BP6/BP7 Transmission Project

Environmental Assessment Report

Prepared by Manitoba Hydro

Asset Planning and Delivery

Licensing & Environmental Assessment

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Prepared for:

Environmental Approvals Branch

Manitoba Hydro

Executive summary

This environmental assessment report for the proposed BP6/BP7 is in support of an application to obtain a license for a Class 2 development under *The Environment Act* (Manitoba). The project involves construction, operation and maintenance of a new double circuit 115 kV AC transmission line to replace the portion damaged during the 2019 snowstorm. The in-service date is March 2023.

In October 2019, a storm caused extensive damage to Manitoba Hydro's system in the Portage la Prairie area, including a section of a double circuit line between Brandon and Portage la Prairie referred to as BP6/BP7. As a result, the lines need to be repaired, rebuilt and modernized with a permanent replacement that meets safety requirements for rights-of-way.

This project will establish a new route for the line, construct the new portion of the line, and salvage the temporary portion of line and any unused original sections that were not re-used.

Manitoba Hydro used a routing process that included engagement with Indigenous communities, landowners, interested parties, the public, and identified areas of concern. The route location and the structure type were modified based on input and environmental conditions.

The environmental assessment includes an evaluation of potential cumulative effects and effects of the environment on the project, as well as an analysis of potential accidents and malfunctions. It includes a description of the environmental protection program, including the various roles, communication protocols, and commitments to monitor project activities and manage potential effects.

Potential effects were mitigated through the routing process. Mitigation measures were developed to address effects not avoided by routing.

Effects to the natural environment are limited as the area is generally developed. There are few areas of natural habitat crossed by the project. Natural terrestrial habitat is limited to the riparian area along the Assiniboine River.

There are several wildlife species of conservation concern that may occur in the area, but few natural areas near the transmission line where they could occur. The presence of the transmission line may result in bird-wire collisions, but not at levels that would have measurable effects to regional populations.

The project is expected to result in positive economic benefits to the region, through the presence of the workforce. There will be a slight increase in traffic associated with the workforce, but the volume will be low.

Known heritage sites were avoided during the routing process, with measures developed to manage previously undiscovered cultural or heritage sites / objects.

The proposed route avoids private residences. There is some recreational and Indigenous traditional use in the region that may be affected by the project.

The proposed route travels across some specialty agricultural land and an associate proposed residential development, there will be effects associated with the inconvenience, nuisance and increased production costs associated with operating farming equipment, crop production and aesthetic values.

Based on the routing process, and the measures developed to mitigate and manage any potential adverse effects, the conclusion of environmental assessment was, the residual effects were predicted to be not significant.

GLOSSARY

Term	Definition
Adaptive management	The process of updating management practices in response to ongoing observations
Adverse effects	Negative effects on the environment and people that may result from a proposed project.
Agricultural biosecurity	The protection of crops and livestock systems against the threats to production from disease, pests and invasive species.
Annual average daily traffic (AADT)	Is defined by Manitoba Infrastructure and Transportation (MIT) as the number of vehicles passing a count station on an average day of the year.
Areas of least preference	Features to avoid when siting a transmission line due to physical constraints (extreme slopes, long water crossings), regulations limiting development (protected areas), or areas that require extensive mitigation or compensation to minimize impacts
Built environment	An area of existing or proposed development found within the landscape, typically dominated by commercial, industrial, residential, and cultural structures.
Cumulative effect	The effect on the environment, which results when the effects of a project combine with those of the past, existing, and future projects and activities (CEAA 2018). OR the incremental effects of an action on the environment when the effects are combined with those from other past, existing and future actions (Cumulative Effects Assessment)

Decommissioning	Planned shut-down, dismantling and removal of a building, equipment, plant and/or other facilities from operation or usage and may include site clean-up and restoration.
Developed	Land that has been altered for residential, commercial or industrial use. Includes buildings, regularly managed green space and associated roads, parking lots, and trails.
Direct effect	• An environmental effect that is: A change that a project may cause in the environment; or • Change that the environment may cause to a project. It is a consequence of a cause-effect relationship between a project and a specific environmental component.
Ecological reserve	Lands established to preserve unique or rare natural (biological and geological) features of the province.
Ecoregion	Characterized by distinctive regional ecological factors, including climate, physiography, vegetation, soil, water, and fauna
Ecozone	An area of the earth's surface representative of large and very generalized ecological units characterized by interactive and adjusting abiotic and biotic factors
Environmental Management System	Part of an organization's overall management practices related to environmental affairs. It includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining an environmental policy. This approach is often formally carried out to meet the requirements of the International Organization for Standardization (ISO) 14000 series.

Environmental Protection Plan	Within the framework of an environmental protection program, an environmental protection plan prescribes measures and practices to avoid and minimize potential environmental effects of a proposed project.
Exurban	The transitional area outside of the traditional urban/suburban belts of development but not quite rural.
Heritage sites / objects	Any site, object, work, or assembly of works of nature or human endeavor that is of value for its archaeological, paleontological, pre-historic, historic, cultural, natural, scientific, or aesthetic features.
Interested party	An interested party is someone or a group that would potentially have feedback to provide, may be affected by the decisions made regarding route selection, have a specific interest or mandate in the area, data to share, ability to disseminate information to membership or a general interest in the Project's route selection area.
Linear infrastructure	An existing network or system composed of transportation or utility-based facilities (e.g. roads, highways, railways, pipelines, and transmission lines).
Marshalling yard	An open area used to stockpile, store and assemble construction materials.
Mitigation	Means measures to eliminate, reduce, control or offset the adverse effects of a project, and includes restitution for any damage caused by those effects through replacement, restoration, compensation or any other means (Impact Assessment Act, 2019).
Natural environment	Naturally occurring physical features of the landscape. These features are represented by the hydrography, flora, fauna, and topography of a given area.

Public engagement process	The process of identifying interested individuals, including interested parties and the public, sharing information about the Project and providing opportunities for them to design how they want to participate and share their feedback and experiences.
Species of Conservation Concern	Species that are rare, disjunct, or at risk throughout their range or in Manitoba and in need of further research. The term also encompasses species that are listed under (Manitoba) *The Endangered Species and Ecosystems Act of Manitoba*, (federal) *Species at Risk Act*, or that have a special designation by the Committee on the Status of Endangered Wildlife In Canada.
Species at Risk (SAR)	Is an extirpated, endangered or threatened species or a species of special concern, as defined by the Species at Risk Act.
Wildlife management area	Lands that exist for the benefit of wildlife and for the enjoyment of people including biodiversity conservation, wildlife-related forms of recreation, hunting and trapping.

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1.0 Introduction

1.1 Background

In October 2019, a storm caused extensive damage to Manitoba Hydro's system in the Portage la Prairie area, including a section of a double circuit line between Brandon and Portage la Prairie referred to as BP6/BP7. As a result, the lines need to be repaired, rebuilt and modernized with a permanent replacement that meets safety requirements for rights-of-way.

Over 50 structures on BP6/BP7 were damaged during the October storm (Map 1-1). A temporary wood pole transmission line along the Trans-Canada Highway was installed to maintain reliability; however, a permanent replacement for the damaged sections of the two lines is required.

This project will establish a new route for a portion of the line, construct the new portion of the line, and salvage any unused original sections that will not be re-used.

1.2 Regulatory framework

The proposed BP6/BP7 lines will be 115 kV, which will require a provincial license for a Class II development (i.e., transmission lines of 115 kV and over but not exceeding 230 kV) under the *Environment Act* (Manitoba).

Federally, the project is not considered a physical activity under the Physical Activities Regulations SOR/2019-285 and therefore does not trigger an environmental assessment under the Impact Assessment Act.

The environmental assessment is conducted in accordance with Manitoba Hydro's corporate and environmental policies and satisfies Manitoba's environmental assessment legislation. It is also consistent with Canadian and international environmental assessment best practices and guidance. This environmental assessment report is submitted as part of the Environment Act License Proposal for the BP6/BP7 transmission project.

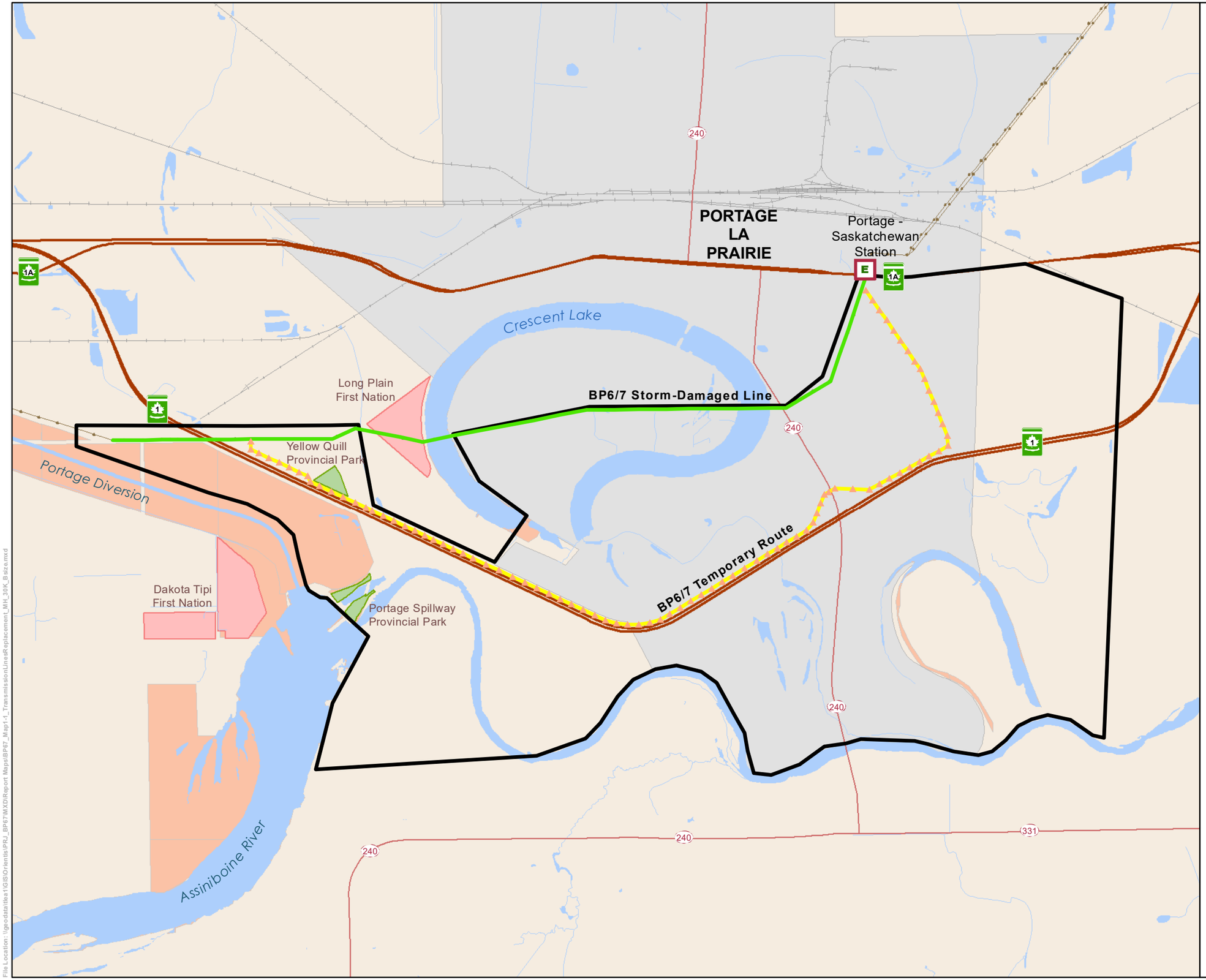
1.3 Community involvement in the project.

Manitoba Hydro's Corporate Vision is to "be recognized as a leading utility in North America with respect to safety, reliability, rates, customer satisfaction and environmental leadership." As such, Manitoba Hydro sets a high bar for engagement, assessment and protection of the environment. Manitoba Hydro conducted a public engagement process and an Indigenous engagement process for the project to engage those potentially affected by or interested in the project. Manitoba Hydro sought to continue its efforts to improve project engagement

through direct involvement from community representatives on the project team. The level of involvement from community representatives in key routing and assessment decisions is unprecedented for transmission projects of this scale in Manitoba. Further detail on both public and Indigenous engagement can be found in chapters 4.0 and 5.0.

1.4 Purpose of the document

This environmental assessment report for the proposed BP6/BP7 transmission project is in support of an application to obtain a license for a Class 2 development under *The Environment Act* (Manitoba). For Class 2 developments, proponents are required to submit an Environment Act proposal form and environmental assessment report to Manitoba Conservation and Climate's Environmental Approvals Branch. This provides the public, Indigenous communities, and government agencies with an opportunity to examine the details of the project, its anticipated impact on biophysical and socio-economic aspects of the environment and measures that Manitoba Hydro intends to use to mitigate potential adverse effects. The purpose of this report is to identify, assess and mitigate any adverse environmental effects associated with the proposed project and forms part of *The Environment Act* proposal.



Manitoba Hydro

BP6 / BP7 Transmission Lines Replacement Project

Project Infrastructure

- Portage - Saskatchewan Station
- Temporary Wood Pole Structure
- BP6 / BP 7 Temporary Route
- BP6 / BP 7 Storm Damaged

Route Planning Area

- Route Planning Area (area for rerouting BP6/BP7)

Existing Infrastructure

- Transmission Line

Landbase

- TransCanada Highway
- Provincial Road
- Railway
- First Nation
- Crown Land
- Provincial Park
- City/Town

Entire map area falls within Metis Natural Resource Harvesting Zone

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: March 30, 2021

N

0 0.5 1 Kilometre
0 0.25 0.5 Mile

1:30,000

BP6 / BP7 Transmission Project

Map 1-1

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2.0 Project description

2.1 Scope

The scope of the proposed BP6/BP7 transmission project includes the construction, operation, maintenance, and eventual decommissioning of an 8.5 km double circuit 115 kV transmission line and the salvage of 20 towers from the damaged portion (Map 2-1). The transmission line starts at Portage-Saskatchewan Station, located on the north side of the Trans-Canada highway between Stephens Avenue and 14th Street NE. This project ends west of the Portage Bypass, on the north side of the Portage Diversion where the new line will reconnect with BP6/BP7.

The first 3 km (approximate) of this project follow the existing route and will not require new right-of-way or the construction of new towers as they have already been repaired.

2.2 Project components

2.2.1 Design considerations

The transmission line design and construction will meet or exceed the design standards as set out by the Canadian Standards Association (CSA 2020) as well as the planning, performance, and reliability standards of the North American Electric Reliability Corporation.

2.2.2 Transmission line routing

The final preferred route for BP6/BP7 is shown on Map 2-1. The routing methodology used for this project is based on the EPRI-GTC Overhead Electric Transmission Line Siting Methodology (EPRI-GTC 2006). Details of the routing process are provided in Chapter 3.0.

2.2.3 Transmission structures

A combination of steel lattice transmission structures will be used including; suspension, angle and dead-end towers. The height of the structures will be 29 to 38 m. The structure footprint will range from 5.4 to 7.6m in width (Figure 2-1). The typical spans between the structures will be 300-345.

Heavy angle and dead-end structures will be required at specific locations to accommodate line redirection and to terminate the transmission line into the station. Typical dead end and heavy angle structures will be a double circuit self-supporting steel lattice tower design. The heavy angle structure heights

will be between 30 m and 36 m and the bases will be approximately 10 x 10 m. This structure type is illustrated in Figure 2-2.

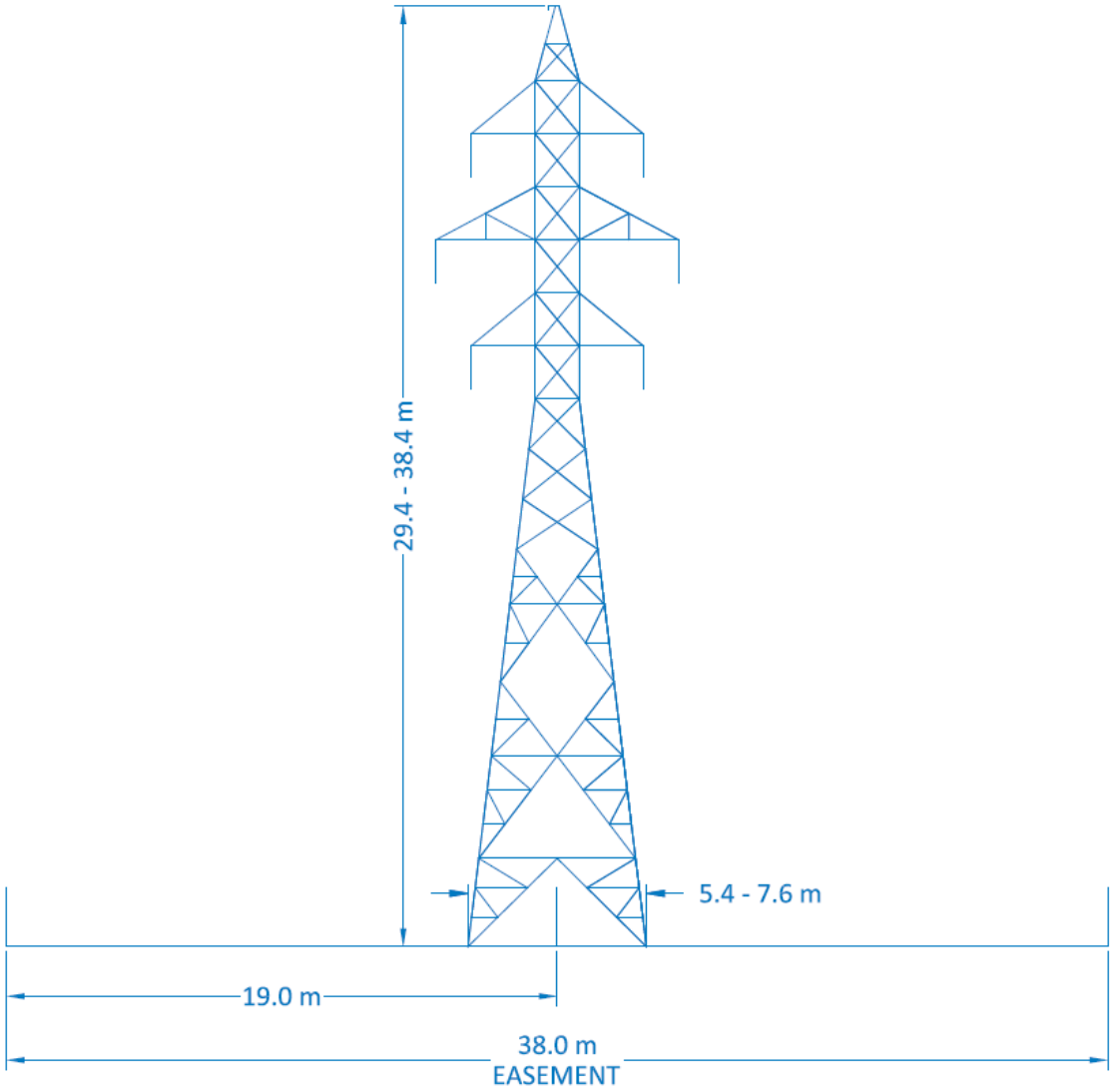


Figure 2-1: Typical self-supporting steel lattice suspension tower with required easement

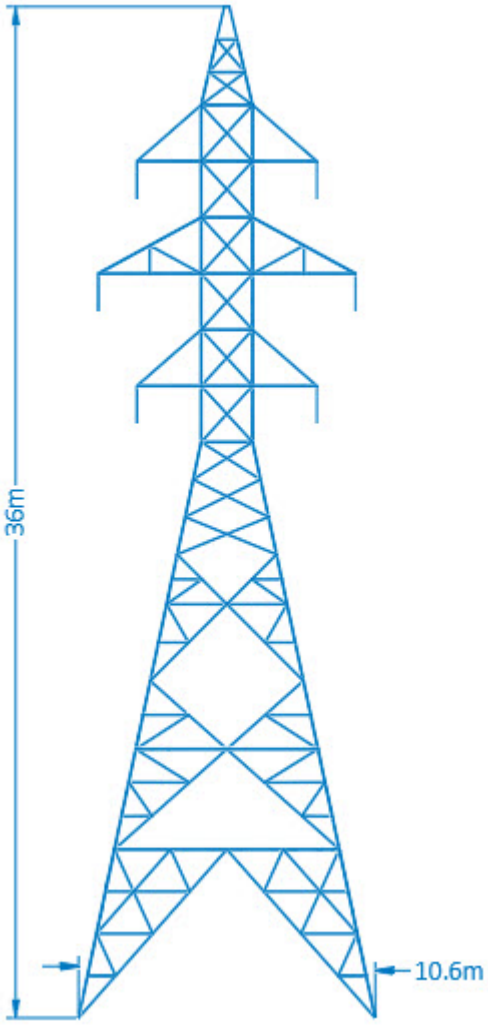


Figure 2-2: Typical steel lattice angle towers

2.2.4 Conductors and insulators

Lines BP6/BP7 are each a single-circuit line configuration consisting of three 336.4 kcmil 30/7 Strands ORIOLE ACSR (Aluminum Conductors, Steel Reinforced) conductors. Each conductor consists of aluminum strands wrapped around a center core of steel strands and will be suspended from each structure by insulator strings. The ground clearance will meet or exceed the requirements of Overhead Systems, C22.3 Standard No. 1-10 (CSA 2020).

2.2.5 Ground wire

One ground wire (skywire) will be strung parallel to the transmission line and along the tower apices to provide grounding and lightning protection. The ground wire will be constructed of galvanized steel strands and have an outside diameter of approximately 9 mm.

2.2.6 Transmission line right-of-way

The right-of-way widths are determined to allow safe conductor swing or blow-out. The right-of-way width also provides adequate lateral distance under wind conditions to limit flashovers onto objects located near the edge of the right-of-way. The typical easement requirements for a 115 kV self supporting lattice steel structure are 38 m when adjacent to ¼ section lines and 30 m when adjacent to road allowance.

2.2.7 Easement procurement and compensation

Once the final preferred route is selected, Manitoba Hydro will begin the process of acquiring easements from the landowners.

The conventional terms of the right-of-way easement agreement provide that:

Manitoba Hydro obtains the legal right to construct, operate, maintain, repair and replace their transmission lines within a right-of-way. This right is generally obtained through easement of privately owned lands, or initially by a Crown land reservation, pending easement, for right of use on provincial Crown land.

