

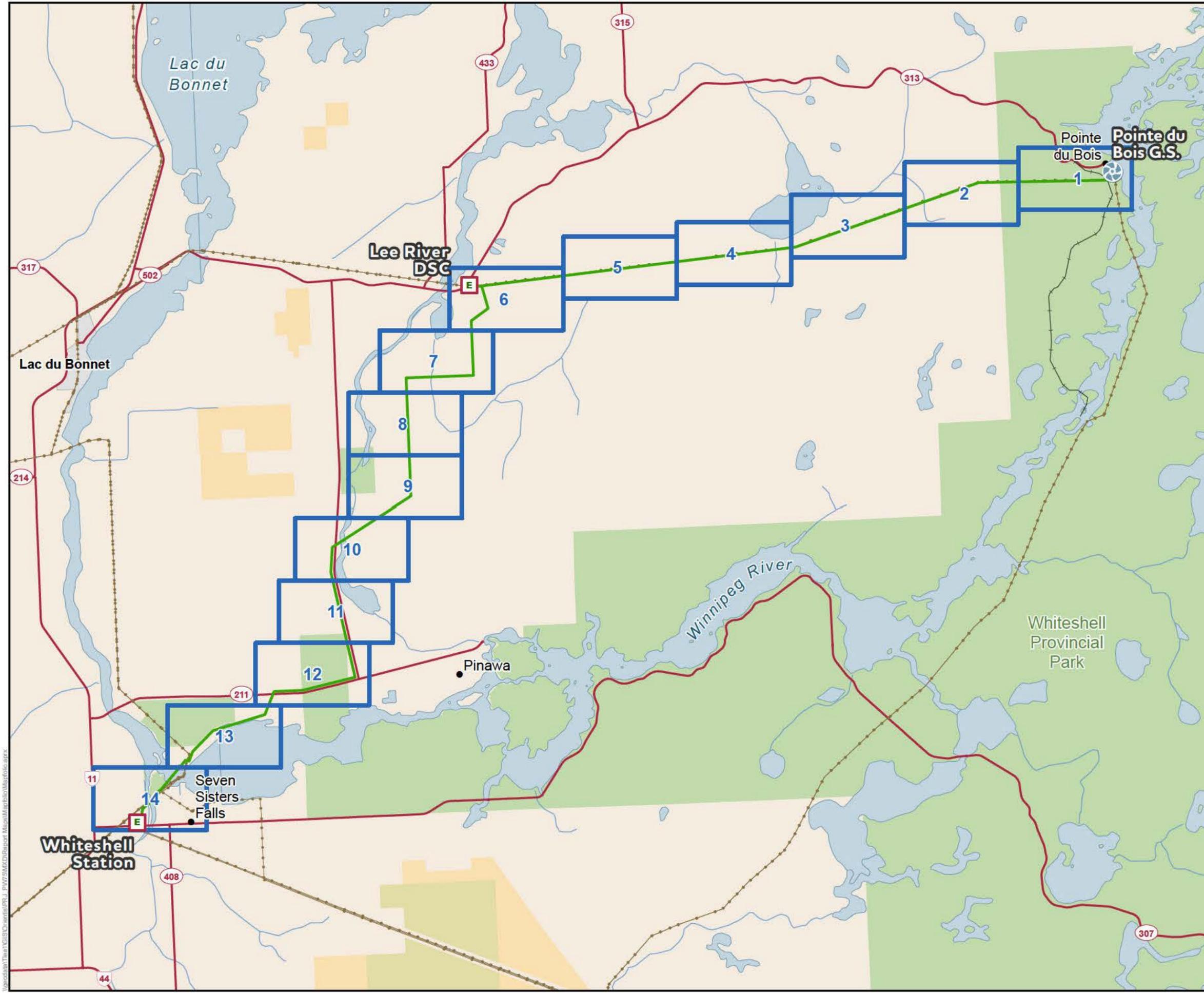
Pointe du Bois (PW75) Transmission Project

Project Infrastructure
 Final Preferred Route

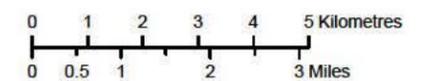
Map Tile Index - 1:10,000
 Map Series Tile

Existing Infrastructure
 Electrical Station
 Generating Station
 Existing Transmission Line

Landbase
 Community
 Railway
 Provincial Highway
 Provincial Road
 First Nation Lands
 Ecological Reserve
 Provincial Park
 Wildlife Management Area



Coordinate System: UTM Zone 14N NAD83
 Data Source: MBHydro, ProvMB, NRCAN
 Date Created: July 04, 2023

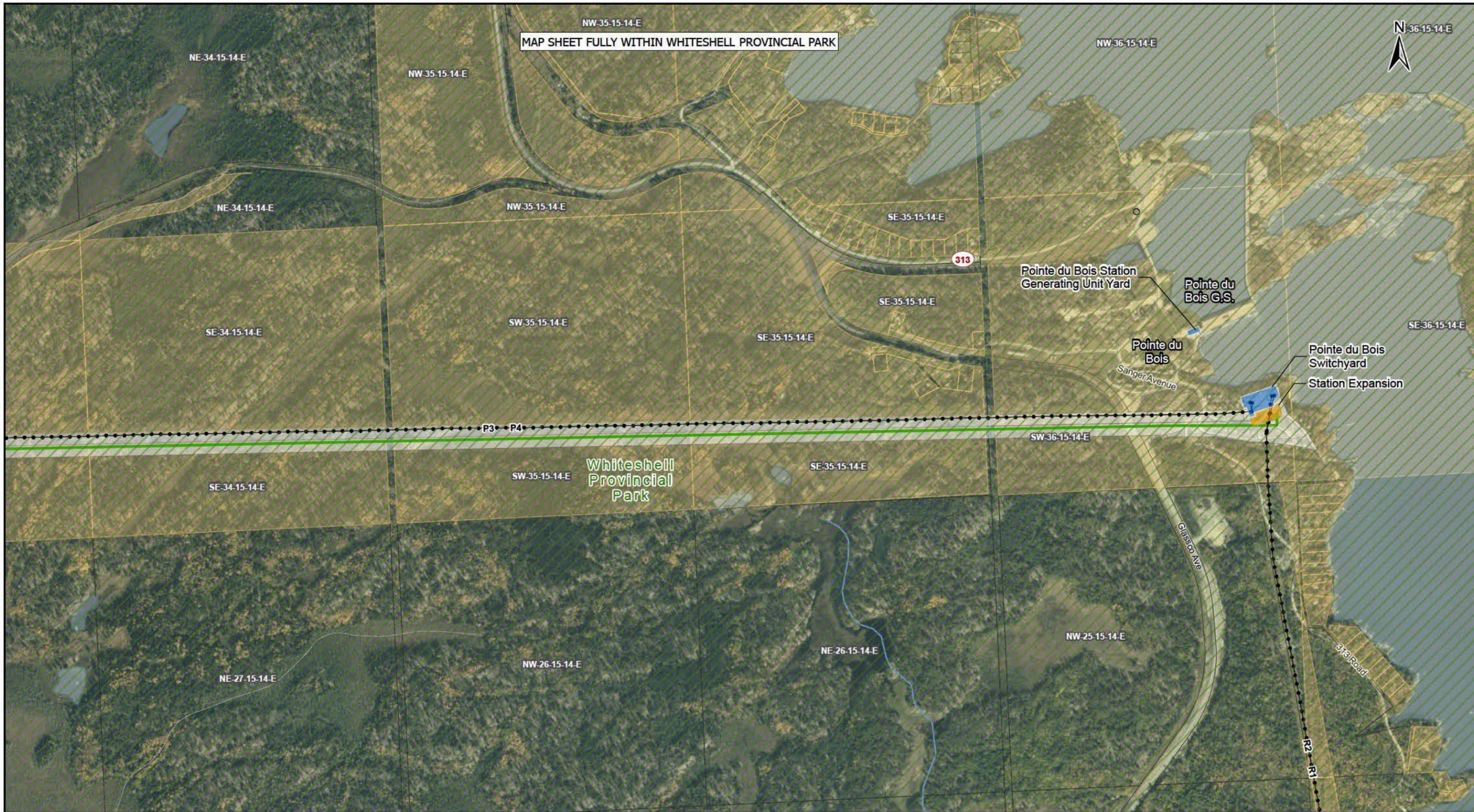


1:130,000

Index of Map Series Final Preferred Route

Map Series 1-100

DOCUMENT PATH: \\GEO\DATA\LEA\11\GIS\ORIENT\ISIPRJ_PW75\MXD\REPORT_MAPS\MAPFOLIO\MAPFOLIO_APRX



MAP SHEET FULLY WITHIN WHITESHELL PROVINCIAL PARK



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023

1:10,000

Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- - - Railway (Discontinued)

Land Base

- ▭ Parcel Fabric
- ▭ Rural Municipality
- ▭ Provincial Park
- ▭ Crown Land

Project Infrastructure

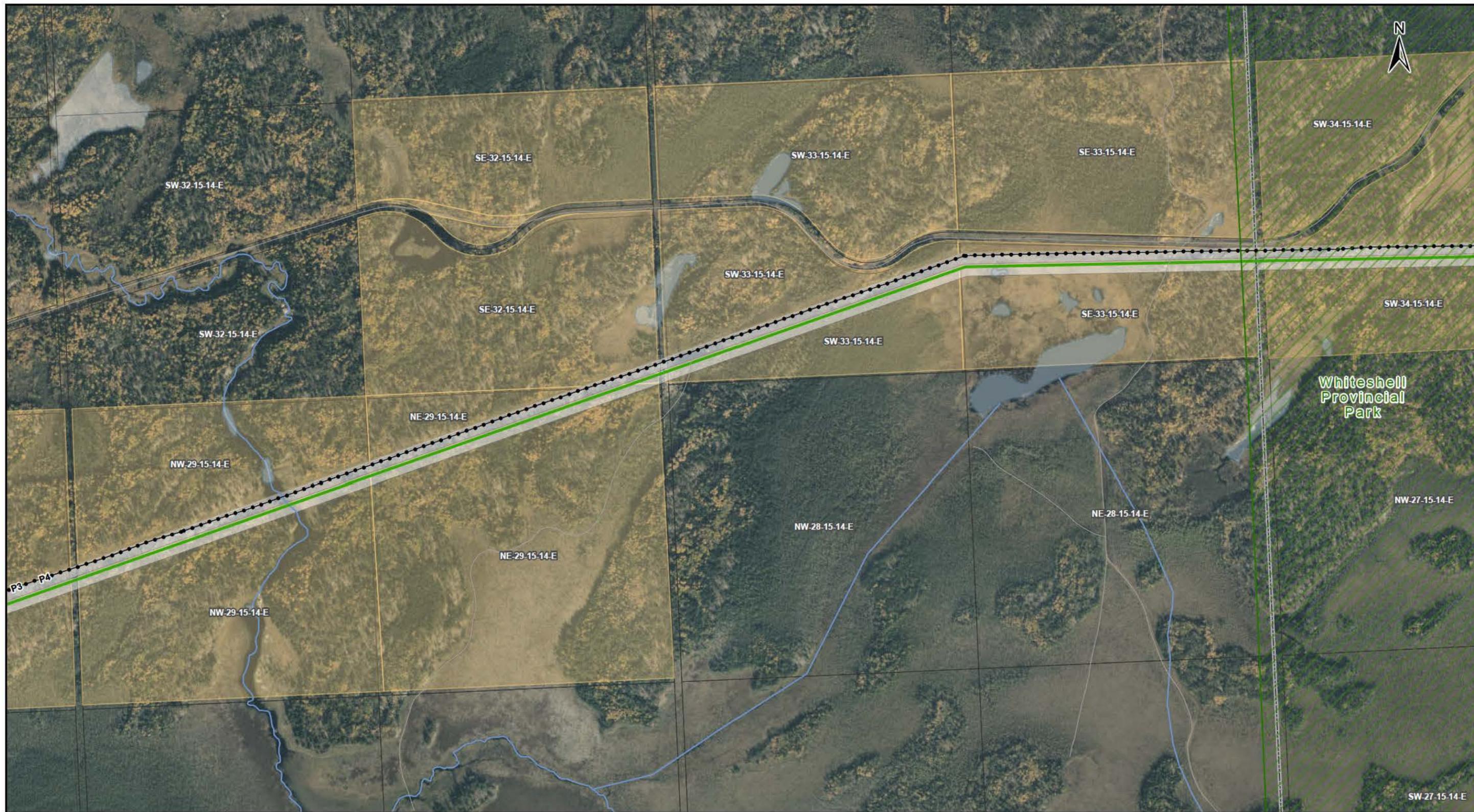
- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

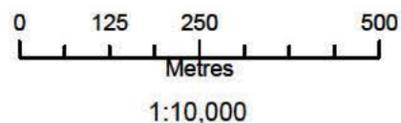
Pointe du Bois (PW75) Transmission Project

Final Preferred Route

DOCUMENT PATH: \\GEO\DATA\LEA\11\GIS\ORIENT\ISIPRJ_PW75\MXD\REPORT_MAPS\MAPFOLIO\MAPPFOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023



Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- - Railway (Discontinued)

Land Base

- Parcel Fabric
- Rural Municipality
- Provincial Park
- Crown Land

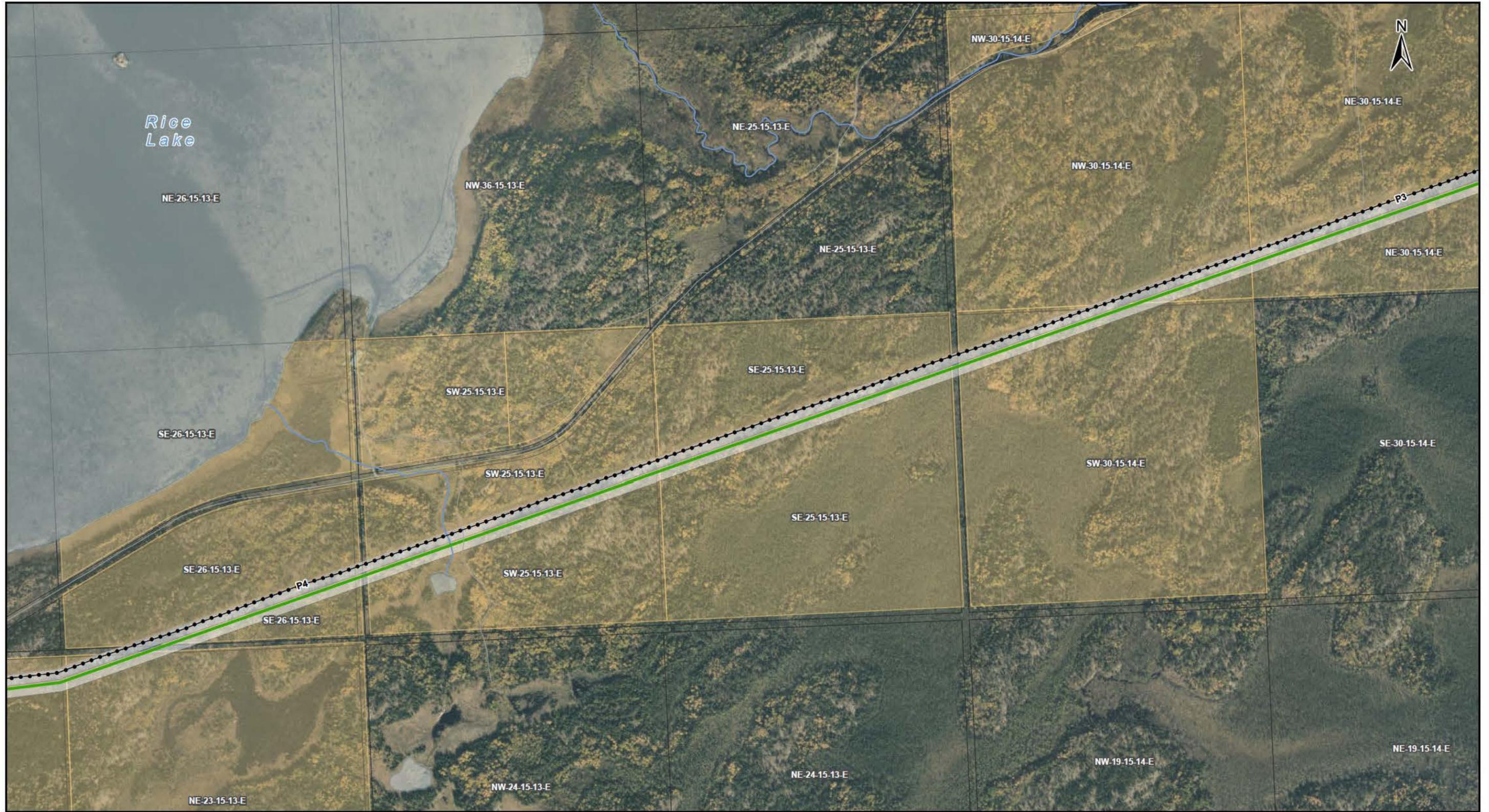
Project Infrastructure

- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

**Pointe du Bois (PW75)
 Transmission Project
 Final Preferred Route**

DOCUMENT PATH: \\GEO\DATA\1EA11G\IS\ORIENT\IS\PRJ_PW75\MXD\REPORT_MAPS\MAPFOLIO\MAPPOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023

0 125 250 500
 Metres
 1:10,000

Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- - Railway (Discontinued)

Land Base

- Parcel Fabric
- Rural Municipality
- Provincial Park
- Crown Land

Project Infrastructure

- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

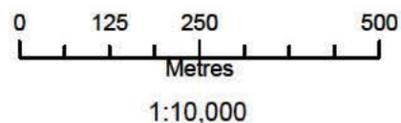
The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

Pointe du Bois (PW75) Transmission Project Final Preferred Route

DOCUMENT PATH: \\GEO\DATA\1EA11G\IS\ORIENT\IS\PRJ_PW75\MXD\REPORT_MAPS\MAPFOLIO\MAPPOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023



Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- + Railway (Operational)
- -+ Railway (Discontinued)

Land Base

- ▭ Parcel Fabric
- ▭ Rural Municipality
- ▭ Provincial Park
- ▭ Crown Land

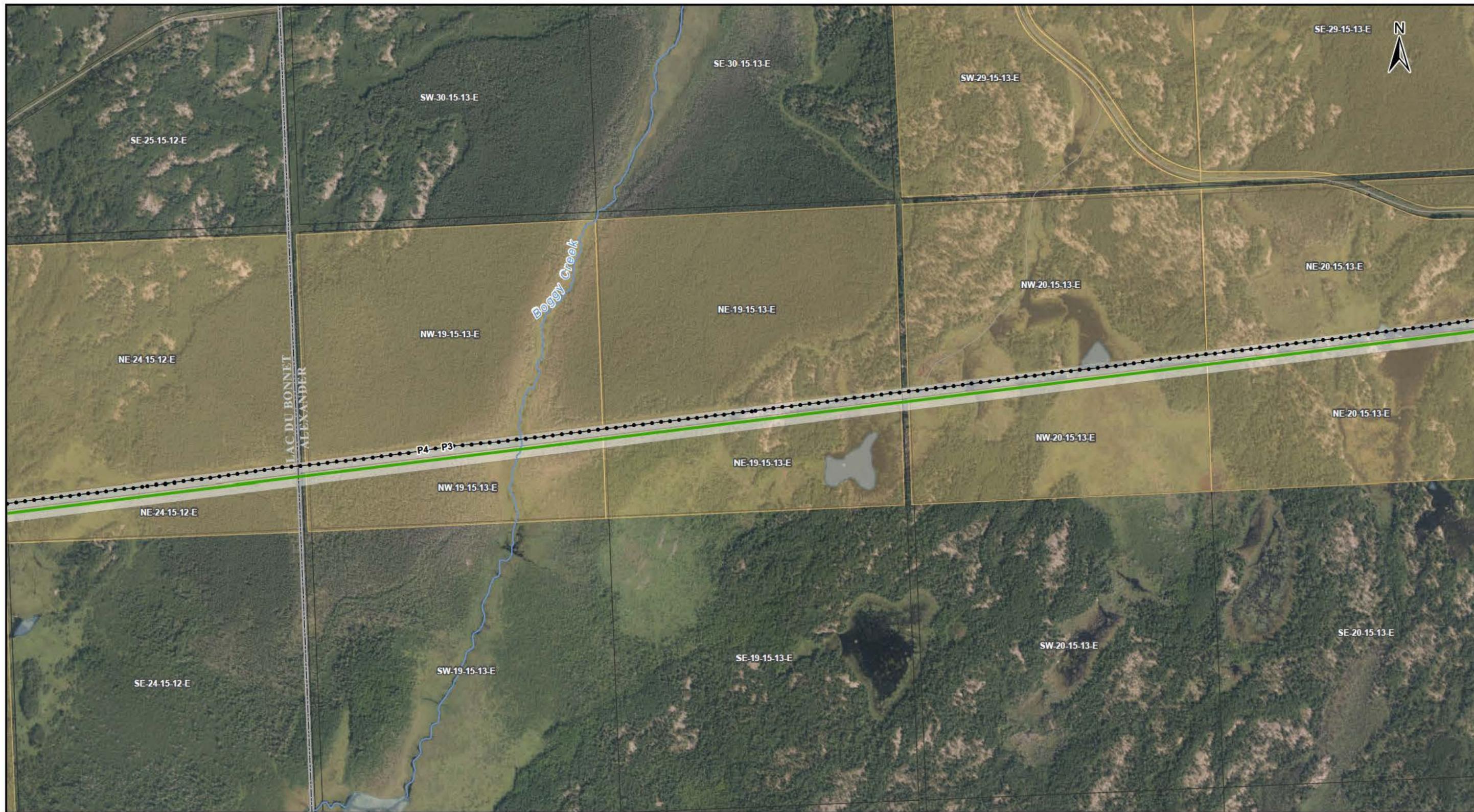
Project Infrastructure

- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

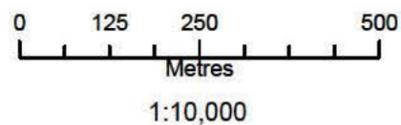
The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

