous materials could result from improper storage, vehicular collisions during transport, or during activities such as equipment refuelling, maintenance, or operation. Depending on the nature, size and location of the release, impacts to soils, surface and/or groundwater, wetlands, wildlife, and public and worker health and safety could occur.

Construction camps would generate domestic wastewater which poses a risk of contamination to nearby surface water bodies. All domestic sewage from construction camps would be managed using permitted septic systems. Domestic sewage from construction sites and camps therefore would not be a source of nutrient loading to local watercourses and would not be expected to have an effect on surface water quality.

Fires and explosions have the potential to seriously harm workers, the public and/or the surrounding environment. Construction activities such as welding, cutting, use of portable heaters, equipment malfunctions, stored hazardous materials and workers

smoking have the potential to start fires. Dry conditions in the surrounding forest during the summer months present a high potential risk for fires to spread beyond the Project site. Explosions can potentially occur during the handling of hazardous materials such as petroleum products, explosives, and blasting devices. Explosives use during the Project lifecycle will be more extensive during construction (e.g. quarrying, blasting road foundations) and to a lesser extent during operation (e.g. periodic quarrying of maintenance materials).

Collisions involving vehicle(s), construction or maintenance equipment, and wildlife could result in damage to equipment or road components, releases of hazardous materials, or injury or mortality to people and/or wildlife.

The potential for collisions with equipment or wildlife during construction will be managed through worksite safety plans and protocols. The potential for collisions during operation will be minimized by adherence to the most up-to-date Manitoba Government safety standards and road design criteria during the design and construction of the road.

The Province of Manitoba is responsible for safety activities on the road. Responsibilities include identifying potential collision hazards, monitoring accident rates, and establishing an on-going program of safety improvement. Posted speed limits and other road traffic rules will be monitored during operation and adjusted as necessary. During the operational phase, improvements to the existing Rice River Road, design of the road to provide improved sight lines, and other safety factors will reduce the potential of an accident during transportation.

As a condition of Manitoba *Environment Act* Licence No. 2929, the Proponent has developed and would follow an Environmental Management Plan (EMP). The EMP includes a Materials Storage and Handling Procedure to provide stringent procedures for management of petroleum products, dangerous goods and hazardous waste generated during construction and maintenance, solid wastes, and sewage. It also includes an Emergency Response Plan, which incorporates fire prevention measures based on provincial fire codes and requirements for periodic testing and evaluation of emergency response procedures. Provincial fire hazard and risk assessment updates will be regularly incorporated into the work plans during construction and operation works.

Taking into consideration the implementation of the identified mitigation measures, no residual adverse environmental effects of accidents and malfunctions are anticipated. However, should a significant accident or malfunction occur, there is a risk of reduced soil, surface and groundwater quality and associated disruption to vegetation and vegetation communities, wetlands, wildlife and wildlife habitat. The overall risk has been minimized through design and mitigation measures, including emergency response plans, and therefore, environmental effects of significant accidents and malfunctions are considered to have a very low probability of occurrence.

Government, Public and Aboriginal Comments

No comments related to the effects of accidents and malfunctions were received.

Agency Conclusions on Significance of the Residual Environmental Effects

Taking into account the implementation of the mitigation proposed, as well as the mitigation and follow-up required by *Environment Act* License No. 2929 issued by Manitoba Conservation, the Agency concludes that the Project is not likely to cause significant adverse environmental effects as a result of accidents and malfunctions.

7.7 Sustainability of Renewable Resources

Consistent with the requirements of subsection 16(2) of the Act, the Agency considered the capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of the present generation and those of the future.

For the capacity of a renewable resource to be adversely affected, the Agency determined that the residual adverse effects on these resources would need to be sufficiently large in magnitude, be long-term in duration and likely widespread across the Project study area in order to threaten the abundance of the resource. It was concluded that none of the residual adverse environmental effects of the Project have been assessed to have these characteristics.

7.8 Cumulative Effects Assessment

Cumulative environmental effects are defined as the effects of a project that are likely to result when a residual effect acts in combination with the effects of other projects or activities that have been or will be carried out. A full description of the approach to assessing the cumulative effects of the Project can be found in Annex 6.

The Project study area is within a largely undeveloped and inaccessible part of eastern Manitoba. The projects and activities occurring in the region are limited to hunting, trapping and fishing, as well as outfitting, recreational use of watercourses, corridors for hydroelectric power distribution lines and winter roads. There are no mining or forestry activities active or planned in the region; however these may occur in the Project study area in the future. Other transportation development in the region is currently being planned by the Proponent and the communities.

Potential effects of other projects and activities identified for consideration in the cumulative effects assessment are summarized in Table 6.

Table 6: Potential Effects of Other Projects and Actions on VECs

Other Actions	Current/ Planned	Potential Effects on VECs ¹	Potential Cumulative Effect ²
Hunting and trapping	Current and Planned	- Decrease in wildlife populations (Moose and furbearers)	Yes
Fishing	Current and Planned	- Decrease in fish populations	Yes
Outfitting	Current and Planned	- Increased hunting and fishing pressure resulting in population declines	Yes
Hydroelectric Power Distribution and Transmission	Current	- Wildlife habitat disruption and fragmentation - Increased hunting and fishing pressure due to improved access	Yes
Ground Transportation (future improvements, operation and maintenance of existing roads)	Current and Planned	- Decreased water quality due to sediments - Increased hunting and fishing pressure due to improved access - Disruption of riparian and fish habitat at watercourse crossings	Yes
Forestry operations	Currently dormant	- Wildlife habitat disruption and fragmentation - Disruption of riparian and fish habitat at watercourse crossings	Yes
<p>Note: 1. It can be assumed that the other projects and activities are or would be subject to provincial legislation, environmental management regimes, operational guidelines and best practices.</p> <p>2. The residual environmental effects of the Project could interact or overlap with the identified effects of the other projects or activities on the same VECs.</p>			

Analysis of Cumulative Environmental Effects and Mitigation

Three potential cumulative environmental effects of the Project when considered with the effects of other actions on VECs have been identified through the cumulative effects assessment process. Because assessments of the other projects and actions have not been conducted, the potential environmental effects of these other projects and actions on VECs were considered to be occurring without mitigation. However, it can be assumed that the other actions are or will be subject to provincial legislation, environmental management regimes, guidelines and best practices. With this consideration in mind, the following assessments could be considered to be worst-case scenarios. The potential cumulative effects identified include:

- wildlife habitat disruption and fragmentation;
- wildlife population decline due to increased hunting pressures as a result of improved access;
- decreased surface water quality due to suspended sediments resulting from construction activities and operation of the road; and

Wildlife Habitat Disruption and Fragmentation

The Project would increase current habitat fragmentation within the Project study area. Existing fragmentation is a result of the winter roads, the Rice River Road, transmission line rights-of-way and past forestry operations.

By keeping the new alignment consistent with the existing road and hydroelectric rights-of-way, fragmentation in other, previously inaccessible portions of the Project study area would be minimized. The net effect, after considering the mitigation which includes habitat reclamation, would be considered low. Most importantly, there would be no encroachment into, or fragmentation of critical habitat areas for Woodland Caribou.

Potential interactions of the residual effects of the Project with the effects of forestry operations have been considered in this analysis. Because the Tembec Paper Mill in Pine Falls, Manitoba, is planned for decommissioning, widespread forestry operations in the Project study area are not currently planned. Any future commercial forestry activity would be subject to provincial EA, licensing and other resource management approvals. Therefore, the cumulative environmental effects assessment primarily considered the wildlife habitat and fragmentation and includes effects of past forestry operations.

Overall wildlife habitat loss and fragmentation, after considering mitigation, would be negligible in relation to the abundance of undisturbed wildlife habitat within the Project study area. Therefore, the cumulative effect of the Project in terms of the potential habitat loss for Moose and Woodland Caribou populations would not be considered to be significant based on the low magnitude and low extent of the cumulative habitat losses.

Wildlife and/or Fish Population Decline due to Increased Hunting and Fishing Pressures

Areas adjacent to the existing Rice River Road are currently accessible by vehicular traffic all year long. This situation provides year-round ease of access for hunting and fishing and results in pressures to the wildlife and fish populations close to the corridor. The portion of the study area north of the Rice River Road is also currently accessible to hunters and fishers with their regular vehicles in the winter, and to a certain extent, with off-road vehicles in the spring, summer and fall.

The primary change in accessibility would be to the area north of the Rice River Road where ease of access would be accommodated outside of the winter road season. The new all-season road would enable ease of access for hunters and fishers from both inside and outside the Project study area.

The Government of Manitoba is responsible for wildlife management, regulation and enforcement of hunting and fishing in the Project study area. Manitoba Conservation has included a requirement for the preparation of a wildlife monitoring plan as a condition of the *Environment Act* licensing approval. The Proponent has drafted a strategic wildlife monitoring plan for Woodland Caribou, Moose and furbearers for the study area. The monitoring results would allow adaptive management measures to be developed and employed, as required. The Proponent is also proposing a multi-jurisdictional approach to the monitoring program. The program would include involvement of Manitoba Conservation officials, the Eastern Manitoba Woodland Caribou Advisory Committee, members of communities on the east side of Lake Winnipeg, as well as other affected individuals or groups.

It has been concluded that the cumulative effects of anticipated increases in hunting and fishing on fish, Moose and Woodland Caribou populations, after considering mitigation, would not be significant based on the low magnitude of impact to the populations and low extent of increased hunting and fishing.

Decreased Surface Water Quality

Cumulative effects on water quality may result from residual sediment loading caused by activities associated with construction and operation of the Project when added to the effects of the operation and maintenance of existing roadways and construction and operation of future roads in the study area. However, the Project would not be expected to significantly increase sedimentation in water bodies after implementation of the mitigation measures discussed in the environmental effects section of this comprehensive study report.

Watercourse crossings associated with the new all-weather road would create a more stable situation than exists currently for those stream crossings along the winter road. The proposed situation would be viewed as an improvement of existing sedimentation conditions once construction is complete. The existing rights-of-way would be either upgraded or decommissioned.

Cumulative effects to water quality would occur only under circumstances where activities associated with the road construction were undertaken simultaneously with operations of existing roads and when occurring in close proximity to each other along a watercourse. While possible, these circumstances are considered to be of low probability, would occur infrequently, would cause an effect that would be short-term in duration, highly localized and therefore considered low in terms of its likelihood of creating significant adverse cumulative effects to surface water quality.

Disruption of Riparian and Fish Habitat

Construction of new roads, in combination with operation, and maintenance activities for existing roads within the study area presents the potential for cumulative adverse effects to riparian vegetation zones and areas of fish habitat.

The winter road system is re-created annually. In spring, riparian zones associated with the watercourse crossings of the winter road must begin a period of recovery. During recovery, sediments can be released from the damaged areas, thereby increasing potential damages to fish habitat.

As discussed in the previous section, new watercourse crossings along the all-season road would result in a more stable and permanent situation than those associated with the crossings along the winter road. This stable situation would result in improved conditions once construction was completed and the existing rights of way upgraded or decommissioned. Accordingly, sedimentation would be reduced and the annual destruction of riparian vegetation ceased.

Mitigation and habitat compensation measures as prescribed by DFO for the Project would minimize environmental effects on riparian and fish habitat. Considering the implementation of mitigation measures, the cumulative effects of the Project are expected to be low and therefore insignificant.

Mitigation Measures

No additional mitigation measures, beyond those discussed in the environmental effects section of this report, are required as a result of the cumulative effects assessment. Mitigation proposed by the Proponent and required by the *Environment Act* Licence No.2929, would be sufficient to reduce the identified cumulative environment effects to a level of insignificance.

Follow-up

No additional follow-up or monitoring would be required as result of the cumulative effects assessment. Monitoring proposed by the Proponent in its EIA and by provincial government and resource management authorities would be sufficient to identify environmental changes or trends over time that could be attributed to the Project. The proposed multi-jurisdictional approach to monitoring involving Manitoba Conservation, Eastern Manitoba Woodland Caribou Advisory Committee, communities on the east side of Lake Winnipeg, as well as other individuals or groups, would serve to address any potential cumulative effects.

Government and Public Comments

Comments regarding potential cumulative environmental effects of the Project were received during the public review of the Proponent's EIA report as well as during the public review of the federal EA scoping document. Technical reviewers with the Government of Manitoba focused comments on measures to reduce the effects to wildlife, specifically Moose and Woodland Caribou populations.

Manitoba Wildlands requested that the comprehensive study include a regional plan (including identification of future intended projects), and an assessment of the potential environmental effects from this project when considered in combination with the "future intended projects".

Following the public review of the federal EA scoping document, the Agency received requests from the Manitoba Metis Federation and Manitoba Wildlands to expand the list of existing and planned projects and activities considered in the cumulative effects assessment.

While a regional plan was not prepared, the Agency considered "reasonably foreseeable" activities such as forestry and hydro-electric transmission line maintenance activities within the context of the cumulative effects assessment. The Agency considered the projects and activities identified by the Proponent and expanded the list of existing and planned projects to include all those which could act in combination with the residual environmental effects of the Project.

Monitoring proposed by the Proponent in its EIA and by provincial government and resource management authorities would be sufficient to identify environmental changes or trends over time that could be attributed to the Project. The proposed multi-jurisdictional approach to monitoring, involving Manitoba Conservation, Eastern Manitoba Woodland Caribou Advisory Committee, communities on the east side of Lake

Winnipeg, as well as other individuals or groups, would serve to address any potential adverse cumulative environmental effects should any materialize.

Agency Conclusions on Significance of the Residual Environmental Effects

Taking into account the implementation of the proposed mitigation, the Agency concludes that the environment will not likely cause significant adverse cumulative environmental effects on the Project.

8 Follow-up under the *Canadian Environmental Assessment Act*

A follow-up program as defined under the Act would be required for the Project to verify the accuracy of the EA and to determine the effectiveness of the mitigation measures taken to mitigate the adverse environmental effects of the Project.

The Agency consulted with federal authorities when defining the considerations that would determine which environmental factors warranted inclusion in the follow-up program. The considerations identified included:

- the relative degree of the residual adverse effect;
- the extent to which public and Aboriginal group concerns were raised with respect to an anticipated effect;
- areas of federal responsibility and interest;
- provincial approvals and required monitoring and follow-up requirements, including the development and implementation of an Environmental Management Plan (EMP) for the Project;
- the existence of regulatory instruments to ensure the effectiveness of the mitigation measures, including but not limited to *Fisheries Act* authorizations which will require compliance monitoring to determine effectiveness of mitigation measures in protecting fish and fish habitat; and
- the extent to which mitigation measures are innovative in their approach versus being common and well-understood, or where the effectiveness of the mitigation is difficult to predict with a high degree of certainty.

The Agency determined that the environmental factors identified in Table 7 would be included in the follow-up program.

Table 7: Follow-up Program

Environmental Factor	Report Elements	Reporting Frequency
Fish & Fish Habitat (DFO Lead)	<p>The EMP reporting will cover fish and fish habitat information including bank stability, slumping, erosion, stream blockage, flow impedance, and fish habitat compensation</p> <p>The data will be derived through:</p> <ul style="list-style-type: none"> - Visual inspection of bank stability - Visual inspection of construction activities - Visual inspection of culverts for blockage and beaver activity - Methods per DFO authorization 	<p>Annually during construction plus three years of operation (in accordance with DFO authorization)</p>
Aquatic Species at Risk (DFO Lead)	<p>In addition to measures undertaken in relation to fish and fish habitat EMP reporting will document fish salvage and / or mollusc relocation. .</p> <p>The data will be derived through:</p> <ul style="list-style-type: none"> - Field inspection & aquatics inspection to identify presence of mussels prior to start of in-water work - Field inspection & aquatics inspection to identify presence of fish during in-water work - Monitoring salvage of fish and relocation of mussels. - Assessment of mussel relocation 	<p>Annually during construction, plus one year after construction for mussel relocation. (in accordance with DFO authorization).</p>
Wildlife (EC Lead upon request)	<p>The EMP reporting will include information on moose, caribou and other fur-bearing populations.</p> <p>The data will be derived through:</p> <ul style="list-style-type: none"> - Distribution and population survey - A GPS collar tracking study - Inspection of ROW clearing limits 	<p>Annually during construction plus three years of operation</p>

The Proponent has committed to provide follow-up reports on an annual basis for a period encompassing construction followed by three years of continuous operation. The Proponent has developed protocols for handling aquatic species at risk should they be encountered during construction activities, including mussel relocation and fish salvage and release programs.