The landowner can continue to use the land within the right of way (i.e., for farming, grazing, recreation or other compatible uses) if the activity will not compromise safety requirements or hamper line operation. Landowners cannot plant trees, construct buildings, or place other structures within the easement area without prior approval from Manitoba Hydro.

Manitoba Hydro personnel are permitted to enter and use the right-of-way for construction, inspection, maintenance, repair or replacement of the transmission line facilities.

Land compensation is a one-time payment to landowners for granting of an easement for a transmission line right-of-way.

Construction damage compensation is provided to landowners who experience damage to their property due to the construction, operations and maintenance of the transmission line. A one-time payment for construction damage is negotiated on a case-by-case basis. Manitoba Hydro will:

- Compensate or be responsible for repairing, to the reasonable satisfaction of the landowner, any damage to a landowner's property
- Compensate a landowner for damages such as the reapplication or rejuvenation of compacted topsoil where the remedial work requires farm machinery and the expertise of the landowner

In the instance of damage to cultivated agricultural lands, compensation is provided to a landowner for loss due to damage if crops were in place prior to the construction of the transmission line.

Structure impact compensation is a one-time payment to landowners for each transmission tower placed on land classed as agricultural. Structure impact compensation covers:

- Crop losses on lands permanently removed from production
- Reduced productivity and over-input in an area of overlap around each tower structure
- Additional time required to manoeuvre farm machinery around each structure

Structure impact compensation takes into consideration:

- The agricultural use of the land (crop rotation, forage, etc.)
- The location of the tower structure in relation to property lines
- The ground dimensions of tower structure placed on the land

Manitoba Hydro prepares a compensation schedule for a project based on the above factors.

Ancillary damage compensation is a one-time payment (for each occurrence) when Manitoba Hydro's use of the right-of-way directly or indirectly affects the use of the property in a unique manner. Ancillary damage compensation is negotiated directly with the landowner. Landowners may be compensated for affects to irrigation and drainage, limiting options for chemical application, access restrictions, and limiting options for crop selection.

2.3 Project activities

2.3.1 Construction

2.3.1.1 Schedule

Table 2-1 shows the planned construction schedule. Based on the submission of this environmental assessment report, should the project be approved, the

receipt of a provincial licence under *The Environment Act* is anticipated in winter 2022/23.

The fall/winter of 2022 will be used for property appraisal/acquisition, completion of detailed engineering design and procurement of construction materials and contractor(s). Construction is anticipated to commence in winter 2022. Construction will take approximately four months.

Construction will take place in four phases: clearing, foundations, tower assembly/tower erection and conductor stringing. The in-service date for the project is planned for Spring 2023.

Table 2-1**:** Construction schedule

Construction phase	2022/23 schedule			
	December	January	February	March
Mobilization				
Right-of-way Clearing				
Vehicle / equipment use				
Marshalling yards				
Tower construction				
Helicopter use				
Implodes				
Construction wrap up				

2.3.1.2 Mobilization

The first step in project construction is mobilizing a workforce to an area. Mobilization includes the movement of Manitoba Hydro and contractor staff, vehicles and equipment to the job site. It also includes the presence of the workforce at accommodations in the local community and their commute to and from the work site. No construction work camps are planned for the project.

Generally, mobilization is ongoing throughout the construction phase as different types of equipment are required for specific activities such as clearing, tower assembly / erection construction and conductor stringing.

2.3.1.3 Right-of-way clearing

Since most of the route is on developed lands only minor clearing activities will be required in a few locations. Clearing and disposal of trees on the proposed right-of-way will be undertaken in advance to facilitate construction activities. Right-of-way clearing will be subject to standard environmental protection measures, which have been established in association with Manitoba Hydro transmission line construction practices, as well as the environmental protection plan (Chapter 9.0). Final clearing methods will be determined based on detailed surveys of the transmission line routes, and site-specific identification of environmentally sensitive features.

2.3.1.4 Vehicle and equipment use

Clearing and construction equipment can include the following:

- Materials delivery trucks and trailers
- Mulchers and feller bunchers for tree clearing
- Drill rigs and concrete trucks for cast-in-place piles
- Excavators with attachments for mat foundations
- Cranes for installing re-bar cages for piles and erecting towers
- Excavators with specialized heads for installing screw piles
- Welding trucks and equipment
- Loaders and cranes for assembling and erecting towers
- Stringing equipment such as tensioners, pullers, and boom trucks
- Other smaller equipment for transportation and other minor tasks as required

Access for construction (and subsequent line maintenance activities) will generally occur along the right-of-way using existing public access roads

wherever possible. Permission will be requested from landowners for use of roads or trails on private property, if these are required. If required, provincial permits will be secured for access to the right-of-way from provincial Crown lands.

2.3.1.5 Marshalling / fly yards

Marshalling yard(s) or fly yards may be established near the transmission line route for the storage and assembly of construction materials and equipment for eventual deployment to the construction site. Fly yards are used to assemble towers that are flown to site using a helicopter. The location of the marshalling / fly yard(s) will be determined while developing detailed construction specifications and contract arrangement. The intent will be to place the marshalling / fly yards as close to the right-of-way as possible to minimize additional noise and traffic.

2.3.1.6 Transmission tower construction

Foundation installation

Self-supporting lattice steel structures will be supported by either mat, cast-in-place or helical pile foundations. Helical pile foundations will involve individual piles or pile groups, for each leg of the structure. Granular backfill materials required for construction will be purchased from local suppliers and it is not anticipated that any new borrow areas would need to be developed.

Structure and conductor installation

Tower structure assembly may be at each tower site and then erected by crane or assembly at a central marshalling yard and then trucked to the site and erected by crane. A helicopter may be used as an alternative to a truck and crane for transporting and erecting towers, but it is more likely that the truck and crane option will be used.

Once the towers are erected, insulator strings will be attached to the structure cross-arms. The insulators will separate the conductors from the structures. Conductor will be transported to the site in reels, then suspended from the insulator strings and tensioned by machine to provide the ground to conductor design clearances specified at the mid-span points of maximum sag.

2.3.1.7 Construction wrap up

The final step in construction is demobilizing the workforce from an area. Demobilization includes the movement of Manitoba Hydro and contract staff, vehicles and equipment from the job site, as well as the clean-up (and if required rehabilitation) of the right-of-way, marshalling / fly yards, and access routes.

Once the transmission line is constructed, all excess materials and equipment including debris, and unused supplies will be dismantled, if required, removed from the site and disposed according to provincial and municipal regulations. Rehabilitation of any disturbed sites will be undertaken as required. All cleanup and rehabilitation activity will be subject to the requirements of the environmental protection program, described in Chapter 9.0.

Generally, demobilization is ongoing throughout the clearing and construction phase as different types of equipment are required for specific activities such as clearing, tower construction and conductor stringing. Construction cleanup will occur throughout clearing and construction.

2.3.2 Operation and maintenance

2.3.2.1 Transmission line operation

The transmission line will be designed to operate continuously, though the actual flow of electricity will vary with electrical load requirements. To maintain the line in a safe and reliable operating condition, regular inspection and maintenance must occur.

2.3.2.2 Inspection patrols

Manitoba Hydro conducts periodic inspections of all its transmission lines and rights-of-way. Maintenance procedures are well established and are the subject of continuously updated corporate guidelines for maintenance and construction activities. The patrols typically include visual inspections of vegetation management status, structures, foundations and insulators, as well as the removal of any ice build up.

2.3.2.3 Maintenance

Maintenance activities include instances where crews are required to obtain access to specific areas to repair deficiencies on the transmission system. Non-scheduled patrols may be conducted if the Manitoba Hydro System Control Center identifies a fault on the line that requires visual inspection. Crews also

triage infrastructure during emergencies to address line outages and tower damage.

Maintenance repairs are typically done during winter, after frost has entered the ground, using heavier soft track equipment to gain access. When summer access is required in agricultural areas, related maintenance activities are planned, wherever possible, to avoid conflict with farm activity.

The annual patrol is conducted either by ground or by air depending on access, geographic conditions and time of year. Patrols are normally undertaken by snow machine, all-terrain vehicles, light trucks or helicopter, depending on the geographical location and ease of access.

Workforce requirements associated with the operations and maintenance of a transmission line generally involve deployment of established regional operations and maintenance personnel, and contractor staff as required. Maintenance would include repairs as required. The workforce for regular maintenance activities could be between three and five workers. During emergencies, the size of the workforce is largely dictated by the work required.

2.3.2.4 Vegetation management

Vegetation management within the right-of-way is required for public and employee safety, as well as the reliable operation of the line. The right-of-way will be maintained on an ongoing basis throughout the life cycle of operation. Regular vegetation management is required to make sure that re-growth in the cleared rights-of-way does not interfere with transmission line operations. Related management procedures extend to periodic review and removal of danger trees in the immediate vicinity of the right-of-way.

The method and timing of vegetation maintenance depends on several factors such as the species present, growing conditions and density of the non-compatible species. It may also depend on the existing plant community, terrain, economic feasibility, environmental sensitivity and the ownership for the right-of-way and adjacent property. The vegetation maintenance brushing cycle for transmission line rights-of-way typically ranges between 8 and 10 years.

This type of integrated vegetation management approach is used to maintain a safe, reliable and uninterrupted transmission of electric energy. The focus of vegetation management is on the tall growing tree species that have the potential to grow or fall into, or within, the arcing distance of the transmission lines and or facilities and cause an outage. The management practices that

may be used to control vegetation incorporate mechanical, chemical, biological or cultural options depending upon several factors including site conditions and the sensitivity of surrounding areas.

Herbicide treatments are formulated to target undesirable tall growing trees but are also effective on broadleaf weeds, leaving grasses unaffected. Foliar applications of herbicides are applied during the warmer months while dormant stem applications are typically applied in the fall and winter. Permits for pesticide use are obtained as required. The process involves public notification as part of the formal permit application to Manitoba Conservation and Climate's Pesticide Approvals Branch.

All herbicide applications are completed and supervised by licensed applicators and in accordance with conditions specified in the Pesticide Use Permit. Manitoba Hydro's Chief Forester establishes herbicide application rates in accordance with product label instructions. Manitoba Hydro only uses herbicides that have been listed in the Pesticide Use Permit.

Manitoba Hydro is responsible for obtaining the necessary pesticide use permits and submitting post seasonal control reports per Manitoba Regulation 94-88R under *The Environment Act*.

Manitoba Hydro has developed a pesticide applicator requirements document for their employees to:

- Provide regulatory and applicator licensing information
- Technical guidance
- Safety requirements and checklists for line managers responsible for pesticide application for ensuring compliance with legal requirements

In addition, it provides information so that consistent pesticide management is conducted at all Manitoba Hydro facilities; thereby ensuring pesticide management is conducted in such a way that the resulting environmental effect is minimal.

In addition to tree control, weed control on the rights-of-way may be required under *The Noxious Weeds Act* (C.C.S.M. c. N 110). In agricultural areas, continued cultivation will reduce the need for weed control. Alternative techniques for the uncultivated portions of the right-of-way include mowing and herbicide spraying. Spraying equipment includes backpack sprayers, truck-mounted power sprayers equipped with a broadcast applicator system, hose and handgun, and all-terrain vehicle mounted power sprayers.

Prior to any vegetation management work on private land under easement agreement with Manitoba Hydro, the landowner will be notified.

2.3.3 Decommissioning and restoration

When the facility has reached end of life or is no longer required, it will be decommissioned. The following sections describe the decommissioning process.

2.3.3.1 Preparation activities

The transmission line will be disconnected from the grid to allow for the safe dismantling of the project. To disconnect, Manitoba Hydro will:

- Trip the breaker(s) at Portage – Saskatchewan Avenue and Brandon stations
- Open the 115 kV disconnects
- Disconnect the conductors at the substations

2.3.3.2 Removal of facilities

The disassembly and removal of the equipment will be the same as the installation described in Section 2.3.1.6, but in reverse order.

Salvage will involve removing and salvaging the conductor onto spools under tension to be removed from site. The towers will be disassembled and lowered using a crane onto flat bed trucks for transport.

Soil will be excavated surrounding the tower foundations allowing them to be cut off 1.5 meters below grade, in consultation with the landowner and in accordance with the land agreements. Surrounding soil will be used to backfill the excavation and graded to allow for re-vegetation.

2.3.3.3 Salvage and disposal

After dismantling the project, high value components will be removed for re-use or recycling. The remaining materials will be reduced to transportable size and removed from the site for disposal. Waste handling and disposal will be subject to conventional Manitoba Hydro codes of practice and relevant provincial and federal legislation.

2.3.3.4 Restoration

Following removal of the line, the right-of-way will be restored to the surrounding land use. Disturbed areas will be graded to original contours and the soils will be restored to a condition consistent with intended land use.

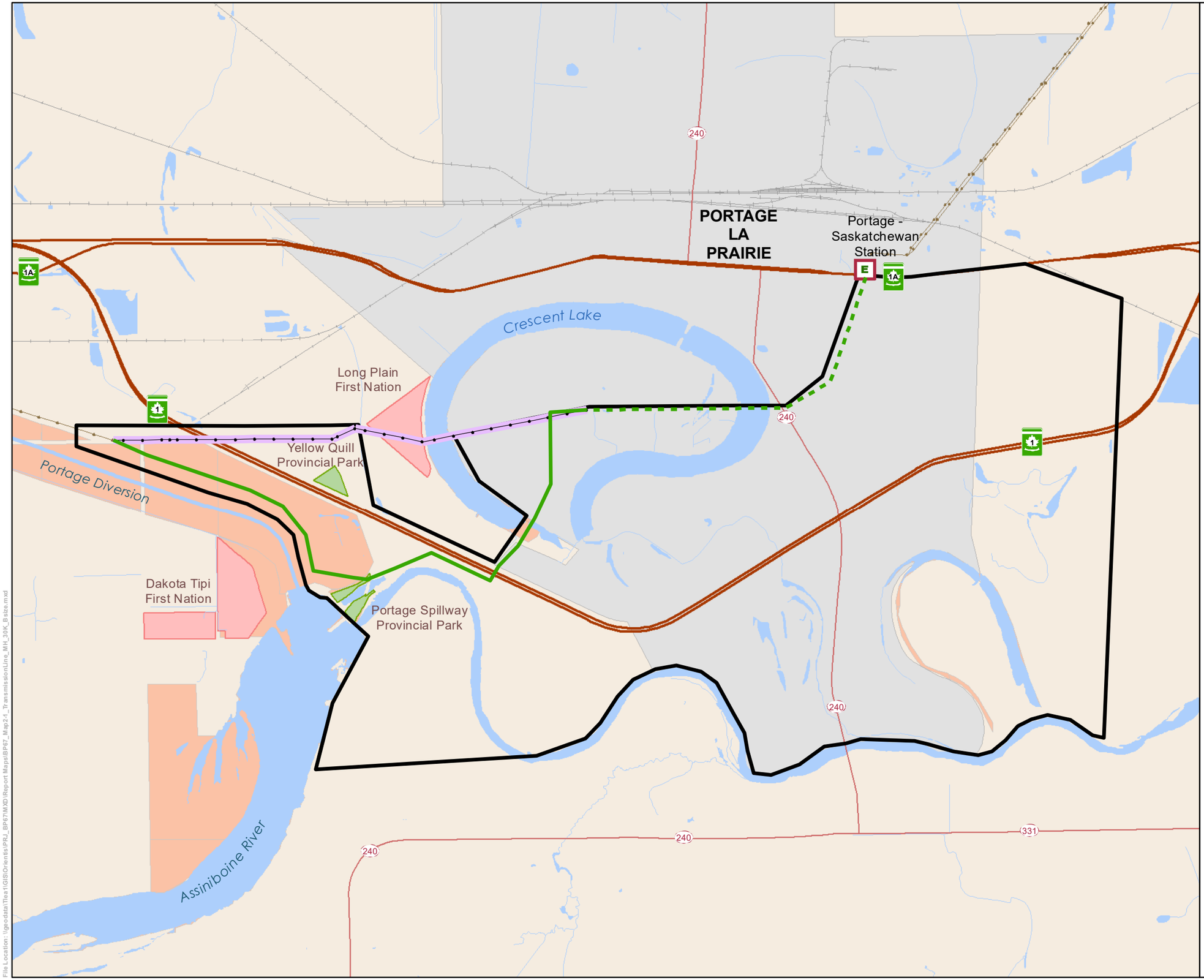
Disturbed areas will be rehabilitated consistent with the rehabilitation and invasive species management plan developed for the project. This will include the restoration of any access areas along the right-of-way.

If seed is applied, any erosion and sediment control measures required on-site would be left in place until seed is fully established, as determined by an environmental officer.

If project components are sited on industrial properties or those that are no longer under agricultural production or in a natural state, different methods would be used.

2.4 Funding

Manitoba Hydro is assuming full responsibility for the design, construction and commissioning of the project.



Manitoba Hydro

BP6 / BP7 Transmission Lines Replacement Project

Project Infrastructure

- Portage - Saskatchewan Station
- BP6/7 Salvage
- New section
- Existing section

Route Planning Area

- Route Planning Area (area for rerouting BP6/BP7)

Existing Infrastructure

- Transmission Line

Landbase

- TransCanada Highway
- Provincial Road
- Railway
- First Nation
- Crown Land
- Provincial Park
- City/Town

Entire map area falls within Metis Natural Resource Harvesting Zone

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: April 13, 2021

N

0 0.5 1 Kilometre
0 0.25 0.5 Mile

1:30,000

BP6/BP7 Transmission Line

Map 2-1

File Location: \\gisdata\Tlea11\GIS\Orientis\PRJ_BP67MXD\Report Maps\BP67_Map21_TransmissionLine_MH_30K_BSize.mxd

3.0 Route selection

3.1 Overview

The routing methods used for this project are based on those developed by the Electric Power Research Institute (EPRI) and Georgia Transmission Corporation (GTC) for overhead electric transmission line siting (EPRI-GTC 2006). Manitoba Hydro selected the EPRI-GTC methodology because it has been successfully applied to more than 200 linear projects across North America, and because the tools provide a structured and transparent way to represent the trade-offs between competing interests and land uses, along with the decisions made in a transmission line routing process.

The routing process involved a multi-phase decision-making approach that incorporates feedback from internal discipline experts and external (public, Indigenous and regulatory) parties at key milestones.

This project involved external parties directly in the routing and assessment process. Manitoba Hydro welcomed participants from the community to form a 'Community' team that shared perspectives and concerns about key route segments. This level of direct involvement from external participants worked to build knowledge about the values considered during Manitoba Hydro's routing process and concerns that other participants may have about preferred segments / routes and rank routes.

For this project, a series of workshops were held with external parties in which the participants themselves discussed the pros and cons of each route and determined their rank collectively.

Route selection incorporates consideration of the environment, opportunities and constraints for transmission line development, and the interests and concerns that influence the use of the land or could be affected by the route. The primary goal is to limit the overall effect of the transmission line by considering and balancing the effect across the following perspectives:

Built environment perspective - concerned with limiting the effect on the socio-economic environment and includes features such as proximity to buildings, building density, soil capability/agricultural use (e.g., livestock, crops), and proximity to heritage sites.

Natural environment perspective - concerned with limiting the effect on the biophysical environment such as wooded areas and wildlife habitat.

Engineering environment perspective - concerned with aspects such as cost, system reliability, constructability and other technical constraints.

These three perspectives generally reflect the three pillars of sustainable development: social/people (Built), environment (Natural) and economy (Engineering).

The routing process involves the use of GIS-based mapping and models to evaluate the suitability of an area for locating new transmission lines. The models and sequential steps in the process provide a structured and transparent way to represent the trade-offs between competing interests and land uses. The process includes steps to provide opportunities for Indigenous, landowner, interested party and public feedback. Feedback is used in a process with associated decision-making tools that produces decisions that balance perspectives among competing land use values, while respecting the various physical, technical and regulatory constraints on the landscape.

The routing process involved the following general steps:

- characterize the region
- develop the route planning area
- develop and analyze alternate routes within the alternate corridors
- select and finalize the preferred route

Each step involves a process of narrowing and refining the geographic area under consideration to get to a preferred route. The steps are described briefly in the following sections.

3.2 Characterizing the project region

The October 2019 storm and subsequent rebuild and salvage created the start (Portage-Saskatchewan Station) and potential end points of the project (Map 3-1).

The initial planning step was to characterize the suitability of the region for transmission lines. This involved compiling and sourcing existing desktop data such as satellite imagery, land use/ownership, buildings and protected areas, and existing infrastructure. It also involved reconnaissance field trips, as well as initial public and Indigenous engagement planning; including the identification of potential interested parties and Indigenous communities in the area and preliminary contact to gather initial information about the area.

It also included a windshield survey to ground-verify types of buildings and land use.

3.3 Areas of least preference

Areas of least preference (Appendix A; Table A-1) are features to avoid when routing a transmission line due to physical constraints (extreme slopes, long water crossings),

regulations limiting development (protected areas), or areas that would require extensive mitigation or compensation (residential areas).

During the route planning process, attempts are made to avoid areas of least preference, but in some cases, due to other constraints, and in consideration of the specific details of the feature, routing across an area of least preference may be required.

3.4 Route planning area

The route planning area (Map 3-1) is the area used to gather data and develop route segments, which lead to alternate routes. The route planning area was developed based on experience working in the area and using the areas of least preference to understand potential constraints.

The route planning area was developed based on various constraints on the landscape and general routing principles. The eastern boundary was limited by distance (to limit line length). The southern boundary was constrained by the Assiniboine River (to avoid crossing over twice). The western boundary was constrained by the Assiniboine River and Portage Spillway (to avoid crossing over twice). The northern boundary was constrained by residential development in Portage la Prairie.

Prior to the October 2019 storm the project was located directly on Long Plain First Nation lands, west of Crescent Lake. At the onset of the project, Long Plain First Nation met with Manitoba Hydro and indicated a conflict with width of the easement and land use on the property at the Keeshkeemaquah location. Manitoba Hydro considered this concern when developing the route planning area as well as when reviewing mitigative segments.

3.5 Alternate routes

Having completed the preliminary planning, Manitoba Hydro moved into the next stage, which was the development, presentation, and evaluation of alternate routes. The objective of this stage was to determine a preferred route. This was achieved by:

- Developing alternate routes within the route planning area
- Assessing the feasibility of the alternate routes
- Evaluating the alternate routes using the alternate route evaluation and preference determination models
- Selecting a preferred route
- Presenting the preferred route for feedback through public and Indigenous engagement
- Developing the final preferred route using feedback received

These steps are described in more detail in the following sections.