**Pointe du Bois (PW75)
 Transmission Project
 Final Preferred Route**

DOCUMENT PATH: \\GEO\DATA\1EA411G\IS\ORIENT\IS\PRJ_PW75\MXD\REPORT_MAPS\MAPP\10\MAPP\FOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023



Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- - Railway (Discontinued)

Land Base

- Parcel Fabric
- Rural Municipality
- Provincial Park
- Crown Land

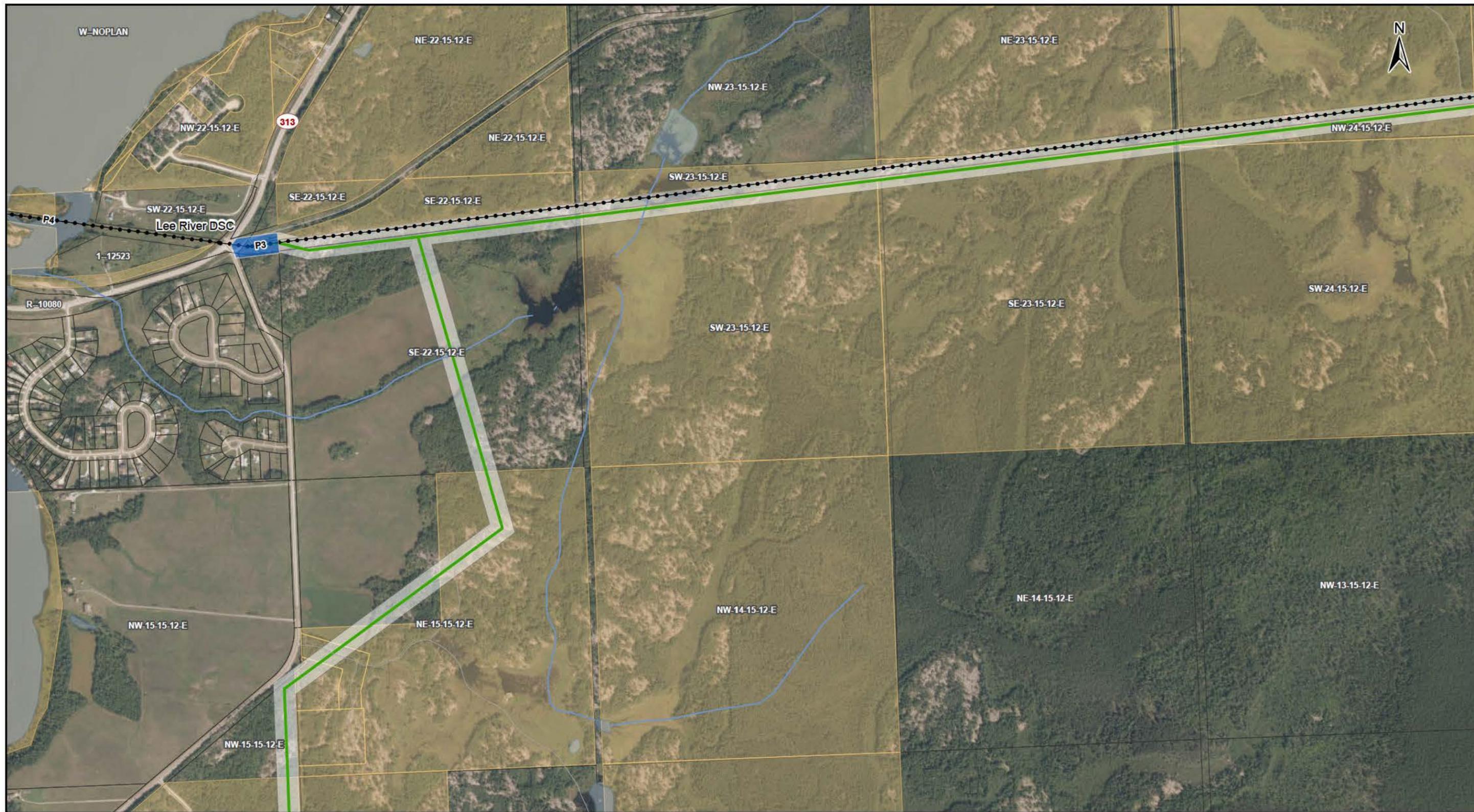
Project Infrastructure

- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

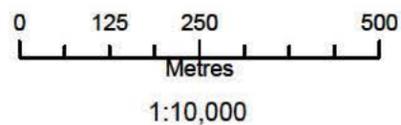
The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

**Pointe du Bois (PW75)
 Transmission Project
 Final Preferred Route**

DOCUMENT PATH: \\GEO\DATA\1EA11G\IS\ORIENT\IS\PRJ_PW75\MXD\REPORT_MAPS\MAPFOLIO\MAPPOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023



Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- + Railway (Discontinued)

Land Base

- Parcel Fabric
- Rural Municipality
- Provincial Park
- Crown Land

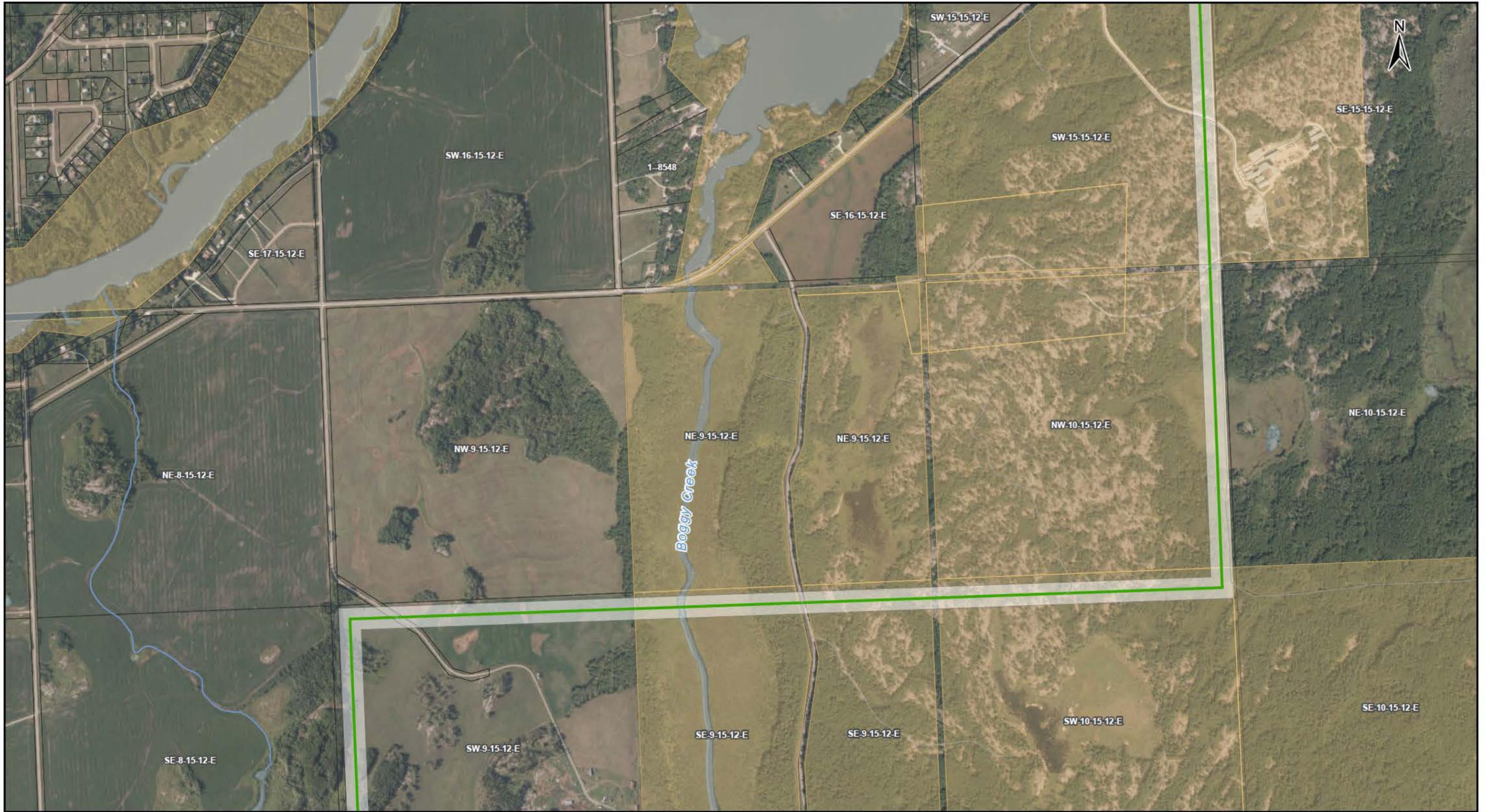
Project Infrastructure

- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

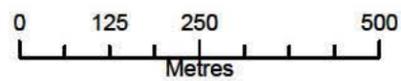
The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

**Pointe du Bois (PW75)
 Transmission Project
 Final Preferred Route**

DOCUMENT PATH: \\GEO\DATA\LEA\11\GIS\ORIENT\ISIPRJ_PW75\MXD\REPORT_MAPS\MAPFOLIO\MAPPOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023



1:10,000

Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- + Railway (Discontinued)

Land Base

- ▭ Parcel Fabric
- ▭ Rural Municipality
- ▭ Provincial Park
- ▭ Crown Land

Project Infrastructure

- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

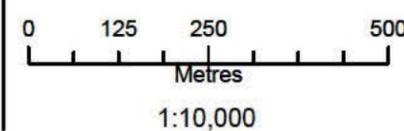
**Pointe du Bois (PW75)
 Transmission Project
 Final Preferred Route**

Map 1-100-7

DOCUMENT PATH: \\GEO\DATA\LEA\11GIS\ORIENT\ISIPRJ_PW75\MXD\REPORT_MAPS\MAPFOLIO\MAPPOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023



- Existing Infrastructure**
- Transmission Line
 - Highway
 - Major Road
 - Local Road
 - Railway (Operational)
 - + Railway (Discontinued)

- Land Base**
- ▭ Parcel Fabric
 - ▭ Rural Municipality
 - ▨ Provincial Park
 - ▭ Crown Land

- Project Infrastructure**
- Final Preferred Route
 - Project Development Area
 - Station
 - Expansion Area

The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

Pointe du Bois (PW75) Transmission Project Final Preferred Route

DOCUMENT PATH: \\GEO\DATA\1EA11G\IS\ORIENT\IS\PRJ_PW75\MXD\REPORT_MAPS\MAPFOLIO\MAPPOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023

0 125 250 500
 Metres
 1:10,000

Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- - - Railway (Discontinued)

Land Base

- ▭ Parcel Fabric
- ▭ Rural Municipality
- ▨ Provincial Park
- ▭ Crown Land

Project Infrastructure

- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

Pointe du Bois (PW75) Transmission Project

Final Preferred Route

DOCUMENT PATH: \\GEO\DATA\1EA11G\SI\ORIENT\SI\PRJ_P\75\MX\DI\REPORT_MAPS\MAPFOLIO\MAPFOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023

1:10,000

Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- - Railway (Discontinued)

Land Base

- Parcel Fabric
- Rural Municipality
- Provincial Park
- Crown Land

Project Infrastructure

- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

Pointe du Bois (PW75) Transmission Project

Final Preferred Route

DOCUMENT PATH: \\GEO\DATA\1EA411G\IS\ORIENT\IS\PRJ_PW75\MXD\REPORT_MAPS\MAPFOLIO\MAPPOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023

1:10,000

Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- + Railway (Operational)
- + Railway (Discontinued)

Land Base

- ▭ Parcel Fabric
- ▭ Rural Municipality
- ▭ Provincial Park
- ▭ Crown Land

Project Infrastructure

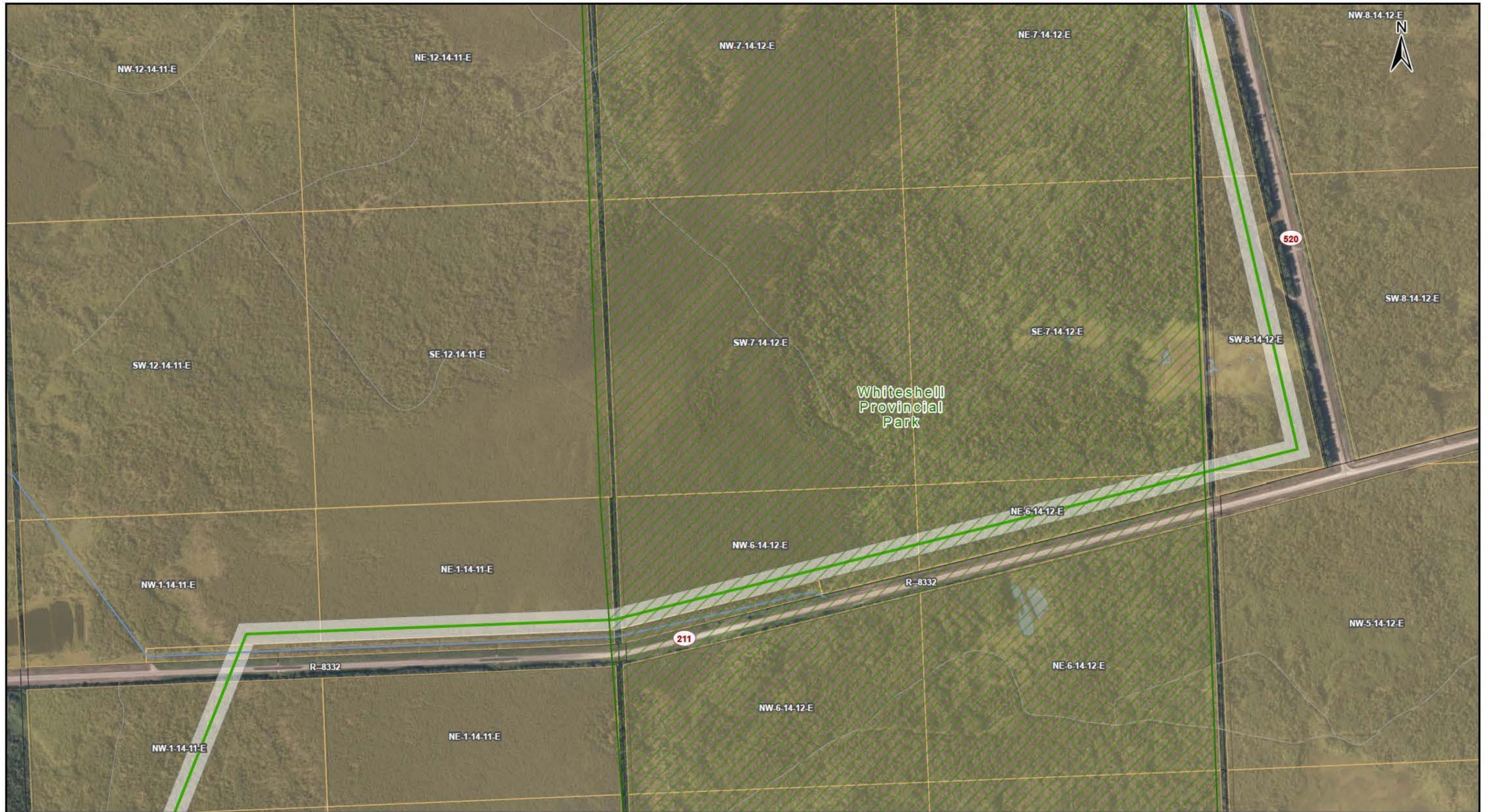
- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

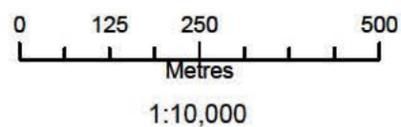
Pointe du Bois (PW75) Transmission Project

Final Preferred Route

DOCUMENT PATH: \\GEO\DATA\LEA\GIS\ORIENTIS\PRJ_PW75\MXD\REPORT_MAPS\MAPFOLIO\MAPPOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023



Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- - - Railway (Discontinued)

Land Base

- Parcel Fabric
- Rural Municipality
- Provincial Park
- Crown Land

Project Infrastructure

- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

**Pointe du Bois (PW75)
 Transmission Project
 Final Preferred Route**

DOCUMENT PATH: \\GEO\DATA\LEA\11\GIS\ORIENT\ISIPRJ_PW75\MXD\REPORT_MAPS\MAPFOLIO\MAPPOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023

0 125 250 500
 Metres
 1:10,000

Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- - Railway (Discontinued)

Land Base

- ▭ Parcel Fabric
- ▭ Rural Municipality
- ▭ Provincial Park
- ▭ Crown Land

Project Infrastructure

- Final Preferred Route
- Project Development Area
- Station
- Expansion Area

The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

Pointe du Bois (PW75) Transmission Project

Final Preferred Route

DOCUMENT PATH: \\GEO\DATA\LEA\11\GIS\ORIENT\IS\PRJ_P\W75\MXD\REPORT_MAPS\MAP\FOLIO\10\MAP\FOLIO_APRX



Coordinate System: UTM Zone 14N NAD83
 Data Source: MB Hydro, ProvMB, NRCAN
 Date Created: July 04, 2023

0 125 250 500
 Metres
 1:10,000

Existing Infrastructure

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- - - Railway (Discontinued)

Land Base

- ▭ Parcel Fabric
- ▭ Rural Municipality
- ▭ Provincial Park
- ▭ Crown Land

Project Infrastructure

- Final Preferred Route
- Project Development Area
- ▭ Station
- ▭ Expansion Area

The proposed Pointe du Bois to Whiteshell Transmission Project is on Treaty 1 and Treaty 3 lands, the traditional territories of the Anishinaabe, Anishiniwag and Cree peoples, and the homeland of the Red River Métis.

Pointe du Bois (PW75) Transmission Project

Final Preferred Route

Appendix B

Transmission line routing



Table of Contents

1.0	Overview.....	1
1.1	Routing methodology.....	1
2.0	Determining the areas of least preference.....	3
3.0	Developing routing corridors.....	5
3.1	Developing the corridor model.....	5
3.1.1	Factors.....	7
3.1.2	Factor weight.....	7
3.1.3	Features	7
3.1.4	Suitability values	7
3.2	Gathering geospatial data.....	8
3.3	Creating geospatial data layers.....	8
3.4	Creating suitability surfaces	8
3.5	Developing routing corridors	11
3.6	Composite corridors	11
4.0	Selecting the preferred route.....	12
4.1	Developing the route evaluation model	12
4.2	Creating route statistics	13
4.3	Route evaluation workshop.....	16
4.4	Preference determination model	18
4.5	Preference determination workshop	19

List of tables

Table 1: Areas of least preference	3
Table 2: Corridor model	6
Table 3: Route evaluation model.....	12
Statistics (13
Table 5: Route statistics for the top five routes.....	15
Table 6: Preference determination model	18
Table 7: Rationale for preference determination scoring	20

List of Figures

Figure 1: Example corridor model factor layer.....	5
Figure 2: Example portion of the Land Cover geospatial data layer	9
Figure 3: Creating a suitability surface	10
Figure 4: Tap structure location.....	17

1.0 Overview

This appendix is intended to be read as supporting material to Chapter 3 of the environmental assessment report for the PW75 transmission project. It describes the models used in the transmission line routing process and describes in detail how the models are used.