DFO has committed to receiving the reports, reviewing those related to their mandate (fish and fish habitat) and making the reports available to the public. Environment Canada has committed to reviewing the reports on wildlife upon request.

9 Benefits to Canadians

Through the EA of the proposed Lake Winnipeg East Side Road, the Agency and the federal and provincial authorities, on behalf of Canadians, have collaboratively evaluated the Project using a number of physical, biological and socio-economic criteria. The Manitoba Floodway and East Side Road Authority's project-planning exercise, the cooperative EA, and the federal comprehensive study have together provided the Canadian public and Aboriginal people with opportunities to participate in the design and government decision-making associated with this important response to the changing climate of the region.

Significant contributions to planning and design of the Project were made based upon information identified during the environmental impact assessment and through the federal and provincial governments' participation in the review and assessment of



information brought forward during the process. As a result, selection of the road alignment and methods for construction and operation were not solely based on engineering, environmental or economic determinants, but rather on a balanced approach that promises sustainability. For example, socio-economic considerations such as the road's effect to physical and cultural heritage, traditional use of lands and resources by Aboriginal people and the

archaeological significance of sites on the landscape became important factors shaping the resulting design.

During the public participation component of the EA, local residents were able to effect changes to the road alignment by proposing alternative options that would optimize on locally understood geographic features and thereby avoid damages to valued wetlands. These changes were accommodated early in the project-planning and thereby incorporated into the plans at minimal cost. Further, four previously unknown important archaeological sites were identified through the EA studies. Their identification allowed for rerouting the alignment to avoid adverse effects.

Through the course of the federal EA, it was identified that additional information was required in order to address potential impacts to fish and fish habitat. The Proponent's plans pointed out many watercourse crossings that could have potentially resulted in disturbance or destruction of fish habitat and therefore a need for compensation options to be developed. Supplemental fish habitat information was collected by the Proponent that yielded information on a need for additional crossings but with a net reduction on the impact to fish and fish habitat. The EA exercise also uncovered several opportunities for

compensating for the loss of fish habitat where few alternatives existed prior to the assessment.

The EA not only helped reduce the overall ecological footprint of the road development proposal through alterations in design and implementation, it has also helped to identify potential savings to the overall economic cost of the project to Canadians while at the same time improving the likely integrity of the resulting transportation corridor.

10 Conclusion and Recommendations of the Agency

In reaching a conclusion on whether the Project is likely to cause significant adverse environmental effects, the Agency has taken into account:

- the information, analysis and conclusions included in this Comprehensive Study Report;
- the views expressed by the public, government agencies, municipal communities and Aboriginal groups;
- the information, analysis and conclusions of the provincial EA of the project;
- the Proponent's obligations as required in *Environment Act* Licence No. 2929 dated August 16, 2010, issued in accordance with Manitoba's *Environment Act*;
- the requirements for authorizations under subsection 35(2) of the *Fisheries Act* for watercourse crossings with the potential to affect fish and fish habitat;
- the requirements for approvals under section 5 of the *Navigable Waters Protection Act*; and
- the requirements for the follow-up program to be implemented by the Proponent.

The Agency's consideration of mitigation is based on its knowledge that: the mitigation measures addressing direct harmful effects to fish and fish habitat will be ensured by DFO as conditions of approval under the federal *Fisheries Act*; the mitigation measures addressing navigability of waterways will be ensured by TC as conditions of approval under the federal *Navigable Waters Protection Act*; and all other mitigation measures identified for the Project will be implemented by the Government of Manitoba as conditions of the *Environment Act* Licence.

Taking into account the implementation of the mitigation proposed and commitments made by the Proponent in its EIA report, along with the mitigation and follow-up required by *Environment Act* License No. 2929 issued by Manitoba Conservation, the Agency concludes that the Project is not likely to cause significant adverse environmental effects.

List of Acronyms and Definitions

Agency, the	Canadian Environmental Assessment Agency
Project, the	Lake Winnipeg East Side Road Project
Act, the	<i>Canadian Environmental Assessment Act</i>
CEAR	Canadian Environmental Assessment Registry
CSR	Comprehensive Study Report
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EC	Environment Canada
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
ERP	Emergency Response Plan
ENGOs	Environmental Non-Governmental Organization
FEAC	Federal Environmental Assessment Coordinator
FN	First Nation
INAC	Indian and Northern Affairs Canada
MMF	Manitoba Metis Federation
NAC	Manitoba Northern Affairs Communities
PR	Provincial Road
RA	Responsible Authority
ROW	Right-of-way
SARA	<i>Species at Risk Act</i>
TC	Transport Canada
TEK	Traditional Ecological Knowledge
VEC	Valued Ecosystem Component
WNO	Wabanong Nakaygum Okimawin

Annexes

Annex 1 – Project Description

Need for and Purpose of the Project

In November 2004, following a lengthy public consultation, the leadership of Manitoba's East Side Planning Initiative issued a report titled *Promises to Keep*. The report recommended that building an all-season road linking the remote communities on the east side of Lake Winnipeg would ensure benefits to many Manitobans. The Project would provide year-round road access to otherwise remote communities. Currently, the only year-round freight and passenger service to these communities is provided by air transportation.

The Project is part of a strategic initiative of the Government of Manitoba to provide safer and more reliable road transportation service to and between remote communities located along the east side of Lake Winnipeg.

Project Components

The Project as proposed includes the following Project components:

- A 156-kilometre (km) all-weather, gravel-surfaced road extending north from Provincial Road (PR) 304 near Manigotagan, Manitoba to the Berens River;
- Water course crossing structures; and
- Borrow and quarry areas as well as camps and staging sites to support construction, operations and maintenance requirements.

The first 77 kilometres of the Project would include upgrading and some re-alignment of the existing Rice River Road to the proposed location of a bridge over the Bloodvein River. The remaining portions of the Project would involve constructing a new bridge over the Bloodvein River and a road to be built in new locations extending from the Bloodvein River crossing to the southern boundary of the Berens River.

There would be 136 water-course crossings required as part of the Project - 77 existing structures to be upgraded along the Rice River Road and 59 new structures to be developed between the Bloodvein River and the Berens River. The locations of the proposed crossings are shown in Figures 3, 4 and 5.

Aggregate for the road bed will be acquired through third-party suppliers from local borrow sources and rock quarries established for the Project. Borrow and quarry areas have been identified for fill, sand, aggregate and crushed rock (Figures 6 and 7). Other borrow pits and quarries may be identified during detailed design. To the greatest extent possible, borrow pits would be developed within the 100 metre ROW. However, in one situation, a quarry in the area of the Pigeon River would be situated approximately 2.5 km from the ROW. In general, borrow pits would not be located where they would affect water bodies, and gravel would not be taken from streambeds.

The construction staging schedule is depicted in Figure 8.