3.5.1 Developing alternate routes

The routing team identified alternate routes within the route planning area. The routing team is made up of senior transmission technical specialists in engineering, design, and environmental assessment.

The alternate routes are potential, preliminary centerline routes for the proposed transmission line. The routes are composed of individually numbered route segments that connect to form contiguous routes from the start to end point (Map 3-1).

The routing team draws route segments initially on large format electronic maps that contain aerial imagery, areas of least preference and corresponding geospatial imagery to understand connectivity and logical flow between the start and end points.

Once a first cut has been completed, the routes are digitized into a Geographic Information System where they are further refined and assessed with the full power of information that the hundreds of geospatial data layers provide.

3.5.2 Round one engagement

Once the various segments for alternate routes were developed sufficiently, a map of the output was posted to the project website and was used during round one of public and Indigenous engagement (described in chapters 4.0 and 5.0).

Input was collected on route/segment preferences including any potential new segments proposed.

Based on feedback from engagement and discipline specialists, two additional segments (Segments M1 + M2; Map 3-2) were created. These new segments were evaluated with the same rigour and consideration as the original segments.

Mitigative segment M1 (Map 3-2) ran west from the island crossing over Crescent Lake. It was rejected as it crossed over an area of least preference and did not decrease potential effects.

Mitigative segment M2 followed similar segments created during initial route development (Map 3-2). This segment was reviewed by the project team. It was determined to remove it after the review as it was over 150% longer than the shortest route and therefore was the worst scoring route based on the route statistics.

3.5.3 Alternate route evaluation

After the first round of engagement and review of proposed mitigative segments, there were 18 segments still under consideration (Map 3-2).

The alternate route evaluation model (Appendix A: Table A-2) was used to develop segment/route statistics to assist in making decisions. Multiple alternate routes were compared to one another using the route statistics. The routes were ranked based on the criteria in the alternate route evaluation model to determine the top routes based on the statistical data.

3.5.3.1 Route selection meetings / workshops

The alternate routes were evaluated at several meetings and workshops. Participants in the workshops included members of the project team representing the various perspectives (built, engineering, natural). Team members responsible for engineering, technical design, construction and maintenance represented the engineering perspective. Team members responsible for public and Indigenous engagement represented feedback received from participants. Socio-economic discipline specialists represented the built perspective. Discipline specialists responsible for assessing the potential effect on the biophysical environment represented the natural environment.

During the first workshop, the number of alternate routes was reduced to a set of finalists. This process was facilitated through discussion and examination of the route statistics and review and discussion of the route segments.

It was decided that the second end point (Figure 3-1) on the north side of the highway would not be considered further as it would require an additional two crossings of the Trans-Canada Highway. Therefore, segments 13 and 16 were not considered further. In addition, it was decided that segment 12 was not preferred from any perspective. It adds length and affects more residential housing than the other options.

It was suggested to extend segment 14 along the highway to the point where it connects to the existing BP6/BP7 line (Segment 19 was created; Figure 3-2).

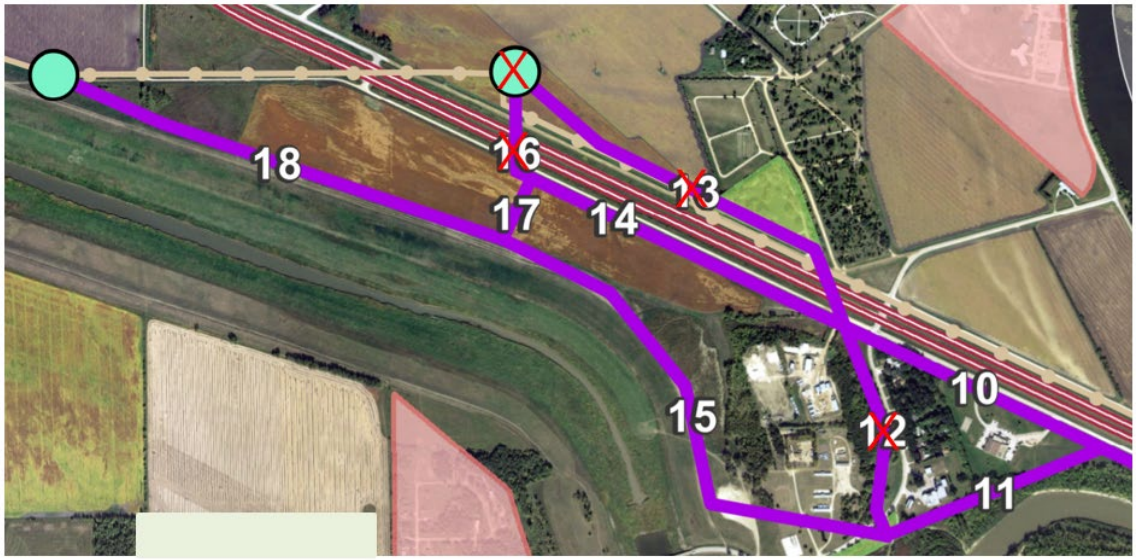


Figure 3-1: Removal of segments 12, 13, and 16

Figure 3-2: Addition of segment 19

After review of the top routes, a set of finalists were carried forward for further evaluation in the preference determination phase. Four routes were selected for preference determination; Routes A – D (Map 3-3). These routes are the possible combinations of routes after segments 12, 13, and 16 were removed from further consideration.

3.5.4 Preference determination

In the preference determination step, the preference determination model (Appendix A; Table A-4) was used to select the preferred route from the route finalists identified from the alternate route evaluation process.

The finalists from the alternate route evaluation step were considered in a comparative fashion. Each route receives a value between 1 and 3, for each of the criteria in the model, with lower values indicating higher suitability.

Each criterion is represented by a subset of project team members that develop the scores for each route within the preference determination framework.

3.5.4.1 Cost and system reliability

The cost criteria scoring (value between 1 and 3) and system reliability scoring were determined by technical staff and engineers from System Planning, Project Management, Transmission Line Design, and Civil Design and Construction. Meetings and discussions were held with the engineering team to determine how to score each route for cost and system reliability. An additional cost item was considered at this step. Segment 11 (Map 3-2) runs parallel to the Assiniboine River for several hundred meters. If the segment is selected, then some of the riparian vegetation will be removed during clearing activities. There is concern that this could cause additional slope instability and may require bank stabilization. An estimated cost of this was added to routes C+D, which use segment 11.

The scores for cost (Table 3-1) and system reliability (Table 3-2), determined during the engineering team review of the route finalists, were brought to the final workshop.

Table 3-1: Cost scores and rationale

Route	Cost score	Rationale
A	1	Cost scores were based on the costs of construction, materials, property acquisition and bank stabilization (potential risk for routes paralleling the Assiniboine River). The lowest overall cost route (A) received a 1. The other scores were scaled between 1 and 2 based on the overall costs.
B	2	
C	1.6	
D	1.8	

Table 3-2: System reliability scores and rationale

Route	System reliability score	Rationale
A	1	Generally, length is the main driver due to the risk of damage to the line from adverse weather (longer = more towers and more exposure to extreme events (wind/ice/tornados, etc.)). The four routes were similar enough in length to not increase these risks. This is assuming no risk from bank failure due to bank stabilization methods.
B	1	
C	1	
D	1	

3.5.4.2 Community

The engagement team developed the community criterion rankings. The scores were determined by community representatives at a community ranking meeting.

The community scores (Table 3-3) were brought to the final workshop.

Table 3-3: Community scores and rationale

Route	Score	Rationale
A	2.6	Route A affects the most homes and parallels the highway the longest, which affects underground infrastructure (existing and future); future development potential; and the Yellow quill trail intersection.
B	2.4	Route B affects the most homes but avoids some highway issues (underground infrastructure – existing and future; future development potential; Yellow Quill intersection) and is closer to the diversion (good - already disturbed).
C	1.5	Route C avoids homes, but is along the highway partially, which affects underground infrastructure (existing and future); future development potential; Yellow Quill intersection.
D	1	Route D avoids homes, the highway (underground infrastructure – existing and future; future development potential; Yellow Quill

		intersection), is closer to the diversion (good - already disturbed) and opens areas for fishing access.

3.5.4.3 Natural environment

The natural criteria scoring was determined by the discipline specialist on the project team that conducted the assessment on the biophysical and physical components of the project. A meeting was held to discuss the routes and develop scores based on potential effects to the natural environment. The scores (Table 3-4) were brought to the final workshop.

Table 3-4: Natural scores and rationale

Route	score	Rationale
A	1	Routes A and B do not parallel the Assiniboine River. They will therefore not require clearing of riparian vegetation.
B	1	
C	3	Routes C and D parallel the Assiniboine River, which will require clearing of riparian vegetation. The area is old growth cottonwood forest, which would provide excellent habitat for wildlife. It also provides protection to the banks of the river and limits erosion and sedimentation. There are no other areas of natural habitat along the proposed routes.
D	3	

3.5.4.4 Built environment

The built criteria scoring was determined by the discipline specialists on the project team that conducted the assessment on the socioeconomic components of the project. A meeting was held to discuss the routes and develop scores based on potential effects to the built environment. The scores (Table 3-5) were brought to the final workshop.

Table 3-5: Built scores and rationale

Route	Score	Rationale
A	3	Route A affects several homes (directly and indirectly) and would require the purchase of some homes. It is closer to proposed developments and could affect underground

		infrastructure along the Trans-Canada Highway. It will also have an aesthetic impact being close highway.
B	2.75	Route B affects several homes (directly and indirectly) and would require the purchase of some homes. It will not affect the proposed developments, underground infrastructure along the Trans-Canada Highway or have the same aesthetic impacts.
C	1.25	Route C does not traverse homes or traverse hotel frontage or a proposed service station frontage. It may interfere with underground infrastructure along the highway.
D	1	Route D does not traverse homes or proposed developments, interfere with underground infrastructure along the highway or traverse hotel frontage or a proposed service station frontage.

3.5.4.5 Risk to schedule

The risk to schedule criterion scoring was developed through consideration by the entire project team at the final workshop, as elements of each consideration (built, natural, engineering) can contribute to schedule risks. The risk to schedule scores (Table 3-6) were decided at the final workshop.

Table 3-6: Risk to schedule scores and rationale

Route	Score	Rationale
A	3	Routes A and B will require the purchase of one or more homes. This was considered the main risk to schedule as negotiations and potential expropriation can take time.
B	2.75	
C	1.25	Routes C and D do not require the purchase of homes and therefore were scored 1.
D	1	

3.5.4.6 Final workshop

A final workshop was held to discuss the scores for the preference determination model and determine a preferred route.

Each team presented their scores and the other teams were asked to challenge the scores if the rationale was questioned.

The risk to schedule scores (Table 3-6) were discussed at this workshop then added to the preference determination table.

The scores given to each route were entered into the preference determination model presented in Table 3-7.

Table 3-7: Preference determination results

Criteria	Percent	Routes			
		A	B	C	D
Cost	40%	1	2	1.6	1.8
Community	30%	2.6	2.4	1.5	1
Risks to schedule	10%	3	3	1	1
System reliability	5%	1	1	1	1
Natural environment	8%	1	1	3	3
Built environment	8%	3	2.75	1.25	1
	Total score	1.83	2.15	1.56	1.47
	Rank	**3**	**4**	**2**	**1**

When the scores and weights for each criterion were considered, a rank order of the remaining routes was established. Route D received the lowest total score. This was discussed as part of the workshop to determine if each group had any major concerns presenting Route D as the preferred route. As there were no concerns, Route D became the preferred route.

3.5.5 Round 2 engagement

The preferred route (Map 3-4) was presented during the 2nd round of engagement. Feedback was sought regarding on the ground land uses in proximity to the preferred route, future land use or development plans, and other specific concerns.

A small section, crossing a single landowner was not finalized at this time. Manitoba Hydro was working with the landowner to determine the preferred route through this parcel.

Recommendations were received through the engagement process regarding segment adjustments to mitigate concerns or land uses that are affected by the route.

3.6 Final preferred route

Map 3-5 shows the final preferred route proposed for the project. The assessment of potential effects was based on this route. Table 3-8 presents the statistics for the final preferred route using the criteria from the alternate route evaluation model.

Table 3-8: Final preferred route statistics

Feature[1]	Value
Built	
Relocated residences (count)	2
Potential relocated residences (count)	15
Proximity to residences (count)	54
Proposed developments (count)	16
Current agricultural land use (calculated value)	22.01
Land capability for agriculture (calculated value)	50.46
Diagonal crossing of agriculture crop land (acres)	1.03
Proximity to buildings and structures (calculated value)	30
Special features (count)	39
Historic/cultural resources (count)	8
Natural	
Crown land natural (acres)	26.24
Wetlands - ROW (acres)	2.48
Natural forests - ROW (acres)	8.05
Stream / river crossings - centerline (count)	1
Engineering	
Length (km)	8.52
Construction/design costs ($)	$6,008,952
Seasonal construction + maintenance restrictions (calculated value)	10.80
Accessibility (calculated value)	762,434
Proximity to infrastructure (calculated value)	460,789

[1]Definitions for each feature can be found in Appendix A; Table A-3

Manitoba Hydro

BP6 / BP7 Transmission Lines Replacement Project

Project Infrastructure

- Portage - Saskatchewan Station
- End Point
- 2 Alternative Segment

Route Planning Area

- Route Planning Area (area for rerouting BP6/BP7)

Existing Infrastructure

- Transmission Line

Landbase

- TransCanada Highway
- Provincial Road
- Railway
- First Nation
- Crown Land
- Provincial Park
- City/Town

Entire map area falls within Metis Natural Resource Harvesting Zone

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: April 15, 2021

N

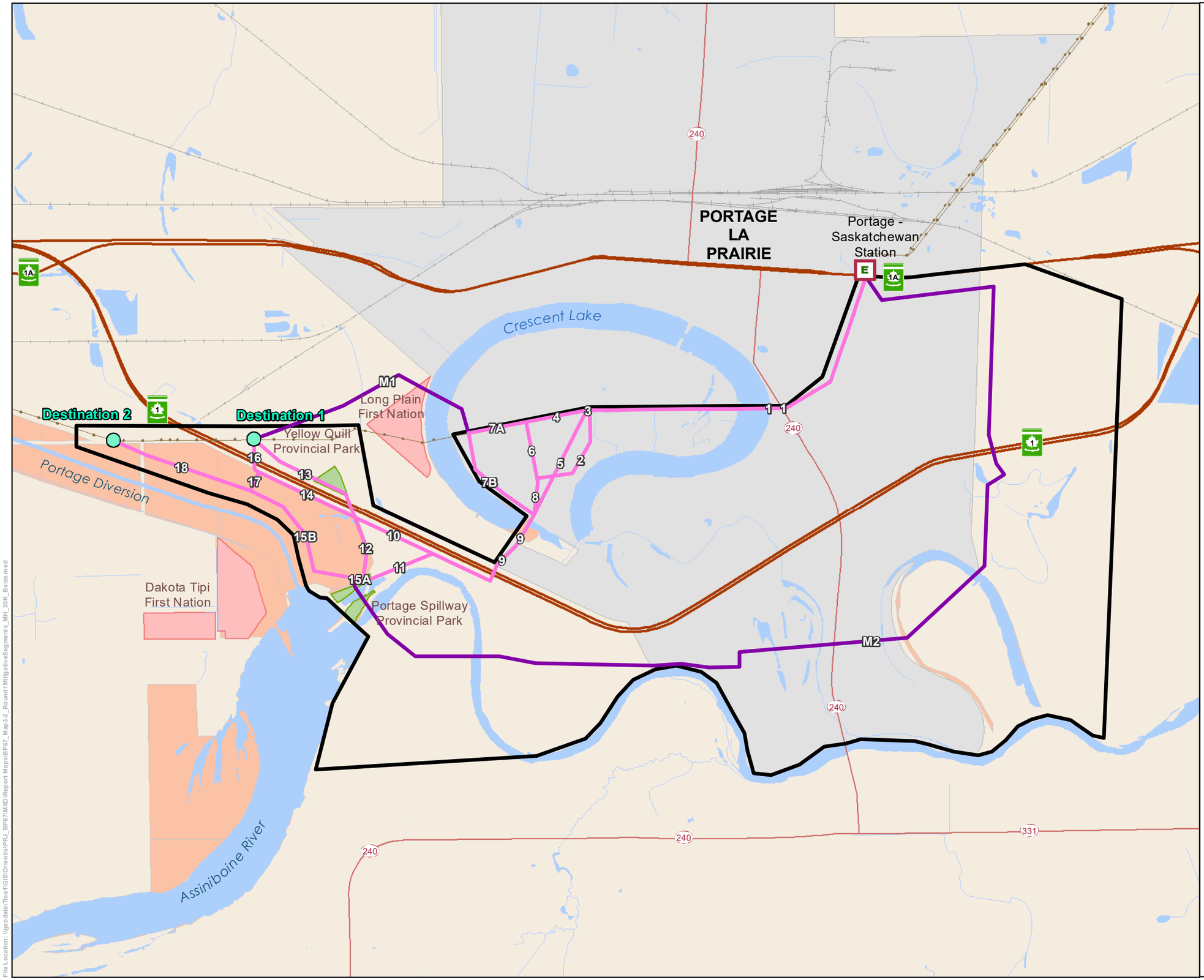
0 0.5 1 Kilometre
0 0.25 0.5 Mile

1:30,000

Alternative Route Segments

Map 3-1

File Location: \\geodata\Tlea1\GIS\Orients\PRJ_BP67\MXD\Report Maps\BP67_Map3-1_AlternativeRouteSegments_MH_30K_Bsize.mxd



Manitoba Hydro

BP6 / BP7 Transmission Lines Replacement Project

Project Infrastructure

- Portage - Saskatchewan Station
- End Point
- 5 — Alternate Route
- M1 — Mitigative Segment

Route Planning Area

- Route Planning Area (area for rerouting BP6/BP7)

Existing Infrastructure

- Transmission Line

Landbase

- TransCanada Highway
- Provincial Road
- Railway
- First Nation
- Crown Land
- Provincial Park
- City/Town

Entire map area falls within Metis Natural Resource Harvesting Zone

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: April 14, 2021

N

0 0.5 1 Kilometre
0 0.25 0.5 Mile

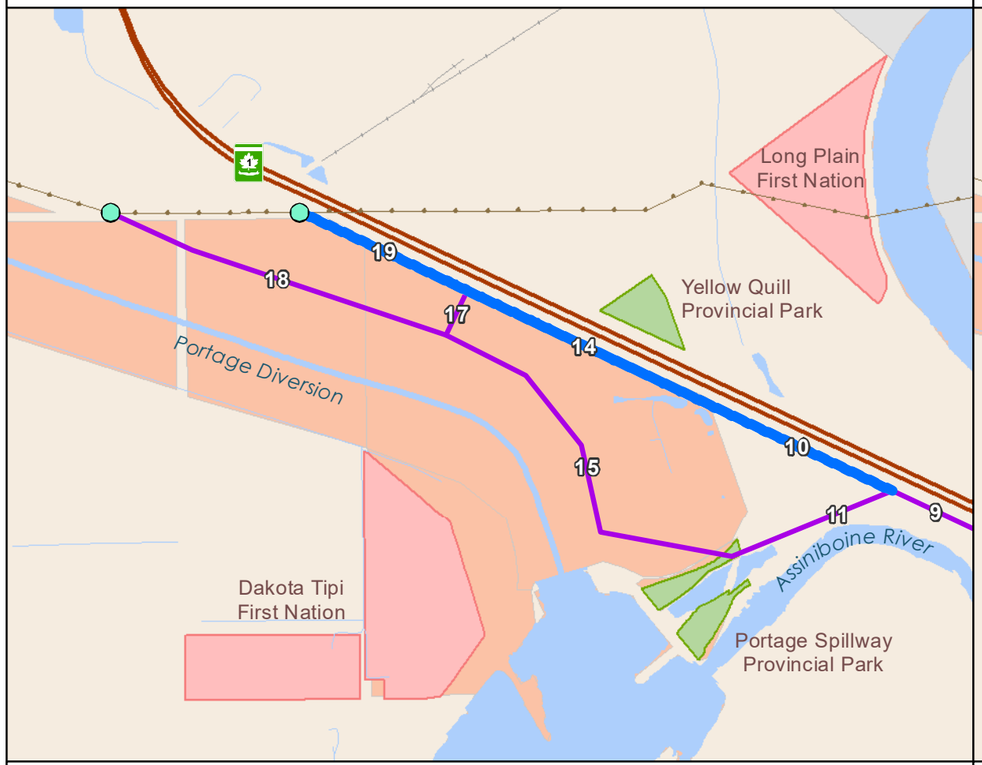
1:30,000

Alternate Routes and Mitigative Segments

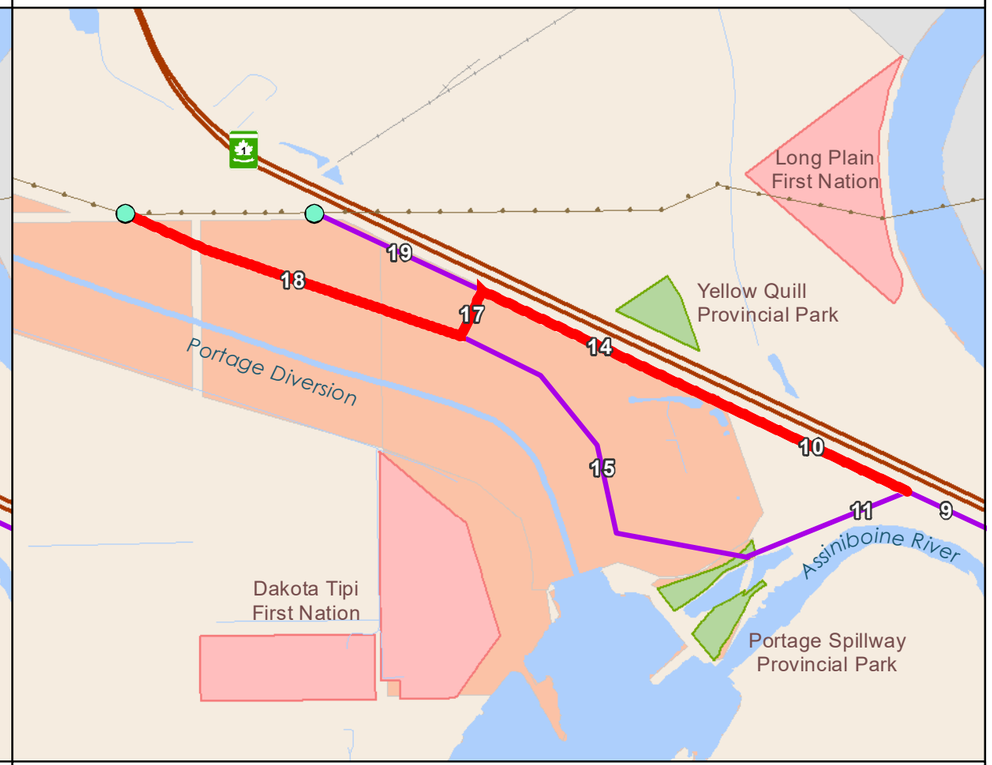
Map 3-2

File Location: \\geodata\Tea1\GIS\Oriental\PRJ_BP67\MXD\Report Maps\BP67_Map3-2_Round1MitigativeSegments_MH_30K_Bsize.mxd