This appendix will cover:

- Determining the areas of least preference
- Developing routing corridors
- Selecting a preferred route

The routing methods used for this project are based on those developed by the Electric Power Research Institute (EPRI) and Georgia Transmission Corporation (GTC) overhead electric transmission line siting methodology¹.

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 (described in the sections below) provide a structured and transparent way to represent the trade-offs between competing interests and land uses.

1.1 Routing methodology

The EPRI-GTC methodology is a quantitative, computer-based process developed by the Electric Power Research Institute (EPRI) and Georgia Transmission Corporation (GTC) for use as a tool in evaluating the suitability of an area for locating new overhead transmission lines.

The EPRI-GTC methodology is informed by geospatial information (where features and activities occur on the landscape) and, with the help of models at each step through the process, considers three broadly conceived perspectives that apply to land use, plus a fourth perspective that considers the other three equally. The three perspectives (and their project team representatives) are:

¹ EPRI-GTC. 2006. EPRI-GTC Overhead Electric Transmission Line Siting Methodology. Tucker, GA: Georgia Transmission Corporation.

Built perspective is concerned with limiting the effect on the socio-economic environment. In routing decision-making, the built perspective is represented by agricultural, socio-economic, resource use and heritage discipline specialists, as well as Manitoba Hydro property and environmental assessment staff.

Natural perspective is concerned with limiting the effect on the biophysical environment. The natural perspective is represented by wildlife, fish, vegetation, and wetland discipline specialists.

Engineering perspective is concerned with cost, system reliability, constructability, and other technical constraints. The engineering perspective is represented by Manitoba Hydro project management, grid infrastructure planning, design, construction, and maintenance staff.

2.0 Determining the areas of least preference

Areas of least preference (Table 1; Map 1) are features to avoid when routing a transmission line due to physical constraints (e.g., extreme slopes, long water crossings), regulations limiting development (e.g., protected areas), or areas that would require extensive mitigation or compensation (e.g., paralleling rail lines, crossing a runway or glide path).

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

Areas of least preference are updated throughout the process as new data is collected and they are used during corridor development as well as during development and analysis of routes and during any potential modifications to the preferred route.

Table 1: Areas of least preference

Aboriginal lands / Indian Reserves / Treaty Land Entitlement selections
Airports/Aircraft landing areas and glide path
Buildings
Cemeteries / burial grounds
Campgrounds & picnic areas, recreation centers (e.g., golf, skiing), religious / worship sites, Schools / day cares
Contaminated sites
Federal/Provincial/Municipal heritage sites / Heritage plaques
Known archaeological sites
Military facilities / past military installations
Mines and quarries (Active)
Non-spannable waterbodies (> 450m)
Ecological reserves, wildlife management areas, park reserves, traditional use planning areas, national and provincial parks, provincial forests, and land trusts
Towers and antennae / Oil well heads / Wind turbines
Waste disposal sites
Wastewater treatment areas
World Heritage Sites

Map 1: Areas of least preference

3.0 Developing routing corridors

Corridors map the suitability of an area for locating a transmission line. They narrow the geographic area under consideration for route development. Four corridors (built, natural, engineering, and simple average) are created. Creating the corridors requires:

- The corridor model
- Geospatial data
- Geospatial data layers
- Suitability surfaces
- Cost distance analysis

The creation of routing corridors is discussed below.

3.1 Developing the corridor model

The corridor model (Table 2), used to create routing corridors, was developed using input from external parties representing the three perspectives described above.

A model based on this input was developed to represent the suitability of features on the landscape in southern Manitoba for transmission line routing. The resulting model includes (Figure 1):

- Factors
- Factor weights
- Features
- Suitability values

	Proposed Development	3.7%
	No Proposed Development	1.0
	Industrial Zoning	3.1
	Agriculture Zoning	4.1
	Commercial Zoning	5.1
	Permitted Development	6.9
	Rural Residential Zoning	6.9
	Proposed Development - Urban Zoning	9.0

The diagram includes four blue annotations with arrows: 'Factor' points to the 'Proposed Development' header; 'Factor Weight' points to the '3.7%' value; 'Features' points to the list of zoning categories; and 'Suitability Values' points to the numerical values in the second column.

Figure 1: Example corridor model factor layer

Table 2: Corridor model

<i>Engineering</i>		<i>Natural</i>		<i>Built</i>	
Linear Infrastructure	40%	Aquatics	10%	Proximity to Buildings	15%
Unutilized ROW (Manitoba Hydro Owned)	1	No Aquatic Feature	1.0	> 800 m	1
Parallel Roads ROW	2.6	Ephemeral Streams (Non-Fish Bearing)	4.9	400 - 800 m	2.8
Municipal Road Allowances	3.1	Spannable Waterbodies (Lakes & Ponds)	6.1	100 - 400 m	6.5
Parallel Provincial Highways ROW	3.4	Ephemeral Streams (Fish Bearing)	6.3	ROW - 100 m	9
Parallel Existing Transmission Lines	3.8	Swamps	6.8	Proposed Development	4%
No Linear Infrastructure	4.4	Ephemeral Streams (CRA Fish Bearing)	6.9	No proposed development	1.0
Rebuild Existing Transmission Line	5	Riparian Floodplain	7.1	Industrial zoning	3.1
Parallel Oil / Gas Transmission Pipeline	5.6	Permanent Stream	7.5	Agricultural Zoning	4.1
Parallel Railway ROW	5.6	Bogs	7.7	Commercial / Mixed Use Zoning	5.1
Future MIT Plans	7.8	Fens	8.2	Rural Residential / Settlement Centre	6.9
>= 300kV TLine & Within Separation Buffer	8.5	Marsh	8.2	Residential / Institutional	9.0
Within Road, Railroad, or Utility ROW	9	Permanent Stream (CRA Fish Bearing)	9.0	Soil Capability & Agricultural Use	16.0%
Spannable Waterbodies	12%	Special Features	43%	Other	1.0
No Waterbody	1	No Special Land	1.0	Class 6 & 7 Agricultural Land	3.3
Non-Nav. Spannable (Standard Structures)	2.8	Managed Woodlots	5.4	Organic Soils/Peat Bogs/Sod Production	3.9
Nav. Spannable (Standard Structures)	4.3	Crown Land With Special Code	7.0	Artisanal Farms / Wild Rice	4.3
Non-Nav. Spannable (Specialty Structures)	6	Community Pastures	7.3	Class 4&5 Agricultural Land	5.9
Nav. Spannable (Specialty Structures)	9	Flyways	7.5	Class 1- 3 Agricultural Land	9.0
Geotechnical Considerations	34%	Areas of Special Interest (ASI)	7.8	Land Use	22%
Rock	1	Rec. Prov Park (Non-Protected Portions)	8.0	Forest	1.0
No Special Geotechnical Considerations	1.3	Conservation Easements	8.0	Open Land (Sand & Gravel)	1.5
100 Year Floodplain	6.6	WMA (Non-Protected Portions)	8.2	Industrial	1.6
Wetland / Peatlands	9	Proposed Protected Areas	8.6	Burnt Areas	1.8
Mining Operations / Quarries	15%	Heritage Rivers	8.7	Active Forestry Operation	2.3
No Mining Operation	1	Important Bird Areas	8.7	Hunting / Trapping Locations	3.9
Abandoned/Inactive Mines	6.5	Heritage Marshes	8.9	Listed Trails (Existing & Planned)	4.6
Mine-Owned Land	9	Conservation Lands	8.9	Agricultural (Forage)	4.9
		Natural Prov. Park (Non-Protected Portions)	9.0	Organic Farming	5.5
		Land Cover	10%	WMAs (Unprotected)	5.8
		Exposed / Urbanized / Open Land	1.0	Out-of-Park Recreational Development	6.4
		Agricultural (Forage)	2.5	Intense Development & Use	6.5
		Agricultural (Crops)	2.8	Agricultural (Crops)	6.6
		Burnt Areas	4.9	500m Buffer of Irrigated Land	6.6
		Grassland	5.0	Intensive Livestock	6.9
		Deciduous Forest	5.5	In-Park Recreational Development	7.9
		Coniferous Forest	5.7	Institutional	7.4
		Mixed Forest	6.0	Agricultural (Aerial Application)	8.9
		Non-Developed Sand Hills	8.1	Irrigated Land	9.0
		Native Grassland	9.0	Proximity to Heritage Sites	16%
		Wildlife Habitat	37%	> 300 m	1.0
		Other	1.0	200 - 300 m	9.0
		Ungulate Habitat (High)	6.1	Landscape Character (Viewsheds)	11%
		Waterfowl Habitat (High)	6.3	Other	1.0
		Waterfowl Paired Density (High)	6.9	Recreational Trails	4.1
		Waterfowl Hotspots (High)	7.0	Cottage Subdivisions	6.1
		Grouse Lek Area	7.7	Identified Scenic Prov Trails & Roads	6.8
		Rare Species Habitat	8.0	Escarpments (Timeless Topography)	7.5
		Critical Habitat	9.0	Resort Lodges & Campgrounds	8.6
		Endangered Species Habitat	9.0	Residential	8.9
				Designated Historic Sites	9.0
				Edge of Field	16.0%
				Road Allowances	1.0
				Drains	1.8
				Quarter/Half-Mile Section Lines	2.0
				Vacant Rail ROW	2.1
				Parallel/Adjacent To Road Allowances	2.8
				Other (None of the Above)	9.0

3.1.1 Factors

Factors are groups of similar features on the landscape considered in transmission line routing. Each factor will be represented by a geospatial data layer (Section 3.3).

3.1.2 Factor weight

Factors are weighted relative to each other, within each perspective. The weights of all factors within each perspective sum to 100%.

3.1.3 Features

Features (e.g., agricultural zoning) comprise the subcomponents of the factor and must capture all potential elements of the factor.

3.1.4 Suitability values

Suitability values for each feature are scored on a common scale. Numbers between one and nine are used to represent degrees of suitability for routing a transmission line across (or close to) this feature, with one being most suitable and nine being least suitable.

Each factor requires a 1 and 9, the remaining features are given values based on suitability relative to each other.

These values are described in the EPRI-GTC methodology (2006) as follows:

- High Suitability for an Overhead Electric Transmission Line (1, 2, 3) - these areas do not contain known sensitive resources or physical constraints, and therefore should be considered as suitable areas for the development of corridors
- Moderate Suitability for an Overhead Electric Transmission Line (4, 5, 6) - these areas contain resources or land uses that are moderately sensitive to disturbance or that present a moderate physical constraint to overhead electric transmission line construction and operation. Resource conflicts or physical constraints in these areas can be reduced or avoided using standard mitigation measures.
- Low Suitability for an Overhead Electric Transmission Line (7, 8, 9) - these areas contain resources or land uses that present a potential for significant effects that may not be readily mitigated. Locating a transmission line in these areas would require careful routing or special design measures. While these areas can be crossed, it is not desirable to do so if other, more suitable alternatives are available.

3.2 Gathering geospatial data

Geospatial data, that represents each factor in the corridor model, is required to create corridors. Sources of data include aerial photography, geographic information system databases, publicly available data sets, internally developed data, and other sources.

3.3 Creating geospatial data layers

Each factor in the corridor model must be represented by a geospatial data layer (Figure 2). This layer divides the route planning area into grid cells (e.g., 5 m x 5 m). Each cell is assigned a suitability value (between 1 and 9) based on the corridor model.

3.4 Creating suitability surfaces

A suitability surface is created by combining the individual geospatial data layers (factors and areas of least preference) into one layer (Figure 3).

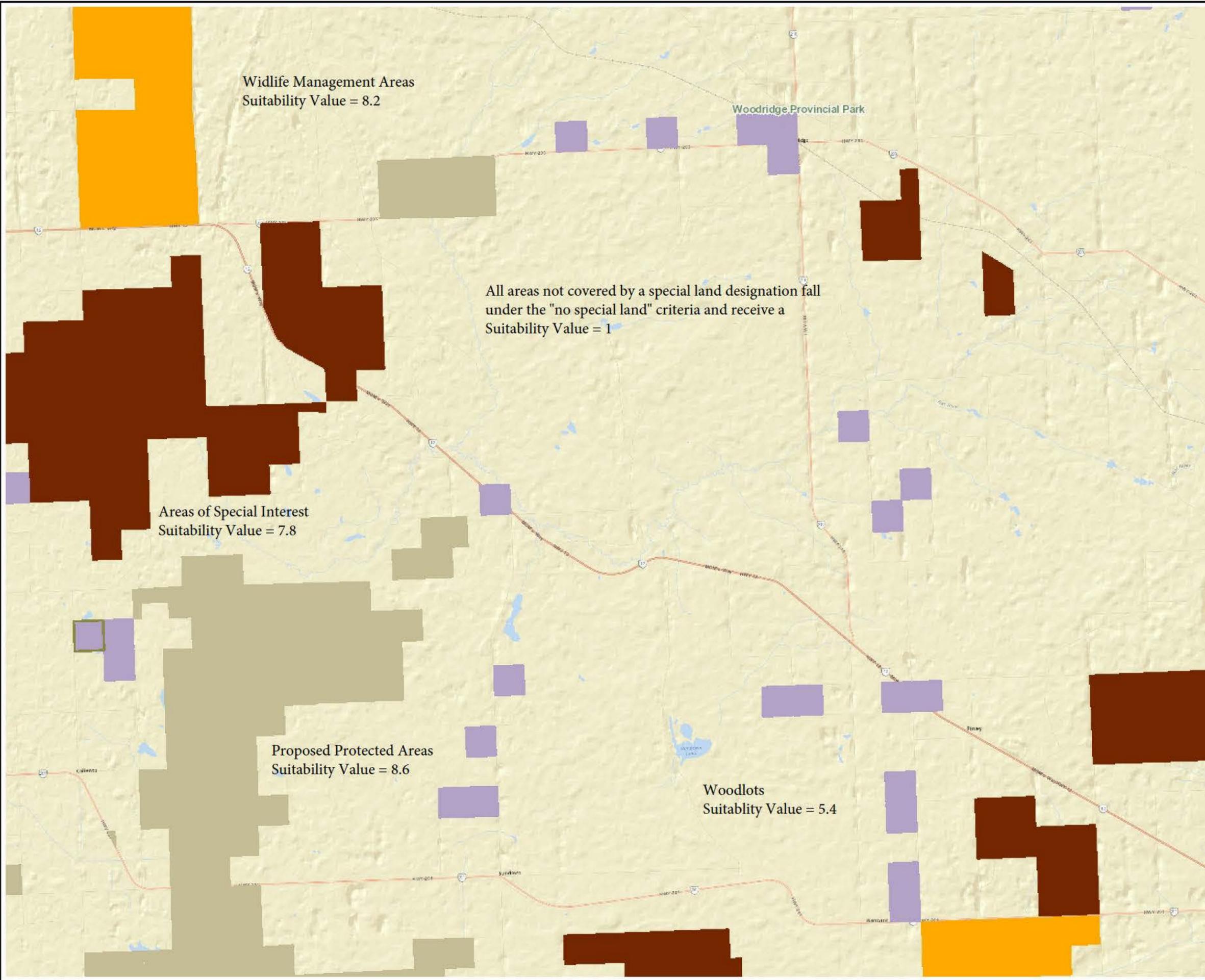
Suitability surfaces are created for each of the three perspectives: engineering, natural, and built, as well as one for the simple average. Each suitability surface represents a weighted combination of the three perspectives. Four scenarios were created by distributing the weight of each environment as follows:

Engineering suitability surface: The data layers from the engineering environment perspective are given five times (72%) the emphasis of the built environment (14%) and natural environment (14%) perspectives.

Natural suitability surface: The data layers from the natural environment perspective are given five times (72%) the emphasis of the built environment (14%) and engineering environment (14%) perspectives.

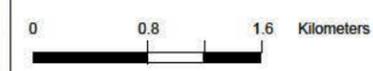
Built suitability surface: The data layers from the built environment perspective are given five times (72%) the emphasis of the natural environment (14%) and engineering environment (14%) perspectives.

Simple average suitability surface: The data layers for the simple average suitability surface are given equal emphasis (33.3% applied to all three perspectives).



- Woodlots
- Conservation Lands
- MAFRI Woodlot Locations
- MFA Woodlot Locations
- Areas of Special Interest Parks
- Proposed Protected Areas
- Wildlife Management Areas

Coordinate System: Web Mercator Auxiliary Sphere
Data Source: Orientis
Date Created: 12/9/2014



1100,532



Figure 2: Example portion of the land cover geospatial data layer

Draft: For discussion purposes only. Subject to change.

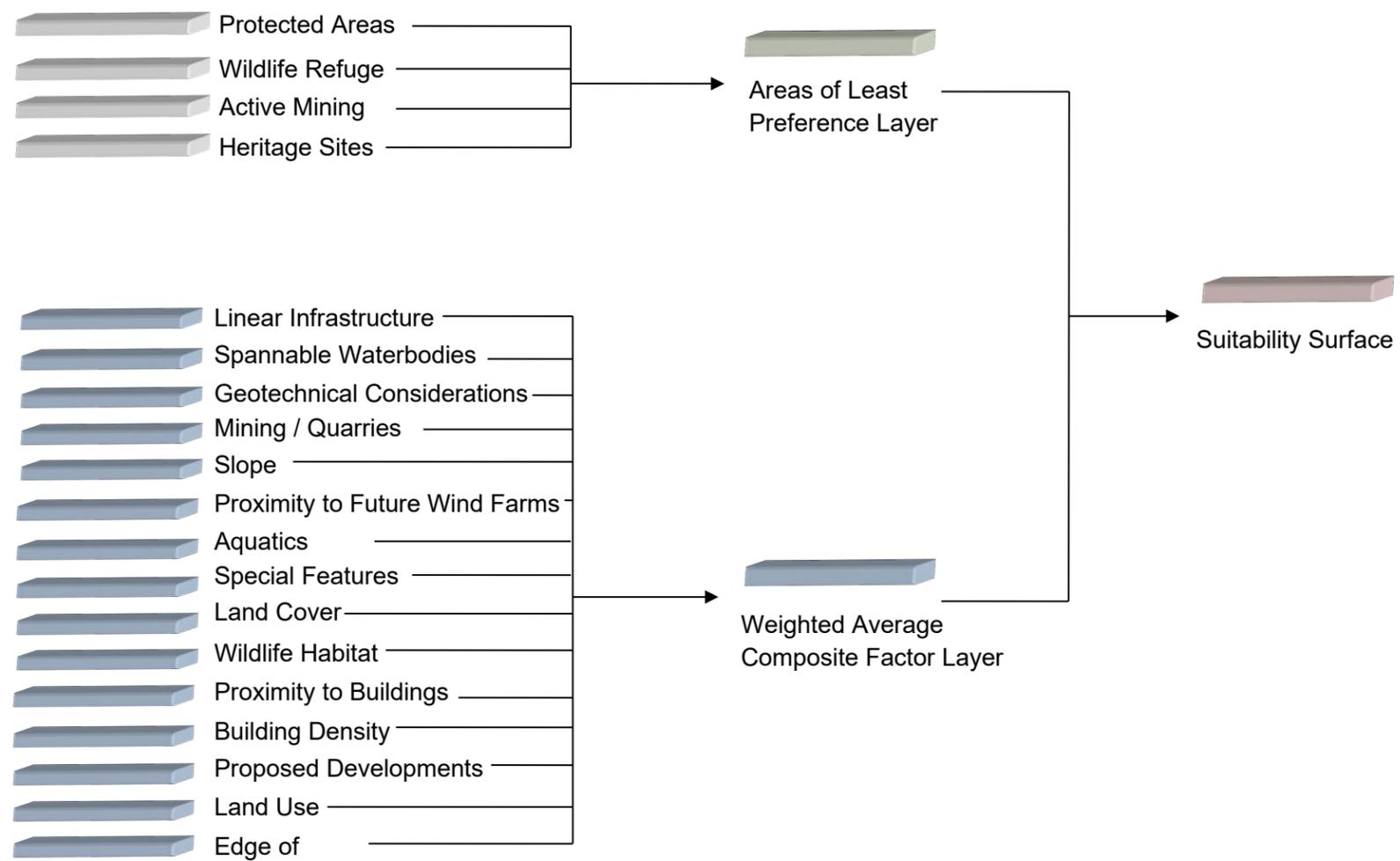


Figure 3: Combining the factor layers and areas of least preference layer into the suitability surface

3.5 Developing routing corridors

The corridors developed from the model represent the top 3%² (the most suitable 3%) of “optimal paths” within the route planning area. For the development of the corridors, a start (Lee River DSC) and end point (Whiteshell Station) were used. Cost distance analysis was run from the start to the end point.