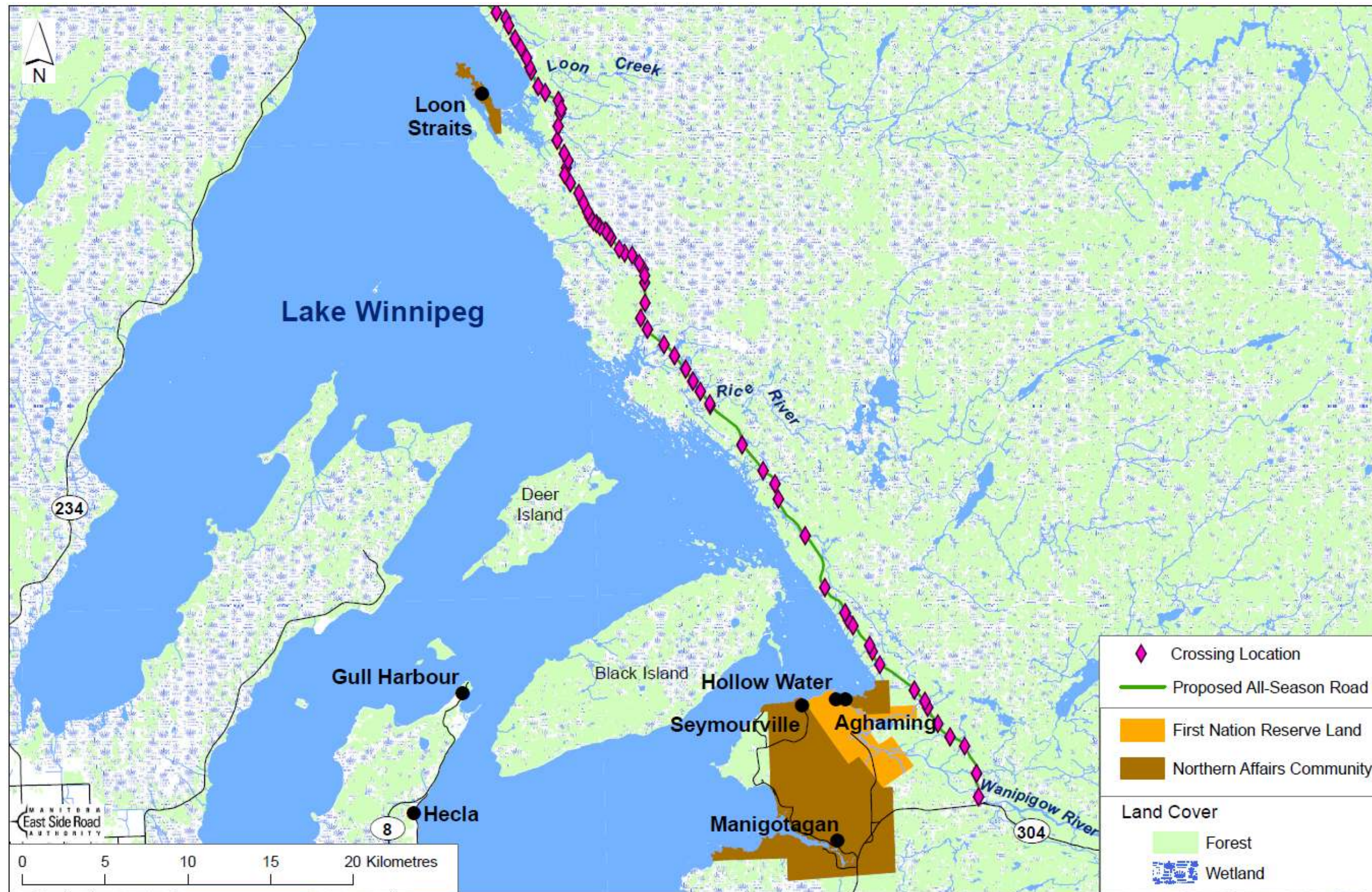


Figure 3 General Crossings: Manigotagan to Loon Straits

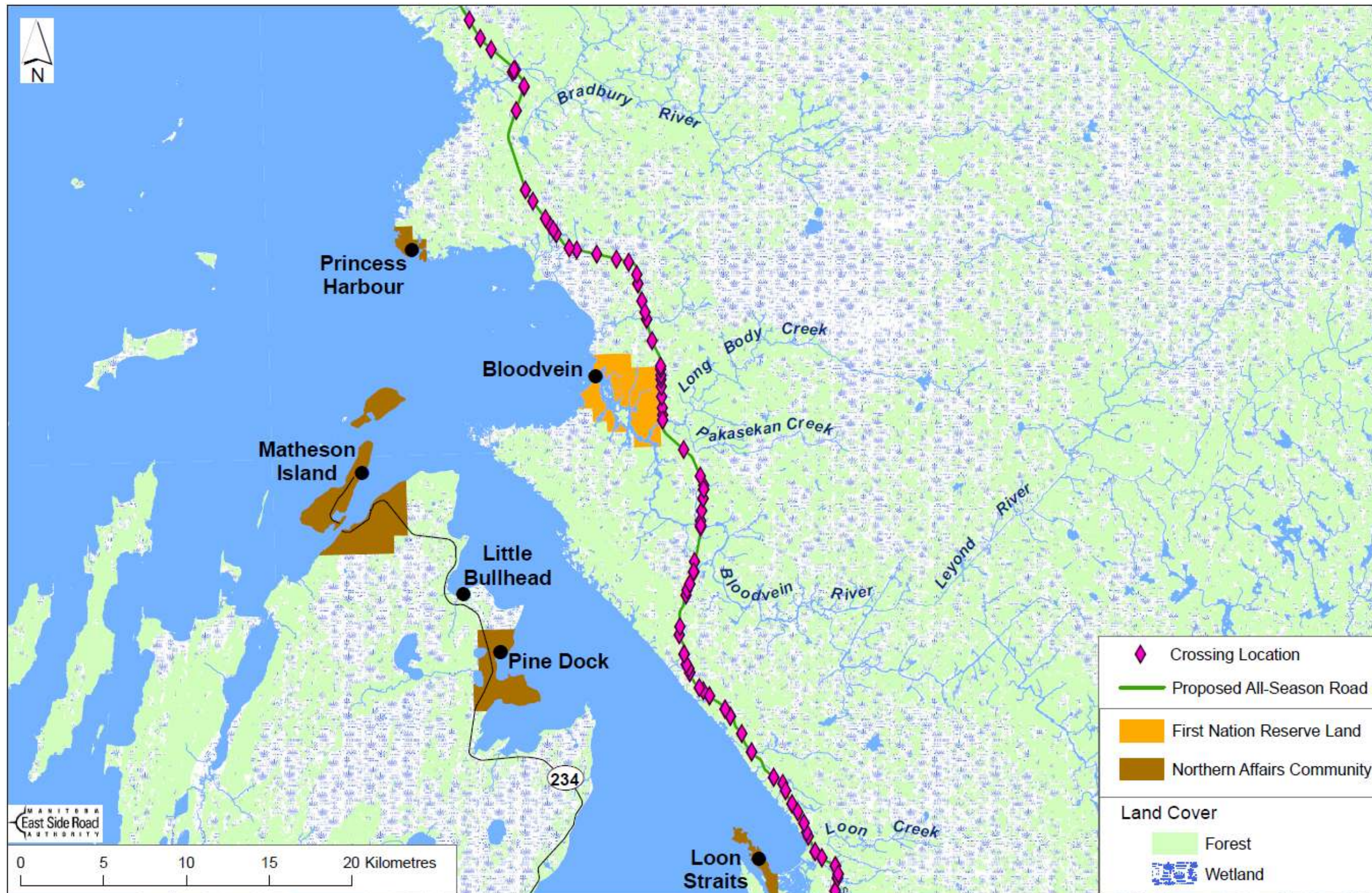


Figure 4 General Crossings – Loon Straits to Bradbury River



Figure 5 General Crossings – Bradbury River to Berens River

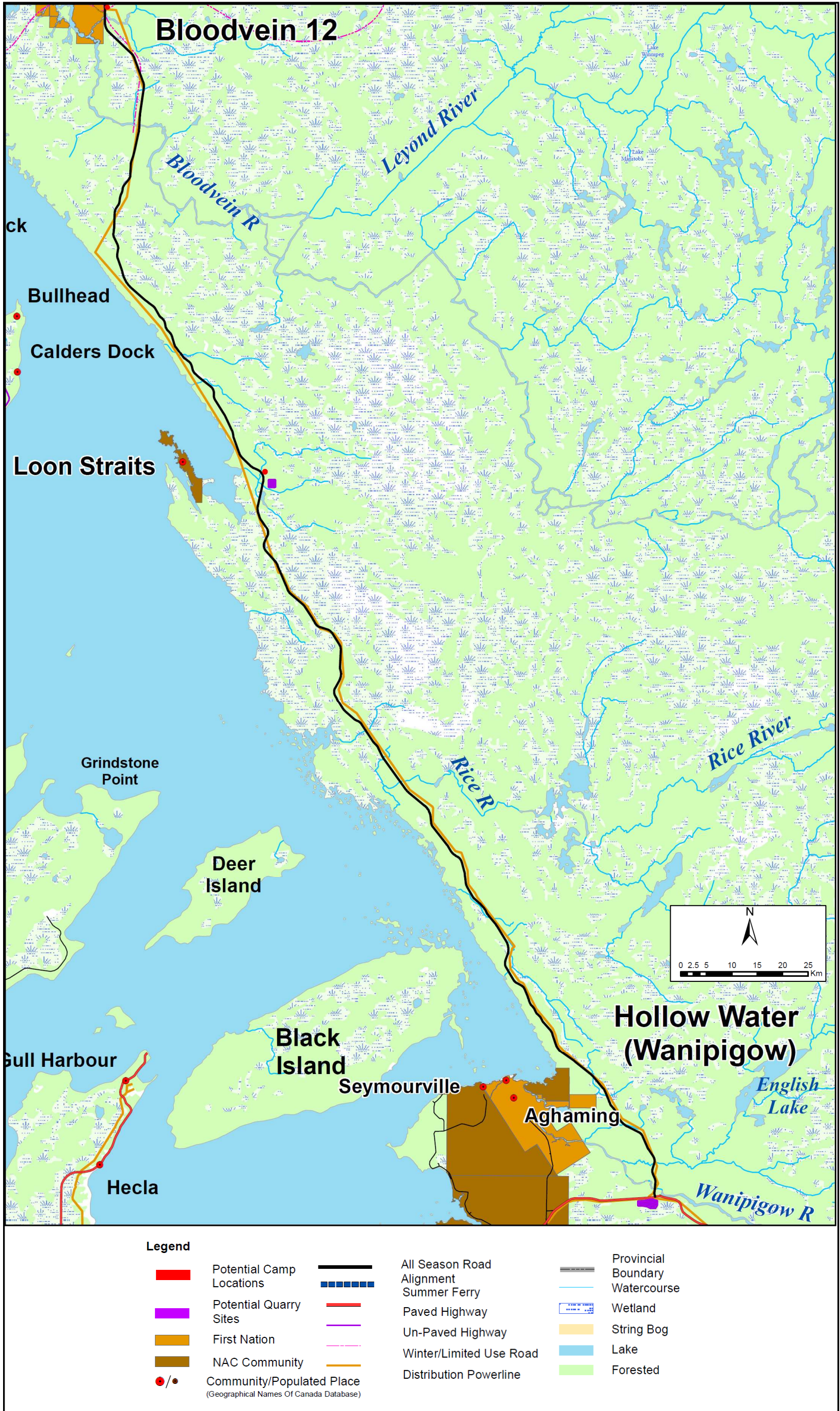


Figure 6 Quarry and Camp Locations – Wanipigow River to Bloodvein River



Figure 7 Quarry and Camp Locations – Bloodvein River to Berens River

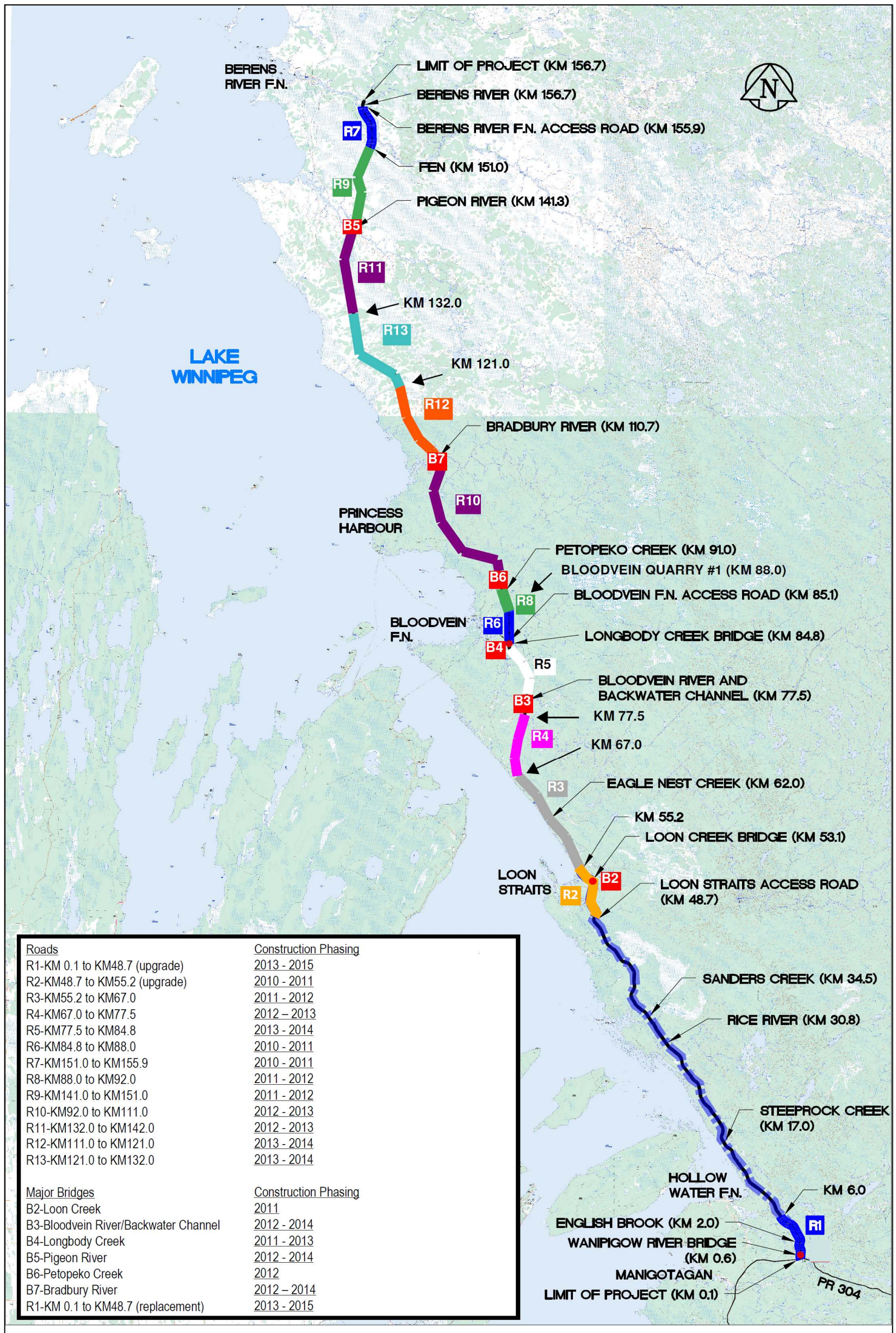


Figure 8 Construction Staging Schedule

Project Activities

Mobilization

Prior to construction, equipment would be transported to the work sites via temporary support infrastructure, including temporary access roads, and stored in staging areas, quarries and camps located near or adjacent to the road alignment. During construction, staging sites would be cleared and any organic material from the site would be stripped and stockpiled for later use.

Construction

Construction activities for the Project would fall within four main categories: clearing and grubbing of the ROW; quarrying and borrow pit establishment; road-grade construction; and bridge construction and culvert installation. Established alignments would be subject to modification in some areas based on necessary detailed field surveys, geotechnical and hydraulic investigations, and design work.

Clearing and Grubbing

The cleared area for the ROW would generally be 60 metres in width. ROW clearing for road construction in the Canadian Shield typically involves clearing and grubbing of trees and organic materials. In areas where timber can be salvaged, chainsaws or mechanical cutting equipment would be used. For areas where it is not necessary to re-use the trees, mechanical brushing equipment (e.g. hydro-axes) would be used, and dozers, excavators and trucks would be used to remove the overburden.

Quarrying and Borrow Pits

Clearing of borrow pits will be carried out immediately prior to opening each pit. Cleared brush and trees would be mulched, burned, or removed from the site. Acquiring the building material for the road grade would involve blasting and crushing of granite in sufficient quantities to optimize the cut/fill balance while minimizing haulage. Typical equipment used in the quarrying operations would include rock crushers, large front end loaders and trucks.

The Proponent has estimated that nearly 8.5 million cubic metres of crushed rock will be required for the construction of the road structure and that over 1 million cubic metres of blast rock will be required for fill material. In areas of unsuitable subgrade, it is estimated that nearly 2.7 million cubic metres of rock and composite excavation will be required.

Road-Grade Construction

Large excavation equipment would be used to build the road bed. Long-boom equipment (e.g. large drag lines) would be used to cast and remove material in some areas that are difficult to access. The road bed would then be constructed using blast rock hauled by large trucks and moved into place with dozers. The material for finishing the road would be crushed rock, and graded aggregate obtained from quarries located along the alignment. These materials will be removed, hauled, placed, graded and compacted using various types of loaders, trucks, graders, dozers and compaction equipment.

Bridge Construction and Culvert Installations

Watercourse-crossing construction activities would vary depending on structure type, site access and foundation conditions.

Culverts would be installed to allow for natural cross-drainage where the road would pass over low areas and intermittent streams. Culverts would also be installed at all stream crossings where bridges would not be required. Culvert design and installation would meet Fisheries and Oceans Canada (DFO) guidelines for maintaining stream-flow velocity through the culverts.

Ten clear-span bridges and three multi-span bridges with piers in the water would be installed. The clear-span bridges would be designed and installed to meet the DFO operational statement for clear-span bridges. Activities related to the installation of the multi-span bridges would include: foundation, substructure and superstructure installation. All bridges would allow for two-way traffic and meet Transport Canada's *Navigable Waters Protection Act* requirements.

Other activities would include erosion and sediment control, installation of coffer dams, placement of rip-rap, re-vegetation and monitoring.

Demobilization

A detailed decommissioning plan related to temporary construction facilities would be developed during detailed project design. All facilities and work areas that would not be retained for future maintenance activities would be decommissioned and reclaimed, where appropriate. This would be done progressively at various stages during construction as areas (e.g. staging areas, borrow pits, access roads, etc.) became available and at the end of road construction activities.

Disturbed areas would be re-contoured and restored to promote rapid re-vegetation and a return to pre-construction conditions. Close attention would be paid to areas with high erosion potential. Large plots of land such as staging areas, borrow pits, and main camp sites will be re-vegetated and maintained until plant growth is established.

Modification Activities

Modifications to the Project are not planned; however, some modifications would be required as a result of beaver-dam failure, road washout, accidents and slope failures. In these scenarios, the road design, alignment or crossing type or size may be modified in response to unexpected occurrences. Road reconstruction and crossing replacement activities would be undertaken as identified above.

Decommissioning Activities

The Project is expected to operate for at least the next 50 to 100 years and can be maintained indefinitely. While decommissioning of the Project in its entirety would not be required in the foreseeable future, decommissioning of temporary construction facilities and ancillary features such as borrow pits and access roads would occur progressively as construction activities are completed along the ROW. Decommissioned construction sites would be re-contoured and restored to allow for the re-establishment of vegetation.

Waste Management and Disposal

The Project will draw a significant number of workers from local communities. Using the local workforce is expected to minimize temporary construction camp requirements.

Waste from construction would be collected and stored temporarily in bins to be located at each temporary construction camp. Recyclable materials would be segregated and stored in designated areas for removal as conditions permit from each of the camp areas. Septage from small temporary camps would be disposed of in accordance with provincial regulations.

Hazardous materials used during construction would include the fuel and lubricants used by the construction vehicle fleet, portable generation facilities, and other portable equipment (e.g. pumps). Waste oils and lubricants derived from vehicles and equipment would be collected and stored until removed from the site for recycling or disposal by a waste services company. Any soils contaminated through spills during construction activity would be removed and disposed of off-site according to provincial regulations.

Annex 2 – Scope of the Assessment

Scope of the Factors

The table below identifies the components of the environment within the Study Area that are regarded as possessing significant value. This list was developed and considered at the outset of the comprehensive study to allow for an analysis of the environmental effects of the project and to facilitate the scoping of the factors to be considered in the assessment.

Table A2-1: Valued ecosystem components

VEC	Rationale
<ul style="list-style-type: none"> Air quality (ambient air quality, greenhouse gases, and noise) 	<ul style="list-style-type: none"> Indicator of environmental health Support to human health Support to biological communities Effects to climate
<ul style="list-style-type: none"> Terrain and soils 	<ul style="list-style-type: none"> Sensitive environment Support to terrestrial ecosystems Support to drainage systems
<ul style="list-style-type: none"> Groundwater (quality and quantity) 	<ul style="list-style-type: none"> Sensitive environment Indicator of environmental health
<ul style="list-style-type: none"> Surface water (quality and quantity) 	<ul style="list-style-type: none"> Sensitive environment Indicator of environmental health Support to aquatic ecology Support to traditional Aboriginal activities
<ul style="list-style-type: none"> Forest vegetation and plant communities <ul style="list-style-type: none"> Medicinal and Berry plants used by communities 	<ul style="list-style-type: none"> Indicator of environmental health Effects to Habitat for resident species and species at risk Area of notable biological diversity Cultural significance Support to traditional Aboriginal activities Socio-economic interest Educational interest
<ul style="list-style-type: none"> Wetlands 	<ul style="list-style-type: none"> Sensitive environment Indicator of environmental health Area of notable biological diversity Support to wildlife Support to traditional Aboriginal activities
<ul style="list-style-type: none"> Fish and fish habitat 	<ul style="list-style-type: none"> Cultural significance Economic significance Notable species Support to traditional Aboriginal activities
<ul style="list-style-type: none"> Wildlife and wildlife habitat 	
<ul style="list-style-type: none"> <ul style="list-style-type: none"> Moose Furbearers 	<ul style="list-style-type: none"> Notable species Economic significance Support to traditional Aboriginal activities
<ul style="list-style-type: none"> <ul style="list-style-type: none"> Amphibians and reptiles Migratory birds 	<ul style="list-style-type: none"> Notable species or species groups Scientific interest
<ul style="list-style-type: none"> Species at Risk 	
<ul style="list-style-type: none"> <ul style="list-style-type: none"> Woodland Caribou 	<ul style="list-style-type: none"> Protected species – populations at risk

- Wolverine	<ul style="list-style-type: none"> • Scientific interest
- Aquatic species - Lake Sturgeon, Shortjaw Cisco, Bigmouth Buffalo, Silver Chub, Maple Leaf Mussel	<ul style="list-style-type: none"> • Protected species– populations at risk • Scientific interest
- Bird species - Olive sided Flycatcher, Canada Warbler, Chimney Swift, Rusty Blackbird, Common Nighthawk	<ul style="list-style-type: none"> • Protected species– populations at risk • Scientific interest
<ul style="list-style-type: none"> • Cultural Environment 	
- Sites and landscape features with heritage significance – i.e. Bloodvein River	<ul style="list-style-type: none"> • Cultural significance • Provincial significance • Support to traditional Aboriginal activities
- Archaeological sites	<ul style="list-style-type: none"> • Provincial protected sites • Cultural significance
- Watercourse navigability	<ul style="list-style-type: none"> • Important corridor • Cultural significance • Socio-economic interest • Support to traditional Aboriginal activities

Annex 3 - Alternatives to the Project

For the purposes of paragraph 16(1)(e) of the *Canadian Environmental Assessment Act* (the Act), alternatives to the project are functionally different ways to meet the project's need and purpose.