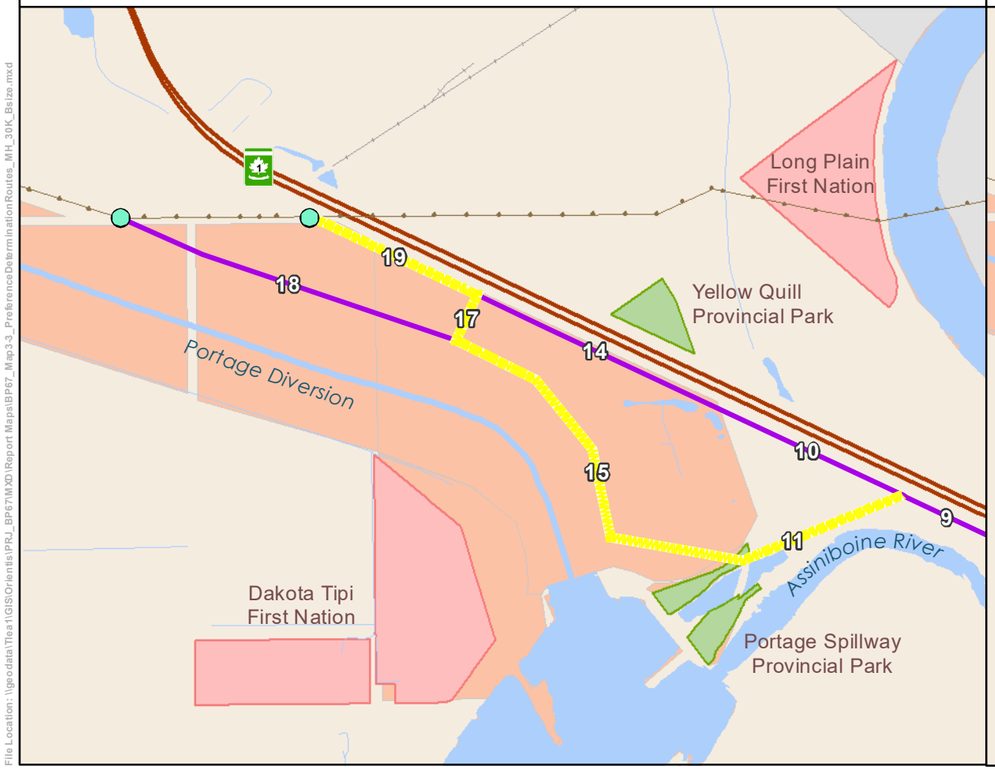
Route A



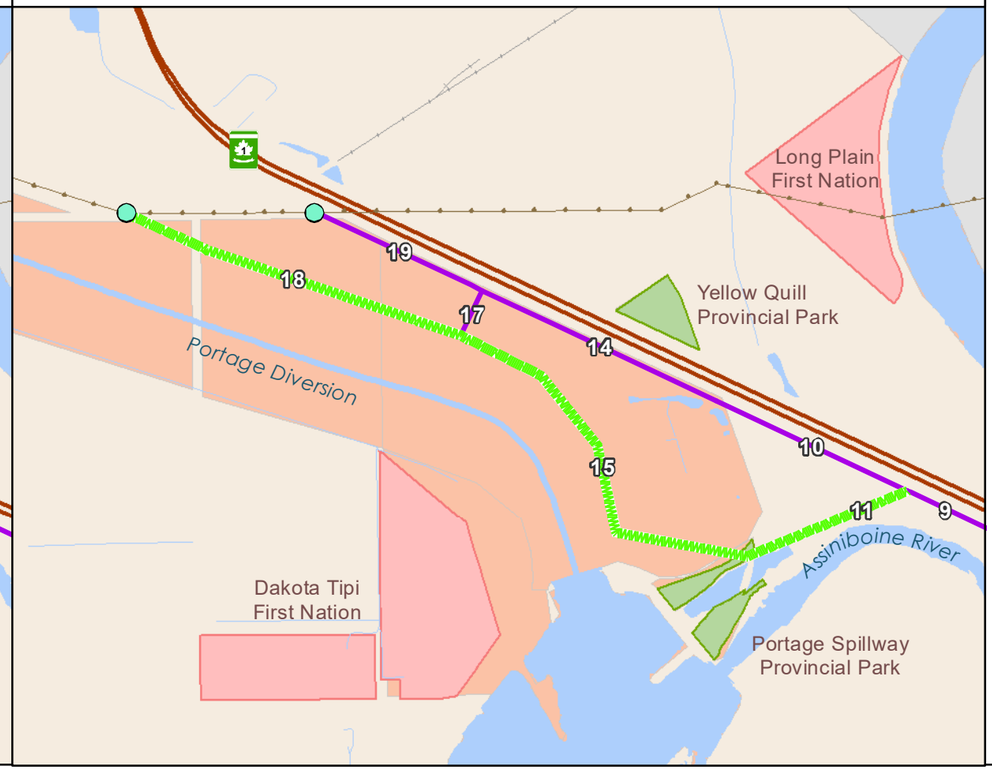
Route B



Route C



Route D



Manitoba Hydro

BP6 / BP7 Transmission Lines Replacement Project

Project Infrastructure

- Portage - Saskatchewan Station
- Destination Point
- 5 — Alternative Route Segment

Preference Determination Routes

- Route A
- Route B
- Route C
- Route D

Existing Infrastructure

- Transmission Line

Landbase

- TransCanada Highway
- Provincial Road
- Railway
- First Nation
- Crown Land
- Provincial Park
- City/Town

Entire map area falls within Metis Natural Resource Harvesting Zone

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: March 30, 2021

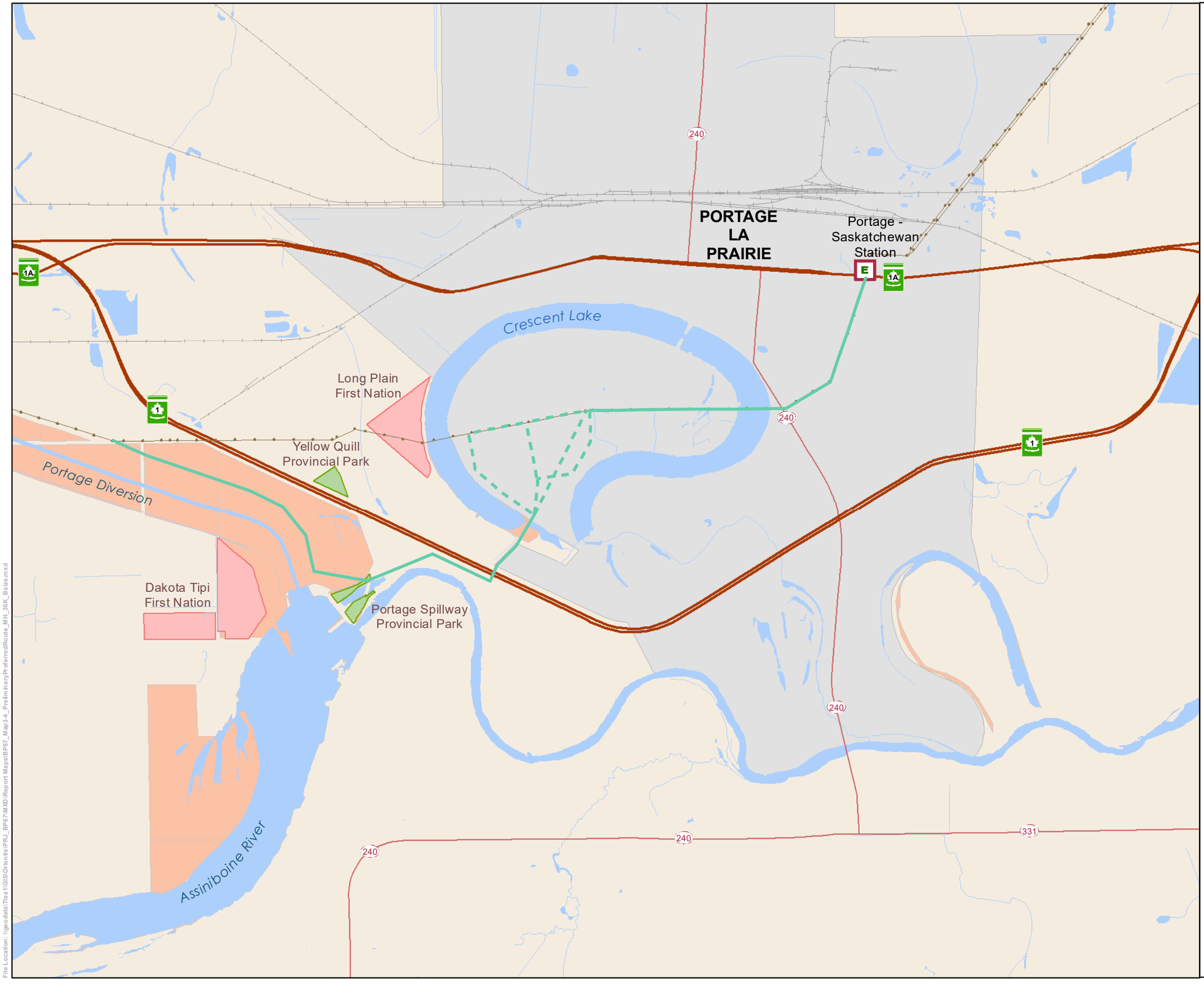
N

0 0.5 1 Kilometre
0 0.25 0.5 Mile
1:20,000

Preference Determination Routes

Map 3-3

File Location: \\geodata\Tle1\GIS\Orients\PRJ_BP67MXD\Report Maps\BP67_Map3-3_PreferenceDeterminationRoutes_MH_30K_Bsize.mxd



Manitoba Hydro

BP6 / BP7 Transmission Lines Replacement Project

Project Infrastructure

- Portage - Saskatchewan Station
- Preferred Route Segment
- Alternative Route Segment

Existing Infrastructure

- Transmission Line

Landbase

- TransCanada Highway
- Provincial Road
- Railway
- First Nation
- Crown Land
- Provincial Park
- City/Town

Entire map area falls within Metis Natural Resource Harvesting Zone

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: March 30, 2021

N

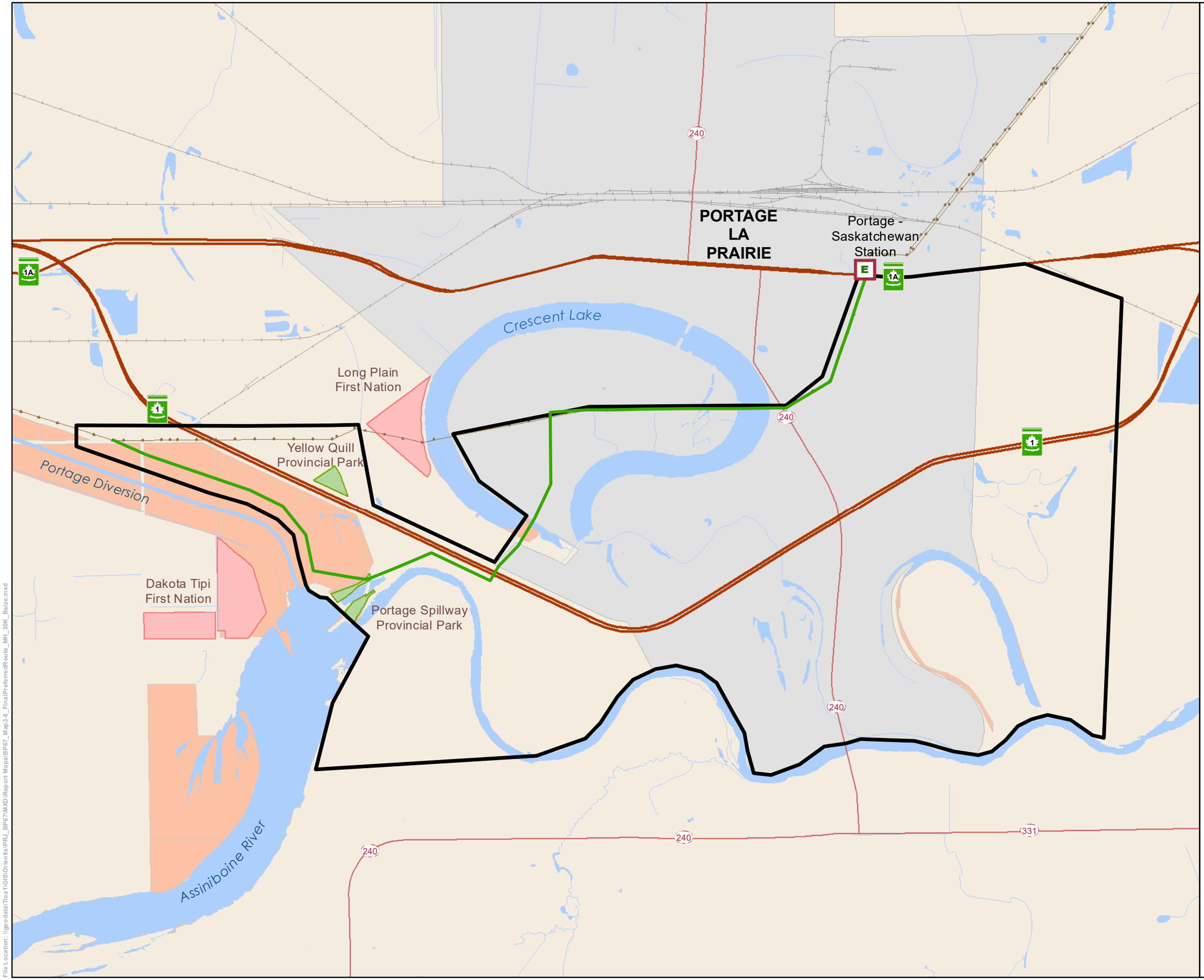
0 0.5 1 Kilometre
0 0.25 0.5 Mile

1:30,000

Preliminary Preferred Route

Map 3-4

File Location: \\geodata\Tlea1\GIS\Orientis\PRJ_BP67\MXD\Report Maps\BP67_Map3-4_PreliminaryPreferredRoute_MH_30K_Bsize.mxd



Manitoba Hydro

BP6 / BP7 Transmission Lines Replacement Project

Project Infrastructure

- Portage - Saskatchewan Station
- BP6/7 Final Preferred Route

Route Planning Area

- Route Planning Area (area for rerouting BP6/BP7)

Existing Infrastructure

- Transmission Line

Landbase

- TransCanada Highway
- Provincial Road
- Railway
- First Nation
- Crown Land
- Provincial Park
- City/Town

Entire map area falls within Metis Natural Resource Harvesting Zone

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: April 13, 2021

N

0 0.5 1 Kilometre
0 0.25 0.5 Mile

1:30,000

BP6/BP7 Final Preferred Route

Map 3-5

File Location: \\gis\data\Tea1\GIS\Orients\PRJ_BP67\MXD\Report Maps\BP67_Map3-5_FinalPreferredRoute_MH_30K_8size.mxd

4.0 Public engagement process

4.1 Goal and objectives

The goal of the public engagement process (PEP) was to conduct a transparent engagement process that involved communities, individuals, and groups in the decision-making process, while working together to resolve concerns and build relationships.

The engagement objectives for this project included:

- Identifying interested communities, individuals and groups and asking for input in designing how they wanted to participate in the process
- Delivering an engagement process that was adaptive and inclusive
- Involving communities, individuals, and groups in the decision-making process
- Informing communities, individuals, and groups about how their input influenced decision making

Communication objectives were to:

- Share timely information that was easy to understand
- Provide opportunities for communities, individuals, and groups to share information, and communicate in the way they preferred
- Be open to listening and discussing concerns about the project, and to work together to find solutions
- Track and implement commitments
- Let audiences know how their input influenced the project

4.2 Communication methods

Communication methods included:

- Project webpage
- Postcards
- Printed materials
- eCampaign
- Emails
- Phone calls
- Landowner letters
- Media outreach
- Social media

4.2.1.1 Project webpage

A project-specific webpage exists for the project. This page will continue to share project information, act as a document library and a place to seek input on draft documents. Manitoba Hydro will continue to update the project webpage with key milestones and at key stages in the Project, such as key regulatory milestones and construction progress updates.

4.2.1.2 Postcards

For Round one, Manitoba Hydro sent postcards informing Portage la Prairie residents about the upcoming virtual information sessions and opportunities to participate in the survey and online feedback portal. For Round one, postcards were mailed on October 21, 2020 and included 7,026 postcards. For Round 2, postcards were mailed on March 3, 2021 and included 7,100 postcards.

4.2.1.3 Printed materials

Manitoba Hydro routinely creates printed materials containing project related updates including info sheets and maps.

4.2.1.4 eCampaign

This is a notification mechanism targeted to self-identified interested parties. Email campaign recipients can unsubscribe from the email campaign service at any time, forward to other individuals, post on Twitter or share on Facebook. Over 40 people have subscribed for Project updates.

4.2.1.5 Phone calls

Manitoba Hydro maintains a toll-free number for project related questions and concerns.

4.2.1.6 Emails

Manitoba Hydro staff regularly sends and receives emails regarding project updates and maintains an email address for project related emails.

4.2.1.7 Landowner letters

For Round one, Manitoba Hydro sent potentially affected landowners a letter and map by direct mail on November 5, 2020. For Round 2, Manitoba Hydro sent potentially affected landowners a letter, info sheet and map by direct mail on March 1, 2021.

4.2.1.8 Media outreach

Manitoba Hydro reached out to local media to share project information including Portage Online. Manitoba Hydro ran radio spots on CFRY Portage from October 22 – November 3.

4.2.1.9 Social media

Manitoba Hydro uses several social media platforms to communicate information to its customers. Information updates (status and upcoming events) relating to the project was posted on Facebook, Twitter and Instagram.

In Round one, over 6,000 people viewed the Facebook ad and over 170 people clicked on the link for more information. In Round 2, over 9,000 people viewed the Facebook ad and over 800 people clicked on the link for more information.

4.3 Engagement methods

Engagement methods for the Project included:

- Virtual information sessions
- Interested parties' meetings
- Online survey
- Feedback portal
- Email and telephone communications with landowners and other interested parties

The techniques chosen for the public engagement process were guided by the International Association of Public Participation (IAP2). IAP2 defines public participation as a "means to involve those who are affected by a decision in the decision-making process. It promotes sustainable decisions by providing participants with the information they need to be involved in a meaningful way, and it communicates to participants how their input affects the decision." IAP2's core values for public participation are as follows:

1. Public participation is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process.

2. Public participation includes the promise that the public's contribution will influence the decision.

3. Public participation promotes sustainable decisions by recognizing and communicating the needs and interests of all participants, including decision makers.

4. Public participation seeks out and facilitates the involvement of those potentially affected by or interested in a decision.

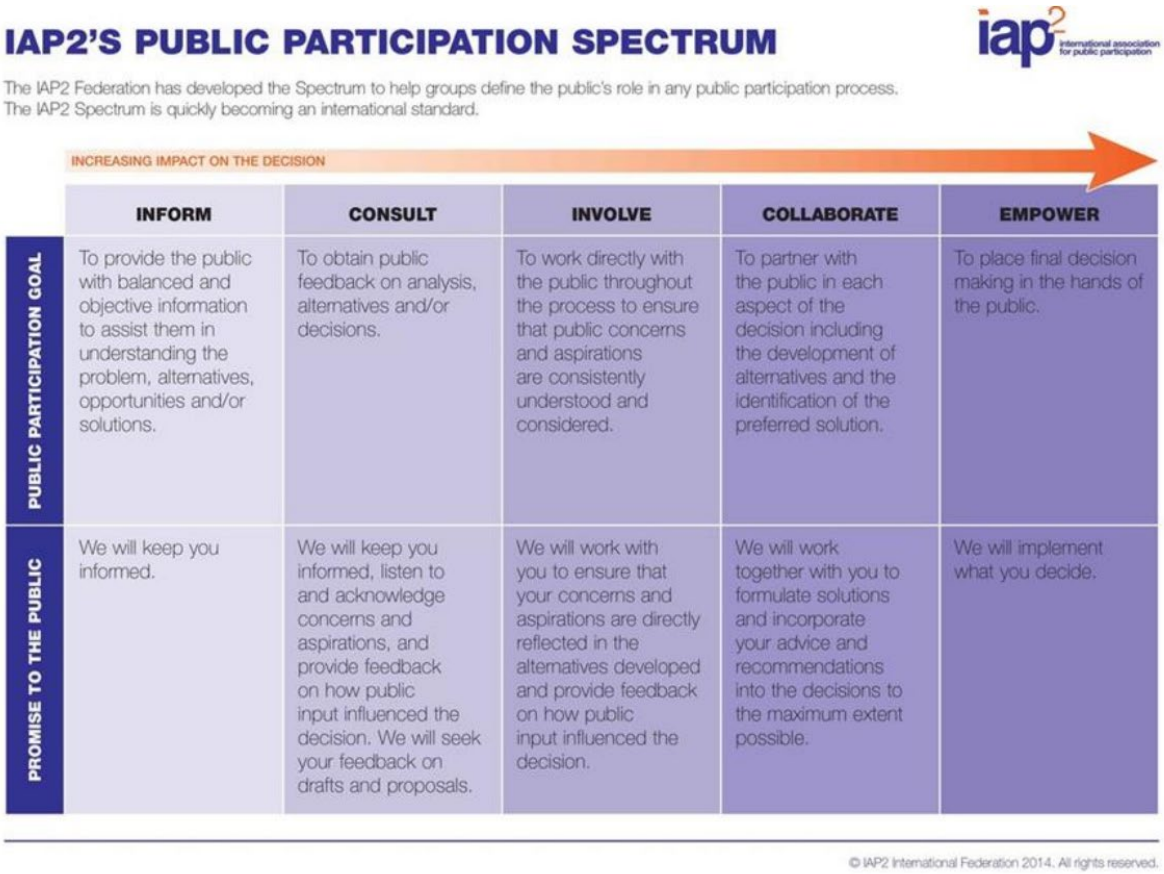
5. Public participation seeks input from participants in designing how they participate.