An algorithm is used to find the accumulated cost of getting from each cell to the nearest source. The “cost” in this case is the sum of values of each grid cells, and not monetary in nature.

Corridors were generated for each of the three perspectives (built environment, natural environment, and engineering environment) as well as the simple average (an average of the three perspectives).

3.6 Composite corridors

The combination of the four corridors results in the composite corridor. The composite corridor depicts the most suitable areas, based on the criteria used in the model, in which to plan potential routes for the transmission line.

² When the EPRI-GTC siting methodology was first created, it was validated against recent electric transmission line siting projects. It was discovered that the routes selected for these projects typically fell within corridors created at 3% of all potential routes. For this reason, 3% has become widely used by utilities implementing this methodology to create corridors.

4.0 Selecting the preferred route

Selection of a preferred route involves developing the route evaluation model, using it to create route statistics, which allows comparison of routes to help the routing team select a few of the top routes. Then developing the preference determination model which allows selection of the preferred route.

4.1 Developing the route evaluation model

The route evaluation model (Table 3) was developed by Manitoba Hydro team members. The team determined the criteria in the model as well as the relative weights of each criterion.

The criteria are informed by feedback received during previous projects and engagement. The criteria are grouped into engineering, natural, and built perspectives and each criterion is given a weight. Weights within each perspective sum to 100%.

Definitions for each of the model criteria are provided in Table 4.

Criteria	Weight
Built	
Relocated Residences	35
Proposed Developments	14
Aggregate Resources	14
Special Features	11
Specialty Agriculture	9
Diagonal crossing of Agriculture Crop Land	7
Historic / Cultural Resources	7
Current Agricultural Land Use	3
Natural	
Intactness	45
High quality wildlife habitat	22
Wetlands	11
Riparian Habitat	11
Natural Forest	11

Table 3: Route evaluation model	
Criteria	Weight
Special Areas (ASI etc.)	3
Engineering	
Cost	45
Accessibility / constructability	22
Reliability	22
Existing infra crossings	11

4.2 Creating route statistics

Statistics (Table 5) are created to allow comparison of route segments or complete routes. The statistics are normalized (distributed along a scale from zero to one) to allow comparison between each of the features as they comprise different data types (e.g., counts, acreages, lengths, monetary values). Normalizing the values allows the comparison of whole route statistics. Adding the normalized statistics together allows routes to be compared with one value and allows routes to be ranked.

Table 4: Route evaluation model definitions

Criteria	Criteria Description
Built	
Relocated Residences	Any occupied residence categorized in the buildings layer and windshield surveys - within 75 m of centerline
Proposed Developments	Quarter section of land within which there is an approved development - property to draw specific outline if available
Aggregate Resources	Quarter section / polygon of land within which there is an active mine / quarry or an existing quarry permit. Casual permits / mining data from province.
Special Features	Schools, churches, park parcels, recreational trails, campgrounds, resorts and lodges, woodlots, homes, cemeteries - edge of ROW to 250 m
Specialty Agriculture	Shelterbelts / tile drainage / bees / livestock, organic farms etc. Any specialty agriculture data collected through engagement, windshield surveys or other.
Diagonal crossing of Agriculture Crop Land	Diagonal crossings of agricultural land, capability classes 1-3.
Historic / Cultural Resources	Designated and known heritage sites within 250 m of the edge of the ROW.
Current Agricultural Land Use	Apply weighting based on production values to annual crop (2.7x) and hayland (1x) land cover classes
NATURAL	
Intactness	Intact natural habitat polygons (natural forest, wetland, native grassland) >200 ha in size as determined from best available land cover data
High quality wildlife habitat	Canada Land Inventory data level 1 and 2 wildlife habitat considered high quality (3+ not included)
Wetlands	All wetland classes from the best available landcover dataset
Riparian Habitat	All forested (landcover class) areas within a 30 m buffer off all fish bearing streams
Natural Forest	All forested (i.e., productive and non-productive) cover classes from the best available landcover data
Special Areas (ASI etc.)	Proposed Protected Areas, High target value NCC Native Grasslands, Conservation and Designated Lands
Engineering	
Cost	Typical cost* / km + clearing costs per acre + angle towers + property costs (private vs crown - and maybe private - ag vs residential etc. if data available and difference exists) + TLine and distribution crossings and parallels (if moving dist or undergrounding) and tower type (self-support vs guyed based on land use) + foundation type based on land cover
Accessibility / constructability	A value determined by the ROW's proximity to the nearest public roadway (improving accessibility), and any wetland locations within the ROW (reducing accessibility)
Reliability	Two options, either the tap is at the Lee River DSC (reliable) or not (less reliable)
Existing infra crossings	TLine / rail / road (PTH / PR) / pipeline / RM Data - water / fibre optic / electric / gas - Shaw MTS based on available data
*Typical costs are a very high level estimate including general construction and material costs based on previous projects and only used as a general comparison between routes.	

Table 5: Route statistics for the top five routes

Features	ROUTE ID				
	Route A	Route B	Route C	Route D	Route E
Built					
Relocated Residences	0	3	4	3	3
Proposed Developments	1	1	1	1	1
Aggregate Resources	10	25	33	25	25
Special Features	10.39	44.17	18.10	15.26	12.97
Specialty Agriculture	10.74	10.74	10.74	10.74	10.74
Diagonal crossing of Crop Land	1	2	1	2	2
Historic / Cultural Resources	0	2	3	3	1
Current Agricultural Land Use	0	3	4	3	3
Natural					
Intactness	114.96	8.75	47.44	8.75	34.84
High quality wildlife habitat	105.84	87.87	82.43	107.24	105.76
Wetlands	50.23	57.06	36.45	60.37	64.27
Riparian Habitat	18.20	19.20	18.11	21.63	20.94
Natural Forest	240.90	206.72	212.32	225.50	225.43
Engineering					
Cost	\$17,080,061	\$19,379,891	\$17,254,655	\$19,441,240	\$18,537,977
Reliability	1	0	0	0	0
Accessibility / constructability	16811581	10107829	12478863	11389344	12225800
Existing infra crossings	11	11	11	11	11

4.3 Route evaluation workshop

The routes were evaluated at a workshop. Participants in the workshop included members of the project team representing the various perspectives (built, engineering, natural) as well as the community team, representing public and Indigenous input.

Team members responsible for engineering, technical design, construction, and maintenance represented the engineering perspective. Team members responsible for the public and Indigenous engagement processes 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.

In the workshop, the goal was to use the route statistics as well as expert judgement to reduce the number of routes to a set of finalists.

The finalists are carried forward for further evaluation at the preference determination workshop (Section 4.4 below).

Using the route statistics and GIS software, the top routes from each perspective were reviewed. Based on the review, five routes were chosen to move forward to the preference determination step.

The main considerations when choosing the top routes were:

- The location of the tap structure (Figure 4). To allow flexibility during operations, a three-way switch (tap structure) will be required. The tap structure will be at the Lee River DSC if segment 1 is used. This is preferred for accessibility for construction and operation and improves reliability (easier / quicker access in the event of an outage). Segment 2 would require a tap structure where the route leaves the existing ROW.
- Eastern segments (2, 3, 8, 19, 21, 23 etc.) pass through intact forests and wetlands. Western segments (1,4,7 10, 14 etc.) pass through developed areas (homes, developments, and agricultural land).
- Segment 29 vs segment 30. Segment 29 is shorter, crosses less natural land (fewer acres of forest) but cuts through intact forest. Segment 30 is longer and crosses more forested land but follows roads (increased accessibility and minimizes impact to intactness).

- Segments 12 and 16 follow a road, and cross primarily cropland. Segments 10 and 22 avoid cropland, crossing some natural areas and pasture.

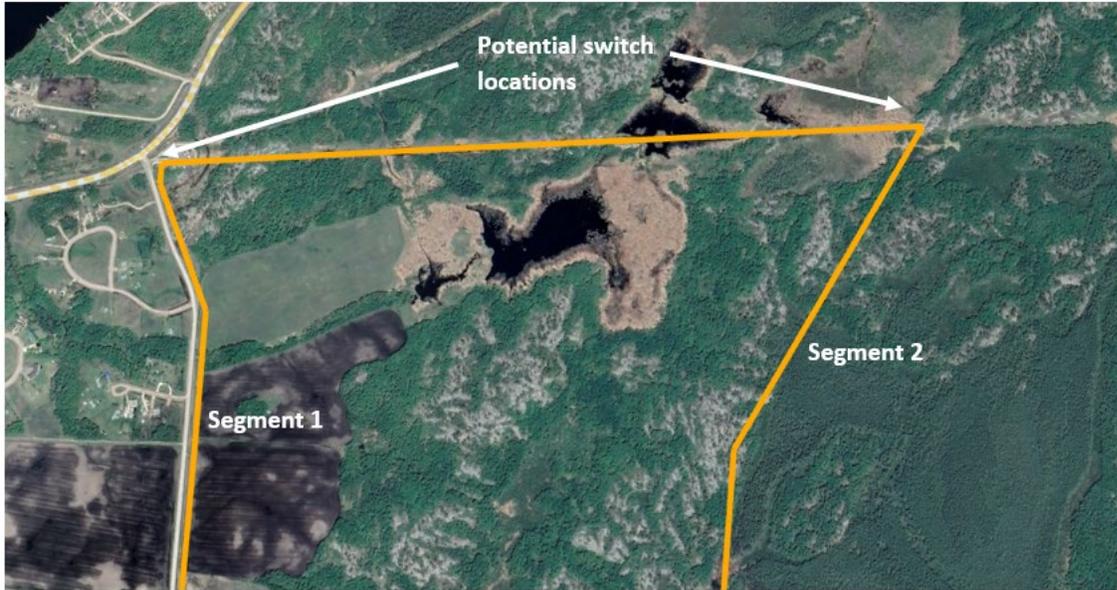


Figure 4: Tap structure location

The selection of the top five routes attempted to have options that consider each of the considerations above. Route A is the only route that uses segment 2, preferred from a built perspective. It generally avoids built up areas.

Routes B, C, D, and E all use segment 1, preferred by both the engineering and natural perspectives.

Route E uses segment 1 but then follows route A, balancing the impacts to built and natural areas.

Route C avoids most natural areas, is the cheapest (shorter, fewer angle towers, and preferred tap location).

Routes B and D differ in the use of segments (12, 16, and 30 Route D vs 10, 22, and 29 - Route B).

In reviewing the top routes, several segments were eliminated. Segments 13, 17, and 18 were lost. Routes using these segments were generally longer and didn't provide benefits or opportunities to offset the additional length. Similarly, segments 19, 23,

and 24 were also lost. Additional length / angles without any additional benefits or opportunities.

4.4 Preference determination model

Prior to the development and evaluation of route segments, the transmission senior management team developed a list of key considerations and assigned each a weight based on relative importance for this project.

This formed the basis of the preference determination model. Weights were based on technical experience, familiarity with the key issues in the project area related to its geographic and sociological makeup and input from engagement. The team determined the criteria in the model as well as the relative weights of each criterion (Table 6).

Table 6: Preference determination model

Criteria	Percent	Description
Cost	40%	Cost was based on high-level cost estimates for construction, materials, mitigation, used for relative comparison
Community	30%	Input received from public and First Nation and Metis engagement
Schedule risks	10%	Includes consideration of the need for additional approvals, seasonality of construction, overall level of complication expected that could result in delays.
Environment (Natural)	7.5%	Consideration of the natural environment route statistics with interpretation by the project team and additional information not captured by the criteria that can inform the relative potential effect on the natural environment of different route alternatives.
Environment (Built)	7.5%	Consideration of the built environment route statistics with interpretation by the project team and additional information not captured by the criteria that can inform the relative potential effect on the built environment of different route alternatives.

Table 6: Preference determination model

Criteria	Percent	Description
System Reliability	5%	Tap location and additional external factors (e.g., weather events) that could affect the reliability of the transmission line during operation.

4.5 Preference determination workshop

In the preference determination step, the preference determination model (Table 6) is used to select the preferred route from the route finalists identified from the route evaluation process described above.

In the preference determination step, the “finalists” from the route evaluation are considered in a comparative fashion by the project team. This step incorporates feedback received during public (Chapter 4) and Indigenous engagement (Chapter 5) together with route statistics, and additional research and analysis by discipline specialists, to provide input into the selection of a preferred route.

Each route received a value between 1 and 3, for each of the criteria in the model, with lower values indicating higher suitability for routing a transmission line.

Discussions are guided by the experts responsible for each criterion. In some cases, meetings are held prior to the workshop to discuss the routes and determine scores.

The cost and system reliability criteria scoring were determined by the engineering team. The community criterion scores were developed by the engagement teams. The environment (natural) criteria scoring was determined by the natural team. The environment (built) criteria scoring was determined by the built team.

Finally, the schedule risks criterion scoring was developed through consideration by the entire project team as elements of each consideration (built, natural, engineering) can contribute to schedule risks.

The scores given to each route were entered into the preference determination model. Table 7 provides the rationale for each score. When the weights for each criterion were considered, a rank order of the remaining routes was established.

Table 7: Rationale for preference determination scoring

Criteria	Route	Scores ¹	Rationale
Cost	A	1.3	Cost was scored by scaling the costs (cheapest route from the top 5 (Route C) at 1, the most expensive route overall (top 57 from the previous step) at 3).
	B	2.2	
	C	1	
	D	2.2	
	E	1.7	
System Reliability	A	3	A is least preferred. The location of the switching structure would be less accessible than the other routes, leading to longer response times. Accessibility overall is decreased due to the remoteness of the line. Routes B and D are preferred as the switching structure will be at the Lee River DSC and most of both routes are easily accessible. Route E has section that are less accessible than B and D as does route C.
	B	1	
	C	1.5	
	D	1	
	E	2	
Risk to Schedule	A	3	Route D is preferred as it is the best overall compromise, leading to the fewest potential objections. It avoids natural areas, minimizing wildlife timing windows and wetland areas that limit seasonal construction. Route A is least preferred as it crosses the most crown land, followed by Route E, which may lead to Section 35 consultation delays. Route C passes by the most homes, which risks expropriation. Route B crosses more prime agricultural land than D, which could have seasonal construction issues.
	B	1.1	
	C	2	
	D	1	
	E	2	
Environment (natural)	A	3	Route B is preferred, uses segment 30 (preferred over 29), less impact on intactness. Also uses segments 11/12/16, preferred over 10/14/22, less forested areas would be cleared. Route A is least preferred, crosses almost entirely natural areas, forests and wetlands, high quality wildlife habitat. Route E is similar, slightly better than A as it uses segment 1 instead of 2. Routes D and C cross fewer natural areas, D slightly preferred as it uses segment 30 better than Route C, which uses segment 29
	B	1	
	C	2	
	D	1.5	
	E	2.5	
Environment (built)	A	1	Route A is preferred, it avoids homes, agricultural and private land, and has minimal heritage concerns. Route E is second, uses segment 1, less preferred than A (Segment 2) but otherwise avoids homes and agricultural land. Route D is third, avoids homes (Segment 4), prime agricultural land (Segments 12/16). Uses segment 30, paralleling the highways, preferred over Segment 29.
	B	2.5	
	C	3	
	D	2	

Table 7: Rationale for preference determination scoring

Criteria	Route	Scores ¹	Rationale
	E	1.5	Route B is preferred slightly over Route E as it doesn't use segments 4 (homes) and 29 (paralleling), but not as good as D, uses segments 12/16, across agricultural land. Route C is least preferred, uses segment 4, adjacent to lots of homes and development, and uses segment 29 lack of parallel of infrastructure.
Community	A	3	Routes A and C are least preferred. They are the least balanced in overall community perspectives. Route A has more impact to First Nation and Metis interest by paralleling Crown lands. Passes through a large amount of private land use for agricultural production and is near homes and cottages.
	B	1.5	Route B somewhat balanced, more agricultural land and landowners. Greater heritage concerns than C due to proximity to the river. More potential impacts to both perspectives overall but balance of impacts.
	C	3	Route D is the preferred option. Most balanced overall. Easiest to mitigate the heritage and landowner compensation with this route. Route expected to have some impact on the interests of the FN and Metis citizens and RM members. Large tract of intact crown land it avoided in segment 2, follows somewhat intact areas in segments 3 and 8. Avoids densely populated areas (homes/cottages) in the north.
	D	1	
	E	2	Route E is slightly more balanced than A and C, less than B and D. This route would likely favor landowner interests. Larger potential impacts to intactness by traversing through forested areas. Expected impacts are more difficult to mitigate than B and D.

¹ scores are between 1 (preferred) and 3 (least preferred)

PW75 Environmental Assessment

Engagement appendix

Prepared by Manitoba Hydro

Asset Planning and Delivery
Transmission & Distribution Environment and Engagement

Contents

Supporting information

PEP – regional area information

FNMEP – community profiles

Communication materials

Round 1 eCampaign

Round 1 email

Round 1 letter

Round 1 postcard

Round 1 info sheet

Round 2 eCampaign

Round 2 email

Round 2 letter

Round 2 postcard

Round 2 info sheet

Social media ads

Engagement materials

Round 1 presentation

Round 1 virtual information session notes

Round 1 survey results

What we heard

Community preference team meeting presentations

Round 2 presentation

Round 2 virtual information session notes

Round 2 survey results

Supporting information

PEP – regional area information

FNMEP – community profiles

Public engagement program – regional area information

1. Pointe du Bois

The community of Pointe du Bois was originally established to provide a workforce for the Pointe du Bois and Slave Falls Generating Stations in the early 1900s. Since the reduction of Manitoba Hydro's local workforce, the community remains comprised of residential and recreational cottage properties. There are approximately 100 cottages and homes at Pointe du Bois immediately upstream and downstream of the Pointe du Bois Generating Station, with about 25 per cent of these being permanent residences. Many of these have had upgrades or are new with substantial investments from retirees wanting to settle in an idyllic setting. There are also about a dozen recreational resource user groups and commercial groups with an interest in the local waterway.

2. Rural Municipality of Lac du Bonnet

Lac du Bonnet is a rural municipality located in eastern Manitoba near the Winnipeg River. The area has a rich history, beginning with the use and inhabitation of Indigenous nations. These nations lived off the land, fishing and hunting game for their sustenance. The region was rich in natural resources, including fish, furs, and timber. The area was then explored by Europeans in 1734 with the fur trade as a significant driver of the early European exploration of the area (Town of Lac du Bonnet, 2023). It began to appear on trading maps in 1760 and eventually grew into two established trading posts, built in 1807 by the Hudson's Bay Company and the Northwest Company.

During the mid-1890s, interest in the area grew due to the increase in demand for merchantable timber, fish, fur, mineral, agricultural lands, and hydroelectric power (Strassel, n.d.). The community of people living in the area grew quickly as it became a hub for the logging industry, with sawmills established along the Winnipeg River. A company named the Lac du Bonnet Mining, Developing, and Manufacturing Company was formed in 1898 and was responsible for a lot of resource development in the area (Town of Lac du Bonnet, 2023). The community was built upon the foundation of industry. The arrival of the Canadian Pacific Rail station in the early 1900s brought about a significant change in the community, as it allowed for easier transportation of goods and people to and from the area. The railway also played a large role in the growth of the tourism industry, as visitors came to the area to enjoy the nature and recreational activities in the area.

Today, the Lac du Bonnet local economy is diverse, driven by tourism, forestry and agriculture. The town and the surrounding areas benefit greatly from the recreational activities in the area such as tourism, camping and fishing. The town has a rich cultural

heritage, with many events and festivals celebrating its history and traditions (Strassel, n.d.).