Three alternatives to the Project were considered during the assessment, including:

- “Status quo” - maintaining the existing transportation system to provide access to communities on the east side of Lake Winnipeg i.e. air, winter roads, and seasonal ferry systems;
- Providing other means of transportation (e.g. boat, air transport, or rail); or
- Developing an all-weather road to provide year-round road access to communities on the east side of Lake Winnipeg.

According to the Proponent, only the development of an all-weather road would be capable of fully meeting the project need and purpose, which is to provide an improved, safe and more reliable transportation service between communities located on the east side of Lake Winnipeg.

Maintaining the existing transportation system is not considered a preferred option. The existing transportation network is comprised of a system of airports, unreliable winter roads, and seasonal ferry systems. There are extensive periods where the communities in the Project study area have no surface transportation available and must rely on air transport. The status quo option results in high freight and transportation costs for individuals, communities, and governments. Only the communities of Hollow Water, Manigotagan, and Aghaming currently have direct access to an all-season road (PR 304). The result would be a large portion of the people on the east side of Lake Winnipeg would be left to experience the effects of unreliable transportation links to the south.

Other transportation concepts such as hovercraft, air ships, and rail have periodically been advanced as solutions to enhance the current transportation system. These transportation concepts are not considered viable options given the unpredictability of the weather, construction constraints, and the freight and passenger movement demands within this region.

Considering alternatives to the project has been the focus of a number of studies and community consultations, starting with the Wabanong Nakaygum Okimawin planning initiative, which brought together local communities, First Nations, industry and environmental organizations to develop a vision for land and resource use in the Project study area that respects both the value of the boreal forest and the needs of local communities. Selecting the Project as the preferred alternative is the result of a number of years of deliberation.

The Agency considers the analysis of the preferred alternative to be sufficient for the requirements of the “Need for”, “Purpose of” and “Alternatives to” analysis for this comprehensive study.

Alternative Means of Carrying Out the Project

In accordance with paragraph 16(2)(b) of the Act, the comprehensive study process must include consideration of the alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means.

A number of alternative routing options were considered to determine the recommended route (Figures 9, 10, and 11). Separate consideration was given to routing options for the portion of the project located between PR 304 and the Bloodvein River (Rice River Road upgrade and extension), and the portion located between the Bloodvein River and Berens River. The Proponent indicated that all route options were considered to be technically and economically feasible.

At a regional level, the predicted environmental effects associated with each of the technically and economically viable alternative routes would be similar to those of the preferred alternative given the proximity of the routes to each other and the uniformity of the receiving environment. For each of the technically and economically viable alternative routes, the Proponent applied the following criteria to determine the preferred route:

- *Technical* (travel distance, terrain conditions, borrow availability and construction constraints/limitations);
- *Natural Environment* (habitat fragmentation, effects to environmentally sensitive features, effects to species at risk and effects to aquatic habitats);
- *Social/Cultural Environment* (potential effects on traditional uses of land, culturally sensitive resources, human health and safety, and community infrastructure benefits);
- *Capital Costs and Annual Maintenance Costs*.

A summary of the analysis of each alternative is provided below.

Manitotagan to Bloodvein Section

Southern Section: Four alternatives (A through D) were considered by the Proponent:

- **Route A** (16.4 km) – Upgrading the existing Rice River Road and replacing the bridges over Wanipigow River and English Brook.
- **Route B** (14.6 km) - New road connecting to PR 304 just south of Hollow Water FN passing through Seymourville, Hollow Water FN, and Aghaming before connecting with the Rice River Road. This option would include a new bridge over the Wanipigow River close to where the river discharges into Lake Winnipeg.
- **Route C** (12.1 km) - New road connecting to PR 304 just south of Hollow Water FN and passes through Seymourville, and Hollow Water FN before connecting the Rice River Road north of English Brook. This is a combination of new road

and Rice River Road upgrades and a new bridge over the Wanipigow River at a new location.

- **Route D** (11.7 km) - New road connecting to PR 304 just south of Hollow Water FN and passing through Seymourville, and Hollow Water FN before connecting the Rice River Road north of English Brook. This option would be a combination of new road and Rice River Road upgrades and a new bridge over the Wanipigow River at a new location.

Route A was selected as the preferred route option for the southern segment between Manigotagan and Bloodvein. This route minimizes the effects on watercourses, and previously undisturbed terrestrial habitat. The preferred alignment also addresses human health and safety concerns by reducing heavy truck traffic through the communities, and subsequent dust and noise generation.

Middle Section –The existing Rice River Road was examined and determined to be established on good terrain and suitable for upgrade to an all-weather road. Therefore the existing alignment was the only route alternative deemed technically feasible for this segment of the Project. This alternative includes minor realignment and reconstruction of approximately 55 kilometres of the existing Rice River Road with replacement of existing culvert and bridge crossings. Major realignments would have increased the overall project cost and resulted in additional environmental effects related to clearing previously undisturbed areas.

Northern Section – Three alternatives (A through C) were initially considered by the Proponent. An additional route option was included in the analysis following the Proponent’s first round of open house meetings.

- **Route A** (12.0 km) - New road and four new waterbody crossings including two clear-span bridges over the Bloodvein River. This route passes through the Bloodvein FN reserve lands.
- **Route B** (10.5 to 11.0 km) - New road and a total of five new waterbody crossings including new bridges over the Bloodvein River and Long Body Creek.
- **Route C** (14.0 to 16.1 km) - New road and five new waterbody crossings including new bridges over the Bloodvein River and Long Body Creek.
- **“Alternative Route”** (10 km) – New road that follows an existing cut line and aligns just east of the existing reserve boundary. Two waterbodies would be crossed: Bloodvein River and Longbody Creek. This alternative was considered by the Proponent at the request of the Bloodvein FN.

The “Alternative Route” was selected as the preferred option for the northern segment. This route follows the existing winter road and portions of the existing Manitoba Hydro hydroelectric power distribution line right-of-way, which minimizes clearing of undisturbed forest. This would be the preferred route of the Bloodvein First Nation, as confirmed by Chief and Council in a Band Council Resolution on October 27, 2009. This route option would minimize effects to cultural and recreational areas used by the Bloodvein First Nation.

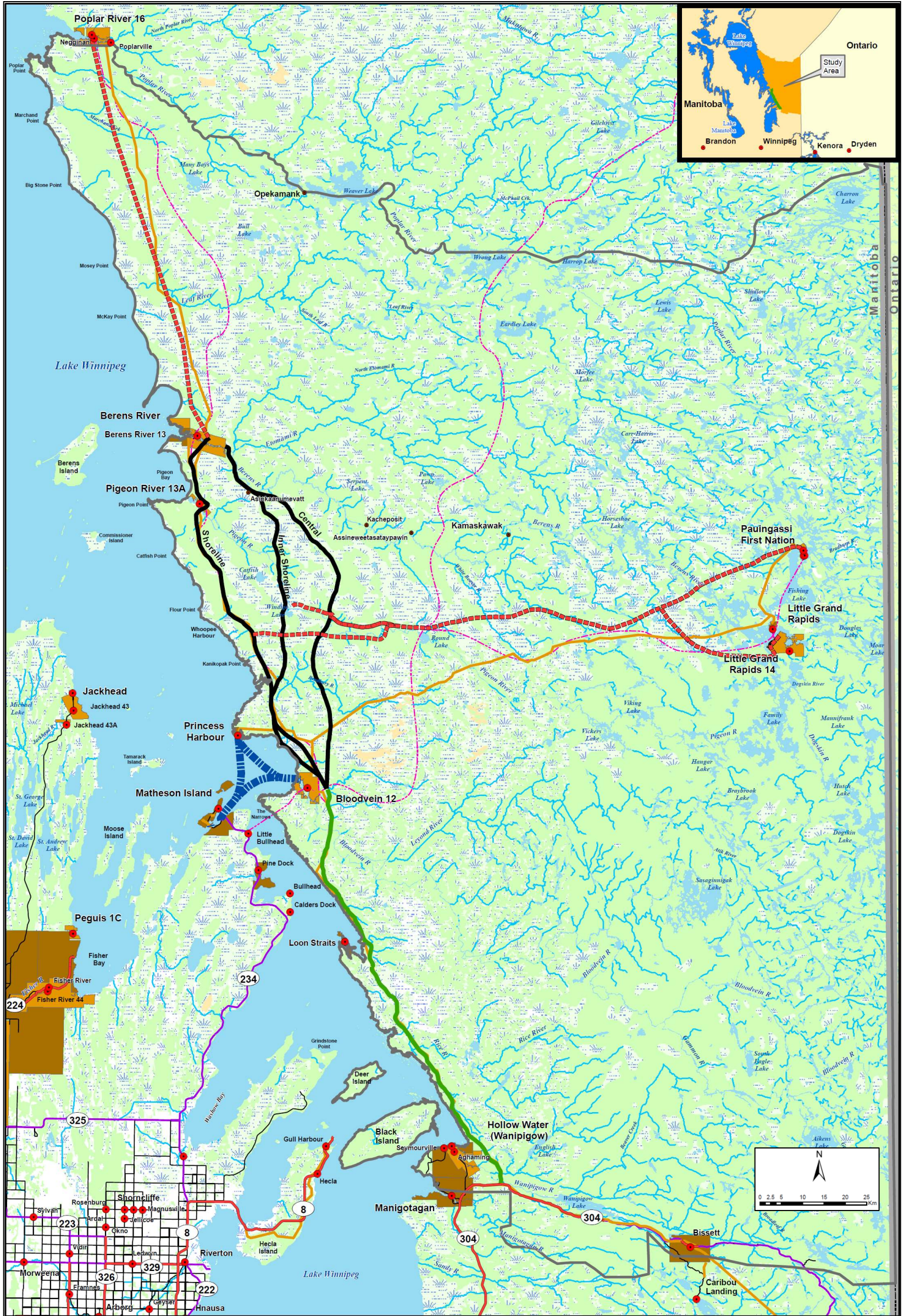
Bloodvein to Berens River Section

Three alternative routes were considered by the Proponent for the segment of road between Bloodvein and Berens River. An additional route was included in the analysis following the Proponent's first round of open house meetings.

- **Shoreline Route** (75.4 km) - This route would generally follow the existing winter road alignment along the Lake Winnipeg shoreline. The route is characterized by extensive areas of muskeg and swamp, areas of scarce borrow material, and relatively wide watercourse crossings which require long bridge spans.
- **Inner-shoreline Route** (71.1 km) - This route would generally follow the existing winter road alignment but would diverge inland at Bradbury River. The route is characterized by thin peat, abundant bedrock outcrops, readily available borrow material, and narrower watercourse crossings at major rivers.
- **Central Route** (73.8 km) - This route would follow a new alignment inland of the other route options and would be located to the east of the Shoreline Route alignment. The route is characterized by thin peat, abundant bedrock outcrops, readily available borrow material, and narrow watercourse crossings at major rivers.
- **Revised Shoreline Route** (75.6 km) – Following receipt of input from members of Berens River First Nation, the Proponent made road alignment adjustments to the initial Shoreline Route. The realignment would avoid Pigeon River and Berens River First Nation reserve lands, take advantage of better terrain conditions and cleared areas along the existing winter road alignment and would provide a greater set-back from the Lake Winnipeg shoreline.

The Revised Shoreline route was selected as the preferred option. Approximately 65% of the revised shoreline route would follow the existing winter road right-of-way, while the other options would use less than 10% of the winter road right-of-way. Following the existing winter road alignment would minimize clearing requirements which would minimize access to and fragmentation of undisturbed habitat and the associated effects on wildlife and habitat. This option was selected with input from Bloodvein FN and Berens River FN. Manitoba Conservation Wildlife and Ecosystem Protection Branch also supports this route alignment.

The Agency is satisfied that the Proponent identified the technically and economically viable alternative means of carrying out the project and considered the environmental effects of the alternatives and their acceptability in identifying a preferred alternative.



Legend					
	Route Alternatives		Paved Highway		Watercourse
	Potential Future ESLW Route		Un-Paved Highway		Wetland
	Rice River Road Upgrade		Winter/Limited Use Road		String Bog
	Summer Ferry		Distribution Powerline		Lake
	First Nation		Provincial Boundary		Forested
	NAC Community		Community/Populated Place (Geographical Names Of Canada Database)		Study Area