6. Public participation provides participants with the information they need to participate in a meaningful way.

7. Public participation communicates to participants how their input affected the decision.

IAP2's public participation spectrum (Figure 4-1) was also used to guide the project's public engagement techniques. The public engagement process strategically used techniques that follow the consult and involve levels identified on the public participation spectrum. These levels are described as follows:

- Consult: To obtain public feedback on analysis, alternatives and/or decisions.
- Involve: To work directly with the public throughout the process to ensure that public concerns and aspirations and consistently understood and considered.



IAP2'S PUBLIC PARTICIPATION SPECTRUM

iap2 international association for public participation

The IAP2 Federation has developed the Spectrum to help groups define the public's role in any public participation process. The IAP2 Spectrum is quickly becoming an international standard.

INCREASING IMPACT ON THE DECISION

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision. We will seek your feedback on drafts and proposals.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will work together with you to formulate solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Figure 4-1: IAP2's public participation spectrum.

The virtual information served as a method to consult the public of the project, while the community ranking process described in the routing chapter was used to involve the interested parties.

4.3.1 Virtual information sessions

The purpose of the virtual information sessions was to share information about the project, answer questions and hear feedback from interested parties, landowners and members of the public regarding the project.

During Round one, Manitoba Hydro held four virtual information sessions using Microsoft Teams.

- October 26, 2020 at 7:00 pm
- October 27, 2020 at 4:00 pm
- November 3, 2020 at 12:00 pm
- November 4, 2020 at 7:00 pm

During Round 2, Manitoba Hydro held three virtual information sessions using Microsoft Teams.

- March 16, 2021 at 7:00 pm
- March 17, 2021 at 12:00 pm
- March 18, 2021 at 7:00 pm

The sessions were held at various time to allow for flexibility for participant's schedules. The sessions started out with introductions, a brief presentation from Manitoba Hydro and discussion with the participants.

4.3.2 Interested party meetings

The purpose of the interested party meetings was to engage representatives of a wide range of organizations with an interest in the Project to share information, answer questions and hear feedback from interested parties regarding the project.

During Round one, participants were asked to identify their individual issues and concerns, particularly those based on local knowledge to provide feedback to be considered during the transmission line routing process and to suggest possible mitigation strategies to address the effects related to the 18 alternate route segments identified by Manitoba Hydro for the Project.

In Round one, Manitoba Hydro staff held interested party meetings to discuss the alternate route segments with various government agencies, a local organization, the Rural Municipality and the City of Portage la Prairie. between October 23, 2020 and November 26, 2020 (Table 4-1).

Table 4-1: Interested parties meetings

Date of Meeting	Interested parties
October 2, 2020	City of Portage la Prairie
October 23, 2020	Portage la Prairie planning district
October 27, 2020	Rural Municipality of Portage la Prairie
October 29, 2020	Manitoba Infrastructure
November 5, 2020	City of Portage la Prairie Water Treatment Plant
November 6, 2020	Manitoba Infrastructure
November 10, 2020	Manitoba Parks and Resource Protection
November 13, 2020	Historic Resources Branch
November 26, 2020	Portage Regional Recreation Authority

During Round 2, Manitoba Hydro shared the preferred route with participants and provided an overview of feedback received during Round one. Participants were asked to identify their individual issues and concerns, particularly those based on local knowledge to provide feedback to be considered during the transmission line routing process and to suggest possible mitigation strategies to address the effects related to the preferred route identified by Manitoba Hydro for the project.

In Round 2, interested party meetings to discuss the preferred route were held between Manitoba Hydro staff and the Historic Resources Branch and the Rural Municipality between March 12 and March 23 (Table 4-2)

Table 4-2 Round 2 interested parties meetings

Date of Meeting	Interested parties
March 12, 2021	Historic Resources Branch
March 23, 2021	Rural Municipality of Portage la Prairie

A Manitoba Hydro representative recorded the summaries of the interested party meetings. Additionally, any correspondence with an interested party representative, including phone or email, was documented. Summaries of the interested party meetings are provided in Appendix B.

4.3.3 Online survey

During Round one, Manitoba Hydro hosted an online survey using Simple Survey on the BP6/BP7 webpage from October 16 – December 20, 2020. There were 48 respondents to the survey.

During Round 2, Manitoba Hydro hosted an online survey using Simple Survey on the BP6/BP7 webpage from March 1 - March 18, 2021. There were 28 respondents to the survey.

4.3.4 Feedback portal

During Round one, Manitoba Hydro hosted a link on the Project webpage to an online feedback portal from October 16 – December 20, 2020. The feedback portal was an interactive way for participants to comment on the alternate route segments, share suggestions, and identify points of interest in the area.

During Round 2, Manitoba Hydro hosted a link on the Project webpage to an online feedback portal from March 1 – March 23, 2021. The feedback portal was an interactive way for participants to comment on the preferred route and identify points of interest in the area.

4.3.5 Email and telephone communications

Both the Project Information Line (1-877-343-1631) and email address (leaprojects@hydro.mb.ca) were available for external audiences and the public to share concerns and pose questions.

4.4 Public engagement feedback

4.4.1 Overview

Engagement feedback typically focused around one or more of the following topics:

- Proximity to homes
  - Neighborhoods
  - Property values
  - View
- Recreational activities
- Health and safety
- Existing infrastructure
- Heritage sites
- Riverbank erosion
- Agriculture
- Trees, birds, and wildlife

In addition to these main topics, other topics included routing, access to virtual information and impacts to waterways.

4.4.2 Proximity to homes

The most common concern shared by participants in round one was about impacts to their homes and neighbourhoods, such as decreased property values and impacts to their view. In round two, participants who live on Pine Crescent shared concerns about potential impacts on their view across the river if the most westerly route was chosen on the island. They shared that they are concerned that the route across the river will impact their property values.

4.4.3 Recreational activities

In round one, participants shared concerns about potential impacts to recreational areas and activities, such as the local dog park and fishing areas.

4.4.4 Health and safety

Participants shared concerns about living near high voltage transmission lines and traffic collision risks with routing near the Trans-Canada Highway.

4.4.5 Existing infrastructure

Interested parties shared concerns about potential impacts on existing infrastructure including the floodway and Trans-Canada highway.

4.4.6 Heritage sites

Participants shared concerns about the potential heritage impact of all segments on Crescent Island and those in proximity to historic Fort la Reine. The Historic Resources Branch noted they could require extensive heritage work on the island and near Fort la Reine.

4.4.7 Riverbank erosion

In round two, participants shared concerns about the preferred route and riverbank erosion. Participants shared that they are concerned that the topography of the land near the Assiniboine river is not suitable for a transmission line.

4.4.8 Agricultural lands

Participant shared concerns about impacts to their irrigation infrastructure and high valued crops. A participant shared concerns that this project is going to completely change the way they farm. The participant shared that they do not know if they will

ever be able to be compensated enough and they might not be able to irrigate under the line again.

4.4.9 Trees, birds and wildlife

Participants shared concerns about potential impacts to trees and shared that some of the bushes in the area are 200 years old and provide a visual and noise buffer for them. Participants also shared concerns about birds including the Eastern Peewee and concerns about potential bird wire collisions. Wildlife concerns were also shared.

4.4.10 Ongoing engagement

Manitoba Hydro will continue to notify landowners, interested parties and the public within the area. This includes notifying each affected landowner once the final preferred route is determined and providing them with contact information, an outline of the regulatory process and the upcoming timelines. The project webpage will continue to be updated as the project progresses, and the information line and email address will remain active.

5.0 Indigenous engagement process

5.1 Purpose, goals and objectives

This section provides an overview of the Indigenous engagement process (IEP), including principles and goals of the process, the scope and adaptable nature of the process, key concerns, and outcomes resulting from engagement. Follow-up and ongoing engagement is also planned throughout the regulatory and construction phases of the project.

The following principles guided Manitoba Hydro's approach to Indigenous engagement for this project:

- Traditional territories and activities important to Indigenous peoples' way of life and culture should be acknowledged, valued and protected.
- The diversity of Indigenous cultures and worldviews should be understood and appreciated.
- Manitoba Hydro should work with Indigenous communities to better understand perspectives and determine mutual approaches to address concerns and build relationships.
- Indigenous communities should be provided opportunities to communicate early in the process and on an ongoing basis.
- Indigenous communities should be involved in the decision-making process and should understand how their input influenced decision-making.

In addition to the shared engagement process goals provided in the PEP section, the IEP had the following specific goals:

- Continue to build and strengthen working relationships with Indigenous communities in Manitoba
- Provide opportunities for Indigenous communities to have meaningful input and contributions to the project
- Provide opportunities for Indigenous communities to participate in an on-going engagement process through Indigenous Community and Assessment Coordinator (ICAC) positions for multiple projects in the Portage la Prairie area.
- Provide opportunities for Indigenous communities potentially impacted by projects to benefit economically from that project through employment opportunities and use of local businesses.

5.2 Process methods

5.2.1 Overview

Manitoba Hydro designed the IEP for the Project to engage Indigenous communities early in the process and at every stage. The IEP was adaptive and flexible, with opportunities for input provided at every stage to meet the specific context and needs of each group. This engagement process is separate from any Crown–Indigenous consultation process that could be initiated by the government. Engagement with Métis people for this Project was facilitated primarily through the Manitoba Métis Federation (MMF). As part of the IEP, Manitoba Hydro also collaborated with three Indigenous communities to create Indigenous Community and Assessment Coordinator (ICAC) positions to assist in the coordination of engagement and assessment activities for communities with high potential for adverse effects as a result of the Project.

5.2.2 Identification of Indigenous communities

Manitoba Hydro engaged with Indigenous communities who have historical and contemporary connection to the study area, whose use of the area would be potentially affected by the Project and who have indicated an interest in the project. Manitoba Hydro also reached out to a representative from the Consultation and Reconciliation Branch of the Provincial Indigenous and Northern Relations Department who indicated they would consider other communities. The Project is in Treaty 1 territory of the ancestors of the Anishinaabe, Cree, and Dakota peoples and the homeland of the Métis Nation. The project is in an area of the province that is of historical and contemporary interest to the MMF and its citizens.

Manitoba Hydro considered several factors in determining whom to contact regarding participation in the IEP and the level of involvement. The IEP was designed to tailor engagement for individual Indigenous communities by considering four key criteria then assessing the level of potential adverse effect from the project. The approach to the IEP was meant to be adaptive and responsive to feedback from communities as the IEP progressed. The four criteria used were:

1) Historical and contemporary connection to the study area
2) Potential for adverse impacts related to the Project
3) Interest in the Project
4) Recommended inclusion by the province

Based on our understanding of potential effects related to the project, Manitoba Hydro worked closely with three Indigenous communities to develop and support ICAC positions. The three communities that had ICAC positions were: Dakota Tipi

First Nation, Long Plain First Nation and the MMF. It is our understanding that these three communities met the four criteria. Other Indigenous communities engaged on the project included Brokenhead Ojibway Nation, Dakota Plains Wahpeton First Nation, Peguis First Nation, Roseau River Anishinabe First Nation, Sandy Bay First Nation and Swan Lake First Nation. Manitoba Hydro also engaged with the Portage Urban Indigenous Peoples Coalition (PUIPC).

Table 5-1 table describes the rationale for engaging with each community in the project.

Table 5-1: Rationale for engaging with each community in the project	
Indigenous Community	Rationale for engaging in the project
Brokenhead Ojibway Nation	1) Historical and contemporary connection to the study area; and 2) Recommended inclusion by the province
Dakota Tipi First Nation	1) Historical and contemporary connection to the study area; 2) Strong potential for adverse impacts related to the Project; and 3) Interest in the Project
Long Plain First Nation	1) Historical and contemporary connection to the study area; 2) Strong potential for adverse impacts related to the Project; and 3) Interest in the Project
Dakota Plains Wahpeton First Nation	1) Historical and contemporary connection to the study area
Peguis First Nation	1) Historical and contemporary connection to the study area; and 2) Interest in the Project
Roseau River Anishinabe First Nation	1) Historical and contemporary connection to the study area; and 2) Recommended inclusion by the province
Sandy Bay First Nation	1) Historical and contemporary connection to the study area
Swan Lake First Nation	1) Historical and contemporary connection to the study area
MMF	1) Historical and contemporary connection to the study area; 2) Strong potential for adverse impacts related to the Project; and 3) Interest in the Project
Portage Urban Indigenous Peoples' Coalition (PUIPC)	1) Potential for adverse impacts related to the Project; and 2) Interest in the Project

A community profile of the Indigenous communities included in engagement is provided below. Information describing each community was drawn from community websites or was drafted by the community themselves. Dakota Tipi First Nation, Long Plain First Nation and the MMF drafted their own community profile, included below.

5.2.2.1 Brokenhead Ojibway Nation

"The Brokenhead Ojibway Nation (BON) is a Treaty 1 Nation located northeast of the Winnipeg, Manitoba on Hwy. 59. The Brokenhead Ojibway Nation are a proud and thriving First Nation. We're focused on providing education and opportunities that can help assure a positive tomorrow for our youth, our families and our Elders.

Brokenhead Ojibway Nation #4 extends north to the shores of Lake Winnipeg and includes part of the Netley Creek Mars area. The Brokenhead River runs through the core area of the community. Both PTH #59 and the CN rail line cross through the northwest section of the Reserve. To the south is Winnipeg, 82 kilometres down highway #59 and to the north is Grand Beach, Patricia Beach and Victoria Beach to mane only three beaches in this area located along 59 north." (Brokenhead Ojibway Nation 2020).

Brokenhead Ojibway Nation has an on-reserve population of 801 and an off-reserve population of 1,311 for a total membership of 2,112 (Brokenhead Ojibway Nation 2020).

5.2.2.2 Dakota Plains Wahpeton First Nation

"Dakota Plains Wahpeton First Nation is in South Central Manitoba, 20 miles south west of Portage la Prairie. The Dakota of this community were relocated here due to a motion made by the City Council of Portage la Prairie on March 11, 1920." (Dakota Plains Wahpeton Oyate 2021)

As of 2013, the total registered population of Dakota Plains Wahpeton First Nation is 239 with 168 living on reserve (INAC, 2013).

5.2.2.3 Dakota Tipi First Nation

<u>Introduction</u>

OVERVIEW OF THE DAKOTA TIPI OYATE BEING PART OF THE DAKOTA NATION and as it relates to the project

In the (TKS) study the DTFN intends to provide information about the cultural and historical context of the Dakota Tipi community and who we are as a part of the larger Dakota Nation.

While there are differing views on the extent of the Dakota Homeland or Traditional Territory, most sources agree that at the time of contact the Dakota People /Nation (which the Dakota Tipi People are apart of) used and occupied areas within the current jurisdictions of Canada and the United States, the North West Territories, Alberta, Saskatchewan, Manitoba and portions of Ontario.

The DTFN and several other Dakota Nations within Manitoba are in a unique position, as they never adhered to a treaty and thus retain, hold and assert Aboriginal Rights and Title to areas within southern Manitoba, and areas the project traverses. Some of the Aboriginal Rights that DTFN exercise and assert include (but are not limited to) the right to hunt, fish, harvest land and water based resources, practice various forms of cultivation, build and occupy settlements, build and occupy camps and cabins, and the ability to travel to and access resource activity areas, etc.

The DTFN also asserts and maintain that it has never ceded its title or interests to its ancient homelands or traditional territory nor its inherent jurisdiction and decision-making authority in relation to the lands, waters, and resources.

Given this, at a minimum, Manitoba Hydro should begin its consideration of any potential known biophysical and socioeconomic effects against these noted broad rights categories through portions of southern Manitoba.

Community at a Glance

In 1959 the Old Sioux Village near Portage la Prairie relocated to the current location site of the Dakota Tipi First Nation. In 1972 the community divided and thereby creating two (2) First Nations presently known as Dakota Tipi First Nation (IR No.#56 or 295) and Dakota Plains Wahpeton Nation (which borders the Long Plain First Nation, south of Edwin Manitoba Canada).

The Dakota Tipi First Nation was granted “Indian Reserve” Status in 1972.

Dakota Tipi First Nation is situated approximately 2 kilometers southwest of the city of Portage la Prairie, Manitoba, and is roughly 80 kilometers west of Winnipeg, Manitoba, and located on the Yellowquill Trail highway, just off of the Trans-Canada No. 1 Highway, and can be reached by a paved class "C" highway.

The current Dakota Tipi First Nation consists of Parish lot 25 and Parish Lot 24 and in 1985 the First Nation also secured Parish Lot 16, 17 and 18 for a total of 371.8 acres or 150.48 hectares.

The current population of the Dakota Tipi First Nation is approximately 275 people “on reserve on” and has on “off reserve” population of approximately 300 people.

Current Vision of the Dakota Tipi First Nation

The Dakota Tipi First Nation currently works with several industries and industry partners, such as Manitoba Hydro, in consultation to ensure the concerns of the Dakota Tipi Nation are dealt with in an according, proper and traditional way.

The Dakota Tipi Nation continues to work towards the goals and vision of itself as a part of the larger Dakota Nation in creation of a strong and viable future for its

membership and in honour of the history of the ancestral Dakota people that which we derive from." (Appendix C).

5.2.2.4 Long Plain First Nation

"A signatory to Treaty 1, 1871, Long Plain First Nation is a proud, prosperous community of both Ojibway and Dakota people situated in the central plains region of Manitoba.

Long Plain has a population of over 4,500 with approximately 2,475 of its registered members living on reserve, 1940 living in urban areas and the remining 60 living in other reserve communities.

Long Plain is Reserve No. 6 on a land base of 10,800 acres comprised of 3 reserves of which 2 are urban. Long Plain is situated in the south-central area of Manitoba, known as the "Central Plains Region". The reserve is located 14 km southwest of Portage La Prairie, and 98 kilometers west of Winnipeg and 10 kilometers south of the TransCanada Highway No. 1. The landscape of the reserve begins along the northwest and southeast banks of the Assiniboine River for approximately five miles and extending three miles west. A portion of the reserve also lies across Assiniboine River.

The urban reserves are situated along the city limits of Portage la Prairie (Keeshkeemaquah Reserve) and in the City of Winnipeg (Madison Indian Reserve No. 1). Long Plain has additional plans for Treaty Land/Reserve expansion in Manitoba. These plans are in various stages of the Addition to Reserve process.

The Portage and surrounding areas have been our people's traditional territory and homeland for thousands of years. The lands in the Portage area were historically considered Long Plain's traditional and tribal territory and are still currently used by Long Plain First Nation registered members for traditional hunting, harvesting and cultural practices.

Long Plain has a custom election system and a tribal government consisting of five; a Chief and four Councillors. Each of the five elected members are responsible for a diverse portfolio of Long Plain's programs and services that includes Arrowhead Development Corp., Economic Development, Gaming, Employment / Training / Daycare, Security / Fire, Education, Social Services, Membership, Land Management, Public Works, Justice / Legal, Recreation / Culture, Child & Family Services, Housing, Residential School, Health and Veterans Affairs.

The community has a diverse economic development portfolio including one of the most successful Petro Canada stations in all of Canada at the Madison Indian Reserve No.1, a thriving Hotel and Gaming Centre on the Keeshkeemaquah Reserve as well as recent acquisitions and builds that will only continue to make Long Plain a fixture in

both the Economic and Local Landscape for future generations to come." (Appendix C).

5.2.2.5 MMF

"The MMF is the democratically elected government of the Métis Nation's Manitoba Métis Community (Manitoba Métis Community). The MMF is duly authorized by the Citizens of the Manitoba Métis Community for the purposes of dealing with their collective Métis rights, claims, and interests, including conducting consultation and negotiating accommodations (as per the MMF Resolution No. 8). While the MMF was initially formed in 1967, its origins lie in the 18th century with the birth of the Manitoba Métis Community and in the legal and political structures that developed with it. Since the birth of the Métis people in the Red River Valley, the Manitoba Métis Community—as a part of the larger Métis Nation—has asserted and exercised its inherent right of self-government. The expression of this self-government right has changed over time to continue to meet the needs of the Manitoba Métis Community. For the last 50 years, the MMF has represented the Manitoba Métis Community at the provincial and national levels.

During this same period, the MMF has built a sophisticated, democratic, and effective Métis governance structure that represents the Manitoba Métis Community at the local, regional, and provincial levels throughout Manitoba. The MMF was created to be the self-government representative of the Manitoba Métis Community—as reflected in the Preamble of the MMF's Constitution (also known as the MMF Bylaws):

WHEREAS, the Manitoba Métis Federation Inc. has been created to be the democratic and self-governing representative body of the Manitoba Métis Community.

In addition, the purpose "to provide responsible and accountable governance on behalf of the Manitoba Métis Community using the constitutional authorities delegated by its citizens" is embedded within the MMF's objectives, as set out in the MMF Constitution as follows:

I. To promote and instill pride in the history and culture of the Métis people.
II. To educate members with respect to their legal, political, social and other rights.
III. To promote the participation and representation of the Métis people in key political and economic bodies and organizations.
IV. To promote the political, legal, social and economic interests and rights of its citizens.

V. To provide responsible and accountable governance on behalf of the Manitoba Métis community using the constitutional authorities delegated by its members.

The MMF is organized and operated based on centralized democratic principles, some key aspects of which are described below.

President: The President is the Chief Executive Officer, leader, and spokesperson of the MMF. The President is elected in a province-wide ballot-box election every four years and is responsible for overseeing the day-to-day operations of the MMF.

Board of Directors: The MMF Board of Directors, or MMF Cabinet leads, manages, and guides the policies, objectives, and strategic direction of the MMF and its subsidiaries. All 23 individuals are democratically elected by the citizens.

Regions: The MMF is organized into seven regional associations or "Regions" throughout the province (Figure 3 in Appendix C.): The Southeast Region, the Winnipeg Region, the Southwest Region, the Interlake Region, the Northwest Region, the Pas Region, and the Thompson Region. Each Region is administered by a Vice-President and two executive officers, all of whom sit on the MMF's Cabinet. Each Region has an office which delivers programs and services to their specific geographic area.