Town of Lac du Bonnet <https://townoflacdubonnet.com/p/our-history>

3. Community of Seven Sisters

The Seven Sisters community is a small community based around Seven Sisters dam and a part of the Rural Municipality of Whitemouth (Rural Municipality of Whitemouth, 2023). The area is surrounded by forests, hills, and lakes which has made it a popular destination for recreational use. The local economy is largely based on tourism, with several small businesses and restaurants in the area. The community is in the Rural Municipality of Whitemouth, a municipality in the southeastern part of Manitoba, along the east shore of Lake Winnipeg.

4. Local Government District of Pinawa

Pinawa is a small town located approximately 110 kilometers northeast of Winnipeg. It was established in the 1960s as a company town to support the construction of the nearby hydroelectric power station (Pinawa, 2023). The town has since evolved into a vibrant, peaceful residential community with a thriving tourist industry.

5. Rural Municipality of Alexander

The Rural Municipality of Alexander is a municipal district located in the eastern region of Manitoba with a population of approximately 3,854 people (Municipality of Alexander, 2023). The region is intersected by the historic Winnipeg River, which played a crucial role in its development. The area also has many parks, trails, and recreational facilities, providing many opportunities for outdoor activities such as hiking, fishing, and camping.

References:

Municipality of Alexander (2023). *Demographics*. Accessed May 15, 2023 from: <https://www.rmalexander.com/p/demographics>

Pinawa, Manitoba (2023). *Pinawa's History*. Accessed May 15, 2023 from: <https://www.rmalexander.com/p/demographics>

Rural Municipality of Whitemouth (2023). *Seven Sisters / River Hills*. Accessed May 15, 2023 from: [Rural Municipality of Whitemouth - Seven Sisters / River Hills \(rmwhitemouth.com\)](https://www.rmwhitemouth.com)

Strassel, J. (n.d.). *History of Lac du Bonnet*. Accessed May 15, 2023 from: <https://www.ldbhistorical.ca/our-stories/ldb-history/>

Town of Lac du Bonnet (2023). *Our History*. Accessed May 15, 2023 from:
<https://townoflacdubonnet.com/p/our-history>

FNMEP Community profiles

Brokenhead Ojibway Nation

“The Brokenhead Ojibway Nation (BON) is a Treaty 1 Nation located northeast of 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 name only three beaches in this area located along 59 north.” (Brokenhead Ojibway Nation, n.d.)

“Our Vision: Brokenhead Ojibway First Nation is a proud Nation that is working towards building a healthy, independent, self-sustaining, evolving community, that strives to meet the needs of its citizens by making economic development and our Ojibway identity priorities in every aspect of our planning.” (Brokenhead Ojibway Nation, n.d.)

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, n.d.).

Manitoba Métis Federation

“On July 6, 2021, Canada and the MMF signed the Manitoba Métis Self-Government Recognition and Implementation Agreement which is the first agreement to give immediate recognition to an existing Métis government, namely, the Manitoba Métis Federation, which is the existing democratically elected government of the Manitoba Métis – also known as the Red River Métis. This Agreement will be followed by a treaty between the MMF and Canada and ensures that the MMF will continue to provide responsible and accountable self-government.

The MMF is the democratically elected government of the Red River Métis. The MMF is duly authorized by the Citizens of the Red River Métis for the purposes of dealing with their collective Métis rights, claims, and interests, including conducting consultations and negotiating accommodations (as per MMF Resolution No. 8). While the MMF was initially formed in 1967, its origins lie in the 18th century with the birth of the Red River Métis and in the legal and political structures that developed with it. Since the birth of the Métis people in the Red River Valley, the Red River Métis asserted and exercised its inherent right of self-government. For the last 50 years, the MMF has represented the Red River Métis 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 Red River Métis internationally. The MMF was created to be the self-government representative of the Red River Métis—as reflected in the Preamble of the MMF’s Constitution (also known as the MMF Bylaws):

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

In addition, the following is embedded within the MMF's objectives, as set out in the MMF Constitution as follows:

1. *"To promote the history and culture of the Manitoba Métis, also known as the Red River Métis, and otherwise to promote the cultural pride of its Citizenship.*
2. *To promote the education of its Citizens respecting their legal, political, social, and other rights.*
3. *To promote the participation of its Citizens in community, municipal, provincial, federal, Aboriginal, and other organizations.*
4. *To promote the political, social, and economic interests of its Citizens.*
5. *To provide responsible and accountable governance on behalf of the Manitoba Métis, also known as the Red River Métis, using the constitutional authorities delegated by its Citizens."*

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

President: The President is the leader and spokesperson of the MMF. The President is elected in a national Election every four years and is responsible for overseeing the day-to-day operations of the MMF.

Cabinet: The MMF Cabinet leads, manages, and guides the policies, objectives, and strategic direction of the MMF and its subsidiaries. All 23 Cabinet Members are democratically elected by Red River Métis Citizens.

Regions: The MMF is organized into seven regional associations or "Regions" throughout the province: 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 Regional Executive Officers, all of whom sit on the MMF 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, a secretary, and a treasurer (or a secretarytreasurer, as the case may be). 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.

The MMF has created an effective governance structure to represent the Red River Métis. It is important to bear in mind that there is only one large, geographically dispersed, Red River Métis. Red River Métis Citizens live, work, and exercise their s.35 rights throughout and beyond the province of Manitoba."

Peguis First Nation

"Peguis First Nation is a Treaty 1 First Nation, 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 website, n.d.).

Grand Council Treaty #3

Grand Council Treaty #3 is the governing body of the Anishinaabe Nation in Treaty #3. Their mandate is “At the direction of the leadership, for the benefit/protection of the Citizens, the administrative office of Grand Council Treaty #3 protects, preserves and enhances Treaty and Aboriginal rights. This is achieved by advancing the exercise of: Inherent jurisdiction, Sovereignty, Nation-building and; Traditional Governance. With the aim to preserve and build the Anishinaabe Nation’s goal of self-determination.” (Grand Council Treaty #3, n.d.). The area the council governs spans over 55,000 square miles, from west of Thunder Bay to north of Sioux Lookout, along the international border to the province of Manitoba. It is made up of 28 First Nation communities, with a total population of approximately 25,000.

Black River First Nation

The Black River First Nation is a community located in the Interlake region of Manitoba. The community has approximately 980 people and the primary language used is Objibwe (Black River First Nation, n.d.). “The Community has a window plant, water treatment facility, truss plant, health centre, Head Start Program and a general store/gas bar. The majority of homes are single detached and located within a one-mile radius of the government offices and schools. The community is accessible year-round by a paved road, which intersects PTH 304 (6.4 km to the east).” (Black River First Nation, n.d.). The Black River First Nation is also home to a number of cultural and recreational facilities for community members to gather, celebrate, and participate in cultural events and activities.

Hollow Water First Nation

Hollow Water First Nation is a First Nation community located approximately 160 kilometers northeast of Winnipeg, near the shore of Lake Winnipeg. The community is part of the Anishinaabe Nation and is a member of the Grand Council Treaty 5 (Hollow Water First Nation website, 2023). The community of Hollow Water has a rich cultural heritage that is rooted in traditional practices and beliefs. Hollow Water First Nation has implemented a number of innovative programs and initiatives aims at protecting the environment and promoting economic growth such as student funding, social assistance, and more. “The English translation of the Ojibwa term “Wanipigoiw” is “hollow water” or “hole in the water,” and is said to signify a place where a river flowing westward from the country of many hills ran into a hole and disappeared. Another account equates it with a whirlpool that occasionally appeared at the first set of rapids located inland from Lake Winnipeg.” (Hollow Water First Nation website, 2023).

Sagkeeng Anicinabe First Nation

Sagkeeng Anicinabe First Nation is a community located in Manitoba, approximately 120 kilometers north of Winnipeg (Sagkeeng Anicinabe Government, 2023). There is a population of 3,655 people on-reserve. It is in between the Winnipeg River and Lake Winnipeg. “Sagkeeng First Nation is an Anishinaabe First Nation. Our unique land stretches across three treaty territories; Treaties 1, 3, and 5. We are located on either shore of the Winnipeg River, which is where we get our name. Sagkeeng means ‘mouth of the river’” (Sagkeeng Anicinabe Government, 2023).

The Sagkeeng Anicinabe First Nation has a strong connection to the land and the natural environment, and traditional activities such as hunting, fishing, and gathering continue to play an important role in the lives of community members (Sagkeeng Anicinabe Government, 2023). Additionally, it is home to a number of important cultural institutions and events, including the annual Sagkeeng Annual Pow Wow.

The community also has a strong tradition of art and crafts, including beadwork, quillwork, and birch bark biting, which are passed down from generation to generation. The Project area as the ancestral home of Sagkeeng and part of its Aboriginal Title territory, going back to time immemorial. (Sagkeeng Anicinabe First Nation 2023).

Wabaseemoong Independent Nations

“Wabaseemong Independent Nations (WIN) represents approximately 2,000 Ojibwe people. Of those, there are about 1,280 that live on-reserve in one of three communities: One Man Lake, Swan Lake, and White Dog. Wabaseemong follows the Indian Affairs electoral policy and is governed by a Chief and three councilors. We are a member of the Bimose Tribal Council, and of the Grand Council of Treaty 3. Many traditional cleans are represented in Wabaseemoong, including loon, pelican, mallard, eagle, hummingbird, catfish, sturgeon, turtle, fisher, caribou, lynx, bear, moose, and caribou.” (Wabaseemoong Independent Nations, n.d.).

Norway House Cree Nation

Norway House Cree Nation (NHCN) is one of the largest Indigenous communities in Manitoba. It is located approximately 456 kilometers (about 283.35 mi) northwest of Winnipeg, “with a growing population of around 7,500 community members and an additional 500 community council members” (Norway House Cree Nation, n.d.). The community is situated on the east shore of Playgreen Lake, near the mouth of the Nelson River, and is accessible by road or air. “NHCN has long been recognized as a progressive and vibrant community, boasting a large number of amenities as it serves as a gateway to Northern and Eastern communities of Manitoba. Focused on building strategic growth opportunities, NHCN is concentrating its efforts in three key areas: 1) Live – building a community with the amenities and services and resources capable of attracting new residents, 2) work – creating economic development opportunities that will provide employment and generate revenue for the community, 3) play – taking advantage of the natural resources at our finger tips to make this community we can all enjoy living in.” (Norway House Cree Nation, n.d.).

Community of Manigotagan

The community of Manigotagan is a small community with a population of 176 people situated on the east shore of Lake Winnipeg, near the mouth of the Manigotagan River (Northern Association of Community Councils, 2020). It is part of the Northern Association of Community Council which is a non-profit advocacy group that promotes and facilitates sustainable community development. The local economy consists of employment in the production of pulpwood for Pine Falls Paper Company and some sawlogs for private sawmills (Province of Manitoba, 2011). Additional economic activity includes commercial fishing, trapping, hunting, wild rice harvesting and tourism. The wild rice planting and harvesting occurs along the manigotagan River to Turtle Lake and the surrounding area. A few services and amenities for tourism such as hotel, motel, campground facilities and local guides for hunting and fishing parties. To support the local economic, social and community development needs an organization titled Manigotagan Community Development Corporation was established.

Community of Bissett

Bissett is a small community of approximately 110 people, located 250 kilometers northeast of Winnipeg, in Manitoba (Bissett Community Council, n.d.). Bissett is known for its rich history in gold

mining which played a significant role in the development of the community. Now, however, the mining industry is not as prevalent in the area and the community is primarily made up of families who have lived in the area for generations. The community is self-sufficient and offers lodging, local campgrounds, groceries, LC, Vendor, takeout food services, fly out services and an abundance of natural beauty! (Bissett Community Council, n.d.). It is also under the Provincial Department of Indigenous and Northern Affairs.

Community of Aghaming

Aghaming is a very small community of approximately 15 people, located on the eastern shore of Lake Winnipeg, roughly 70 kilometers north of Pine Falls. It is also administered under *The Northern Affairs Act*, and a part of the Northern Association of Community Councils (Province of Manitoba, 2016). The local economy consists of fishing, hunting, trapping and pulpwood logging. Trapping occurs within the designated areas of the Hole River and Lac du Bonnet Registered Trapline zones, which are shared with neighboring communities.

Incorporated Community of Seymourville

The incorporated community of Seymourville is located 85 kilometers by road from Powerview-Pine Falls with a population of 95 people (Northern Association of Community Council, 2020). This community is also represented under the Northern Affairs Act and part of the Northern Association of Community Councils. Local economic activity includes fishing, trapping, logging, wild rice harvesting, as well as tourism support (Province of Manitoba, 2020). The Seymourville Community Development Corporation was incorporated in 2003 to assist and support the social and economic needs of the community.

References

- Bissett Community Council (n.d.). *Bissett Community Council*. Accessed May 10, 2023 from: <https://bissettcc.com/>
- Black River First Nation (n.d.). *Home*. Accessed April 2023 from: <http://www.black-river.ca/>
- Brokenhead Ojibway Nation (n.d.). *About us*. Accessed May 10, 2023 from: <https://brokenheadojibwaynation.ca/about-us>
- Grand Council Treaty #3 (n.d.). *Our Nation*. Accessed May 10, 2023 from: <http://gct3.ca/our-nation/>
- Manitoba Métis Federation (n.d.). *Home*. Accessed from: <https://www.mmf.mb.ca/>
- Northern Association of Community Councils (2020). *Manigotagan*. Accessed May 10, 2023 from: <https://naccmanitoba.com/regions/eastern-2/manigotagan/>
- Northern Association of Community Councils (2020). *Seymourville*. Accessed May 10, 2023 from: <https://naccmanitoba.com/regions/eastern-2/seymourville/>
- Norway House Cree Nation (n.d.). *About*. Accessed April 27, 2023 from: <https://nhcn.ca/about/>
- Peguis First Nation (n.d.). *About*. Accessed from: <https://peguisfirstnation.ca/about/>
- Province of Manitoba (2011). *Manitogotagan community profile*. Accessed from: https://www.gov.mb.ca/inr/publications/community_profiles/pubs/manigotagan_2011.pdf
- Province of Manitoba (2016). *Aghaming community profile*. Accessed from: https://www.gov.mb.ca/inr/publications/community_profiles/pubs/aghaming-2016.pdf
- Province of Manitoba (2020). *Incorporated Community of Seymourville community profile*. Accessed from: https://www.gov.mb.ca/inr/publications/community_profiles/pubs/incorporated-community-of-seymourville.pdf
- Sagkeeng Anicinabe Government (2023). *Community overview*. Accessed from: <https://sagkeeng.ca/community-overview/>
- Wabaseemoong Independent Nations (n.d.). *About WIN*. Accessed May 10, 2023 from <https://wabaseemoong.ca/about-win/>

Communication materials

Round 1 eCampaign

Round 1 email

Round 1 letter

Round 1 postcard

Round 1 info sheet

Round 2 eCampaign

Round 2 email

Round 2 letter

Round 2 postcard

Round 2 info sheet

Social media ads

[View this email as a web page.](#)

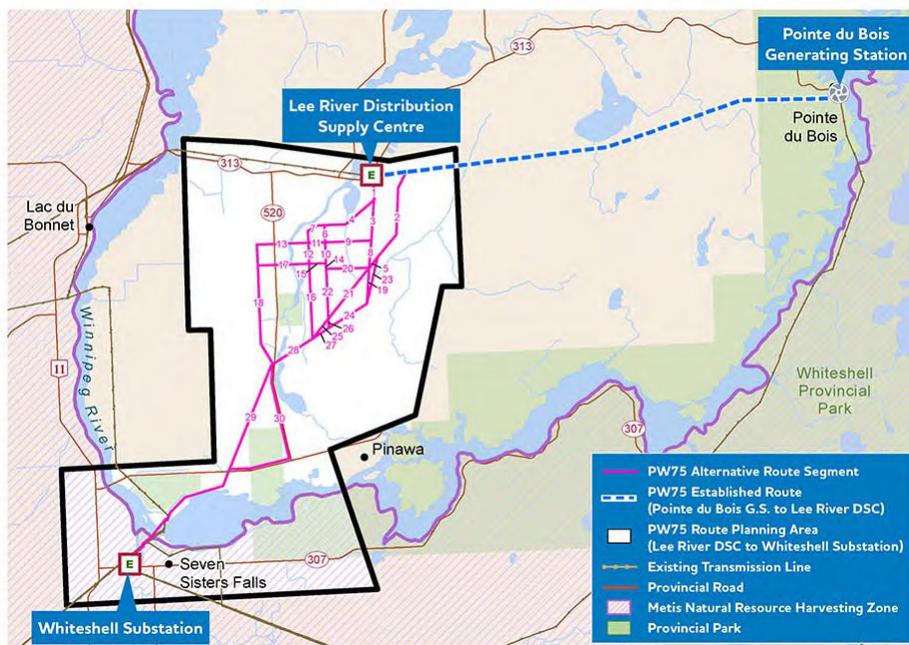


Round 1 engagement underway for new transmission line in Pointe du Bois area

Pointe du Bois Renewable Energy Project

As part of the [Pointe du Bois Renewable Energy Project](#), Manitoba Hydro is planning to build a new 115 kV transmission line from Pointe du Bois Generating Station to the existing Whiteshell Substation, near Seven Sisters Falls. This new line will allow us to deliver more renewable energy and improve reliability for our customers in surrounding areas.

Our Round 1 engagement to identify and evaluate alternative route segments for the new transmission line is now underway. There are a number of opportunities for you to ask questions, voice your concerns, and share feedback with us to help inform our routing and plans.



Caption: Map of alternative route segments for the new 115-kV transmission line from Pointe du Bois Generating Station to Whiteshell Substation. Feedback received in our engagement will help determine the preferred route.

Visit our [project webpage](#) to view an enlarged map and zoom into the alternative route segments in more detail.

We want to hear from you

Join us for a virtual information session:

- [July 13 at 7:00 p.m.](#)
- [July 14 at 12:00 p.m.](#)
- [July 19 at 7:00 p.m.](#)
- [July 20 at 12:00 p.m.](#)
- [July 21 at 7:00 p.m.](#)
- [August 9 at 12:00 p.m.](#)
- [August 10 at 7:00 p.m.](#)

To register, click on the session you'd like to attend and fill out the online form. You'll receive an email confirmation with a link to the virtual session. For assistance, [email us](#) or call 1 877 343 1631.

We acknowledge the challenging circumstances many are facing due to flooding in southeastern Manitoba. Opportunities for feedback on the alternative route segments in our Round 1 engagement are open until the end of August. If you are unable to attend one of the scheduled information sessions, please contact us directly to arrange an alternative time this summer that works best for you.

Online survey

- Complete our [online survey](#) by August 30, 2022, to tell us what you think about the alternative route segments.

Interactive map & feedback portal

- Visit our [interactive map and feedback portal](#) to zoom into the alternative route segments, provide comments and suggestions, flag points of interest, and see what others are saying. The portal will be open until August 30, 2022.

Contact us

- [Email us](#).
- Phone 204 360 7888 or toll free 1 877 343 1631.
- Visit our [project webpage](#).

[Subscribe](#) | [Share with a friend](#)

To ensure our email always reaches your inbox, add info@mbhydromail.ca to your address book. This email was intended for test user@test domain

[Unsubscribe](#) from this email

Do not reply to this message. This is an automated message and replies are not monitored. If you would like to contact us, [visit our website](#)

Manitoba Hydro 360 Portage Ave Winnipeg MB R3C 0G8
204-480-5900 | www.hydro.mb.ca

© Manitoba Hydro. All rights reserved. Rev 220314.

Available in accessible formats upon request.



Cloutis, Geneva

From:
Sent: Wednesday, June 15, 2022 1:25 PM
To:
Cc: Projects
Subject: New Project planned in the Pointe du Bois area
Attachments: PREP Round 1 Overview map.pdf

Good afternoon,

I'm reaching out to advise you of a new project Manitoba Hydro is planning to increase Pointe du Bois Generating Station's supply of renewable, dependable electricity and enhance our transmission capacity in the area, so we can get the most value out of Manitobans' investment in this over 110-year-old energy asset.

The Pointe du Bois Renewable Energy Project (PREP) is made up of two main parts – a generating unit replacement in the station's powerhouse and the construction of a new transmission line in the area. We're planning to install 8 generating units at Pointe du Bois to replace some of the original units that are nearing end of life. This upgrade will extend the operable life of the station to at least 2055 and increase the amount of renewable, dependable electricity we can produce to meet our customers' ever-growing needs.