Figure 9 Route Alternatives

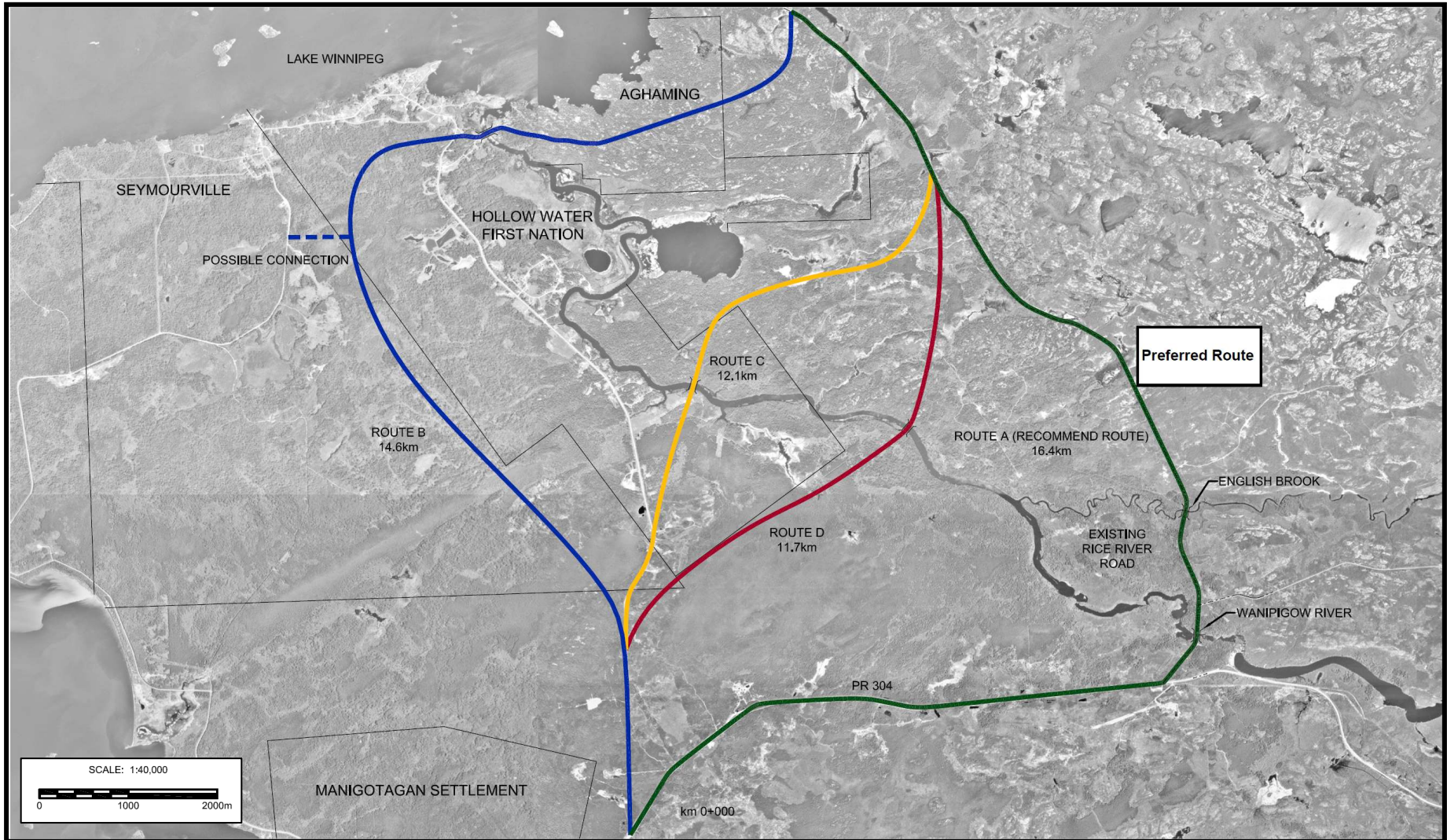


Figure 10 Southern Route Alternatives

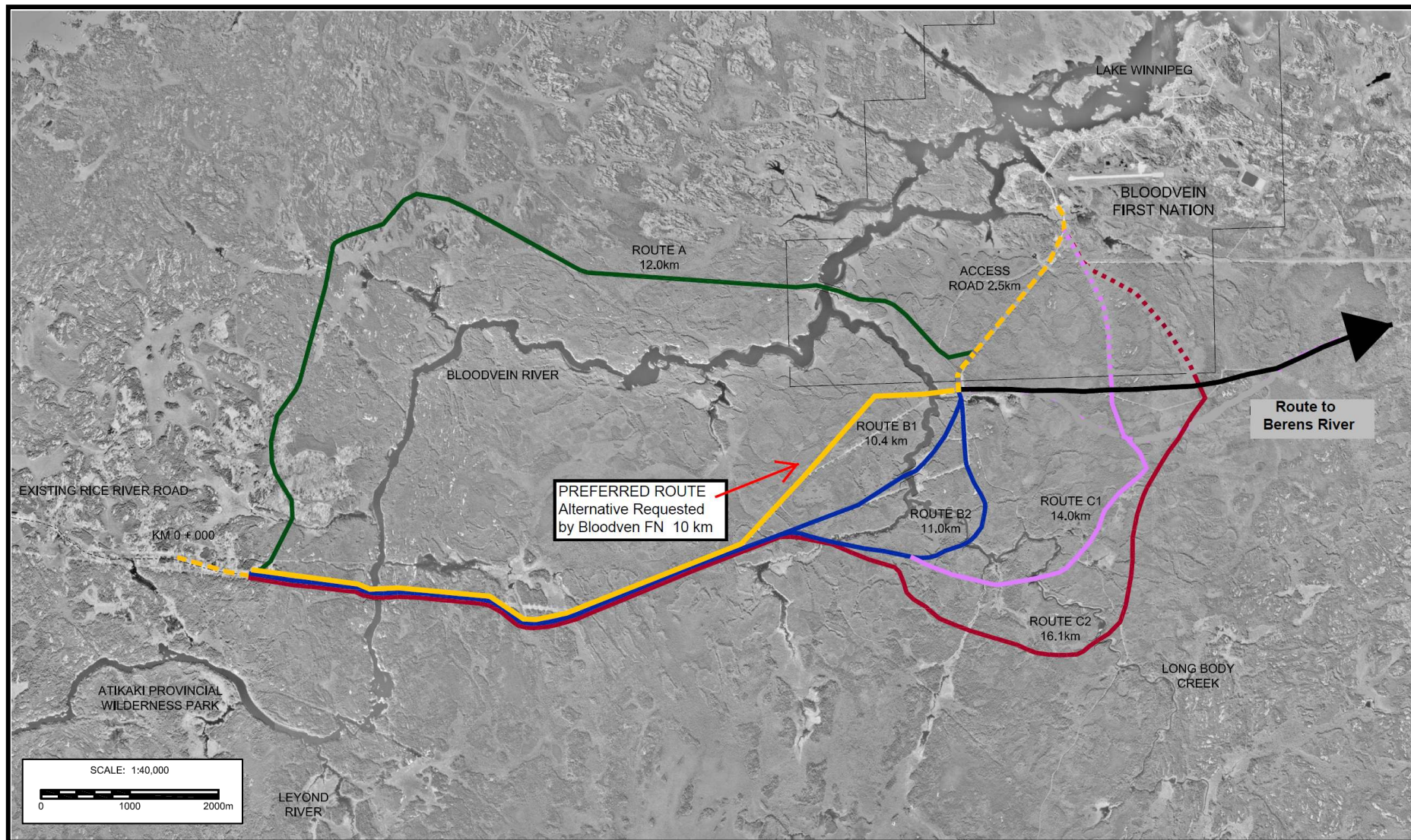


Figure 11 Northern Route Alternatives

Annex 4 – Consultation

Consultations with the people and communities potentially affected by the Project have been on-going since the all-season road concept was first introduced in 1999. The following is a summary of consultation exercises on the Project that were conducted between March 2009 and March 2011 in order to engage the public and Aboriginal peoples in the assessment of potential environmental effects of the proposed road.

Public Participation during Environmental Assessment

Project information was made available through Manitoba Conservation's public registry website. Copies of the reports and documents posted to the website were also made available at sites throughout the Project study area including at First Nation band offices and community council offices, as well as provincial registry locations. Advertisements were posted in newspapers at specific points in the process to encourage public review and comment on the EA material.

All comments received from the public during the federal-provincial cooperative EA can be viewed on Manitoba Conservation's Summary of Comments Report at: <http://www.gov.mb.ca/conservation/eal/archive/2010/summaries/5388.pdf>.

In addition to comments received during public consultation processes, comments on the EIA from the Manitoba Metis Federation (MMF) were provided directly to the Proponent.

Comments from the public and the Proponent's responses to the comments were considered in the development of this comprehensive study report, in the provincial *Environment Act* licensing decision and in determining the necessity for follow-up activities to be carried out by the Proponent.

In addition to the public participation opportunities conducted during the cooperative EA process, the public and Aboriginal people were invited to participate in the federal comprehensive study. The *Canadian Environmental Assessment Act* (the Act) requires that the public be provided with three formal participation opportunities – one at the outset of the process, one during the comprehensive study and a final opportunity to review and comment on this report.

The first of these opportunities was provided between May 17 and June 21, 2010, and focused on a review of the Draft Comprehensive Study Scoping Document, which described the scope of the federal comprehensive study and identified the key issues to be considered in the federal EA.

The second consultation opportunity occurred between July 19 and August 20, 2010, when the Agency invited public comment on the Project and the conduct of the comprehensive study.

The final public comment period will be to review and encourage comments to the Minister on this comprehensive study report.

Individuals and groups who had indicated an interest in the project at earlier phases in the cooperative EA process were notified directly during the consultation exercises. Public

access to the Draft Comprehensive Study Scoping Document was also provided at public registry locations.

The Agency supported public participation in the comprehensive study through its Participant Funding Program (PFP). A total of \$50,000 was provided to support the participation of the Manitoba Metis Federation, Black River First Nation, Hollow Water First Nation, and Gaile Whelan-Enns (Manitoba Wildlands).

The Agency considered the comments received throughout the EA in preparation of this CSR.

Proponent Public Participation Activities

The Proponent has undertaken extensive public consultation activities on the Project since 2009. The main objective of the Proponent's exercise was to engage in dialogue and exchange information about the Project with all potentially interested and affected parties, including First Nations, Métis, and other affected communities.

Consultation efforts specific to the Project included:

- two rounds of community meetings and open-houses;
- meetings and discussions with community leadership, elders, youth, hunters, trappers, and resource associations;
- newsletters; and
- a project website (www.eastsideroadauthority.mb.ca);

Aboriginal Consultation during the Cooperative EA Process

The Crown has a duty to consult, and where appropriate accommodate, when it has knowledge that its proposed conduct might adversely impact an established or potential Aboriginal or Treaty right. Consulting is an important part of good governance, sound policy development and decision-making.

Crown consultation efforts for the Project began in April 2009 led by a provincially-initiated Aboriginal Consultation Steering Committee. Fifteen Aboriginal groups or communities with a potential interest in the Project were identified primarily using proximity as the selection criteria. Manitoba Northern Affairs Communities (NACs) were included. While these communities have municipal-government structures, i.e. are not Aboriginal governments, many of the NAC community members are First Nations or Métis with potential Aboriginal rights within the Project study area.

The Crown sought to clarify issues and seek input on the EA from First Nations and Metis people. The Crown also sought information from Aboriginal groups regarding the potential for there to be impacts to potential or asserted Aboriginal rights that could result from the Project. This was done through various means including telephone calls, email messages, letters and dialogue during meetings. The consultation process identified issues on potential effects of the project. A summary of the issues are provided in Table A4-2.

The Government of Canada participated in the provincially-led consultation process until its conclusion in August 2010 when Manitoba issued *Environment Act* Licence No. 2929

for the Project. Since then, the Agency has maintained correspondence with each of the participating groups, as well as three additional communities, Bissett, Matheson Island and Pine Dock. In addition to opportunities to review the Proponent's EIA and the provincial EA documentation, First Nations and the Manitoba Metis Federation have had the opportunity to review and provide comments on the Comprehensive Study Scoping Document and a draft of the federal comprehensive study report.

During the comprehensive study process, no new issues relating to the environmental effects of the Project were raised by Aboriginal groups.

Proponent's Aboriginal Consultation

Information from Aboriginal people collected by the Proponent during its consultations was considered by the Crown to inform of any potential adverse impacts of the Project on potential or asserted Aboriginal rights, as well as in the consideration of appropriate mitigation measures or accommodation measures that could be required to address potential infringements of those rights.

The Proponent's consultation process is detailed in the EIA.

The Proponent reports that it continues to work with local First Nations and the Métis. Work with Metis people has been facilitated through the Manitoba Metis Federation and includes the conduct and consideration of a traditional land use study. Information arising from the study will help inform future Crown decisions in the region as well as the Proponent's detailed plans in preparation for construction and operation of the road.

Consultation Follow-up

The Crown will continue to monitor the Project and the required mitigation measures to ensure that consultation and accommodation obligations remain commensurate with the Crown's assessment of Aboriginal rights and the potential adverse impacts of the Project on the potential or asserted rights. If new information is presented following the completion of the comprehensive study that would result in changes to the Crown's assessment, additional consultation and accommodation measures may be considered.

Specifically, the conceptual fish habitat compensation plan, currently proposed by the Proponent, represents a technically feasible but worst-case scenario. This plan is acceptable to DFO for the EA phase of the Project; however, modifications could occur once additional information is gathered. First Nation and Métis groups will be provided an opportunity to review the final fish habitat compensation plan during the regulatory phase of the Project, prior to the issuance of a *Fisheries Act* subsection 35(2) authorization.

Table A4-1: Summary of the Comments Received on the Scope of the Comprehensive Study

Group	Comments	Disposition
Manitoba Metis Federation	Clarity sought on the Project being assessed and reference to the EIS in the Scoping Document.	Agreed. Add this to Page 5. Paragraph 1 Refer to provincial TOR
Manitoba Metis Federation	One alternative that should be examined is 'status quo'. Since the Project is an irreversible change from the baseline condition, it is important to contrast the impacts of not building the project vs building the project.	<p>The "status quo" scenario, which is essentially the baseline condition, will be addressed within the comprehensive study; however the status quo would not meet the need for or purpose of the Project. The comprehensive study will include additional detail on the "alternative means of carrying out the project", which will include an assessment of alternative route alignments, methods, implementation, mitigation, etc.</p> <p>For more information, see the Operational Policy Statement on Addressing "Need for", "Purpose of", "Alternatives to" and "Alternative Means" under the Canadian Environmental Assessment Act http://www.ceaa.gc.ca/013/0002/addressing_e.htm</p>
Manitoba Metis Federation	Consideration of 'Human Environment' needs to be expanded to include the concept of assessing the significance of any project-related changes to land and resource use by aboriginal people.	<p>The language in the Scoping Document is verbatim from the Act which reads: "environmental effect" means, in respect of a project,</p> <p>(a) any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the <i>Species at Risk Act</i>,</p> <p>(b) any effect of any change referred to in paragraph (a) on</p> <p>(i) health and socio-economic conditions,</p> <p>(ii) physical and cultural heritage,</p> <p>(iii) the current use of lands and resources for traditional purposes by Aboriginal persons, or</p> <p>(iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or</p> <p>(c) any change to the project that may be caused by the environment, whether any such change or effect occurs within or outside Canada;</p>
Manitoba Metis Federation	<p>Clarity sought on assessment of cumulative effects of the Project before or after application of mitigation measures.</p> <p>Expand consideration of future projects to include those 'reasonably foreseeable', not just those that 'will be carried out'.</p>	<p>The Agency's guidance on cumulative effects assessment states: Determine if the effect of the project, in combination with the other effects, may cause a significant change now or in the future in the characteristics of the VEC after the application of mitigation for that project. Additional mitigation may be deemed necessary as a result of the cumulative effects assessment.</p> <p>Will add "reasonably foreseeable" to section 6.5 of the scoping document as per the MMF suggestion which is also consistent with the Agency's Operational Policy Statement "Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act"</p>
Manitoba Metis Federation	Question on whether the comprehensive study can effectively identify and evaluate the significance of any project-related impacts to Metis land use, culture and economy. Significant data collection is required in order to develop a meaningful understanding of Metis land use, economic and cultural activity in the project area.	Aboriginal use of the land, which includes Metis land use by definition, is considered a Valued Ecosystem Component in the comprehensive study. It is listed under Human Environment in Table 1 of the Scoping Document. The Proponent and MMF are working collaboratively on a Traditional Land Use Study which can be used to inform the environmental assessment and subsequent regulatory decisions.
Manitoba Metis Federation	It is noted for the record that INAC advised the Agency as long ago as May 2009 to contact the MMF with respect to engagement in this project.	Letter from INAC was addressed to the Agency and suggests that the East Side Road Authority meet with MMF. This was provided to the Proponent via Manitoba Conservation and the provincial EA process. The Proponent and MMF are in contact with respect to this project.
Manitoba Metis Federation	It is recommended that the Agency and MMF meet to discuss how the environmental assessment process can best accommodate the needs of both parties in the compressed timeframe available before the anticipated start of construction of this project.	Agreed - to discuss both the scoping document comments and the ongoing work. Kris will work with MMF to establish a meeting which will include Fisheries and Oceans Canada and Transport Canada.
Manitoba	Manitoba Wildlands suggests that the Scoping Document should reference the use of mitigation over the lifetime of the	A new bullet will be added to page 8, line 29 to include "a fish habitat compensation plan". Standard methodology for the EA will include