Locals: Within each Region are various area specific "Locals" which are administered by a chairperson, a vice-chairperson and a secretary-treasurer. Locals must have at least nine citizens and meet at least four times a year to remain active. There are approximately 140 MMF Locals across Manitoba.

While the MMF has created an effective governance structure to represent the Manitoba Métis Community at the local, regional, and provincial levels, it is important to bear in mind that there is only one large, geographically dispersed, Manitoba Métis Community. Citizens of the Manitoba Métis Community live, work and exercise their s. 35 rights throughout and beyond the province of Manitoba." (Manitoba Métis Federation 2021).

5.2.2.6 Peguis First Nation

"Peguis First Nation is a Treaty 1 First Nation, located in Manitoba, Canada. With a population of approximately 10,246 members of Ojibway and Cree descent, it is the largest First Nation community in Manitoba.

The main community of Peguis First Nation, Peguis 1B, is located approximately 196 kilometres north of Winnipeg, MB.

Peguis First Nation has a rich culture, strong traditions and a significant history within Canada. The community is named after Chief Peguis. Peguis led the band of Saultaux

people from present day Sault Ste. Marie, Ontario to a settlement at Netley Creek, Manitoba, and later to St.Peter's (present day East Selkirk, Manitoba). After an illegal land transfer in 1907, Peguis First Nation was moved to its present location at Peguis 1B." (Peguis First Nation 2020)

5.2.2.7 PUIPC

"The Portage Urban Indigenous Peoples Coalition (PUIPC) was created to provide an environment for collaboration and increased dialogue for the Urban Indigenous people living in Portage la Prairie. This Coalition of community stakeholders have worked to create a Community Action Plan using feedback from the local Indigenous Community." (Portage La Prairie Revitalization Corporation 2021) "The 20-member Coalition works on several initiatives and commitments such as partnering with the Indigenous peoples in creating an inclusive community that values and respects the diversity that exists in the City of Portage la Prairie, to work with the Urban Indigenous peoples to identify and assist with the removal of barriers that hinder their full participation, recognize the resourcefulness of Indigenous Youth and assist with the creation of opportunities that will encourage them to participate in building the community" (Portage La Prairie Revitalization Corporation 2021). Members of the coalition include City Council, members of the community at large, the MMF, the Red River Community College, the RCMP, the Portage School Division, the Portage Friendship Centre, Health Santé Sud, the Dakota Ojibway Tribal Council, the Portage Community Revitalization Corporation, the City Manager of Portage la Prairie and the Indigenous Community Coordinator.

5.2.2.8 Roseau River Anishinabe First Nation

"Roseau River Anishinabe First Nation is a rural community located approximately one hour south of Winnipeg, Manitoba. Roseau River Anishinabe First Nation has three physical reserves.

The people of Roseau River Anishinabe First Nation have a rich history in the Red River and Pembina Valleys. Their main community is located about an hour south of Winnipeg, near Emerson, with a total membership of 2,000 people across their three reserve communities.

As part of the collective Ojibway of Manitoba, they were known as the "Strong Heart People" in recognition of their bravery. Roseau River signed Treaty 1 on August 3, 1871 and finally resolved their land claim in 2011 with a final settlement offer that is held in trust for future generations." (Roseau River Anishinaabe First Nation 2021)

5.2.2.9 Sandy Bay First Nation

"The Sandy Bay Ojibway First Nation is situated on Reserve No. 5, a 16,456 acre site on the western shore of Lake Manitoba. It is 165 kilometers northwest of Winnipeg and 90 kilometers from Portage la Prairie.

The reserve is accessible by all-weather roads via provincial highways #16 and #50 north from Portage la Prairie. Approximately three quarters of this land is committed to farming. Located in the lowlands with a gentle rise westward from Lake Manitoba, most of the shoreline along the lake consists of a fine sand beach bordered by Balsam Popular and Trembling Aspen.

A bog and marshland run alongside and into the lake. At the time of the signing of the treaty, Sandy Bay was called the White Mud Band, separate from the Portage Band of Chief Yellow Quill. It was a treaty after wards, the signing of treaty 1 of 1871 and in 1876 that settled the present location. The first chief after the treaty was Nawachegapow. Townships 17 & 18 were then granted to the band.

Sandy Bay does not have any more outstanding treaty land entitlements. Some of the economy for Sandy Bay Ojibway First Nation comes from and includes farming for livestock and various crops that are maintained by local Sandy Bay farmers. Our people of Sandy Bay have been a role model in keeping and speaking fluently in Ojibway. There is about an 80% average of Ojibway speaking community members, thus keeping our language alive.

POPULATION TO DATE: The total registered population of Sandy Bay First Nation as of July 2013 is 6174. With Sandy Bay's ever growing population, the birth rate now stands at 8-12 births a month. Not included in the population figures, are the non-aboriginal members on reserve." (Sandy Bay Ojibway First Nation 2021)

5.2.2.10 Swan Lake First Nation

"Swan Lake First Nation (SLFN) is in southern Manitoba, along the junction of Hwy 23 and 34. Most reserve lands are strategically located close to major provincial transportation corridors.

In 1995 a Treaty Land Entitlement (TLE) was settled with the Federal Government that enabled SLFN to expand the land base for future developments with a minimum of 4484 acres outstanding through careful negotiations sound community consultation, we have doubled the size of our community.

Swan Lake First Nation is located on prime agricultural land and agriculture is an important part of its economy.

As of August 30, 2019, there are 359 on-reserve members and 1,094 off-reserve members for a total of 1,453 registered members." (Swan Lake First Nation 2021)

5.2.3 Notification methods

On August 4, 2020 Manitoba Hydro sent information packages to Dakota Plains Wahpeton First Nation, Dakota Tipi First Nation, Long Plain First Nation, Sandy Bay Ojibway First Nation, Swan Lake First Nation, Peguis First Nation, the MMF and the PUIPC. Each package included:

- An email outlining the project and other rebuild work in the Portage la Prairie area, including potential engagement activities, and inviting the community/organization to contact Manitoba Hydro if there are any questions or concerns
- A Project newsletter outlining the Project, the regulatory process, the engagement process, the routing process, an anticipated timeline and a Project map with the location of the damaged BP6/BP7 lines and temporary lines. The newsletter included a link to the Project website (described in section 3.2)
- Manitoba Hydro contact information to share concerns or ask questions regarding the project

On October 16, 2020 Manitoba Hydro sent a second information package to Dakota Plains Wahpeton First Nation, Dakota Tipi First Nation, Long Plain First Nation, Peguis First Nation, Sandy Bay Ojibway First Nation, Swan Lake First Nation, the MMF and the PUIPC. Each package included:

- An email outlining the project with links to the project website, the online feedback portal and the survey, details on the upcoming virtual information sessions, and an invitation for the community/organization to contact Manitoba Hydro if there is interest in scheduling a virtual session
- An information sheet outlining the project including a map with the location of the alternative route segments, a tentative schedule, links to the project website, the online feedback portal and the survey, and details of the upcoming virtual information sessions
- Manitoba Hydro contact information to share concerns or ask questions regarding the project
- After a discussion with Provincial Consultation and Reconciliation Branch staff, a combination of the two information packages were subsequently sent to Roseau River Anishinabe First Nation on November 4, 2020 and to Brokenhead Ojibway Nation on November 10, 2020.

On March 3, 2021 Manitoba Hydro sent a third information package to Brokenhead Ojibway Nation, Dakota Plains Wahpeton First Nation, Dakota Tipi First Nation, Long Plain First Nation, Peguis First Nation, Roseau River Anishinabe First Nation, Sandy Bay First Nation, Swan Lake First Nation, the MMF and the PUIPC to announce the preferred route. Each package included:

- An email outlining the preferred route selected for the project, and inviting the community/organization to contact Manitoba Hydro if there are any questions or concerns
- A project newsletter outlining the project, the regulatory process, the engagement process, the routing process, an anticipated timeline and a project map with the location of the preferred route, the newsletter included a link to the project website (described in section 3.2)
- Links to the online survey and feedback portal for the project and details of the virtual information sessions
- Manitoba Hydro contact information to share concerns or ask questions regarding the project

Information packages can be found in Appendix B.

5.2.4 Engagement activities

It was Manitoba Hydro's understanding that some Indigenous communities had the potential to experience greater impacts to activities considered important to them as a result of the project, including constitutionally protected activities. Manitoba Hydro offered those communities an ICAC position, more targeted community engagement and support for the gathering and sharing of Indigenous Knowledge to inform the project.

5.2.4.1 Indigenous Assessment and Community Coordinators (ICAC)

There is the potential for additional Manitoba Hydro transmission work in the Portage la Prairie area soon. Manitoba Hydro worked to develop a regional approach to engagement that contemplated cumulative engagement needs across multiple projects. Learning from past project engagement, Manitoba Hydro representatives worked with Dakota Tipi First Nation, Long Plain First Nation and the MMF, to develop agreements that provided mutual support where ICAC positions would be embedded in the project team for BP6/BP7 and well as upcoming future projects in the area. To facilitate this type of process, Manitoba Hydro developed a broader planning area that encompassed both ongoing and planned projects in the area over the 2020 to 2023 period, including:

- Brandon–Portage la Prairie (BP6/BP7)
- Portage Area Capacity Enhancement (PACE) – new transmission line
- PACE station

The ICACs were provided with the opportunity to undertake their own interviews with knowledge holders, engage with their own community and provide their understanding of effects as a result of the project. The intent of the ICACs is to

provide continuity of knowledge across multiple projects, represent their community at key routing and assessment meetings, undertake meaningful Indigenous community involvement in the Portage la Prairie area environmental assessments including collaborating on heritage work, routing feedback and assessment.

The anticipated benefits of the ICACs to their respective communities and to Manitoba Hydro were to:

- Facilitate sharing and review of Project information within the community
- Allow for a dedicated community representative to help move forward the engagement needs of their community
- Provide an opportunity to understand the Manitoba Hydro routing and assessment process by participating on the team
- Help Manitoba Hydro understand and address concerns relevant to their community earlier in the engagement process
- Help Manitoba Hydro develop a less impactful project with relevant mitigation developed collaboratively
- Facilitate input in the routing and assessment processes to understand mitigation that works to resolve issues
- Provide a useful bridge into each of the communities to help facilitate communication between Manitoba Hydro and the community
- Facilitate a process that builds knowledge over time for all involved where learnings from this project may be applied to upcoming projects in the Portage la Prairie Area and providing the opportunity to have consistency across these upcoming projects over time

ICACs were hired by each of the three communities with financial support from Manitoba Hydro for part time positions for a duration of up to three years. Each of the three communities developed the position at their own pace, with different levels of participation. The positions provided the opportunity to support community leadership, community members and Manitoba Hydro through the Indigenous engagement process for projects in the Portage la Prairie area by providing information on the projects and developing and implementing community input into the routing and environmental assessment processes, including assisting in the completion of various initiatives/projects to gather and share Indigenous Knowledge as it relates to the Project and the area.

Key deliverables for the BP6/BP7 project included:

1) Attendance at an introduction meeting, a background meeting on Manitoba Hydro's routing process, a community route ranking meeting and an environmental assessment meeting

2) Preparation of a routing brief to summarize community-specific routing preferences and rationale
3) Preparation of a section of this environmental assessment report to inform Chapter 8 on Traditional Practices, Culture and Heritage
4) Review the environmental assessment report Chapter 8 on Traditional Practices, Culture and Heritage

The budget also included funding for external training and for consultant support to help meet deliverables for the potential PACE transmission line and station and was later made available for BP6/BP7 if needed. There were several challenges in establishing the ICAC positions. Preparing and finalizing contribution agreements that were appropriate for each community took several months and rounds of revisions. This resulted in the deliverable due dates to be delayed on multiple occasions. Filling the positions also posed some challenges. One of the communities expressed concern with timelines and did not have time to hire an ICAC and instead chose to produce deliverables using existing staff. One community had turnover in the ICAC within a short period of time due to transitions within the First Nation's administrative office. The third successfully hired an ICAC and successfully completed deliverables. All three communities took part in key routing and assessment meetings and shared preferences and concerns throughout the process. The positions will be revised based on lessons learnt during BP6/BP7 and prior to engaging on the potential PACE transmission line and station work.

5.2.4.2 Virtual meetings

Round one engagement

The purpose of meeting with Indigenous communities and the PUIPC during round one of engagement was to share information about the project, answer questions and hear feedback from representatives of interested communities and organization regarding the project. Due to COVID-19 restrictions, most meetings during the engagement process were held virtually through Microsoft Teams or Zoom. Some meetings were held in person while following health and safety guidelines. A copy of the presentation shared during Round one is found in Appendix C.

Participants were asked to identify issues and concerns for their community or organization relating to the project area and specific route segments. Feedback was considered in the transmission line routing process and was used to suggest possible mitigation strategies related to the 18 alternative route segments that had been identified by Manitoba Hydro for the project.

Round 2 engagement

The purpose of meeting with Indigenous communities during round two engagement was to share information about the project, share a summary of feedback received during round one engagement, explain how feedback influenced the preferred route, announce the preferred route, answer questions and receive feedback from community representatives on the preferred route. A copy of the presentation shared during Round two is found in Appendix C.

Table 5-2 shows the virtual meetings held between Manitoba Hydro and Indigenous communities and the PUIPC

Table 5-2: Virtual meetings held between Manitoba Hydro and Indigenous communities and the PUIPC[1]

Date of Meeting	**Indigenous community or organization**
July 16, 2020	Long Plain First Nation
August 4, 2020	MMF
August 17, 2020	Peguis First Nation
September 30, 2020	Portage Urban Indigenous Peoples Coalition (PUIPC)
October 16, 2020	MMF
November 2, 2020	Dakota Tipi First Nation
November 3, 2020	Peguis First Nation
November 6, 2020	Long Plain First Nation
November 9, 2020	MMF
November 9, 2020	PUIPC
December 7, 2020	Dakota Tipi First Nation
December 9, 2020	Long Plain First Nation
December 11, 2020	Long Plain First Nation
December 11, 2020	MMF

[1] This is not an exhaustive list of meetings held between Manitoba Hydro and Indigenous communities related to the Project. There were additional informal meetings and discussions not included in the table.

Table 5-2: Virtual meetings held between Manitoba Hydro and Indigenous communities and the PUIPC[1]

Date of Meeting	Indigenous community or organization
January 13, 2021	Long Plain First Nation
January 20, 2021	Dakota Tipi First Nation, Long Plain First Nation, MMF
March 3, 2021	Dakota Tipi First Nation, Long Plain First Nation, MMF
March 11, 2021	Dakota Tipi First Nation, Long Plain First Nation
March 26, 2021	Dakota Tipi First Nation
March 26, 2021	Long Plain First Nation
April 8, 2021	Long Plain First Nation
April 16, 2021	MMF

Community route ranking meeting

To involve communities in decision-making, Manitoba Hydro decided to pilot a more inclusive routing and environmental assessment process for projects in the Portage la Prairie area. Manitoba Hydro invited representatives from key interested communities including Dakota Tipi First Nation, Long Plain First Nation, the MMF, the PUIPC, the City of Portage la Prairie, the RM of Portage la Prairie and the Portage la Prairie Planning District to participate in a Community Route Ranking Meeting. An introductory meeting was held on February 10, 2021 and on February 11, 2021 (for those who were unable to attend the first meeting) to provide background information and an opportunity to familiarize participants with the route ranking process. In this meeting, Manitoba Hydro shared details on the process of route evaluation and selections, information on how the community route ranking will influence the overall route ranking, and summaries of data gathered through the engagement process to date. A copy of the presentation shared during the community route ranking meeting is found in Appendix C.

A second meeting was held on February 18, 2021 where participants were asked to contribute directly in determining the relative ranking of the route finalists under consideration.

Table 5-3: Virtual meetings between Manitoba Hydro and participants of the community route ranking

Date of Meeting	Indigenous community or organization

February 10, 2021	Dakota Tipi First Nation, Long Plain First Nation, MMF
February 11, 2021	PUIPC
February 18, 2021	Dakota Tipi First Nation, Long Plain First Nation, MMF, PUIPC

Summaries of the Indigenous communities and organization meetings were recorded by a Manitoba Hydro representative and draft meeting notes were sent to participants for review. Additionally, any correspondence with Indigenous communities and organization, including phone or email, was documented. Summaries of the meetings are provided in the following sections and additional meeting details are provided in Appendix B.

5.3 Indigenous engagement feedback

5.3.1 Overview

Feedback was received during virtual meetings and through the ICAC positions from Dakota Tipi First Nation, Long Plain First Nation, the MMF, Peguis First Nation and the PUIPC.

5.3.2 Dakota Tipi First Nation

Meeting discussions from round one engagement were primarily about heritage concerns in and around Portage la Prairie. Dakota Tipi First Nation identified burial sites at Wilkinson Crescent and Phoebe Street as well as on Island Park. Dakota Tipi First Nation expressed interest in a community and assessment coordinator position and in having a Dakota representative involved in heritage work and organizing traditional ceremonies for the project.

The ICAC from Dakota Tipi First Nation submitted a Routing Brief summarizing the concerns of eleven community members that participated in interviews. Concerns included the discovery of human remains near Wilkinson Crescent and Phoebe Street as well as known tipi mounds and graves near Brandon Avenue. Participants expressed that Manitoba Hydro needs to remain diligent with monitoring for culture and heritage findings anywhere on the line. The Yellow Quill Trail was also identified as important from a heritage perspective. Participants also shared that no hunting is being done in the urban area and that fishing is only done at designated areas. It was concluded that going along a man-made structure (the Portage Diversion) where the environment has been pre-disturbed was preferred. Other comments and concerns from participants included in the routing brief related to economic development and benefits from the project, health concerns, monitoring on the project and organizing

a ceremony. The routing brief included photos and maps identifying important and sensitive areas.

The routing brief can be found in Appendix B. The ICAC from Dakota Tipi First Nation also prepared a section for the environmental assessment, which can be found in Appendix C.

5.3.3 Long Plain First Nation

Meeting discussions from round one engagement included existing and planned residential and commercial development to the south of Long Plain First Nation's Keeshkeemaquah Reserve. Long Plain First Nation shared that routing along the north side of the Trans-Canada Highway conflicts with this planned development, which influenced the decision to have the route segments be on the south side. The community representatives also shared concerns with goose nesting and staging near Crescent Lake. Long Plain First Nation expressed interest in a community and assessment coordinator position.

Through the ICAC position, Long Plain First Nation prepared a section of the environmental assessment, which can be found in Appendix C. In this submission, Long Plain First Nation identified culture and heritage concerns and sacred medicines within Long Plain Reserve No. 6 borders. It was expressed that no conflict or immediate adverse effect on current traditional practices and culture should result from the Project other than disturbances to wildlife habitats and migration routes, which are still a source of food for some families today (Long Plain First Nation 2021). In their report, Long Plain First Nation also recommended mitigation measures related to vegetation management, which have been included in this EA.

5.3.4 Manitoba Métis Federation

Meeting discussions from round one engagement were primarily about land designation, land use and accessibility. The MMF requested more information about land designation and ownership in the Project area to comment on impact to Métis resource use. The MMF also shared that the entire line should be included in the EA rather than just the new portion of the line. The MMF expressed interest in a community and assessment coordinator position.

Through the ICAC position, the MMF prepared a section for the environmental assessment, which can be found in Appendix C. In their report, the MMF assessed their existing land use and occupancy database and determined that "Métis citizens are actively exercising their rights in the BP6/BP7 area" (Appendix C). The MMF identified the presence of 80 existing Métis Knowledge features in the general project area and shared a series of Métis concerns with transmission lines, including:

- Concerns about impacts to Métis rights, claims and interests
- Concerns about Métis Valued Components being considered in the process
- Concerns that contiguous Unoccupied Crown Land will not be maintained
- Potential for impact to Lands for Métis Use
- Potential changes to wildlife habitat and the ability harvest in the area
- Cumulative effects of development on the ability to harvest
- Numerous concerns related to transmission line project impacts including the following:
  - Aquatic harvesting and water quality
  - Chemical spraying
  - Human population increase causing pressures on harvesting
  - Impacts to animal health and habitat
  - Sensitive Habitat such as a swamp
  - Access to historic and culturally important harvesting areas and impacts on gathering berries
  - Economic impacts
  - Effects on commercial trapping
  - Wood harvesting impacts
  - Challenges presented by needing to change harvesting locations
  - Cultural impacts
  - Changes to the landscape and foreign objects
  - Aesthetic and visual concerns
  - Human health impacts and noise concerns
  - Safety
- Fears and psycho-social concerns
- Concerns with the administration of monitoring programs. (Appendix C)

5.3.5 Peguis First Nation

Meeting discussions from round one engagement included a request from Peguis First Nation to know who the contractors are at the onset of the Project and for contractors to know that Peguis First Nation is interested in employment on projects. Peguis First Nation also mentioned that they will be raising Treaty Land Entitlement (TLE) issues on future projects.

A representative from Peguis First Nation also participated in a round one virtual information session and shared concerns about salamanders and frogs and a wildlife refuge in the area. The representative also expressed concerns that homeowners would be affected and that use of park spaces, including picnics with children in foster care and for ceremonial purposes, would be affected.

5.3.6 Portage Urban Indigenous Peoples Coalition

Meeting discussions from round one engagement were primarily about heritage concerns. The PUIPC shared that Island Park is a sensitive area as there are many burials and heritage sites. The PUIPC expressed that the route segment that runs along the existing line (Segment 1) should have less impact since the land there is already disturbed. It was shared that burials were found at Wilkinson Crescent and Phoebe Street and that the PUIPC is working with the city of Portage la Prairie to acknowledge and commemorate the remains with a plaque. The PUIPC shared a preference for avoiding Island Park entirely because of the high potential for culture and heritage discoveries and cautioned Manitoba Hydro to be very careful not to desecrate any heritage sites. It was also noted that the Yellowquill Trail has the potential for heritage findings. The PUIPC shared segment-specific areas of concern.

5.4 Ongoing engagement

Following a decision regarding the Project, Manitoba Hydro will notify all Indigenous communities engaged on this Project and the PUIPC about the decisions and keep them informed about construction schedules and activities. Manitoba Hydro will also contact the Indigenous communities and the PUIPC about monitoring options for the project. Manitoba Hydro will remain open and responsive to any questions or concerns from communities. The telephone line and email address will remain operational throughout the regulatory review, construction and operation phases for the project.