The new transmission line will start at Pointe du Bois Generating Station and end at the Whiteshell Substation, located near Seven Sisters Falls. This transmission line will deliver more renewable energy and improve reliability for our customers in the surrounding areas. The first portion of the line will be routed along an existing right-of-way between Pointe du Bois Generating Station and Lee River Distribution Supply Centre (DSC). The second portion of the line will require a new right-of-way between Lee River DSC and Whiteshell Substation.

The attached map shows the alternative route segments (in pink) for the new transmission line. Feedback received in our engagement will help determine the preferred route. Go to www.hydro.mb.ca/prep to view an enlarged map and zoom into the alternative route segments in more detail.

We want to hear from you

I would be happy to set up a meeting, either over Microsoft Teams or in person, at your convenience to discuss the project. We are seeking input from landowners, Indigenous communities, interested parties and the public to help inform our routing and plans.

You are encouraged to share your feedback on the alternative route segments in our online survey and feedback portal, as well as one of our virtual information sessions. We are open to adapting our engagement processes to best meet your needs.

We acknowledge the challenging circumstances many are facing due to flooding in southeastern Manitoba. Opportunities for feedback on the alternative route segments in our Round 1 engagement are open until the end of August. If you are unable to attend one of the scheduled information sessions, please contact us directly to arrange an alternative time this summer that works best for you.

Join us for a virtual information session

- July 13 at 7:00 p.m.
- July 14 at 12:00 p.m.
- July 19 at 7:00 p.m.
- July 20 at 12:00 p.m.

- July 21 at 7:00 p.m.
- August 9 at 12:00 p.m.
- August 10 at 7:00 p.m.

To register, go to www.hydro.mb.ca/prep, e-mail projects@hydro.mb.ca or call **1-877-343-1631**.

Online survey

- Go to www.hydro.mb.ca/prep to tell us what you think about the alternative route segments. Survey closes on August 30, 2022.

Interactive map & feedback portal

- Visit our interactive map and feedback portal at www.hydro.mb.ca/prep to zoom into the alternative route segments, provide comments and suggestions, flag points of interest, and see what others are saying. The portal is open until August 30, 2022.

Learn more about the project at www.hydro.mb.ca/prep.

Please feel free to send me an e-mail or call directly if you want to discuss further.

Thank you,

October 14, 2022

[NAME]

[ADDRESS]

[CITY/TOWN], [PROVINCE], [POSTAL CODE]

Dear [NAME],

POINTE DU BOIS RENEWABLE ENERGY PROJECT - ROUND 1 ENGAGEMENT

Manitoba Hydro is planning a new project to increase Pointe du Bois Generating Station's supply of renewable, dependable electricity and enhance our transmission capacity in the area, so we can get the most value of Manitobans' investment in this over 110-year-old energy asset. The Pointe du Bois Renewable Energy Project is made up of two parts – a generating unit replacement in the station's powerhouse and the construction of a new transmission line in the area.

We are reaching out to you because an alternative route segment that we are considering for the new transmission line crosses a property you own. I have included a map of the alternative route segments for the new transmission line and an information sheet with this letter. The planned 115-kV transmission line will stretch from Pointe du Bois Generating Station to Whiteshell Substation to deliver more renewable energy and improve reliability for our customers in surrounding areas. The first portion of the line will be routed along an existing right-of-way between Pointe du Bois Generating Station and Lee River Distribution Supply Centre (DSC). The second portion of the line will require a new right-of-way between Lee River DSC and Whiteshell Substation.

Our Round 1 engagement to identify and evaluate alternative route segments started earlier this summer and is extending to **December 15, 2022**. Feedback received in our engagement process will help determine the preferred route. We plan to submit our environmental assessment to Manitoba Environment, Climate, and Parks for approval in summer 2023 to seek approval to start construction.

I would be happy to discuss the project and answer any questions you may have. If you would like to schedule a meeting, please contact me at gcloutis@hydro.mb.ca or **204-583-2352**. If you have feedback you would like to share, I would be happy to receive it by email, phone call or hard copy.

We have two other methods of providing feedback – an online survey to tell us what you think about the alternative route segments, and an interactive map and feedback portal to zoom into the alternative route segments and provide your comments and suggestions. These tools can be found on the project webpage at www.hydro.mb.ca/prep.

Yours truly,



Geneva Cloutis
Engagement Officer
Transmission & Distribution Environment and Engagement Department
Manitoba Hydro

Plans underway for new transmission line in Pointe du Bois area

Opportunity for feedback on alternative route segments

As part of the Pointe du Bois Renewable Energy Project (PREP), Manitoba Hydro is planning to build a new 115-kV transmission line from Pointe du Bois Generating Station to the existing Whiteshell Substation.

This new line will allow us to deliver more renewable energy and improve reliability for customers in surrounding areas.

Our Round 1 engagement to identify and evaluate alternative route segments is now underway. We encourage you to ask questions, voice your concerns, and share feedback to help inform our routing and plans.

Stay connected

Learn more and sign-up for updates at hydro.mb.ca/prep or connect with us: projects@hydro.mb.ca or **1-877-343-1631**

Online survey & feedback portal

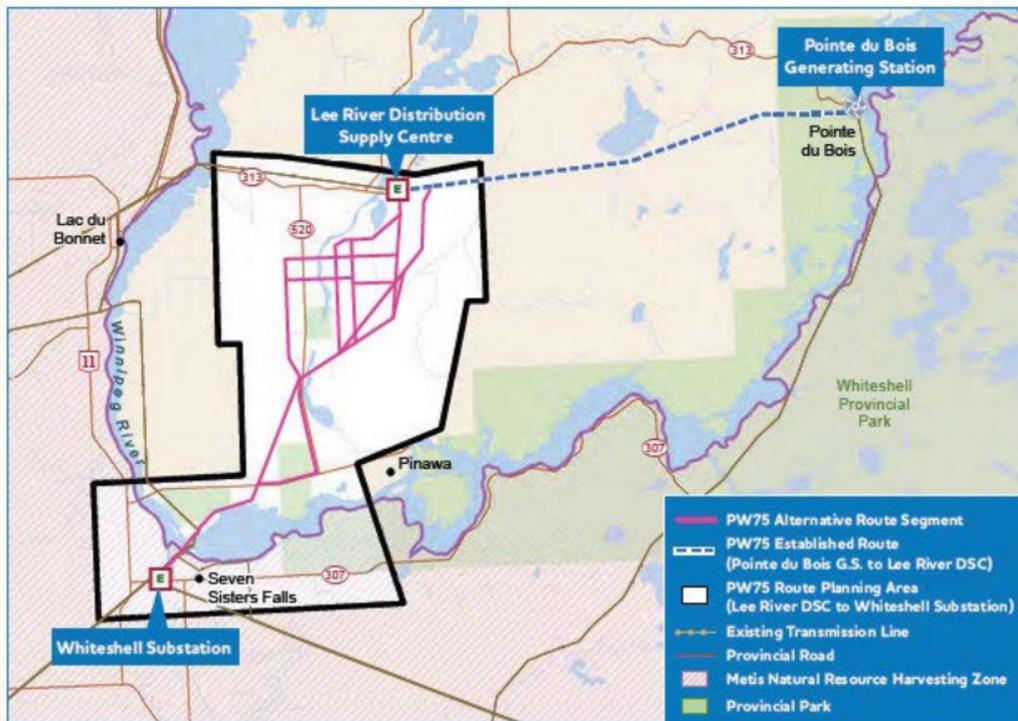
Fill out our survey or comment on the alternative route segments in our interactive map and feedback portal at hydro.mb.ca/prep.

Join us for a virtual information session:

- July 13 at 7:00 p.m.
- July 14 at 12:00 p.m.
- July 19 at 7:00 p.m.
- July 20 at 12:00 p.m.
- July 21 at 7:00 p.m.
- August 9 at 12:00 p.m.
- August 10 at 7:00 p.m.

To register, go to hydro.mb.ca/prep, email projects@hydro.mb.ca or call **1-877-343-1631**.





Map of alternative route segments for the new 115-kV transmission line from Pointe du Bois Generating Station to Whiteshell Substation. View enlarged map at hydro.mb.ca/prep. Feedback received in our engagement will help determine the preferred route.



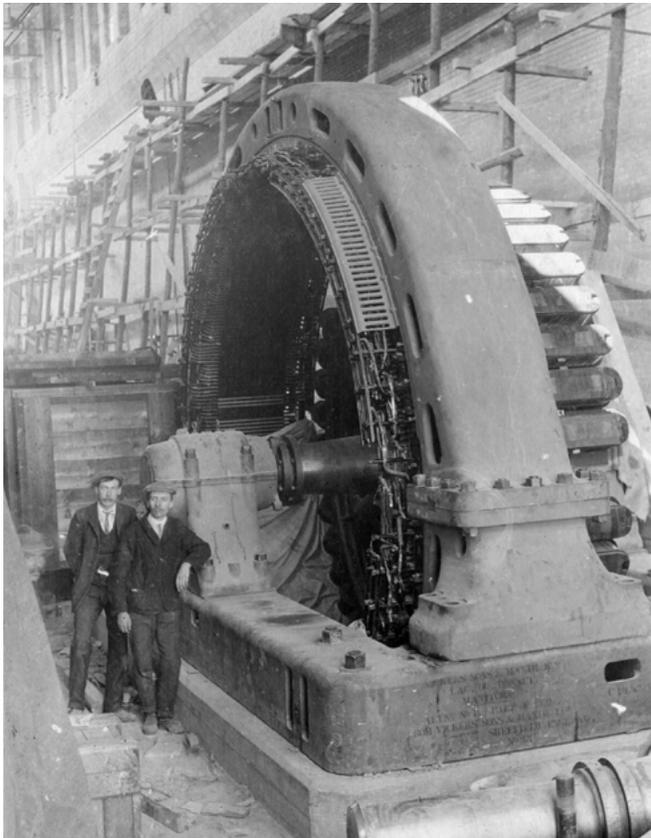
Pointe du Bois Renewable Energy Project

Round 1: Identify & evaluate alternative route segments

As our oldest hydroelectric station, many of the electrical, civil, and mechanical works at Pointe du Bois Generating Station are over a century old.

We're planning a new project to increase Pointe du Bois Generating Station's supply of renewable, dependable electricity and enhance our transmission capacity and reliability in the area, so we can get the most value out of Manitobans' investment in this over 110-year-old energy asset.

The Pointe du Bois Renewable Energy Project (PREP) is made up of two main parts – a generating unit replacement in the station's powerhouse and the construction of a new transmission line in the area.



Located on the Winnipeg River and built in the early-1900s, Pointe du Bois is our oldest hydroelectric generating station.



Based on current conditions, only three of the original 16 generating units are expected to operate beyond 2029.

Generating unit replacement in the powerhouse

We're planning to install eight generating units at Pointe du Bois to replace some of the original units nearing end of life.

A generating unit is made up of a turbine and generator. Water from the river enters the powerhouse and flows through the turbine, causing the generator to spin to create electricity.

This upgrade will extend the operable life of the station to at least 2055 and increase the amount of renewable, dependable electricity we can produce to meet our customers' ever-growing needs.

With 380 gigawatt-hours per year, on average, of added production capacity, we'll be able to power an extra 35,000 homes in Manitoba.

New transmission line from Pointe du Bois to Whiteshell Substation (PW75)

The current transmission lines connecting Pointe du Bois to Manitoba Hydro's grid are aging and won't have sufficient capacity to handle the station's increased electricity output once the new generating units are in place.

We're planning to construct a new 115-kilovolt (kV) transmission line (referred to as PW75), stretching about 50 kilometres between Pointe du Bois and the existing Whiteshell Substation, to deliver more renewable energy and improve reliability for our customers in surrounding areas. This component of the project will require a Class 2 licence under The Environment Act (Manitoba).

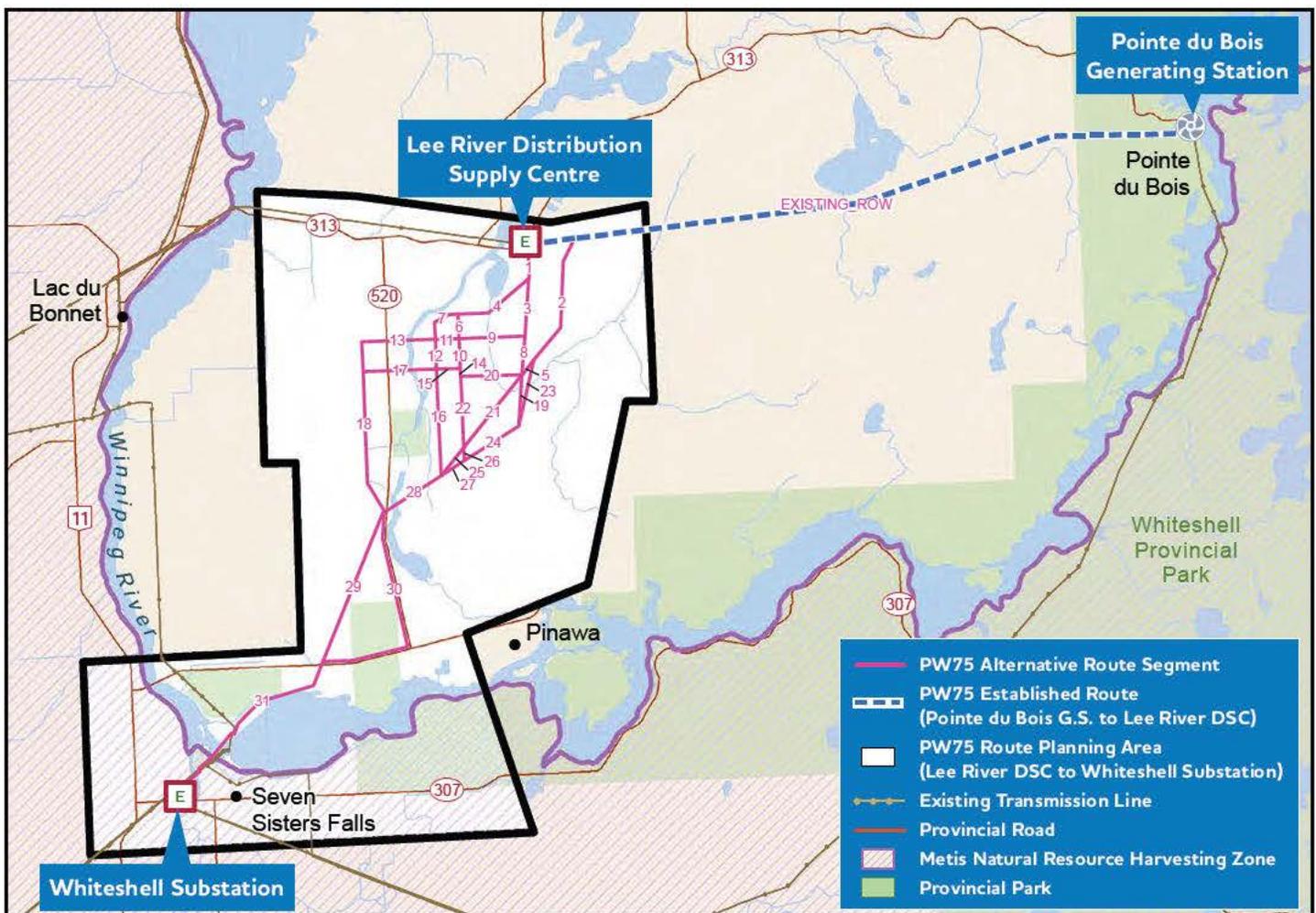
Various other upgrades are also planned at Pointe du Bois and Whiteshell Substation to accommodate this transmission work.

How will the new transmission line route be decided?

The new 115-kV transmission line, from Pointe du Bois to Lee River Distribution Supply Centre (DSC), will be routed through an existing right-of-way currently occupied by a 66-kV transmission line. The existing right-of-way will be widened to 60 metres (from 30 metres) to accommodate the higher voltage line. This 66-kV line, which connects Pointe du Bois to Winnipeg, is nearing end of life and will be decommissioned.

A new right-of-way will be required for the section of the new transmission line between Lee River DSC and Whiteshell Substation.

Transmission line routing is a key part of the environmental assessment process. Data gathering, on the ground fieldwork, technical and environmental considerations, as well as input collected in our engagement will help inform the selection of a preferred route for the new line.



Map of alternative route segments for the new 115-kV transmission line. View enlarged map at hydro.mb.ca/prep.



The existing 66-kV line (on the right) will be decommissioned. The new 115-kV line, from Pointe du Bois to Lee River DSC, will be routed through this existing right-of-way. A new right-of-way will be required for the section of the new transmission line between Lee River DSC and Whiteshell Substation.

Are regulatory approvals required?

The new transmission line requires approval as a Class 2 development under The Environment Act (Manitoba). An environmental assessment for the new transmission line will be submitted to Manitoba Environment, Climate, and Parks for approval before starting construction.

Engaging with the public and Indigenous communities

Manitoba Hydro has a long history of working in the area and we're using what we've learned from past projects to help inform how we engage with landowners, interested parties, and the public on the PREP. Also, through our First Nation and Métis engagement process, we're

working directly with First Nation communities, Grand Council Treaty 3, and the Manitoba Métis Federation. We'll seek to understand concerns, assess potential effects, and work to find ways to address them.

We'll provide regular updates on the generating unit replacement occurring within the existing footprint of the powerhouse and create opportunities to ask questions and voice concerns.

Our engagement on the new transmission line will provide opportunities for feedback to influence decision-making as we'll be conducting an environmental assessment, including a routing process, to determine a preferred route for the new line.

What is the schedule?

The tentative schedule (subject to change) is:

- Generating unit replacement:
 - o Preliminary worksite and equipment preparation: spring 2022
 - o Removal of old generating units: fall 2022 - winter 2023
 - o New generating unit assembly and installation: spring 2024 - summer 2027
- New transmission line:
 - o Round 1 engagement – Identify and evaluate alternative route segments: spring 2022 - fall 2022
 - o Round 2 engagement – Select preferred route: winter 2023
 - o File environmental assessment report for regulatory review: spring 2023
 - o Licensing decision: estimated fall 2024
 - o Transmission line construction start: fall 2024
 - o Target in-service date: summer 2027

We want to hear from you

Our Round 1 engagement to identify and evaluate alternative route segments for the new transmission line is now underway.

We encourage you to ask questions, voice your concerns, and share feedback with us to help inform our routing and plans. Check out our current engagement opportunities:

Online survey

Go to hydro.mb.ca/prep to tell us what you think about the alternative route segments. Survey closes on August 30, 2022.

Virtual information sessions

Join us for a virtual information session on:

- July 13 at 7:00 p.m.
- July 14 at 12:00 p.m.
- July 19 at 7:00 p.m.
- July 20 at 12:00 p.m.
- July 21 at 7:00 p.m.
- August 9 at 12:00 p.m.
- August 10 at 7:00 p.m.

To register, go to hydro.mb.ca/prep, e-mail projects@hydro.mb.ca or call **1-877-343-1631**.

Interactive map & feedback portal

Visit our interactive map and feedback portal to zoom into the alternative route segments in more detail, provide comments and suggestions, flag points of interest, and see what others are saying. Go to hydro.mb.ca/prep to get started.

For more information:

Visit hydro.mb.ca/prep to learn more and sign-up for project updates. Send your questions to projects@hydro.mb.ca or call **1-877-343-1631**.

Cloutis, Geneva

From: Manitoba Hydro <info@mbhydromail.ca>
Sent: Wednesday, March 1, 2023 9:45 AM
To: Cloutis, Geneva
Subject: Pointe du Bois Renewable Energy Project: update

[View this email as a web page.](#)



Pointe du Bois Renewable Energy Project: update

Preferred route selected

Thank you to everyone who participated in our alternative route segment engagement for the transmission line component of the Pointe du Bois Renewable Energy Project. A preferred route has been determined that aims to balance local concerns and limit overall effects.

Visit our [Pointe du Bois renewable energy project](#) to view the map of the preferred route.

Opportunities to get involved

Another round of engagement on the transmission line is now underway. We want to hear your thoughts or concerns about the preferred route to help inform our final route and plans.