Group	Comments	Disposition
Wildlands	East Side Road, including construction, maintenance, decommissioning and reclamation.	assessments of project activities and mitigation over each phase of the project life
Manitoba Wildlands	Request that the full environmental effects assessment methodology be provided in the comprehensive study.	The comprehensive study report will include a section on methodology of environmental assessment and will also refer to Agency guidance material
Manitoba Wildlands	Recommend that the Agency take steps to completely fulfill its scoping document contents in relation to the Proponent's EIS.	The scope of the project for the purpose of the comprehensive study includes the entire project as proposed by the Proponent. The environmental assessment process as described in the scoping document will include careful consideration of the potential effects of the project as per the requirements of the Act.
Manitoba Wildlands	Question on who the proponent is	The Manitoba Floodway and East Side Road Authority (MFESRA) is the proponent
Manitoba Wildlands	Recommend that the project area for this project be the width of the intended road, bridge, drainage, ditch areas with one kilometre on each side of the road included in the project area, and thereby the scope for assessment of environmental effects.	Impacts to VECs may vary with respect to spatial and temporal boundaries. The spatial boundaries to be used in the assessment of impacts will consider timing of project activities, natural variations in each VEC, recovery time, and cumulative effects.
Manitoba Wildlands	Recommend that the Agency include in the scope for its comprehensive study a regional plan that includes potential environmental effects from this project and future intended projects.	The cumulative effects assessment section of the comprehensive study will address the potential environmental effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out. The proponent is encouraged to identify other projects/activities that are certain or reasonably foreseeable, which could be included in an existing regional plan.
Manitoba Wildlands	Recommend a thorough study and assessment of how the environmental effects of undertaking this project will affect human health, culture, and traditional activities of community members along the route of the project, and within or adjacent to the project area	Environmental impacts of the project on traditional use will be evaluated as per Table 1 in Section 6.3 of the Scoping Document
Manitoba Wildlands	Claim that Manitoba's assessment was insufficient (based on 10-year old data) and that evaluation of ongoing development effects needs to be done	The scope of the project for the purpose of the comprehensive study includes the entire project as proposed by the Proponent. The environmental assessment process as described in the scoping document will include careful consideration of the potential effects of the project as per the requirements of the Act.
Manitoba Wildlands	Cumulative impacts on renewable resources and on the subsistence economy from this project and future intended project needs to be a cornerstone of the comprehensive study.	The scope of the project for the purpose of the comprehensive study includes the entire project as proposed by the Proponent. The environmental assessment process as described in the scoping document will include careful consideration of the potential effects of the project as per the requirements of the Act, including consideration of potential cumulative environmental effects and the impact to sustainable resources.
Manitoba Wildlands	Recommend that the proponent provide, or the Agency collect, updated information and data regarding Woodland Caribou and other species along the east side of lake Winnipeg.	Environment Canada - Canadian Wildlife Service (CWS) has reviewed the Woodland Caribou section of the EIS and has not identified any issues to date. The CWS will provide input into the comprehensive study report.
Manitoba Wildlands	Recommend addition of species (White pelicans and Nigh Hawks)	Night Hawks are a migratory bird listed as SARA species and will be considered in the comprehensive study. It is uncertain how white pelicans would be affected directly by the road given that they use strictly water and don't use uplands. They are not migratory birds protected under the migratory birds convention act.
Manitoba Wildlands	Recommendations on GHG analysis and climate change	The proponent will be providing supplemental climate change information and will be incorporating into the EA as per the Agency guidance

Table A4-2: Summary of the Aboriginal Consultation and Issues Raised

Issue/Concern Raised	Aboriginal Group	Nature of Rights	Potential Environmental Effects	Proponent's Response	Provincial Crown's Response	Federal Crown's Response	Issue Status
Mitigation and/or accommodation measures throughout the Project study area have the potential to impact resource users who are exercising their Aboriginal rights.	Métis	Traditional use - hunting, fishing, trapping, access to medicines, etc	Impacts to the environment & proposed mitigation may hinder ability to practice traditional activities	The Proponent provided funding for MMF's review of the EIA as well as funding to undertake a Métis Traditional Land Use (TLU) study. The TLU Study was ongoing as of the writing of this report.	The Province has committed to future dialogue with the MMF following the MMF's participation in the environmental review process.	Potential impacts to be assessed through the Federal Follow-Up Program. Will require ongoing consultation following the completion of the environmental assessment.	Ongoing
Concern arose about potential impacts to the sturgeon in the Bloodvein River.	First Nations &/or Métis	fishing	Impacts to sturgeon (fishing)	Mitigation measures during construction and operation minimize the effect of the Project on fish, including rare and endangered species, are considered to be readily available and effective.	Manitoba <i>Environment Act</i> Licence No. 2929 contains several conditions to minimize the impact of the project on fish, including sturgeon, to a low level.	Sections 7 & 8 of the federal comprehensive study report outline existing environment and potential impacts to fish and fish habitat including lake sturgeon. Regulatory authorizations from Fisheries and Ocean Canada as well as Transport Canada will specify further conditions to reduce and/or eliminate impacts to fish. Will require ongoing consultation following the completion of the environmental assessment.	Priority Issue for DFO - Regulatory Phase
Concern that Moose would migrate out of the area. Concern about over-hunting.	First Nations &/or Métis	hunting	Impacts on wildlife, Moose.	Proponent's Environmental Management Plan (EMP) contains monitoring programs to provide information to Manitoba Conservation for potential action.	Manitoba Conservation is aware of the potential effects of the road and, with the Proponent, will be monitoring wildlife populations as development continues. Provincial highway restrictions and a wildlife road refuge remain in place for the area south of the Bloodvein River. The establishment of a road refuge north of the Bloodvein River remains an option for residents. The implementation of an expanded road refuge cannot go forward without community support. If the residents are interested, they are required to approach local Manitoba Conservation representatives to initiate discussions. Manitoba will be consulting local people on the proposed hunting closure and regulation developments, per direction provided by Manitoba's consultation policy. <i>Environment Act</i> Licence No. 2929 contains several conditions that will mitigate the potential effects identified for the project, including clauses to restrict access at various locations. Manitoba Conservation will be responsible for the establishment of a 300 m no-hunting zone along the road alignment has been identified as a key measure to mitigate potential impacts associated with increased human hunting of Moose and Woodland Caribou.	Sections 7 & 8 of the federal comprehensive study report outline existing environment and potential impacts to Moose and other wildlife. Management of wildlife on provincially administered Crown Lands is an area of natural resource management covered by the Natural Resource Transfer Agreement (1930) (the NRTA). Federal responsible authorities have been assured through the existence of the provincial resource management instruments in place in the region and the enforcement capacity of the provincial Ministry of Conservation that public safety and hunting pressure on Moose and Woodland Caribou populations along the corridor will be managed to mitigate the potential adverse impacts.	Ongoing - Province
Extent of fire arms control during construction and access by local hunters following construction.	First Nations	hunting, Traditional Territory, Treaty right	Impacts to traditional territory and exercise of rights		To address public safety concerns, firearm-control measures will be implemented following provincial regulations all along the road alignment. Manitoba <i>Environment Act</i> Licence No. 2929 invokes several conditions that are meant to mitigate the adverse effects of overhunting along the road corridor. Conditions include restricting access at various locations and a 300 metre wide no-hunting zone running along the length of the corridor to protect Moose and Woodland Caribou populations. Manitoba <i>Environment Act</i> Licence is available publically through Manitoba Conservation's website.	Management of wildlife on provincially administered Crown Lands is an area of natural resource management covered by the Natural Resource Transfer Agreement (1930) (the NRTA). Federal responsible authorities have been assured through the existence of the provincial resource management instruments in place in the region and the enforcement capacity of the provincial Ministry of Conservation that public safety and hunting pressure on Moose and Woodland Caribou populations along the corridor will be managed to mitigate the potential adverse impacts.	No further action required.
Effects to Lake Winnipeg of fuel spills	First Nations &/or Métis	Traditional Territory	Impacts to Lake Winnipeg and fishing	In addition to mitigation measures to prevent spills, the Proponent's EMP contains water quality monitoring. Also, an Emergency Response Plan has been developed that outlines actions in the event of a spill.	The <i>Environment Act</i> Licence No. 2929 contains several conditions that will reduce the likelihood and mitigate potential effects of fuel spills.	Sections 7 & 8 of the federal comprehensive study report outline existing environment and potential impacts to water quality, fish and fish habitat. Regulatory authorizations from Fisheries and Ocean Canada as well as Transport Canada will specify further conditions to reduce and/or eliminate impacts to fish.	No further action required

Issue/Concern Raised	Aboriginal Group	Nature of Rights	Potential Environmental Effects	Proponent's Response	Provincial Crown's Response	Federal Crown's Response	Issue Status
Concern on disturbance to areas traditionally used for the harvest of medicinal plants.	First Nations &/or Métis	Access to medicines in Traditional Territory	Impacts to vegetation, gathering medicinal plants, Traditional Territory and land use	Traditional harvesting practises and resource use: Section 6.0: Traditional Knowledge Study (baseline conditions of traditional harvesting practises and resource use and its cultural implications); Section 7.0: Environmental Setting (baseline conditions of the aquatic, terrestrial and socioeconomic environment). Section 8.0: Environmental Effects Assessment (impact analysis of the aquatic, terrestrial and socioeconomic environment).	Section 6 of the EIA: Traditional Ecological Knowledge study and implications are reviewed.	Sections 7 & 8 of the federal comprehensive study report outline existing environment and potential impacts to local vegetation include dust deposition	No further action required
Uncontrolled land use and resource development leading to destruction of environment	First Nations	Traditional Territory, trapping, fishing, hunting, Treaty right	Impact to environment, hunting, trapping, fishing rights and culture.		The <i>Environment Act</i> Licence No. 2929 contains several conditions that mitigate the potential effects identified for the project, including clauses to restrict access at various locations.	Cumulative Effects including projects that are reasonably foreseeable have been assessed in Section 8 of this report. Future developments may be subject to local land-use planning initiatives as well as Provincial and/or Federal environmental legislation.	No further action required
Concern on effects to local land management and governance by the band.	First Nations	Traditional Territory, Treaty right	Impacts to traditional territory and land use.			Cumulative Effects including projects that are reasonably foreseeable have been assessed in Section 8 of this report. Future developments may be subject to local land-use planning initiatives as well as Provincial and/or Federal environmental legislation.	No further action required
Concerns raised on potential direct and indirect impacts on registered trap lines	First Nations &/or Métis	trapping	Impacts to wildlife	Work has been undertaken directly with owners of registered trap lines	Manitoba Conservation is aware of the potential effects of the road and, with the Proponent, will be monitoring wildlife populations as development continues. Provincial highway restrictions and a wildlife road refuge remain in place south of the Bloodvein River. The establishment of a road refuge north of the Bloodvein River remains an option for residents. The implementation of an expanded road refuge cannot go forward without community support. If the residents are interested, they are required to approach local Manitoba Conservation Wildlife representatives to initiate discussions. Manitoba will be consulting local people on the proposed hunting closure and regulation developments, per direction provided by Manitoba's consultation policy. The <i>Environment Act</i> Licence No. 2929 contains several conditions that will mitigate the potential effects identified for the project, including clauses to restrict access at various locations. Manitoba Conservation will be responsible for the establishment of a 300 m no-hunting zone along the road alignment has been identified as a key measure to mitigate potential impacts associated with increased human hunting of Moose and Woodland Caribou.	Management of wildlife on provincially administered Crown Lands is an area of natural resource management covered by the Natural Resource Transfer Agreement (1930) (the NRTA). Federal responsible authorities have been assured through the existence of the provincial resource management instruments in place in the region and the enforcement capacity of the provincial Ministry of Conservation that public safety and hunting pressure on Moose and Woodland Caribou populations along the corridor will be managed to mitigate the potential adverse impacts.	Ongoing - Province

Annex 5 – Species at Risk

The federal *Species at Risk Act* (SARA) was introduced to prevent wildlife species from becoming extinct and to provide for their recovery. It enables the legal protection of wildlife species in Canada and the conservation of their biological diversity. The SARA also established the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), composed of an independent body of experts responsible for assessing and identifying species at risk. COSEWIC is the authority for assessing the conservation status of wildlife species that may be at risk of extinction in Canada. COSEWIC’s wildlife species assessments are taken into account by the Government of Canada in determining which species to protect under SARA.

Schedule 1 of SARA is the official list of wildlife species at risk in Canada. COSEWIC must assess the status of wildlife species identified in Schedules 2 and 3 and classify the species as either extinct, extirpated, endangered, threatened or of special concern,

Protection of the habitat of species at risk is key to their conservation and ultimate recovery. Therefore, it is important to determine the presence of species at risk and their habitats before proceeding with developments so that steps can be taken to minimize their disturbance.

A summary of the species at risk that may occur within the Project study area is included below. While there are no records of occurrence, environmental conditions in the area could support these species or “out of range” occurrences could be possible.

Table A5-1: Species at Risk in the Project Study Area

Species	COSEWIC	SARA
Chestnut Lamprey	Species of “Special Concern”	Not listed
Lake Sturgeon	“Endangered”	Not listed
Shortjaw Cisco	“Threatened”	Listed on Schedule 2
Silver Chub	Species of “Special Concern”	Listed on Schedule 1
Bigmouth Buffalo	Species of “Special Concern”	Not listed
Mapleleaf Mussel	“Threatened”	Not listed
Lake Winnipeg Physa Snail	“Threatened”	Not listed
Snapping Turtle	Species of “Special Concern”	Listed on Schedule 1
Wolverine	Species of “Special Concern”	Not listed
Woodland Caribou, boreal population	“Threatened”	Listed on Schedule 1
Rusty Blackbird	“Threatened”	Listed on Schedule 1
Canada Warbler	“Threatened”	Listed on Schedule 1
Chimney Swift	“Threatened”	Listed on Schedule 1
Common Nighthawk	“Threatened”	Listed on Schedule 1
Olive-sided Flycatcher	“Threatened”	Listed on Schedule 1

Annex 6 – Environmental Effects Assessment Approach

The following sections describe the environmental effects assessment approach undertaken for this comprehensive study including identification of the environmental effects, mitigation measures and the residual adverse effects of the Project. The summary has been derived from the complete body of documentation on the potential effects of the Project including the Proponent's environmental impact assessment (EIA) document, technical reference documents, and the provincial *Environment Act* Licence and its supporting documents including the Environmental Management Plan (EMP). Key government and public comments resulting from the provincial EA and the conduct of the federal EA are also noted.

Objectives

The specific objectives of the environmental effects assessment are to:

- describe potential linkages and/or interaction(s) between Project activities and valued ecosystem components (VECs) during construction, operation, and maintenance;
- provide sufficient information to understand the nature, extent, and significance of potential effects on VECs as well as effects to health and socio-economic conditions, physical or cultural heritage, the current use of lands and resources for traditional purposes by Aboriginal persons, and any structure, site or thing that is of archaeological, paleontological or architectural significance that might result from those physical and biological effects;
- describe mitigation measures that can be applied to reduce, minimize or eliminate the significance of the potential adverse environmental effects;
- describe all residual adverse effects to VECs that are expected following consideration of mitigation, and provide an assessment of the significance of each residual effect;
- identify and assess the cumulative adverse environmental effects of the Project that may occur in combination with other projects that have been or will be carried out or planned activities in the Project study area;
- provide an assessment of the adverse environmental effects that could be caused by accidents and malfunctions during construction and/or operations/maintenance of the Project; and
- provide an assessment of any change to the Project that may be caused by the environment.

Approach

Identification of Potential Effects

The identification of the Project's effects on VECs and the determination of their significance were based on information provided by the Proponent in its EIA, information obtained through the provincial review process, advice received from expert federal authorities, as well as comments received through the provincial government's and the federal government's public consultation exercises.

The Proponent identified potential environmental interactions and effects of the Project using checklists, interaction matrices, linkage diagrams, stakeholder input, and professional judgment. Advice from government specialists and feedback from Aboriginal peoples including Aboriginal and community leaders with knowledge of the Project study area, was used to identify potential environment-related issues and associated environmental effects. The Proponent also sought feedback from stakeholders such as the Manitoba Trappers Association and the public.

Mitigation measures were identified to reduce the overall impact of potential adverse environmental effects. Many of these measures have been integrated into the project design or construction and operational plans. The environmental effects remaining after the implementation of mitigation measures (i.e. residual effects), were identified and evaluated, as described below.

Assessment of Significant Adverse Environmental Effects

Assessment of the significance of the residual adverse environmental effects of the Project involved consideration and evaluation of specific characteristics or attributes of the effects. Attributes of the effects examined included:

- **Magnitude** - The size or degree of the effects compared against baseline conditions or reference levels, and other applicable measurement parameters (i.e. standards, guidelines, objectives).
- **Extent** - The geographic area over or throughout which the effects are likely to be measurable.
- **Duration** - The time period over which the activities that result in adverse environmental effects are likely to last.
- **Frequency** - The rate of recurrence of the effects (or conditions causing the effect).
- **Permanence** - The degree to which the effects can or will be reversed (typically measured by the time it will take to restore the environmental attribute or feature).
- **Ecological Context** - The importance of the environmental attribute or feature in terms of ecosystem health and function.