This chapter was reviewed by Indigenous Community and Assessment Coordinators. Their feedback was considered and adjustments to the chapter were made in response.

6.0 Environmental assessment methods

The following is an overview of the methods that were used to conduct this environmental assessment. This report was completed to meet the requirements of The *(Manitoba) Environment Act* and the Environment Act Proposal Report Guidelines Information Bulletin (Manitoba Sustainable Development 2018). These methods have been developed through a review of regulations, current practice in environmental assessment and experience on assessments of similar projects.

Project-related environmental effects were assessed using a standard framework for each valued component, with standard tables and matrices to facilitate and document details of the assessment. Although Manitoba guidelines do not require cumulative effects assessments for Class 2 developments, a cumulative effect assessment has been included.

Residual project-related environmental effects (i.e., after mitigation has been applied) were characterized using specific criteria. These criteria are specific to each valued component and defined within each chapter. The significance of the project-related environmental effects was then determined based on predefined criteria or thresholds (also called significance criteria). If there was potential for residual effects of the project to interact cumulatively with the residual effects of other projects or physical activities, these cumulative environmental effects were assessed. The significance of cumulative effects has not been determined and instead is described in a manner relevant to each valued component in plain language.

The assessment progressed through the following steps (discussed in detail below):

- Scoping
  - Scoping the assessment
  - Scoping the project
- Selecting valued components
- Determining spatial and temporal boundaries
- Determining project interactions with the environment
- Determining pathways of effects
- Developing mitigation
- Characterizing residual effects
- Determining significance
- Assessing cumulative effects
- Developing follow-up and monitoring programs

6.1 Scope

This section describes the scope of the proposed project and the scope of the assessment. It serves to focus the assessment on important components of the project and the environment. Spatial and temporal boundaries for the project and assessment are also provided.

Scoping identifies the valued components that will be considered in the environmental assessment, the geographic areas and timescales over which potential effects will be studied, and the thresholds of change for determining if predicted project effects would be significant.

Scoping is an iterative process that is adjusted throughout the environmental assessment process as new information becomes available. This iterative process is particularly important during routing where the impacts of different route segments on valued components are considered.

6.1.1 Scope of the project

The scope of the proposed project includes the construction, operation, maintenance, and eventual decommissioning of the 115 kV transmission lines. The project's scope also includes acquisition of property and the salvage of existing towers on the unused portion of the damaged line.

The project scope includes the following (details for each are provided in chapter 2):

- Transmission line construction
    - Mobilization
    - Right-of-way clearing
    - Vehicle / equipment use
    - Marshalling yards, fly yards
    - Transmission tower construction
    - Foundation installation
    - Tower assembly and erection
    - Conductor stringing
    - Helicopter use
    - Implodes
    - Project wrap up and leaving the site
- Transmission line operations/maintenance
    - Transmission line presence
    - Inspection patrols
    - Maintenance
    - Vegetation management

- Decommissioning

6.1.2 Valued components

The first step in scoping the assessment is selecting valued components. Valued components are elements that have the potential to interact with the project and that meet one or more of the following criteria:

- represent a broad environmental, ecological or human environment component
- are considered important to Indigenous communities engaged on the project or a part of their current use of lands for traditional purposes
- are of scientific, historical, or archaeological importance
- have been identified as important issues or concerns by participants in the engagement process or by other effects assessments in the region

Several factors were considered while selecting valued components including reviewing valued components from previous assessments on transmission lines; considering input from Indigenous communities, landowners, interested parties and/or the public; and the professional judgment of the assessment team.

The final valued components selected are shown in Table 6-1.

Table 6-1: Valued components

Valued component	Rationale for inclusion
Fish and fish habitat	Generally, transmission line development has limited potential to affect aquatic habitat. This valued component is included to address the crossing of Crescent Lake and riparian habitat adjacent to the Assiniboine River. Aquatic resources could also be negatively affected by spills, accidents or herbicide application for vegetation control.
Vegetation	Within the study area, broad vegetation classes include deciduous forest, grassland, riparian and wetland habitats. These habitats can support many plant and animal species of concern to regulators and others.
Wildlife and wildlife habitat	Wildlife and wildlife habitat is a critical part of a functioning ecosystem and plays a vital role in ecological and environmental processes.
Economic opportunities	There is some potential for benefits to local business during project construction and additional benefits to the local economy during project operations.

Human health and safety	This valued component discusses potential for effects on human health and public safety. These areas are of concern to residents, Indigenous communities, regulators and other government departments.
Parks and recreation	Concerns were raised during engagement regarding potential effects on several recreational activities. The area has many recreational opportunities that could be affected by the project.
Property value, residential development and visual quality	Manitoba Hydro recognizes that effect on property value is a concern regarding transmission line development. This concern was raised during engagement activities for this project. Aesthetics was also mentioned as a concern in the area.
Agriculture	The area has several specialty agricultural practices (including irrigated lands and a specialty u-pick / farm gate store) that have the potential to be affected by the project.
Traditional practices, culture and heritage	It was recognized that there is potential for development of this Project to affect traditional land use by First Nations and Métis. This Project is near Long Plain First Nation and Dakota Tipi First Nation. The Manitoba Métis Federation (MMF) has also indicated that their members have land use and interests in the area. Heritage sites / objects are protected by legislation and must be considered in any development that has the potential to affect them. Project engagement highlighted substantial heritage concerns on Crescent Island

6.1.3 Spatial boundaries

The spatial boundaries for the environmental assessment consist of the project development area, local and regional assessment areas as described below:

Project development area: Footprint of the proposed project including the transmission line right-of-way, any additional areas such as fly yards or marshalling yards and access road allowances.

Local assessment area: Represents the area where direct and indirect or secondary effects of construction, operation and maintenance are likely to be most pronounced or identifiable. The local assessment area will be specific to each valued component.

Regional assessment area: Encompasses the area where project-specific environmental effects overlap with those of past, present, and reasonably foreseeable

future projects and activities. It is used to provide regional context and is generally the area used for assessing the project's contribution to cumulative effects.

The direct, indirect and cumulative environmental effects of the proposed project are considered within these assessment areas.

6.1.4 Temporal boundaries

The primary temporal boundaries for the assessment are based on the timing and duration of project activities. More detailed temporal boundaries could be established for specific environmental and/or socioeconomic components being assessed, and this is discussed in each assessment section. The two primary temporal boundaries are:

- Construction – estimated to be four months
- Operations and maintenance – for the life of the project, estimated to be a 75-year design life.

6.2 Assessment of project effects

6.2.1 Project-environment interactions

Assessing project effects on the environment begins with an understanding of which project activities interact with the valued components. Identifying these interactions allows the assessment to focus on the issues of greatest concern. A matrix was developed by listing the project activities and noting where they have the potential to interact with the valued components. The interactions were identified by the discipline specialists based on experience with similar projects and a review of previous transmission line environmental assessments. Table 6-2 is an interaction matrix for the project.

Table 6-2 Project-environment interactions

Project activity	Valued components								
	Fish and fish habitat	Vegetation	Wildlife and wildlife habitat	Economic opportunities	Human health and safety	Parks and recreation	Property value, planned development and visual quality	Agriculture	Traditional practices, culture and heritage
Construction									
Mobilization (staff presence)			X	X	X	X			X
Vehicle / equipment use	X		X		x		X	X	X
Right-of-way clearing	X	X	X			X	X	X	X
Marshalling / fly yards		X	X			X	X	X	X
Transmission tower construction			X				X	X	X
Implodes			X		X	X			
Helicopter use			X		X	X	X	X	X
Project wrap up and leaving the site					x	X			
Operation and maintenance									
Transmission line presence			X		X	X	X	X	X
Vehicle equipment use			x		x		X	X	X
Inspection patrols		X	X	X	x	X	X	X	X
Vegetation management	X	X	X		X	X	X		X
Decommissioning	X	X	X		X	X	X	x	X

6.2.2 Effects pathways

Once interactions likely to have effects are determined, the potential resulting effects for each valued component are identified. This is done based on available scientific information, the assessment team's professional judgement and understanding of the interactions, previous experience from similar types of projects and recent environmental assessments, and input from engagement with the First Nations, Métis, the public, regulators and technical experts.

The pathways where these effects may occur are identified, and one or more measurable parameter(s) are selected for the quantitative (where possible) or qualitative measurement of potential project and cumulative effects.

Examples of measurable parameters include the area of wildlife habitat that may be affected or the expected number of workers that will move into the area for project construction. The amount of change in these measurable parameters is used to help characterize the environmental effects and to assist in evaluating their significance.

6.2.3 Mitigation

Mitigation measures are developed to eliminate, reduce, or control potential adverse effects to manageable levels where they do not threaten the sustainability of a valued component and become significant.

The process of characterizing, quantifying and mitigating effects is typically an iterative process for most environmental components. Initial measures considered in the planning and design phase include avoiding a sensitive location or critical timing for a valued component, reducing the size or magnitude of the project activity and its associated effect, reducing its geographic extent, or reducing the frequency or duration that a project activity occurs (e.g., number of times a day, number of hours a day).

Where residual adverse effects still occur, measures are developed to try to address them through replacement, restoration or compensation measures, by allowing natural recovery, actively facilitating recovery, or constructing something to replace what is being lost.

As an initial step, the flexible nature of transmission line routing allows for the project team to route the line to reduce effects to people and the environment. Beyond routing, additional mitigative measures during the design, construction and operation of the project are applied depending on the nature of interactions with the valued components.

Manitoba Hydro also sought mitigation suggestions from the public through online surveys and virtual information sessions and through engagement with Indigenous community representatives. For example, the Dakota Tipi First Nation Coordinator suggested mitigation for the spiritual impacts to the land that includes a ceremony prior to initiating construction.

Some mitigation measures are broad measures that deal with a host of potential adverse effects for several valued components. For example, by conducting clearing activities in wetlands under frozen conditions, potential disturbance to underlying vegetation is reduced because the ground is frozen and potential disturbance to waterfowl is reduced because they are not present or are in non-critical life stages.

In some cases, additional valued component specific measures are also required to deal with valued component-specific issues not otherwise addressed. In some instances, the project provides an opportunity to create a net positive effect for the current state of a valued component.

Mitigation measures are addressed largely through implementation of the environmental protection program described in Chapter 9.0. General and specific mitigation measures are described in the construction environmental protection plan, which will be created after license receipt and cultural and heritage resources protection plan (CHRPP -Appendix H).

Specific mitigation measures for each biophysical and socioeconomic component are described in each of the assessment sections.

6.2.4 Characterizing residual effects

Residual effects are those that remain after the application of mitigation measures. The process is typically iterative and the goal in developing mitigation measures is to reduce residual adverse effects to “acceptable” levels where they do not threaten the sustainability of a valued component and become significant.

Guidance is provided through the various criteria listed in Table 6-3 using results of research, field studies, engagement and professional judgement, to predict potential significance.

The Canadian Environmental Assessment Agency (Canadian Environmental Assessment Agency 2018) has developed guidance on determining whether a project is likely to cause significant effects.

Guidance from the British Columbia Environmental Assessment Office (British Columbia Environmental Assessment Office 2020) was also used.

Characterization of residual effects were assessed with respect to the nature of the interaction. The direction, magnitude, geographic extent, duration, frequency and reversibility were determined.

Table 6-3 describes the factors used to characterize the interactions.

6.2.5 Determination of significance

Assessment practitioners included a determination of the significance of residual effects. In general, significant effects are those likely to be of enough magnitude, duration, frequency, geographic extent or irreversibility to cause a change in the valued component that will alter its status or integrity beyond an acceptable level.

Significance thresholds were selected by the valued component discipline specialists with consideration of provincial and federal regulatory requirements, standards, objectives, guidelines, and other relevant planning objectives applicable to each valued component.

Thresholds are developed in consideration of guidance, past practice, and the specific conditions of the receiving environment. There are few listed or legal standards or thresholds for defining significance of effects or activities for the valued components identified. In lieu of regulatory standards or thresholds, detailed definitions of the significance criteria for each environmental effect are provided in the valued component assessment chapters. A threshold approach for the determination of significant effects is supported by the Clean Environment Commission (Manitoba Clean Environment Commission 2013).

Table 6-3 Factors and criteria used to characterize interactions

Factor	Definition	Criteria	Evaluation
Direction	Describes the difference or the trend of the effect on the environment	Positive	Beneficial or desirable change
		Neutral	No expected change
		Adverse	Adverse or undesirable change
Magnitude	The predicted degree or intensity of disturbance of an effect	Small	No definable or measurable effect; or below established thresholds of acceptable change; or within the range of natural variability; or minimum impairment of an ecosystem component's function
		Moderate	Effects that could be measured and could be determined with a well-designed monitoring program; or are generally below established thresholds of acceptable change; or are marginally beyond the range of natural variability or marginally beyond minimal impairment of ecosystem component's function
		Large	Effects that are easily observable and described, and well beyond guidelines or established thresholds of acceptable change; are well beyond minimal impairment of an ecosystem component's functions.
Geographic extent	The spatial boundary where the residual environmental effect is expected to occur	Project footprint	Effects confined to the Project footprint including the right-of-way.
		Local	Direct and indirect effects that extend beyond the Project footprint but remain within the local study area defined for each valued component.
		Regional	Direct and indirect effects that extend into the regional assessment area described for each valued component.
Duration	The length of time that the predicted residual effect is expected to last	Short-term	Effects that generally are limited to the construction phase of the project (i.e., less than one year) or recovery cycle of a biological component
		Medium-term	Effects that extend throughout the construction and into the operation phases of the project or that occur within one or two generations of recovery cycles.
		Long-term	High level effects that extend greater than 50 years; or are permanent, or that extend for two or more generations or recovery cycles
Frequency	How often the effect will occur	Infrequent	Effect may occur once during the life of the project
		Sporadic/ Intermittent	Effect may occur without predictable pattern during the life of the project
		Regular/ Continuous	Effect may occur periodically or continuously during the life of the project
Reversibility	Likelihood and time required for the Project to no longer influence a component. For socio-economic components, the manageability of effects is considered rather than reversibility	Reversible	Effect is reversible during the life of the project
		Permanent	Effect is a long-term permanent effect

6.2.6 Follow up and monitoring

Manitoba Hydro uses an adaptive management approach in dealing with potential project effects. Best efforts are made to predict and characterize effects, but follow-up and monitoring may be carried out to verify the accuracy of the environmental assessment of a project, assess the effectiveness of measures taken to mitigate adverse effects through the continuous observation, measurement or assessment of environmental conditions at and surrounding the project and determine compliance with regulatory requirements.

Manitoba Hydro's environmental protection program (Chapter 9.0) provides the framework for implementation, management, monitoring and follow-up of environmental protection activities in keeping with environmental effects identified in the environmental assessment as well as in regulatory requirements. The program outlines how Manitoba Hydro is organized and functions to deliver timely, effective, and comprehensive solutions and mitigations to predicted environmental issues and effects. The program consists of the following:

- An implementation framework outlining how environmental protection is delivered and managed
- The construction environmental protection plan (CEnvPP)
- Contractor environmental management plans
- A culture and heritage resources protection plan (Appendix H)

Adaptive management will be a core approach in implementation of the EPP. Adaptive management is a planned process for responding to uncertainty or to an unanticipated or underestimated project effect. It applies information learned from monitoring actual project effects and compares them with predicted effects. If there is a variance between the actual and the predicted effects, a determination will be made as to whether modifications are required in existing mitigation measures or other actions are necessary to address the variance, or in cases where there may be no mitigating options available, the appropriate information is disseminated in a timely manner. Plans for reporting and disseminating information regarding follow-up and monitoring activities, including any public reporting, are included in the EPP.

6.3 Cumulative effects

Cumulative environmental effects are the environmental effects that are likely to result from a project in combination with the environmental effects of other past, existing and future projects or activities. It is generally a five-step environmental assessment process for cumulative environmental effects (CEAA 2018) that includes:

1) Scoping
2) Analysis of effects
3) Identification of mitigation
4) Evaluation of significance
5) Follow-up

Manitoba Hydro also considered current cumulative effects best practices and learnings from past assessments. The following sections describe how cumulative effects assessment was completed.

Cumulative effects assessment was conducted for each valued component if it was determined that there is an adverse residual effect from the project and one of the current or future projects listed in Table 6-5 may interact with the valued component (Table 6-5) and affect the environment cumulatively.

The cumulative effects assessment involves examining potential interactions among other projects and activities with the project's residual environmental effects.

Where there are potential interactions, the pathways are examined and interactions with the Projects' residual effects are characterized in combination with those of other reasonably foreseeable future projects. This environmental assessment uses plain language to describe potential cumulative effects.

This discussion occurs at the end of each valued component chapter with adverse residual effects.

This assessment also included a discussion on the common language understanding of cumulative effects in a concluding section. Participants in past environmental assessment processes, such as engaged stakeholders, interveners in past projects, and some Indigenous communities, have shared that cumulative effects discussions are too limited. Learning from this experience, this report includes a discussion on change to the Portage la Prairie landscape broadly over time and how that change has affected the way of life for people living in the area. Manitoba Hydro has worked with ICACs to characterize how future projects may further change the environment and what that may mean to their community.

6.3.1 Scoping

Scoping includes identifying valued components for which residual environmental effects are predicted, determining spatial and temporal boundaries to capture potential cumulative effects, and examining the relationship of the residual environmental effects of the designated project with those of other physical activities. Scoping helps determine which valued components should be carried forward to the

analysis step. All valued components with adverse residual effects are carried forward to the cumulative effects assessment.

6.3.1.1 Spatial and temporal boundaries

Spatial boundaries are generally greater and temporal boundaries are often longer for a cumulative effects assessment since the effects of other projects and activities may occur over a wider area and extend before and after the project boundaries.

The spatial boundaries identified for the cumulative effects assessment area will include the regional assessment areas described for each valued component.

The temporal boundary for the cumulative effects assessment was determined to extend over an approximate 75-year period, which is the normal life expectancy for a transmission line.

6.3.1.2 Existing projects / activities

Ongoing activities in the regional assessment area include agriculture, industry, residential development, traditional resource use and commercial or recreational resource use. Details are provided in Table 6-4. The location of each project is shown on Map 6-2.

6.3.1.3 Future projects / activities

Foreseeable future projects (CEAA 2018) are those that are:

- Certain
  - the physical activity has received approval in whole or in part, such as:
  - environmental assessment approval
  - pre-development approval for early works, permits for exploration, or collection of baseline data or
  - some other regulatory approval from a province
  - The physical activity is under construction
  - The site preparation is being undertaken
- Reasonably Foreseeable
  - The intent to proceed is officially announced by a proponent
  - The physical activity is under regulatory review (i.e., the application is in process)
  - The submission for regulatory review is imminent
  - The physical activity is identified in a publicly available development plan that is approved or for which approval is anticipated

- The physical activity supports – or is consistent with – the long-term economic or financial assumptions and engineering assumptions made for the project's planning purposes
- A physical activity is required for the project to proceed (e.g., rail or port transportation facilities, or a transmission line)
- The economic feasibility of the project is contingent upon the future development
- The completion of the project would facilitate or enable the future development

Certain and reasonably foreseeable future projects or activities are described in Table 6-4.

Table 6-4: Project and activity inclusion list

Project / Activity	Description of project /activity	Potential effects
Ongoing projects and activities		
Agriculture	Agricultural activities, such as cropping, livestock operations and aerial spraying continue throughout the regional assessment area.	Potential effects include noise, dust and GHG emissions, hazardous materials release and spills.
Domestic Resource Use Activities	Hunting, fishing, trapping and other domestic resource use activities continue throughout the regional assessment area.	Potential effects include some pressure on local wildlife populations
Recreational Activities	Recreational activities (e.g. various sports and leisure activities) continue throughout the regional assessment area.	None.
Future projects and activities		
Southeast development Phase I project	A 147 lot residential development on a 45 acre parcel. The development will include a 9.2-acre public reserve area equipped with man-made retention ponds.	Noise and GHG emissions during construction. Loss of ~45 acres of farmland. An increase in wildlife habitat would be expected from the planned retention ponds. Alteration to the current aesthetics, may be positive.
Pea processing facility alteration	The removal of a wastewater emergency lagoon and truck wash bay; the addition of silos for starch and pea protein storage; the addition of a retention basin for site rainwater; and the removal of proposed septic tanks. Construction complete in August 2020.	The main effects of the pea plant are emissions (particulates and GHG) and noise due to ventilation, equipment used at the project site and truck noise.
Portage la Prairie water pollution control facility expansion	The City of Portage la Prairie is planning the upgrade and alteration of the existing water pollution control facility including construction and operation of a nutrient reduction system, to meet new effluent limits. The proposed upgrades and alterations will require building expansions and additional treatment infrastructure. Construction was to be complete in January 2021.	The main effects are GHG emissions and noise during construction (complete) odor and effluent to the Assiniboine River during operation.
Saskatchewan Avenue upgrades	Rebuilding of Saskatchewan Avenue West including the paved avenue, sidewalks, bike paths, green space, parking spaces and enhanced land drainage. Construction is not planned yet.	Noise and emissions during construction. Minimal change during operation would be expected.
Crescent Lake Causeway	Three-lane low level causeway with a culvert structure, including roundabouts at the north and south intersections, and an active transportation pathway. Construction is underway, construction to be complete in 2021.	Noise and GHG emissions during construction, some alteration to the shoreline of Crescent Lake. Some infilling of marginal fish habitat. Alteration to aesthetics, may be positive.
Organics Resource Management Facility	The proposed project consists of developing an organics resource management facility in a newly subdivided property in the RM of Portage la Prairie, previously used for agriculture. Work was completed summer 2020.	Foul odors (composting), risk of fire and explosions, potential for accidents during the transportation of compost; increased dust and particulates; clearing of vegetation; loss of wildlife habitat; contamination of soil and surface water; increased traffic and the associated public attitude.
Truck and travel center	Truck and travel center, with a convenience store, truckers lounge, fuel and diesel services, and truck and trailer parking. Located adjacent to the Days Inn. Construction to potentially start in 2021.	Noise and GHG emissions during construction, altered aesthetics and hazardous materials contamination.
Willow Bay housing development	The Manitoba Métis Federation (MMF) is building a new housing project in Portage la Prairie. The housing development will feature a triplex for families, as well as two duplexes for seniors. Construction to be complete in early 2021.	Noise and GHG emissions during construction. Minimal change during operation.
Portage Area Capacity Enhancement project	Manitoba Hydro is potentially building a new 230-66kV station in the Portage la Prairie area and a new 230kV line from the new station to Dorsey Station northwest of Winnipeg.	Full overlap of potential effects.