Online survey

Tell us what you think of the preferred route in our [online survey](#). Closes on March 31, 2023.

Information sessions

Join us for an information session, virtually or in-person:

- [March 15 at noon](#) (virtual).
- [March 21 at 7 p.m.](#) (virtual).
- March 25 **Open House** from 1-4 p.m. at the Pioneer Club in Lac du Bonnet.

To register for a virtual session, please click the link of the day you would like to register, or email projects@hydro.mb.ca or call 1-877-343-1631.

Online feedback portal

Zoom in and comment on the preferred route and see what others are saying in our [online feedback portal](#). Closes on March 31, 2023.

Contact us

- Learn more and sign-up for updates at hydro.mb.ca/prep.
- Email Projects.
- Phone 204-360-7888 or toll-free 1-877-343-1631.

To ensure our email always reaches your inbox, add info@mbhydromail.ca to your address book. This email was intended for gcloutis@hydro.mb.ca.

[Unsubscribe](#) from this email.

Do not reply to this message. This is an automated message, and replies are not monitored. If you would like to contact us, [visit our website](#).

Manitoba Hydro, 360 Portage Ave., Winnipeg, MB R3C 0G8
204-480-5900 | www.hydro.mb.ca

© Manitoba Hydro. All rights reserved. Rev 220314.

Available in accessible formats upon request.



Cloutis, Geneva

From:
Sent: Tuesday, February 28, 2023 2:56 PM
To:
Cc: Projects
Subject: Pointe du Bois Renewable Energy Project – preferred route for transmission line selected
Attachments: PW75_PreferedRoute.pdf

Good afternoon ,

I am writing to let you know that Manitoba Hydro has selected a preferred route for the transmission line (PW75) part of the Pointe du Bois Renewable Energy Project. A map of the preferred route is attached to this email.

Manitoba Hydro is beginning engagement on the preferred route, which will continue until March 31, 2023. I would be happy to set up a meeting, either virtually or in-person, at your convenience to talk about the Project. For your information, we also have several ways we are seeking feedback from landowners, First Nations, the Manitoba Métis Federation, interested parties and the public:

Online survey & feedback portal

On our website, we have an [online survey and interactive feedback portal](#) that will both be open until **March 31, 2023**, at www.hydro.mb.ca/prep.

Information sessions

We will also be holding public information sessions virtually and in-person to discuss the project. To sign up for a virtual session, individuals can register by visiting our website, calling 1-877-343-1631 or emailing projects@hydro.mb.ca.

- March 15 at 12:00 noon (virtual)
- March 21 at 7:00 p.m. (virtual)
- March 25: Open house from 1 – 4 p.m. at the Pioneer Seniors Club in Lac du Bonnet

Feedback we receive over the coming weeks will help us refine the design of the transmission line, work to address concerns, and complete the environmental assessment of the final preferred route. We anticipate filing our environmental assessment report with the Province in summer 2023 as part of the regulatory approval process.

Thank you,

2023 02 28

[NAME]
[ADDRESS]
[CITY/TOWN], [PROVINCE], [POSTAL CODE]

**POINTE DU BOIS RENEWABLE ENERGY PROJECT: PREFERRED TRANSMISSION ROUTE SELECTED
– WE WANT TO HEAR FROM YOU**

Manitoba Hydro has selected a preferred route for the PW75 transmission line as part of the Pointe du Bois Renewable Energy Project. Please note the preferred route traverses your property.

We want to understand any concerns you might have and answer your questions about the project. We would like to set up a one-on-one meeting to discuss concerns you may have regarding the project or your property. We are also holding information sessions, both virtually and in-person, to present the preferred route. If you would like to participate in a one-on-one conversation or an information session (details below), please contact us at projects@hydro.mb.ca or call 1-877-343-1631.

Upcoming information sessions

March 15 at noon (virtual)

March 21 at 7:00 p.m. (virtual)

March 25: Join us for an open house at the Pioneer Seniors Club in Lac du Bonnet from 1-4 pm (32 Park Ave, Lac du Bonnet)

Feedback we receive over the coming weeks will help us refine the design of the transmission line and complete the environmental assessment of the final preferred route. We anticipate filing our environmental assessment report with the Province in summer 2023 as part of the regulatory approval process.

The proposed 115-kV transmission line runs from the Pointe du Bois generating station to the Lee River Distribution Supply Centre, and then south to the Whiteshell Station (near Seven Sisters Falls). The purpose of the transmission line is to improve reliability in the Lac du Bonnet and Lee River areas, as well as to increase our transmission capacity leaving the Pointe du Bois generating station. The Pointe du Bois generating station is being upgraded with eight new generating units to replace some of the original units that are nearing end of life. The upgrades will increase the supply of renewable, dependable electricity coming out of the station. An information sheet, map of the preferred route, detailed map of where the preferred route crosses your property, and a



summary of feedback received during our alternative route segment engagement are included in this package.

For more information about the Pointe du Bois Renewable Energy Project and to sign up for project update emails, please visit www.hydro.mb.ca/prop. We look forward to your continued involvement in this project.

Sincerely,

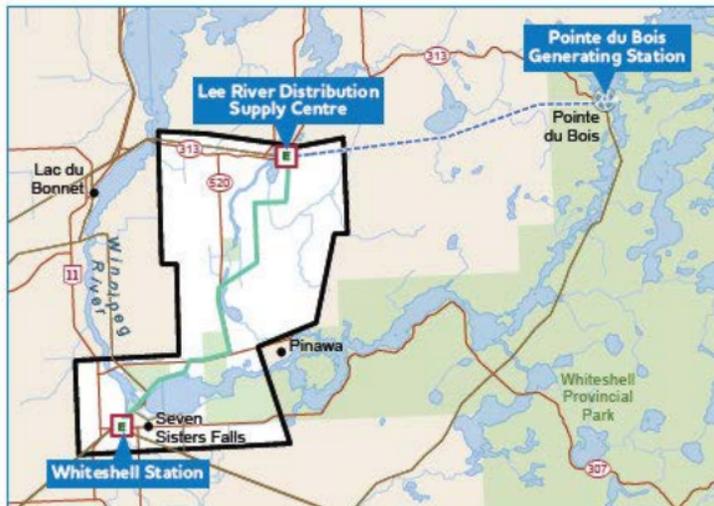


Geneva Cloutis
Manitoba Hydro

Pointe du Bois Renewable Energy Project: Preferred route selected

Thank you to everyone who participated in our alternative route segment engagement for the transmission line component of the Pointe du Bois Renewable Energy Project. A preferred route has been determined that aims to balance local concerns and limit overall effects.

The map to the right shows the preferred route:



Opportunities to get involved

Another round of engagement on the transmission line is now underway. We want to hear your thoughts or concerns about the preferred route to help inform our final route and plans.

Online survey

Tell us what you think of the preferred route in our online survey. Closes on March 31, 2023.

Online feedback portal:

Zoom in and comment on the preferred route and see what others are saying in our online feedback portal. Closes on March 31, 2023.

Stay connected

Learn more and sign-up for updates at hydro.mb.ca/prep or connect with us: projects@hydro.mb.ca or **1-877-343-1631**

Join us for an information session, virtually or in-person:

- March 15 at noon (virtual)
- March 21 at 7pm (virtual)
- March 25 from 1 – 4pm at the Pioneer Club in Lac du Bonnet

To register, go to hydro.mb.ca/prep, email projects@hydro.mb.ca or call **1-877-343-1631**.



Pointe du Bois Renewable Energy Project

Preferred route engagement on transmission line

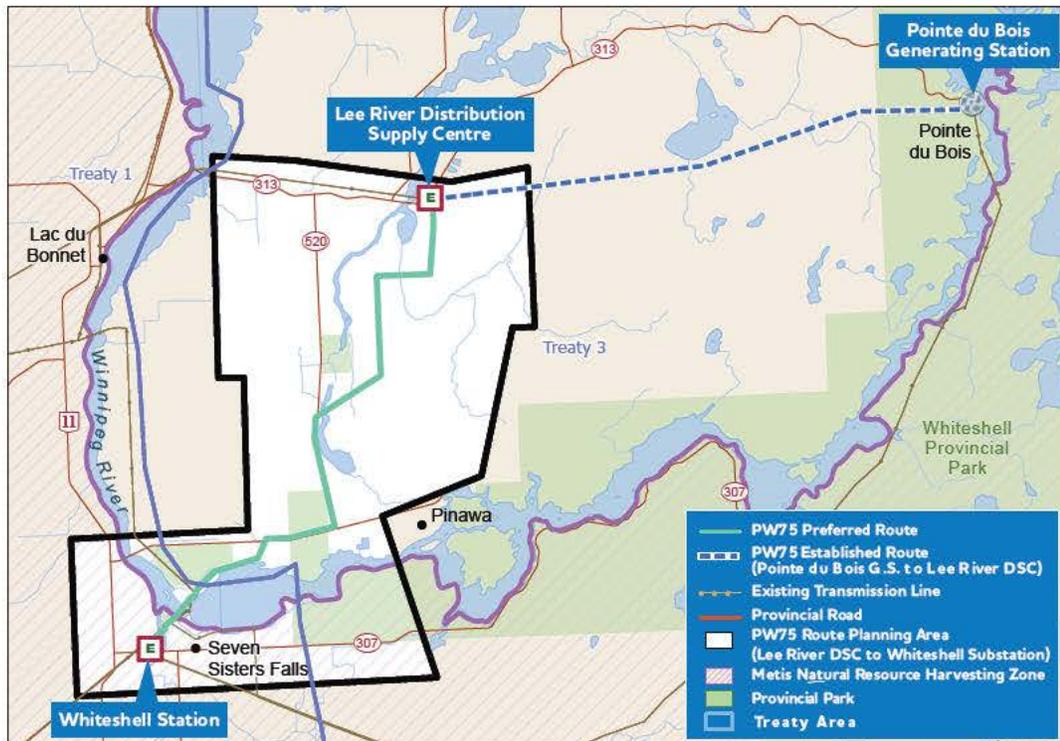
We're planning a new project to increase Pointe du Bois generating station's supply of renewable, dependable electricity and enhance our transmission capacity and reliability in the area, so we can get the most value of Manitobans' investment in this over 110-year-old energy asset. The Pointe du Bois renewable energy project (PREP) is made up of 2 main parts – a generating unit replacement in the station's powerhouse and the construction of a new transmission line in the area.

Work continues on the generating station

In fall 2022, work began at the Pointe du Bois generating station to remove the old generating units that are nearing end of life. A reminder there are no planned power outages or planned local water level drops because of this work.

Findings from 2022 summer field work

As part of Manitoba Hydro's pursuit of understanding the existing environmental conditions in the vicinity of the PW75 transmission line footprint, we retained Stantec to undertake wildlife (including birds), and vegetation and wetland field surveys in Summer 2022. A fish habitat assessment was also conducted at the location of the proposed PW75 transmission line's crossing of the Whitemouth River. The findings of the noted field surveys will be reported in technical data reports (one for wildlife and one for vegetation and wetlands) as well as a technical memo (fish habitat assessment). The technical data reports will also include relevant project area information gathered through key person interviews. The reports are currently in draft form – the finalized reports will be shared on our website at a later date.



Preferred route for PW75

Engagement on this project started in spring 2022, where 31 alternative route segments for the PW75 transmission line component of the project were presented for feedback. Data gathering, on the ground fieldwork, technical and environmental considerations, as well as input from landowners, Indigenous communities, interested parties, and the public, helped inform the evaluation of each alternative route segment and selection of a preferred route.

The preferred route aims to balance different interests and local concerns and limit the overall effects of the transmission line.

Read our **What we heard summary** at hydro.mb.ca/prep to learn how feedback collected in our engagement was considered in the selection of the preferred route.

Have your say on the preferred route

Our engagement on the preferred route is now underway. We welcome you to ask questions, voice your concerns, and provide feedback on the preferred route to help inform our final route and plans.

Project information sessions

Join us online or in-person for an information session:

- March 15 at 12:00 noon (virtual)
- March 21 at 7:00 p.m. (virtual)
- March 25 – open house from 1 -4 p.m. at the Pioneer Club in Lac du Bonnet

To register for a virtual session, click the link of the date you would like to attend, or contact us at projects@hydro.mb.ca or call 1-877-343-1631.

Online survey

Tell us what you think about the preferred route in our survey at hydro.mb.ca/prep. Survey closes on March 31, 2023.

Online feedback portal

Comment on the preferred route and see what others are saying in our interactive feedback portal at hydro.mb.ca/prep. The portal will be open until March 31, 2023.

What's next?

Engagement on the preferred route will conclude in April 2023, and any final refinements necessary will be made to the preferred route. The final preferred route for the PW75 transmission line will be presented in an environmental assessment report submitted to Manitoba Environment, Climate, and Parks for review and approval before construction begins. Part of this process includes a public review period for local residents, Indigenous communities, interested parties, and the public to share their concerns and ask questions about the report. Manitoba Hydro will continue to share information as this process progresses.

When will the work happen?

The tentative schedule (subject to change) is:

- Generating unit replacement:
 - Preliminary worksite and equipment preparation: spring 2022
 - Removal of old generating units: fall 2022 - winter 2023
 - New generating unit assembly and installation: spring 2024 - summer 2027
- PW75 transmission line
 - Identify & evaluate alternative route segments: spring – fall 2022 (completed)
 - Preferred route engagement: winter 2023
 - File environmental assessment report for regulatory review: summer 2023
 - Licensing decision: fall 2024
 - Transmission line construction start, if licence approved: fall 2024
 - Target in-service date: summer 2027

Stay connected

Visit hydro.mb.ca/prep to learn more and sign-up for updates. Send your questions to Projects@hydro.mb.ca or call 1-877-343-1631.



Round 1 social media advertisements



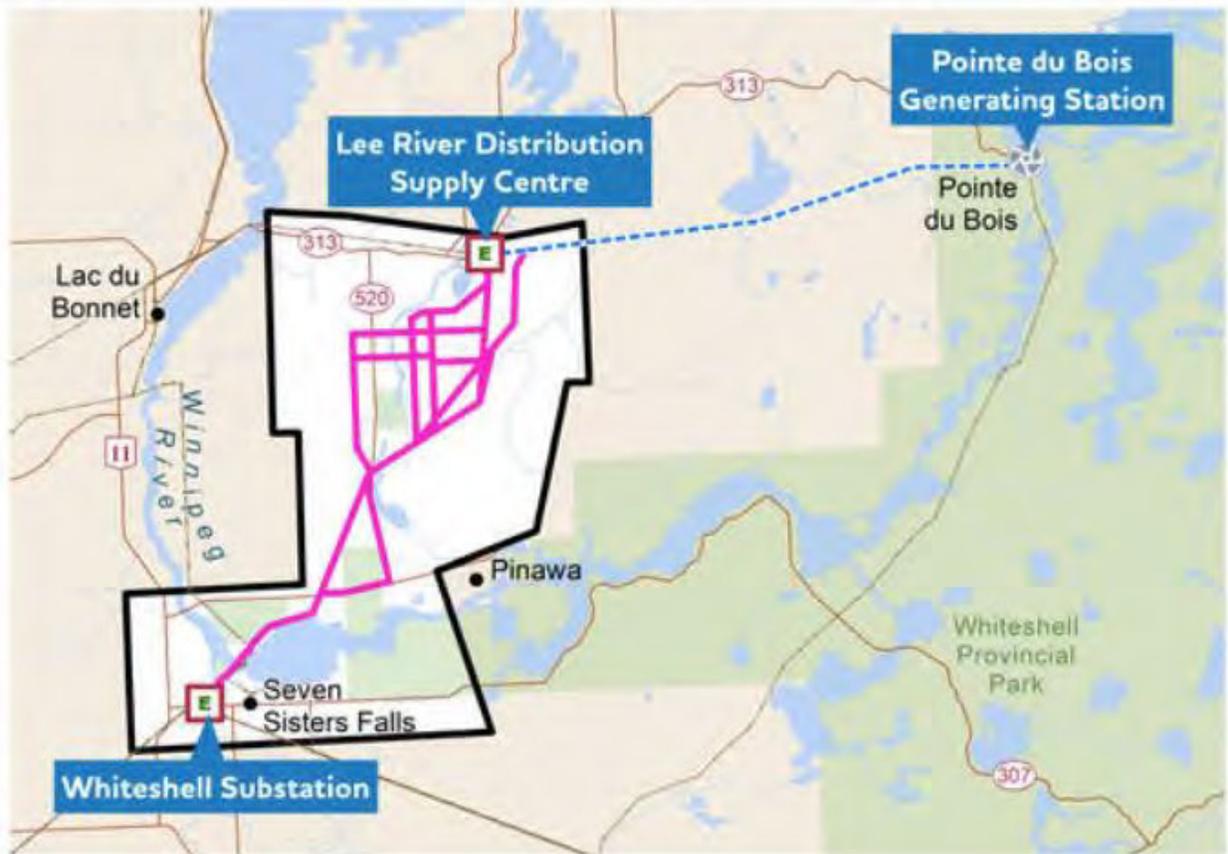
Manitoba Hydro

Published by Luke Rempel · July 4, 2022 ·

We're planning to build a new 115-kV transmission line to deliver more renewable energy and improve reliability for our customers in the Pointe du Bois area.

Join us for a virtual info session on July 13, 14, 19, 20, 21, and August 9, 10. Your feedback will help us pick a preferred route for the new line.

Register and learn more: www.hydro.mb.ca/prep



HYDRO.MB.CA

We want to hear from you

Join us for a virtual info session

[Learn more](#)

20

10 comments 7 shares

Reach: 97,023 individual users

Link clicks: 330



Manitoba Hydro

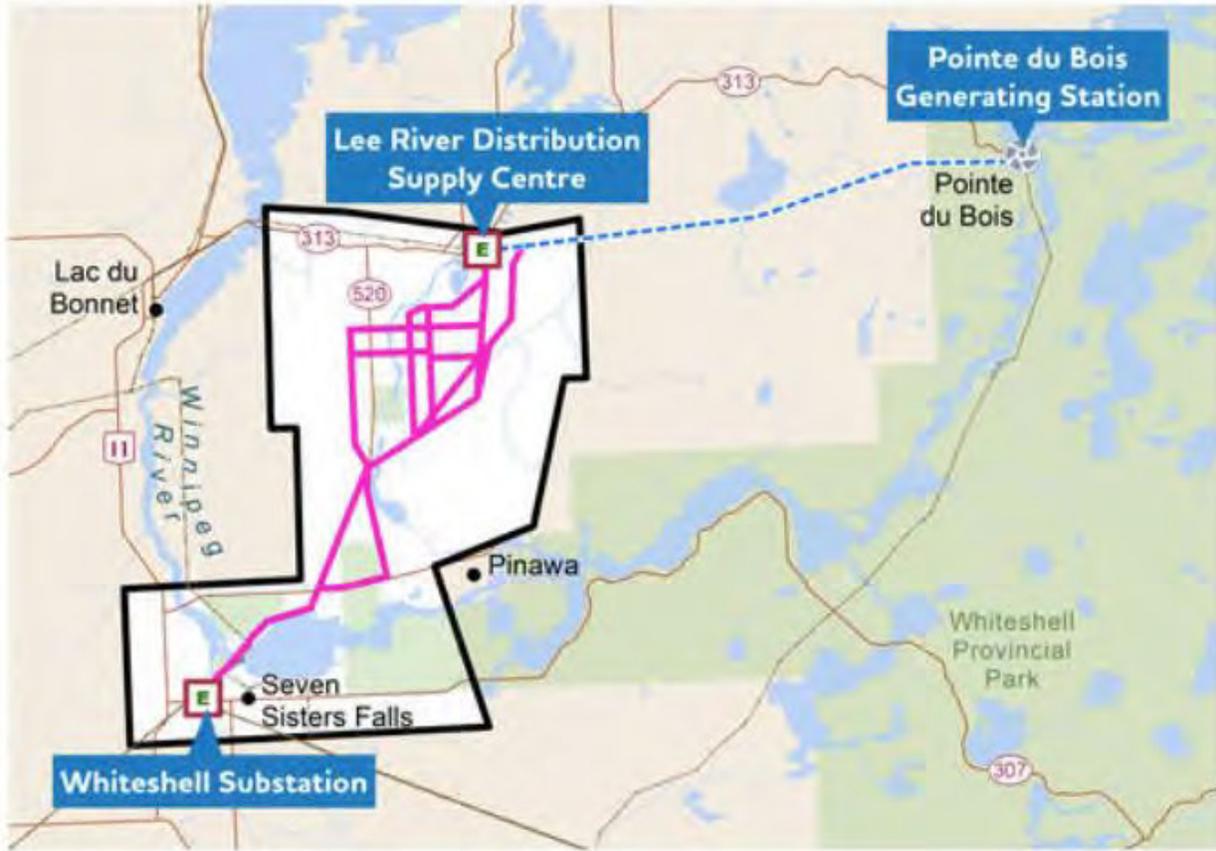
Published by Luke Rempel · July 4, 2022 ·



We're planning to build a new 115-kV transmission line to deliver more renewable energy and improve reliability for our customers in the Pointe du Bois area.