Table A6-1 provides the framework that was used to assess the degree of severity of the residual adverse environmental effects. This framework includes the assessment criteria and definitions for three degrees of severity of the residual effects - low, medium and high. The determination of the degree of severity of the residual adverse environmental effects is framed to generally reflect federal and provincial regulatory standards as well as industry standards and guidelines to the extent possible. In cases where these points of reference were not available, assessments were made based upon best professional judgement concerning the type and nature of the specific environmental effect.

Table A6-1: Framework for Assessment of Residual Effects

Assessment Criteria	Degree of Severity of Residual Adverse Environmental Effect		
	Low	Medium	High
Magnitude of Effect	Effects may be noticeable and/or measureable, but are not likely to exceed a reference criterion or guideline value.	Effects are likely to be noticeable and measureable, representing a small change relative to existing conditions. Adverse effects may exceed a reference criterion or guideline value on occasion and/or only at a specific location.	Effects are likely to be noticeable and measureable, representing large measureable changes relative to existing conditions. Adverse effects would likely result in a reference criterion or guideline being exceeded on an ongoing basis.
Extent of Effect	Effects are likely to be measureable within an area immediately adjacent to the Project ROW (e.g. within 200m).	Effects are likely to be noticeable and/or measureable within the Project study area (Figure 1).	Effects are likely to be noticeable or measureable within and beyond the Project study area (Figure 1).
Duration / Timing	Short Term - Effects result from short-term events or activities limited to the period of Project construction (i.e. 5 years).	Medium Term - Effects result from ongoing events related to the construction and/or initial operation and maintenance phases of the Project (i.e. 15 years).	Long Term – Effects are likely to persist beyond the construction and/or operations and maintenance phases of the Project and are not readily reversible despite the implementation of mitigation and/or compensation measures.
Frequency (or probability)	Conditions or phenomena causing an effect occur infrequently or are effectively one-time events during a specific phase of the Project.	Conditions or phenomena causing an effect occur at regular but infrequent intervals during the project phase in which they occur.	Conditions or phenomena causing an effect occur at regular and frequent intervals, or are ongoing conditions during the project phase in which they occur.
Permanence of effect	Effect is readily reversible over a relatively short period of time (i.e. \leq period Project construction, 5 years).	Effect is reversible but only at substantial cost, and/or over a long period of time (i.e. lifespan of the Project).	Project-specific and/or cumulative effects are not readily reversible despite implementation of mitigation / compensation.
Ecological Importance	Not Applicable - No meaningful adverse ecosystem effects as changes are within the range of natural variation.	Adverse effects are outside the range of natural variation, but involving only common species or communities, or affecting resources of limited importance.	Adverse effects are outside the range of natural variation and involve locally, regionally, or nationally important species, communities, or resources.

Based on the application of this framework, an adverse environmental effect could be categorized as negligible, minor, moderate or significant, according to the following definitions:

- **Negligible Adverse Residual Effects** are those environmental effects which, after taking into consideration mitigation measures, have a “low” degree of residual effect for the majority of the assessment criteria; or a “low” or “medium” degree of residual effect for the majority of the criteria with “low” permanence.
- **Minor Adverse Residual Effects** are those environmental effects which, after taking into consideration mitigation measures, have a “low” or “medium” degree of residual effect for the majority of the criteria with “medium” permanence.
- **Moderate Adverse Residual Effects** are those environmental effects which, after taking into consideration mitigation measures, have a “medium” degree of residual effect for the majority of the criteria or have a “low” or “medium” degree of residual effects for the majority of the criteria with “high” permanence.
- **High Adverse Residual Effects** are those environmental effects which, after taking into consideration mitigation measures, have “high” magnitude, “high” extent and “high” duration residual effects.

A summary of the assessment for each residual adverse environmental effect of the Project is provided in Table A6-2. This summary includes the Agency’s conclusions on the significance of those effects.

Table A6-2: Environmental Effects Analysis Summary

Residual Effects	VEC Affected	Predicted Degree of Impact						Overall Degree of Severity of Residual Adverse Effect	Agency Determination on Significance of Residual Adverse Environmental Effect
		<i>Magnitude</i>	<i>Extent</i>	<i>Duration</i>	<i>Frequency</i>	<i>Permanence</i>	<i>Ecological Importance</i>		
Potential disruption of surface drainage and flow systems during operation	Surface Water Quantity	Low Adverse effects have the potential to alter or stop flow in some downstream watercourses.	Medium Adverse effects extend to downstream watercourses beyond Project area.	High Adverse effects to persist the life of Project.	Medium Adverse effects will occur intermittently during operation.	Medium Adverse effects are reversible over a long period of time once activities causing the effects have ceased.	Medium Adverse effects have the potential to exceed the range of natural variation and involving only locally important resources.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on surface water quantity.
Removal of forest and wetlands within the ROW, temporary access roads, quarries, borrow pits, work areas, and camps	Forest and Wetland Vegetation	Low Adverse effects represent a small change relative to existing conditions.	Low Adverse effects are limited to the Project area and affecting common species of plants.	High Adverse effects to persist the life of Project.	Low Adverse effects occur once during construction.	Medium Adverse effects are reversible over time.	High Adverse effects have the potential to exceed the range of natural variation and involving only locally important resources.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on forest and wetland vegetation.
Spread of invasive plant species	Forest and Wetland Vegetation	Medium Non-native species can out-compete local vegetation and, as in purple loosestrife, clog water ways.	Medium Project can serve as a corridor for the dispersion of invasive species. Animal migration and water flow will further augment dispersion.	High Adverse effects to persist the life of Project.	Medium Adverse effects may occur intermittently, more likely during construction phase.	Medium Evidence that invasive species are currently in the southern end of the Project area. Adverse effects are not readily reversible.	High The wetlands in the area are a key ecosystem. Invasive species could upset the ecological balance if they out-compete local species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on forest and wetland vegetation.
Loss of fish habitat within footprint of in-stream construction	Fish and Fish Habitat	Low Fish habitat alteration, disruption or destruction will be compensated at least 1:1.	Low Fish habitat alteration, disruption or destruction will be compensated at least 1:1.	Medium Effects to persist until compensation works are in place (~3 yrs).	Low Adverse effects occur once during construction.	High Adverse effects are permanent but compensated within DFO's no-net loss policy.	Medium Potential adverse effects are outside the range of natural variation and involve common species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on fish and fish habitat.
Potential effects on the population and/or habitat of rare fish and mussel species	Rare and Endangered Species – Aquatic	Low Fish habitat alteration, disruption or destruction will be compensated at least 1:1.	Low Fish habitat alteration, disruption or destruction will be compensated at least 1:1.	Medium Effects to persist until compensation works are in place (~3 yrs).	Low Adverse effects occur once during construction.	High Adverse effects are permanent but compensated within DFO's no-net loss policy.	High Potential adverse effects are outside the range of natural variation and involve regionally important species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on fish and fish habitat.

Residual Effects	VEC Affected	Predicted Degree of Impact						Overall Degree of Severity of Residual Adverse Effect	Agency Determination on Significance of Residual Adverse Environmental Effect
		<i>Magnitude</i>	<i>Extent</i>	<i>Duration</i>	<i>Frequency</i>	<i>Permanence</i>	<i>Ecological Importance</i>		
Potential reduction in fish populations resulting from increased access to watercourses (over-fishing)	Fish and Fish Habitat	Low Adverse effects are localized to individual water bodies.	Low Adverse effects are localized to individual water bodies.	High Adverse effects to persist the life of Project.	Medium Adverse effects will be intermittent.	Medium Adverse effects are reversible over the lifespan of the Project.	Medium Potential adverse effects are outside the range of natural variation and involve common species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on fish and fish habitat.
Killing of fish due to blasting	Fish and Fish Habitat	Low Adverse effects are localized to individual water bodies.	Low Adverse effects are localized to individual water bodies.	Low Effects will last a short period during construction (hours to days).	Low Adverse effects occur once during construction.	High Adverse effects are permanent and non-reversible.	Medium Potential adverse effects are outside the range of natural variation and involve common species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on fish and fish habitat.
Loss of wildlife habitat and/or habitat fragmentation from construction	Wildlife (furbearers, amphibians, reptiles)	Low Adverse effects represent a small change relative to existing conditions.	Low Adverse effects are limited to the area adjacent to the Project ROW. Habitat loss south of the Rice River Road is negligible.	Low Adverse effects will result from activities only during construction phase.	Low Adverse effects occur once during construction.	High Habitat removal is permanent.	Medium Potential adverse effects are outside the range of natural variation and involve common species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on furbearer, amphibian, and/or reptile habitat.
Loss of migratory bird habitat from construction	Wildlife (Migratory Birds)	Low Adverse effects represent a small change relative to existing conditions.	Low Adverse effects are limited to the area adjacent to the Project ROW. Habitat loss south of the Rice River Road is negligible.	Low Adverse effects will result from activities only during construction phase.	Low Adverse effects occur once during construction.	High Habitat removal is permanent.	Low No adverse ecosystem effects as changes are within natural variation and involve common species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on migratory birds.
Loss of Moose habitat and/or habitat fragmentation from construction	Moose	Low Adverse effects represent a small change relative to existing conditions.	Low Adverse effects are limited to the area adjacent to the Project ROW. Habitat loss south of the Rice River Road is negligible.	Low Adverse effects will result from activities only during construction phase.	Low Adverse effects occur once during construction.	High Habitat removal is permanent.	High Potential adverse effects are outside the range of natural variation and involve regionally important species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on Moose.
Loss of Woodland Caribou habitat from construction	Woodland Caribou (Species at Risk)	Low Adverse effects represent a small change relative to existing conditions.	Low Adverse effects are limited to the area adjacent to the Project ROW. Habitat loss south of the Rice River Road is negligible.	Low Adverse effects will result from activities only during construction phase.	Low Adverse effects occur once during construction.	High Habitat removal is permanent.	High Potential adverse effects are outside the range of natural variation and involve regionally important species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on Woodland Caribou population.

Residual Effects	VEC Affected	Predicted Degree of Impact						Overall Degree of Severity of Residual Adverse Effect	Agency Determination on Significance of Residual Adverse Environmental Effect
		Magnitude	Extent	Duration	Frequency	Permanence	Ecological Importance		
Potential effects to the population and/or habitat of rare or endangered bird species resulting from construction activities	Birds (Species at Risk)	Low Adverse effects represent a small change relative to existing conditions.	Low Adverse effects are limited to the area adjacent to the Project ROW. Habitat loss south of the Rice River Road is negligible.	Low Adverse effects will result from activities only during construction phase.	Low Adverse effects occur once during construction.	High Habitat removal is permanent.	High Potential adverse effects are outside the range of natural variation and involve regionally important species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on rare or endangered bird species.
Potential effects to the population and/or habitat of rare or endangered furbearer species resulting from construction and maintenance activities	Wolverine (Species at Risk)	Low Adverse effects represent a small change relative to existing conditions.	Low Adverse effects are limited to the area adjacent to the Project ROW. Habitat loss south of the Rice River Road is negligible.	Low Adverse effects will result from activities only during construction phase.	Low Adverse effects occur once during construction.	High Habitat removal is permanent.	High Potential adverse effects are outside the range of natural variation and involve regionally important species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on population and/or habitat of rare or endangered furbearer species
Disturbance to Moose during operational activities (vehicular traffic and noise)	Moose	Low Adverse effects represent a small change relative to existing conditions.	Low Adverse effects are limited to the area adjacent to the Project ROW.	High Adverse effects would result from activities occurring over the life of the Project.	High Adverse effects would occur regularly during operation.	Medium Adverse effects are reversible over time.	High Potential adverse effects are outside the range of natural variation and involve regionally important species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on Moose.
Increased wildlife mortality due to vehicle collisions.	Wildlife	Low Adverse effects represent a small change relative to existing conditions.	Low Adverse effects are limited to the area adjacent to the Project ROW.	High Adverse effects would result from activities occurring over the life of the Project.	Low Adverse effects would occur infrequently.	High Adverse effects are permanent and non-reversible.	Low No adverse ecosystem effects as changes are within natural variation and involve common species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on wildlife (furbearers, amphibians, reptiles, migratory birds).
Increased Moose mortality due to vehicle collisions.	Moose	Low Adverse effects represent a small change relative to existing conditions.	Low Adverse effects are limited to the area adjacent to the Project ROW.	High Adverse effects would result from activities occurring over the life of the Project.	Low Adverse effects would occur infrequently.	High Adverse effects are permanent and non-reversible.	High Potential adverse effects are outside the range of natural variation and involve regionally important species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on Moose.
Increased Woodland Caribou mortality due to vehicle collisions.	Woodland Caribou	Low Adverse effects represent a small change relative to existing conditions.	Low Adverse effects are limited to the area adjacent to the Project ROW.	High Adverse effects would result from activities occurring over the life of the Project.	Low Adverse effects would occur infrequently.	High Adverse effects are permanent and non-reversible.	High Potential adverse effects are outside the range of natural variation and involve regionally important species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on Woodland Caribou.

Residual Effects	VEC Affected	Predicted Degree of Impact						Overall Degree of Severity of Residual Adverse Effect	Agency Determination on Significance of Residual Adverse Environmental Effect
		<i>Magnitude</i>	<i>Extent</i>	<i>Duration</i>	<i>Frequency</i>	<i>Permanence</i>	<i>Ecological Importance</i>		
Reduction in wildlife populations due to improved access for hunters during operation	Wildlife	Medium Adverse effects are likely to be measureable relative to existing conditions.	Medium Adverse effects would be noticeable within the Project study area.	High Adverse effects would result from activities occurring over the life of the Project.	Medium Adverse effects will occur intermittently during operation (seasonally regulated).	Medium Adverse effects are reversible over the lifespan of the Project.	Low Adverse effects to common species and communities.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on wildlife populations.
Reduction of Moose population due to improved access for hunters during operations	Moose	Medium Adverse effects are likely to be measureable relative to existing conditions.	Medium Adverse effects would be noticeable within the Project study area.	High Adverse effects would result from activities occurring over the life of the Project.	Medium Adverse effects will occur intermittently during operation (seasonally regulated).	Medium Adverse effects are reversible over the lifespan of the Project.	High Potential adverse effects are outside the range of natural variation and involve regionally important species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on Moose.
Reduction of Woodland Caribou population due to improved access for hunters during operations	Woodland Caribou	Medium Adverse effects are likely to be measureable relative to existing conditions.	Medium Adverse effects would be noticeable within the Project study area.	High Adverse effects would result from activities occurring over the life of the Project.	Low Adverse effect expected to occur irregularly as Woodland Caribou is a protected species and not popular with Aboriginal hunters.	Medium Adverse effects are reversible over the lifespan of the Project.	High Potential adverse effects are outside the range of natural variation and involve regionally important species.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on Woodland Caribou.
Reduction of Moose population due to increased predation by wolves (improved access)	Moose	Medium Adverse effects are likely to be measureable relative to existing conditions.	Low Adverse effects are limited to the area adjacent to the Project ROW.	High Adverse effects would result from activities occurring over the life of the Project.	High Adverse effect expected to occur for the life of the Project.	Medium Adverse effects are reversible over the lifespan of the Project.	Medium Potential adverse effects are outside the range of natural variation.	Moderate Adverse Effect	The Project is not likely to cause significant adverse effects on Moose population.

Cumulative Effects Assessment

Cumulative environmental effects are defined as the effects of a project that are likely to result when a residual effect acts in combination with the effects of other projects or activities that have been or will be carried out.