Table 6-5: Future projects / activities interaction matrix

Project / Activity	Valued components							
	Fish and fish habitat	Vegetation	Wildlife and wildlife habitat	Parks and recreation	Property value, residential development and visual quality	Agriculture	Traditional practices, culture and heritage	Human health and safety
Agriculture	X	X	X				X	X
Domestic Resource Use Activities			X				X	
Recreational Activities							X	
Southeast development Phase					X	X	X	X
Pea processing facility alteration							X	
Portage la Prairie water pollution control facility expansion	X						X	
Saskatchewan Avenue upgrades							X	X
Crescent Lake Causeway	X	X	X		X		X	X
Organics Resource Management Facility						X	X	
Truck and travel center					X		X	X
Portage area capacity enhancement project	X	X	X	X	X	X	X	X
Willow Bay housing development							X	

6.3.2 Analysis of effects

Valued components that have residual project effects, which may interact with potential effects of a current or future project are carried forward to the analysis step. This step considers how the physical activities examined during scoping may affect the valued components identified for further analysis. Analysis of cumulative effects follows that for project effects (e.g. magnitude, duration etc.).

6.3.3 Identification of mitigation

Identification of mitigation aims to identify technically and economically feasible measures that would mitigate adverse cumulative effects. Mitigation may include elimination, reduction or control or, where this is not possible, restitution measures such as replacement, restoration or compensation should be considered.

One of the challenges in developing mitigation measures for adverse cumulative environmental effects is that it is typically not feasible (or appropriate) for one proponent to manage effects in an area created by several proponents; however, Manitoba Hydro is tentatively planning further work in the Portage la Prairie area. Accordingly, Manitoba Hydro is proposing cumulative mitigation including supporting Indigenous engagement and monitoring over a region that includes these potential projects.

The primary responsibility of any given proponent is to deal with their own projects. The three types of mitigation measures that can be implemented are those:

- Implemented solely by the project proponent
- Implemented by the project proponent in cooperation with other project proponents, government, First Nation, Métis or interested parties
- Implemented independently by other project proponents, government, First Nation, Métis or interested parties

For the latter two, the degree to which the proponent can influence the implementation of these measures is noted, where known.

6.3.4 Evaluation of significance

Significance evaluations have not been completed for cumulative effects assessments and instead the effects of future projects that combine with residual effects of the project are characterized in plain language. Each valued component chapter includes a discussion on the potential incremental future cumulative effects and identifies additional measures that could mitigate cumulative effects.

6.4 Greenhouse gases and climate change

The *Environment Act* proposal report guidelines (Manitoba Sustainable Development 2018) require discussion of climate change implications including a greenhouse gas inventory calculated according to guidelines developed by Environment Canada (Environment Canada 2021) and the United Nations (IPCC 2019). Section 8.11 provides details on climate change and the greenhouse gas inventory for the project.

6.5 Effects of the environment on the project

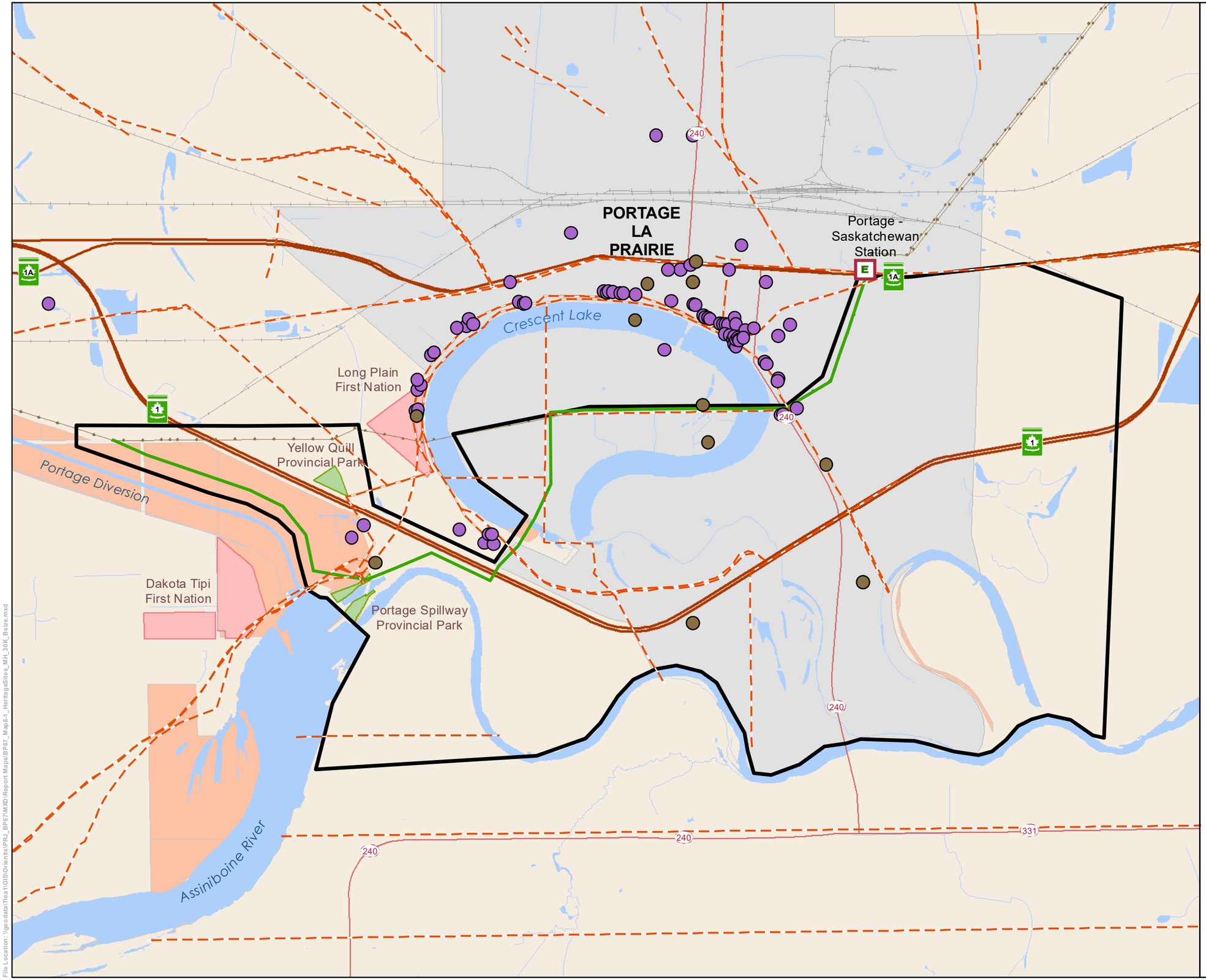
The assessment includes an evaluation of environmental effects that may occur as a result of the environment acting on the project. Potential environmental changes and hazards may include wind, severe precipitation, ice storms, flooding, grass and forest fire, or tornado. The influence that these environmental changes and hazards may have on the project will be predicted and described as well as the measures taken to avoid potential adverse effects. The effects of the environment on the project are presented in Section 8.12.

6.6 Accidents and malfunctions

The assessment considered the effects of accidents and malfunctions that might occur in connection with the project. It includes a range of potential accidents and malfunctions from the construction and operation of the project and evaluates their environmental effects. It provides an initial basis for the development of emergency response planning and what eventually will be incorporated into the emergency response plan.

For each event considered, a possible scenario relating how the event might occur during the life of the project was developed. Details on the types of accidents and malfunctions considered in this environmental assessment and the scenarios developed for this assessment, are discussed in Section 8.13. Potential environmental effects on the valued component due to accidents, malfunctions and unplanned events are assessed in a similar fashion to project environmental effects.

Environmental effects are characterized using the same terms used for project environmental effects, and mitigation measures are prescribed. The significance of the environmental effect is then determined using the same thresholds used for routine project environmental effects.



Manitoba Hydro

BP6 / BP7 Transmission Lines Replacement Project

Project Infrastructure

- Portage - Saskatchewan Station
- BP6/7 Final Preferred Route

Route Planning Area

- Route Planning Area (area for rerouting BP6/BP7)

Heritage Sites

- Plaque
- Parish Building
- Municipal Heritage Site
- Cart Trail

Existing Infrastructure

- Transmission Line

Landbase

- TransCanada Highway
- Provincial Road
- Railway
- First Nation
- Crown Land
- Provincial Park
- City/Town

Entire map area falls within Metis Natural Resource Harvesting Zone

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: April 13, 2021

N

0 0.5 1 Kilometre
0 0.25 0.5 Mile

1:30,000

Heritage Sites

Map 6-1

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Manitoba Hydro

BP6 / BP7 Transmission Lines Replacement Project

Project Infrastructure

- Portage - Saskatchewan Station
- BP6/7 Final Preferred Route

Projects in the Cumulative Effects Assessment

- Linear Project in Cumulative Effects Assessment
- Project in Cumulative Effects Assessment

Existing Infrastructure

- Transmission Line

Landbase

- TransCanada Highway
- Provincial Road
- Railway
- First Nation
- Crown Land
- Provincial Park
- City/Town

Entire map area falls within Metis Natural Resource Harvesting Zone

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: April 13, 2021

N

0 1 2 Kilometre
0 0.5 1 Mile

1:50,000

Locations of Projects Included in the Cumulative Effects Assessment

Map 6-2

PORTAGE LA PRAIRIE
Willow Bay Housing Development
Saskatchewan Avenue West Improvement Area
Portage - Saskatchewan Station
Crescent Lake
Crescent Lake Causeway
Southeast Development Phase I
Long Plain First Nation
Organics Resource Management Facility
Pea Processing Facility
Portage Diversion
Dakota Tipi First Nation
Truck and Travel Center
Water Pollution Control Upgrade
Assiniboine River
240
26
1
1A
331

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7.0 Existing environment

This chapter provides an overview of the existing environment in the regional assessment area.

The existing conditions were established based on data collected during desktop analysis, field programs, Indigenous and public engagement. Desktop analysis included literature reviews and personal communications.

This chapter provides an overview of the following:

- Atmospheric environment (climate, noise and air quality)
- Geology and hydrogeology
- Terrain and soils
- Aquatic environment
- Vegetation
- Wildlife and wildlife habitat
- Population, employment and economy
- Public safety and emergency services
- Parks and recreation
- Regional infrastructure
- Property ownership
- Commercial and residential development
- Agriculture
- Traditional practices and culture
- Heritage sites / objects

7.1 Ecological classification

The project is in the Prairies Ecozone, Lake Manitoba Plains Ecoregion and the Portage Ecodistrict. The following ecological classification descriptions have been obtained from Smith et al. (Smith, et al. 1998).

7.1.1 Prairies ecozone

The prairies ecozone is part of the interior plains of Canada, which are a northern extension of the great plains of North America. The relief is typically subdued, consisting of low-lying valleys and plains sloping eastward. With its base along the Canada-United States border, the ecozone stretches from the Rocky Mountains in Alberta to the Red River valley in Manitoba, reaching across the southern third of the prairie provinces.

The prairies ecozone, spanning an area of 520,000 km^2, is one of the Canadian regions most altered by human activity. Farmland dominates the ecozone, covering nearly 94% of the land base.

Agriculture influences most native communities of plants and animals. Loss of habitat is the most critical threat to the flora and fauna. The prairies ecozone is home to high numbers of threatened and endangered wildlife species and its native ecosystems are among the most endangered natural habitats in Canada.

7.1.1.1 Lake Manitoba plain ecoregion

The Lake Manitoba plain ecoregion stretches northwestward from the international boundary with the United States to Dauphin Lake. It is one of the warmest and most humid regions in the Canadian prairies. The mean annual temperature ranges from 2°C in the north to over 3°C along the Canada-United States border. The mean summer temperature is 16°C and the mean winter temperature is -12.5°C. The mean annual precipitation ranges 450-700 mm.

The ecoregion is transitional between areas of boreal forest to the north and the aspen parkland of the southwest. It is a mosaic of trembling aspen/oak groves and rough fescue grasslands. Trembling aspen and shrubs occur on moist sites, and bur oak and grass species occupy increasingly drier sites on loamy to clayey, Black Chernozemic soils. Poorly drained, Gleysolic soils support willow and sedge communities.

This low-relief ecoregion, underlain by limestone bedrock, is covered by extremely calcareous, broadly ridged glacial till in its northern half and by smooth, level, lacustrine sands, silts, and clays in its southern half.

7.2 Atmospheric environment

7.2.1 Climate

The climate of the Portage Ecodistrict is characterized by short, warm summers and long cold winters.

Seasonal temperature data was obtained from the Brandon meteorological station (Environment Canada 2021) and precipitation data was obtained from the Portage la Prairie meteorological station (Environment Canada 2021). Table 7-1 shows the monthly normal data.

Table 7-1: Monthly normal meteorological data

Month	Daily Average Temperature (°C)	Precipitation (cm snow / mm rain)
Jan.	-16.6	21.3
Feb.	-13.6	16.2
Mar.	-6.2	25.7
Apr.	4	28.3
May	10.6	58.4
Jun.	15.9	90
Jul.	18.5	78
Aug.	17.7	68.3
Sep.	11.8	50.1
Oct.	4.1	43.2
Nov.	-5.6	25.8
Dec.	-14	26.8

The area receives 532 mm of precipitation per year, with 415.6 mm as rainfall and 118.5 cm as snow. The annual daily average temperature at the Brandon meteorological station was 2.2°C, ranging from -17°C in January to 19°C in July. Extreme temperatures range from -45.6°C (on January 7 1966) to 38.5°C (on August 6 1988). Extreme precipitation ranges from 29.0 cm of snow (on October 30, 1971) to 137.0 mm of rainfall (on August 16, 1985).

7.3 Noise and air quality

The project is in an area predominantly used for agricultural purposes and existing noise and air quality conditions are not an issue for most of the year. The exception may occur during harvest, which would increase local noise, emissions and particulate matter and reduced visibility from local crop residue burning programs.

7.3.1 Electric and magnetic fields

Electric and magnetic fields are produced by both natural and anthropogenic sources. Natural sources of EMF include the Earth's magnetic field, visible light and lightning. Anthropogenic sources include magnets, electrical appliances (e.g., stoves, refrigerators, microwaves), electronic devices (e.g., cellular phones, computers), vehicles, power lines and high-voltage transmission lines.

In a typical home, away from appliances, background levels of magnetic fields range from 1 to 2 mG, whereas background levels of electric fields range from 0.01 to 0.02 kV/m (Exponent 2015b). However, in proximity to appliances, magnetic fields can be hundreds of times higher and electric fields tens of times higher. The ubiquitous nature of EMF and variability in average background exposure levels make it difficult to quantify EMF levels (Exponent 2015b).

The typical background levels are below International Committee on Non-Ionizing Radiation Protection and International Commission on Electromagnetic Safety reference levels and so short-term effects such as perception, annoyance, and the stimulation of nerves and muscles would not be present.

7.4 Geology and hydrogeology

The project falls within the Manitoba lowland physiographic region, which lies to the east of the Manitoba escarpment (Betcher and Pupp 1995). The area has gentle relief and is underlain by gently southwestward dipping Paleozoic and Mesozoic sediments consisting mainly of carbonate rocks with some clastic and argillaceous units (Betcher and Pupp 1995). Bedrock is overlain by glacial tills and proglacial lacustrine sediments" and the overburden is generally less than 10 m thick, increasing with proximity to the escarpment.

Groundwater aquifers in the bedrock of the regional assessment area are typically not a significant water source as they are generally very saline, with total dissolved solids concentrations ranging between 5,000 mg/L and 100,000 mg/L ((Smith, et al. 1998), (Rutulis 1986a)). The principal source of water is good quality groundwater extracted from shallow, sandy, surface deposits and gravelly aquifers associated with till (Smith, et al. 1998). These shallow groundwater aquifers occurring in some sand and gravel lenses in the Project area have depths ranging from a few meters to more than 100 m. They typically produce well yields between 0.1 L/s and 10 L/s, with groundwater quality ranging from very poor to excellent (Rutulis 1986b).

7.5 Terrain and soils

Soils and terrain information was developed for the RM of Portage la Prairie by Agriculture and Agri-Food Canada (Manitoba Land Resource Unit 1997), and for the Portage Ecodistrict by Smith et al. (Smith, et al. 1998).

The Portage Ecodistrict is a level to very gently sloping alluvial and glaciolacustrine plain (Smith, et al. 1998). Slopes range from level to less than 2 percent and are smooth and long (exceeding more than 150 m). Local relief falls approximately 0.3 m

per km in a northerly direction. Some change of relief, approximately 3 to 10 m, occurs along the meandering Assiniboine River near its southern boundary. Lower micro-relief, 0.5 to 1.0 m is encountered along former Assiniboine River oxbows and blind channels that formed when the river flowed directly into Lake Manitoba.

Most the soils in the Portage Ecodistrict are predominantly well to imperfectly drained Rego Black Chernozems that have developed on shallow, strongly calcareous, loamy to clayey alluvial and glaciolacustrine sediments (Smith, et al. 1998). Significant areas of moderately well to imperfectly drained Regosols occur on the more recently deposited alluvial sediments near the Assiniboine River. In the northern sector, local areas of Gleysolic soils border Delta Marsh.

7.6 Aquatic environment

The proposed transmission line does not cross but runs parallel to the Assiniboine River. The riparian area along this section of the Assiniboine River is primarily cottonwood forest.

The Assiniboine River is characterized as Class A Habitat, complex habitat with indicator species (Milani 2013).

There are 57 fish species representing 16 families documented for the Assiniboine River Watershed (Stewart and Wilkinson 2004). Milani (Milani 2013) sampled three sites in the area, including the Assiniboine River and two tributaries, Edwin and Overhill Drains, and found white sucker (*Catostomus commersonii*), brook stickleback (*Culaea inconstans*), central mudminnow (*Umbra limi*), and fathead minnow (*Pimephales promelas*).

Crescent Lake is an oxbow lake off the Assiniboine River within the city limits of Portage la Prairie. A request was sent to the provincial fisheries branch (Janusz 2020) to determine if Crescent Lake contained fish. According to the provincial fisheries inventory habitat classification system (FIHCS) database, the lake has contained up to 11 species of fish: brook stickleback, *Culaea inconstans*, fathead minnow, *Pimephales promelas*, northern pike, *Esox lucius*, white sucker, *Catostomus commersoni* and yellow perch, *Perca flavescens* are common. Carp, *Cyprinus carpio*, goldfish (accidental / illegal release), *Carassius auratus*, quillback, *Carpiodes cyprinus*, rainbow trout (stocked), *Salmo gairneri*, and walleye, *Stizostedion vitreum* are listed as unknown. Likely they have been present in the past but are not common in the lake. According to FIHCS, the probability of a winterkill is 90% each year.

7.6.1 Species at risk

Fisheries and Oceans Canada, species at risk map (Fisheries and Oceans Canada 2021), was used to determine what species at risk may be present in the local assessment area. The search determined that the bigmouth buffalo (*Ictiobus cyprinellus*) and mapleaf (*Quadrula quadrula*) may occur in the area. A request was also sent to the Manitoba conservation data center. In addition to the above, the chestnut lamprey was also listed. Details on each species are presented below.

7.6.1.1 Bigmouth buffalo

The Bigmouth Buffalo (*Ictiobus cyprinellus*) is listed as special concern on Schedule 3 of the *Species at Risk Act*.

It is a large, deep-bodied fish of the sucker family Catostomidae (Fisheries and Oceans Canada 2019). The Saskatchewan – Nelson River populations of Bigmouth Buffalo was listed as a species of special concern under the federal Species at Risk Act (SARA) in 2011. In Canada, this designated unit is found in three disjunct areas: the Lake of the Woods, Ontario; the Lower Assiniboine, Red, La Salle and Seine rivers, Delta Marsh, southern Lake Manitoba, and southern Lake Winnipeg, Manitoba; and the Qu'Appelle River system, Saskatchewan (COSEWIC 2009).

Fisheries and Oceans Canada considers Bigmouth Buffalo populations in Manitoba secure (Fisheries and Oceans Canada 2019). The long-term management objective is to maintain bigmouth buffalo (Saskatchewan – Nelson River populations) population levels and distribution, and protect habitat within watersheds in which the species is found (Fisheries and Oceans Canada 2019).

The major threats include loss of and access to spawning and rearing habitat, and habitat fragmentation (Fisheries and Oceans Canada 2019), (COSEWIC 2009).

7.6.1.2 Mapleleaf

The mapleleaf (*Quadrula quadrula*) is listed as threatened on Schedule 1 of the Species at Risk Act.

It is a freshwater mussel that occurs in a variety of habitats ranging from medium to large rivers with slow to moderate current, to lakes and reservoirs in mud, sand, or gravel bottoms (COSEWIC 2016). In Manitoba, the species is found in the Red River and some tributaries, the Assiniboine River, and Lake Winnipeg and some tributaries (COSEWIC 2016).

Like almost all North American freshwater mussels, this species is threatened by habitat loss and degradation (e.g. modifications to the banks of the Red and

Assiniboine rivers (e.g., rip-rap and dikes) that alter the flow hydrology) and the effects of invasive species, such as zebra mussels in Manitoba (COSEWIC 2016).

7.6.1.3 Chestnut lamprey

The chestnut lamprey, *Ichthyomyzon castenaeus*, is listed as special concern on Schedule 3 of the Species at Risk Act.

It is a parasitic species found throughout the Saskatchewan-Nelson River system, including a well-documented presence in the Assiniboine River spanning over 100 years (COSEWIC 2010).

Potential threats include destruction of spawning habitat through soil erosion and siltation; eutrophication through runoff of fertilizers; pesticide and herbicide pollution ((Lanteigne 1991) *in* (COSEWIC 2010)); and dams, locks, and stream crossings that inhibit its spawning migration (Government of Manitoba 2002).

7.7 Vegetation

Field and desktop data were analyzed to characterize the existing biophysical information and vegetation in the regional assessment area. Sources included (Smith, et al. 1998) and a technical field report (Appendix D). Information on vegetation species important to Indigenous peoples was received through the Indigenous Engagement Process (Chapter 5). Public engagement documents were also reviewed (Chapter 4).

Map 7-1 shows the land cover in the regional assessment area and Table 7-2 displays the various broad land cover types (Manitoba Conservation 2006) and percent of the total area in both the regional assessment area and in an area one kilometer either side of the right-of-way, established as the local assessment area. Figure 7-1 shows a typical area with more natural vegetation.