Approach

This cumulative effects assessment was guided by the Canadian Environmental Assessment Agency's Operational Policy Statement (Agency 2007) and the Cumulative Effects Assessment Practitioners Guide (Agency 1999). The following five-step framework was implemented:

- **Scoping** – The cumulative effects assessment was scoped to focus on the identified valued ecosystem components (VECs) and residual environmental effects of the Project when considered in association with environmental issues of regional concern, and the effects of past, present and future actions or projects that have been or will be carried out in the region. The effects caused by other existing or planned (i.e. not proposals that are hypothetical) actions or projects along the proposed transportation corridor were identified for consideration as well as those within the watersheds traversed by the transportation corridor.
- **Analysis of Effects** – The potential environmental effects of each past and presently occurring activity or project and the likely effects of future actions or projects that overlap spatially and/or temporally with project-specific residual effects were identified and considered in terms of the low, medium and high criteria identified in the environmental effects analysis.
- **Identification of Mitigation** – Specific mitigation measures to prevent, avoid, reduce, or otherwise control any potential adverse cumulative environmental effects were identified by the Proponent. The effectiveness of proposed mitigation was considered along with how existing effects are being or could be managed through other means (i.e. ongoing and future environmental initiatives of other levels of government, cooperative resource management agreements, work of conservation authorities, information from other project proponents, any available EA reports, and regional stakeholders).
- **Evaluation of Significance** – The significance of residual cumulative effects was determined using the following criteria:
 - Whether the potential cumulative environmental effects are adverse;
 - Whether identified adverse cumulative environmental effects would be considered significant; and
 - Whether the significant adverse cumulative effects are likely to occur.
- **Conduct of Follow-up** – Implementation of any required follow-up to the cumulative effects assessment.

Scoping

Regional Issues of Concern

The following regional issues of concern were identified by the Proponent during public consultation and traditional knowledge gathering sessions:

- reduced access to traditional resources caused by population declines resulting from sport fishing, trapping and hunting;
- transportation economics and safety; and
- loss of the wilderness character of the area.

The following natural resource, social and community issues were identified during the project-planning as part of route alternatives analysis and environmental effects assessment:

- protection of Woodland Caribou and Woodland Caribou habitats;
- increased hunting pressure on wildlife populations;
- increased fishing pressure on fish populations;
- flooding from beaver dam activity;
- sediment levels in watercourses from erosion;
- potential for fuel spills from tanker trucks;
- risk of forest fires from human activities; and
- improved access to communities and Lake Winnipeg.

Selection of Valued Ecosystem Components

The VECs that were selected for consideration within the cumulative effects assessment were based on inputs by the Proponent, the public and by the federal authorities involved in the EA. Factors and criteria for the identification of VECs are described in Sections 4 and 7 of the CSR, respectively. The list of VECs is reproduced below.

- air quality (ambient air quality, greenhouse gases, and noise);
- terrain and soils;
- groundwater (quality and quantity);
- surface water (quality and quantity);
- forest vegetation and plant communities;
- wetlands;
- fish and fish habitat;
- wildlife and wildlife habitat (Moose, furbearers, amphibians and reptiles and migratory birds);
- species at risk (Woodland Caribou, wolverine, aquatic species and bird species);

- cultural environment (sites and landscape features with heritage significance , archaeological sites, and watercourse navigability); and
- current use of lands and resources by Aboriginal people (medicinal plants; berry plants used by communities, and hunting and trapping of game birds, fur bearers and Moose).

Identification of Other Actions Affecting the Same VECs

A limited number of other projects and/or activities occur in the region which is a remote and largely inaccessible part of eastern Manitoba. Very few of these activities affect the identified VECs. Existing or current activities in the region include hunting, trapping and fishing, as well as outfitting, recreational use of watercourses, hydroelectric power distribution lines and winter roads. Although mining and forestry are not currently active in the region, it is reasonable to consider that forestry, mineral exploration and mining may occur in the Project study area in the foreseeable future. Other transportation development in the region is currently being planned by the Proponent and the communities.

Identification of Potential Effects Due to the Project and Other Actions

Potential effects of other projects and actions identified for consideration in the cumulative effects assessment are summarized in Table A6-3. For these other actions to be carried forward in the assessment the environmental effects on VECs must interact or overlap with the potential effects of the Project on the same VECs.

Appendices

Appendix I *Environment Act* Licence No.2929



Licence No. / Licence n° 2929

Issue Date / Date de délivrance August 16, 2010

In accordance with The Environment Act (C.C.S.M. c. E125) /
Conformément à la Loi sur l'environnement (C.P.L.M. c. E125)

Pursuant to Section 11(1) / Conformément au Paragraphe 10(1)

THIS LICENCE IS ISSUED TO: / CETTE LICENCE EST DONNÉE À:

MANITOBA FLOODWAY AND EAST SIDE ROAD AUTHORITY;
"the Licencee"

for the construction, operation, and maintenance of the Development being an all-season road linking Bloodvein and Berens River First Nations to Provincial Road 304 in accordance with the Proposal filed under The Environment Act on January 30, 2009, the Environment Impact Assessment filed on October 21, 2009, and supplementary information filed on April 23, 2010, and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

"**affected area**" means a geographical area, excluding the property of the Development;

"**noise nuisance**" means a continuous or repeated noise in an affected area, which is offensive, obnoxious, troublesome, annoying, unpleasant or disagreeable to a person:

- a) residing in an affected area;
 - b) working in an affected area; or
 - c) present at a location in an affected area which is normally open to the members of the public;
- if the noise
- d) is the subject of at least 5 written complaints, received by the Director in a form satisfactory to the Director, and within a 90 day period, from 5 different persons falling within clauses a), b), or c), who do not live in the same household; or
 - e) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses a), b), or c), and the Director is of the opinion that if the unwanted sound had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90 day period from 5 different persons who do not live in the same household, and

"**wetlands**" means those areas where the water table is at or above the land surface for a long enough period each year to make the area capable of supporting aquatic or hydrophilic vegetation, and which have soils with characteristics indicative of wet conditions.

****A COPY OF THIS LICENCE MUST BE KEPT ON SITE AT THE DEVELOPMENT AT ALL TIMES****

GENERAL TERMS AND CONDITIONS

This Section of the Licence contains requirements intended to provide guidance to the Licencee in implementing practices to ensure that the environment is maintained in such a manner as to sustain a high quality of life, including social and economic development, recreation and leisure for present and future Manitobans.

1. The Licencee shall establish any fuel handling and storage areas required for the construction and operation of the Development:
 - a) a minimum distance of 100 metres from any waterbody unless otherwise authorized by the Director; and
 - b) in compliance with the requirements of *Manitoba Regulation 188/2001*, or any future amendment thereof, respecting *Storage and Handling of Petroleum Products and Allied Products*.
2. The Licencee shall ensure fuel storage containers incorporate secondary containment satisfactory to an Environment Officer.
3. The Licencee shall at the completion of the construction, landscape and vegetate all areas disturbed during construction with native plant species in order to restore and enhance the site and to protect against soil erosion. This includes but is not limited to access roads no longer used for construction and operation purposes.
4. The Licencee shall collect and dispose of all used petroleum products and other hazardous wastes generated by the machinery used in the construction and operation of the Development in accordance with Manitoba Conservation and legislative requirements.
5. The Licencee shall, at all times during the construction of the Development, have available at the construction sites, materials to contain and recover spills of fuel and other fluids associated with construction machinery.
6. The Licencee shall during construction and operation of the Development:
 - a) immediately report any reportable spills to Manitoba Conservation's Accident Reporting Line at (204) 944-4888 pursuant to *Manitoba Regulation 439/87* or any future amendment thereof, respecting *Environmental Accident Reporting*; and
 - b) provide a follow-up report to the Director on any reportable environmental accidents outlining the cause(s) and proposed corrective actions to prevent recurrence.
7. The Licencee shall, during the full term of the construction of the Development, cleanup and deposit all debris from the construction site, including demolition debris, at a Waste Disposal Ground operating under the authority of a permit issued pursuant to *Manitoba Regulation 150/91* or any future amendment thereof, respecting *Waste Disposal Grounds*.

8. The Licencee shall, during construction, dispose of all sewage and septage from on-site sanitary facilities in accordance with *Manitoba Regulation 83/2003* or any future amendment, respecting *Onsite Wastewater Management Systems*.
9. The Licencee shall, during construction, adhere to the general recommendations on design, construction and maintenance of stream crossings as specified in the guidelines titled *Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, 1996*.
10. The Licencee shall, prior to construction, provide a copy of this Licence to the contractor and subcontractor(s) involved in the Development.
11. The Licencee shall, during construction, maintenance, and operation of the Development, take all appropriate measures to prevent erosion and the deposition of sediment into any waterbodies.
12. The Licencee shall construct individual stream crossings in accordance with approvals obtained from the Department of Fisheries and Oceans and Transport Canada and in consultation with Manitoba Water Stewardship.
13. The Licencee shall not, during construction, maintenance or decommissioning of the Development, clear, compact, grade or fill any areas of natural vegetation including wetlands, native upland habitat or private or Crown lands other than lands required for the Development. All construction related traffic shall be restricted to the development right-of-way and associated access routes used for construction and maintenance purposes. Existing trails, portages and other travel ways shall not be altered adjacent to the Development other than as required for the Development.
14. The Licencee shall, during construction and operation of the Development, apply measures to protect heritage resources, as directed by the Historic Resources Branch of Manitoba Culture, Heritage and Tourism.
15. The Licencee shall, prior to commencement of any construction activity, submit to the Director for approval, an Environmental Management Plan (EMP) for the Development. If appropriate, separate EMPs can be submitted for the construction and operation phases, as well as for different components of the project, if prior approval by the Director is obtained. The EMP shall describe the approach to be used by the Licencee to monitor environmental conditions during the construction and operation of the Development to ensure that mitigative measures are applied systematically, and in a manner consistent with the commitments made in the PR 304 to Berens River All-Season Road Environmental Impact Assessment. Specifically, the EMP shall for all phases of the development:
 - a) describe the protocol for reporting on compliance monitoring;
 - b) compare and describe the pre-development baseline conditions to projected or predicted conditions and the actual conditions during the different phases of the Development;
 - c) define the parameters to be measured and the methods to be used to evaluate the environment effects of the Development;
 - d) describe how the performance and effectiveness of the recommended mitigation measures will be evaluated during implementation;

- e) plan for ensuring monitoring and follow-up are implemented correctly;
 - f) provide a plan to describe how adverse effects will be adaptively managed, and;
 - g) include, as a minimum, the following components:
 - i) Environmental Protection Plan
 - ii) Wildlife and Vegetation Monitoring Plan
 - iii) Water Quality Monitoring Plan
 - iv) Aquatic Environment Monitoring Plan
 - v) Erosion and Sediment Control Plan
 - vi) Dust Control Plan
 - vii) Waste Management Plan
 - viii) Hazardous Materials Management Plan
 - ix) Decommissioning Plan related to closure and reclamation of temporary construction facilities and borrow pits
 - x) Winter Road Closure and Reclamation Plan
 - xi) Emergency Response Plan for environmental accidents and spills
16. The Licencee shall ensure any right of way vegetation control is conducted in a manner that prevents pesticide drift and/or runoff into the Atikaki Provincial Park.
17. The Licencee shall not cause or permit a noise nuisance to be created as a result of the construction, operation, or maintenance of the Development, and shall take such steps as the Director may require to eliminate or mitigate a noise nuisance.
18. The Licencee shall provide a detailed calculation of greenhouse gas emission of the Development in relation to the existing baseline conditions within three months of the date of this licence.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Respecting Construction

19. The Licencee shall notify the assigned Environment Officer not less than two weeks prior to beginning construction of the Development. The notification shall include the intended starting date of construction.
20. The Licencee shall not undertake construction activities in connection with the Development 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.
21. The Licencee shall not construct other roads connected to the Development. Short access routes for construction and maintenance purposes shall be approved in writing by the Integrated Resource Management Team, Eastern Region prior to construction.
22. The Licencee 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.

23. The Licencee shall, during construction, maintain a minimum distance of 30 meters from all streams and waterbodies, with the exception of approaches to water crossings, unless separation of less than 30 meters has been authorized by the Integrated Resource Management Team, Eastern Region.
24. The Licencee shall for dust control measures during construction, obtain water from a source other than waste water treatment facilities.
25. The Licencee shall, during construction, undertake temporary erosion control measures to reduce siltation from erosion prone areas.
26. The Licencee shall, during construction and operation of the Development, minimize impacts to surface drainage patterns, flow rates, and the function of wetlands.
27. The Licencee shall restrict access to work areas including construction activities and blast areas.

Respecting Operation

28. The Licencee shall not use chemical means for dust or ice control within 100m of any stream crossing.
29. The Licencee shall ensure that access roads necessary for on-going maintenance of the Development are gated and securely locked or access otherwise restricted to prevent access of unauthorized vehicles not directly related to the maintenance of the Development.

Respecting Alterations to the Development

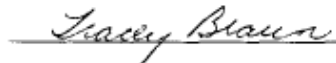
30. The Licencee shall obtain approval from the Director for any proposed alterations to the Development before proceeding with the alteration.

REVIEW AND REVOCATION

- A. If, in the opinion of the Director, the Licencee has exceeded or is exceeding or has or is failing to meet the specifications, limits, terms, or conditions set out in this Licence, the Director may, temporarily or permanently, revoke this Licence.
- B. If, in the opinion of the Director, new evidence warrants a change in the specifications, limits, terms or conditions of this Licence, the Director may require the filing of a new proposal pursuant to Section 11 of The Environment Act.

Manitoba Floodway and
East Side Road Authority
Licence No. 2929
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- C. If construction of the Development has not commenced within three years of the date of this Licence, this Licence is revoked.



Tracey Braun, M. Sc.
Director
Environment Act

Client File: 5388.00

Appendix II Letter of Follow-up Confirmation from Proponent

MANITOBA
Floodway & East Side Road
AUTHORITY

Room 200, 155 Carlton Street
Winnipeg, MB R3C 3H8
Phone: (204) 945-4900
Fax: (204) 948-2462
Toll-Free: 1-866-356-6355

April 28, 2011

Kris Frederickson, MSc., P.Eng.
Senior Program Officer, Prairie Region
Canadian Environmental Assessment Agency
Suite 101, 167 Lombard Ave
Winnipeg MB R3B 0T6

Re : Follow-up Program - Federal Comprehensive Study Lake Winnipeg East Side Road (PR 304 to Berens River All Season Road) Project

Dear Mr. Frederickson;

Manitoba Floodway and East Side Road Authority (MFESRA) has developed a detailed monitoring and follow-up program as per our environmental management plan prepared for the Environment Act Licence #2929 issued August 16, 2010 for Lake Winnipeg East Side Road (PR 304 to Berens River All Season Road) Project (hereafter described as "the Project"). Monitoring and follow-up programs for the Project have been developed to not only monitor compliance with regulatory requirements, but are part of an adaptive management and follow-up program geared towards determining the effectiveness of the environmental mitigation measures, identifying where improvements might be useful and implementing those alternate practices.

Follow up activities have also been identified during the Federal Comprehensive Study Report for the Project. These activities are understood to comprise the following:

- Follow-up and report to the Department of Fisheries and Oceans on authorized components of the Project under the Fisheries Act for harmful alteration, destruction, and disruption of fish habitat including three year post-construction monitoring where directed.
- In relation to aquatic species at risk, document salvaged fish species and mussel relocations and report annually during construction plus assess and document mussel relocation one year following construction to the Department of Fisheries and Oceans.
- As outlined in the Project Environmental Management Plan, collect information on moose, caribou and other fur-bearing populations in relation to the Project for a three-year period in addition to preconstruction monitoring already conducted. As the Project is being phased over multiple years, both construction and operational portions of the project will be monitored during this timeframe. The need for future monitoring will be assessed at the conclusion of this period.

This letter confirms that MFESRA will undertake these follow-up activities under the Canadian Environmental Assessment (CEA) Act as outlined in the Federal Comprehensive Study Report for the Project.

Sincerely,

A handwritten signature in blue ink, consisting of several overlapping loops and a long horizontal stroke at the end.

Leanne Shewchuk
Manager Special Projects and Environmental Services

c.c. Doug Peterson, P. Eng. MFESRA
Darrell Ouimet, Manitoba Conservation