Fill out our online survey or leave a comment in our interactive portal by August 30. Your feedback will help us pick a preferred route for the new line.

Learn more: www.hydro.mb.ca/prep



HYDRO.MB.CA

We want to hear from you

Join us for a virtual info session

[Learn more](#)

17

2 comments 2 shares

Reach: 124,737 individual users

Link clicks: 304

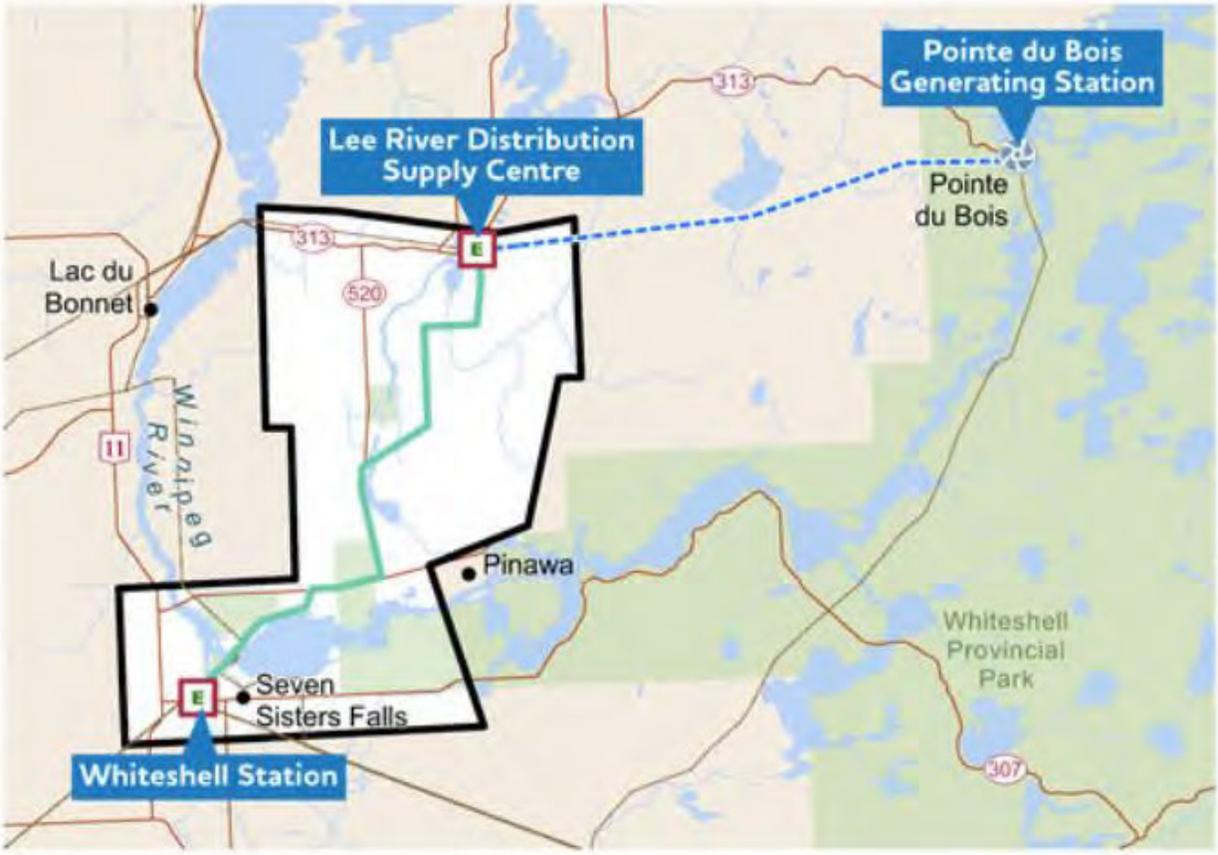
Round 2 social media advertisements

Manitoba Hydro
Published by Luke Rempel · March 15

We've selected a preferred route for the new 115-kV transmission line in between Pointe du Bois and Whiteshell Station.

Join us for a virtual info session on March 21, or in-person on March 25. Your feedback will help inform our final route and plans.

Register and learn more: www.hydro.mb.ca/prep



HYDRO.MB.CA

We want to hear from you
Join us for a virtual info session.

[Learn more](#)

106 139 comments 47 shares

Reach: 43,991 individual users

Link clicks: 2,574



Manitoba Hydro

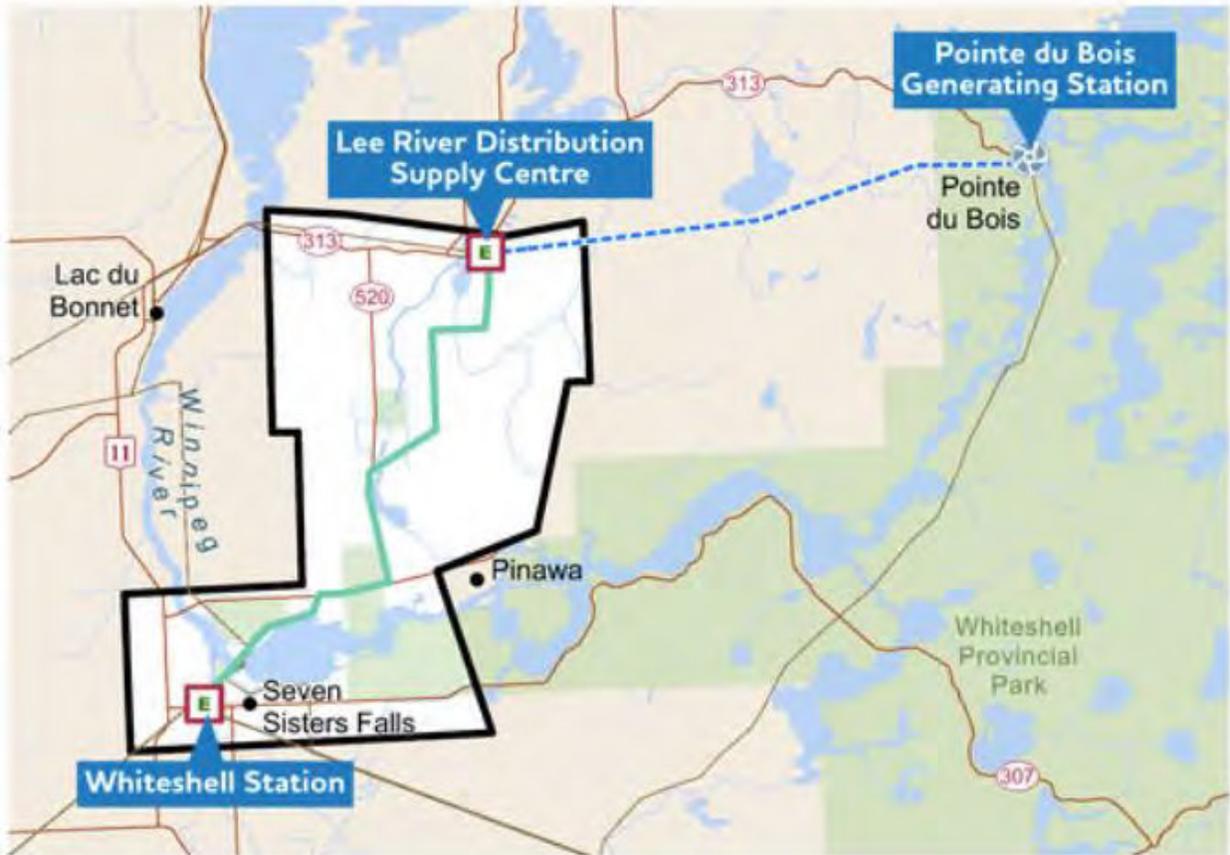
Published by Luke Rempel · March 1



We've selected a preferred route for the new 115-kV transmission line in between Pointe du Bois and Whiteshell Station.

Fill out our online survey or leave a comment in our interactive portal by March 31. Your feedback will help inform our final route.

Learn more: www.hydro.mb.ca/prep



HYDRO.MB.CA

We want to hear from you

Fill out the survey on our website.

[Learn more](#)

27

50 comments 16 shares

Reach: 27,505 individual users

Link clicks: 1,061

Engagement materials

Round 1 presentation

Round 1 virtual information session notes

Round 1 survey results

What we heard

Community preference team meeting presentations

Round 2 presentation

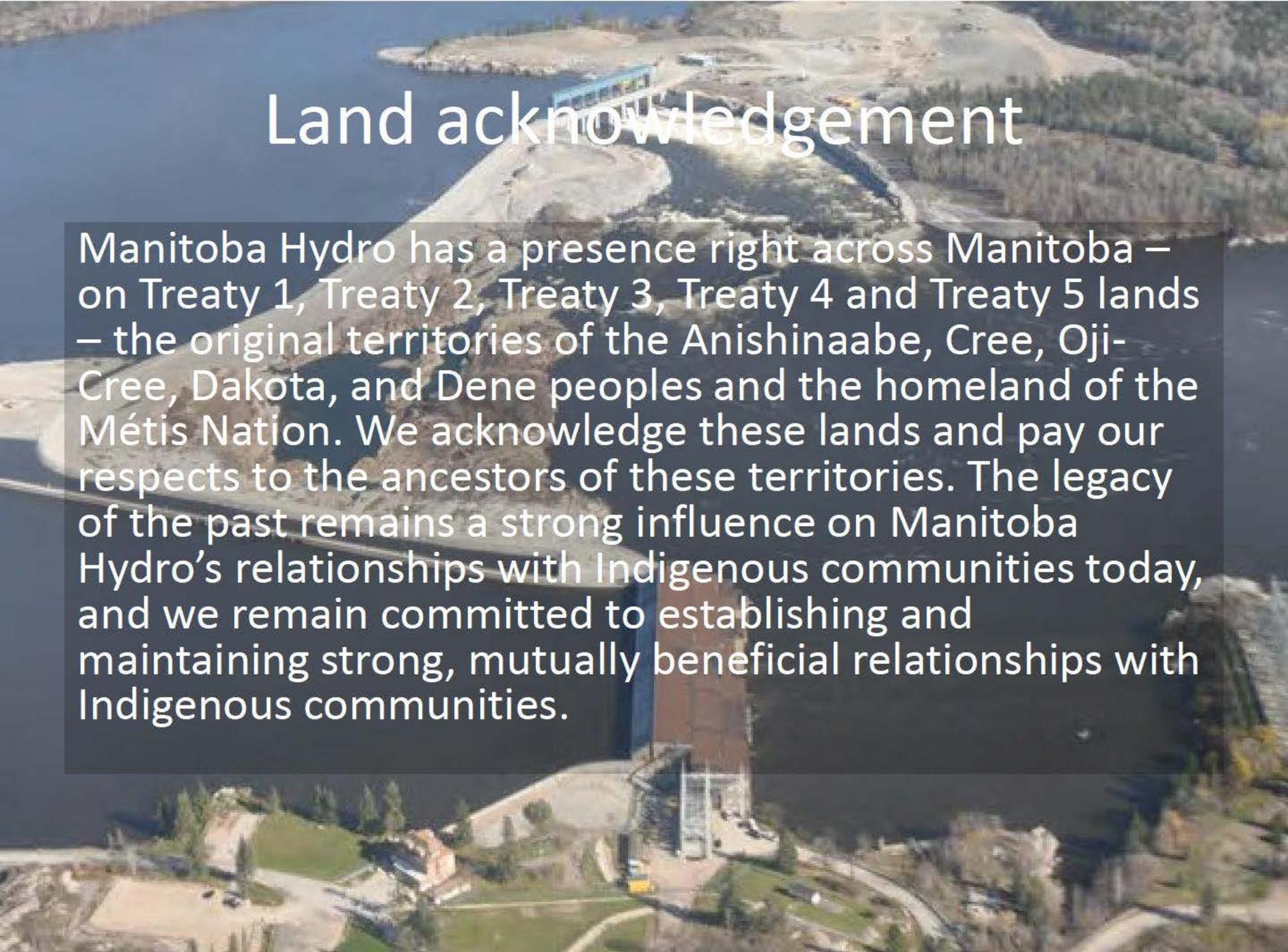
Round 2 virtual information session notes

Round 2 survey results

Pointe du Bois Renewable Energy Project (PREP)

Round 1 virtual information session
presentation

Land acknowledgement

An aerial photograph of a large dam and reservoir. The dam is a long, low structure with a concrete spillway. The reservoir is a large body of water extending into the distance. The surrounding landscape is a mix of green fields, trees, and some buildings. A semi-transparent dark grey box is overlaid on the image, containing the text.

Manitoba Hydro has a presence right across Manitoba – on Treaty 1, Treaty 2, Treaty 3, Treaty 4 and Treaty 5 lands – the original territories of the Anishinaabe, Cree, Ojibwe, Dakota, and Dene peoples and the homeland of the Métis Nation. We acknowledge these lands and pay our respects to the ancestors of these territories. The legacy of the past remains a strong influence on Manitoba Hydro's relationships with Indigenous communities today, and we remain committed to establishing and maintaining strong, mutually beneficial relationships with Indigenous communities.

Meeting outline

Welcome & introductions

Project presentation by Manitoba Hydro

- Generating station
- Transmission line
- Key issues
- Next steps and project timeline

Questions & answers

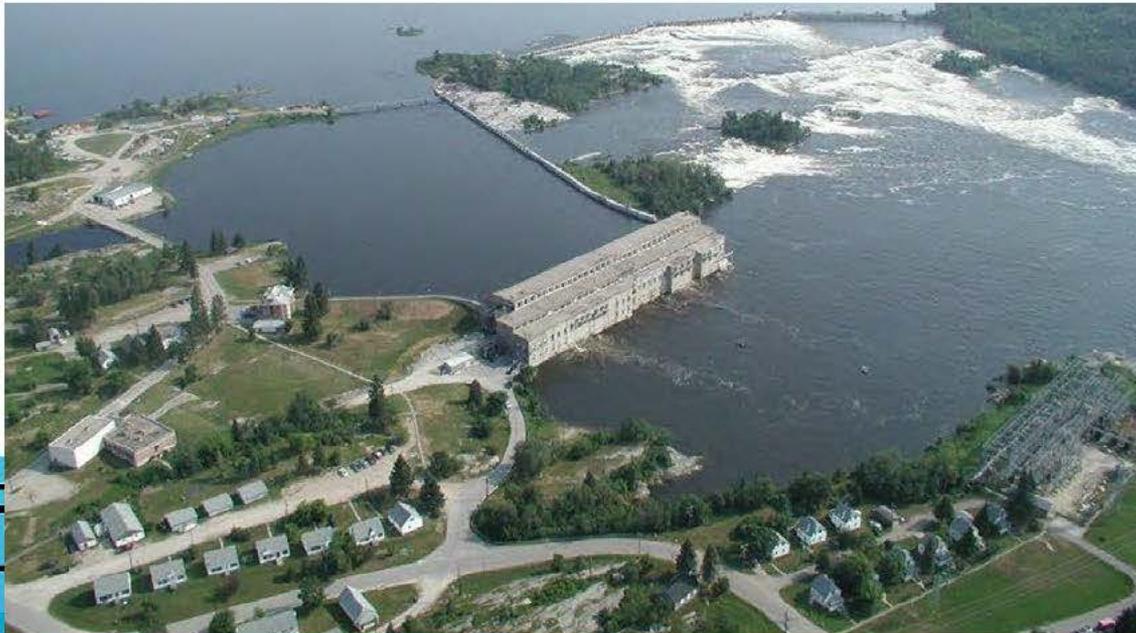
Project description

Generating unit replacement

- Installation of 8 generating units to replace original units nearing end-of-life

New transmission line (PW75)

- New 115-kV transmission line from Pointe du Bois generating station to Whiteshell substation



Why is this project needed?



Extend the operable
life of the station to
2055

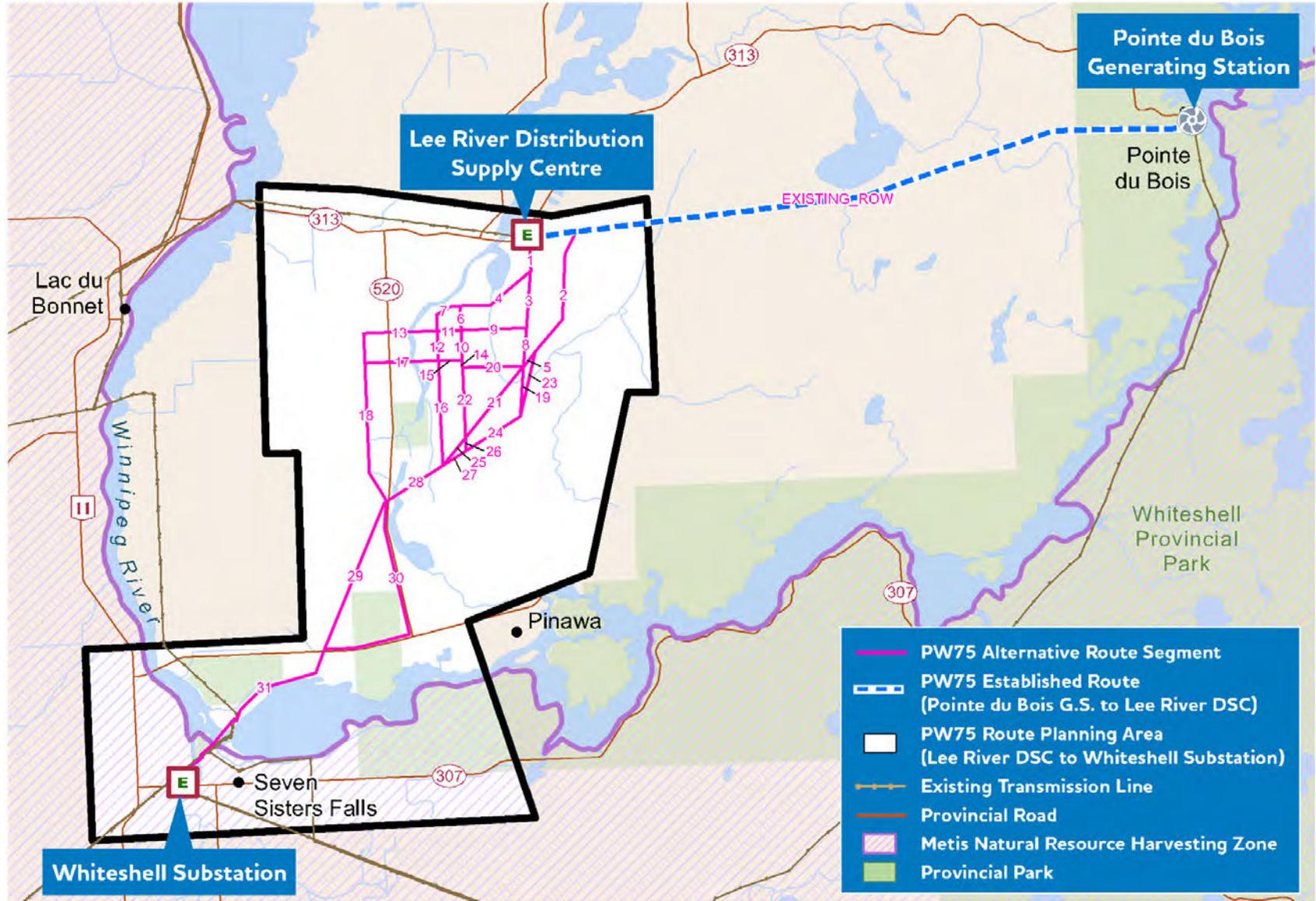


Increase the amount
of renewable,
dependable electricity



Enhance transmission
capacity in Pointe du
Bois and surrounding
area

Project area



Generating unit replacement work

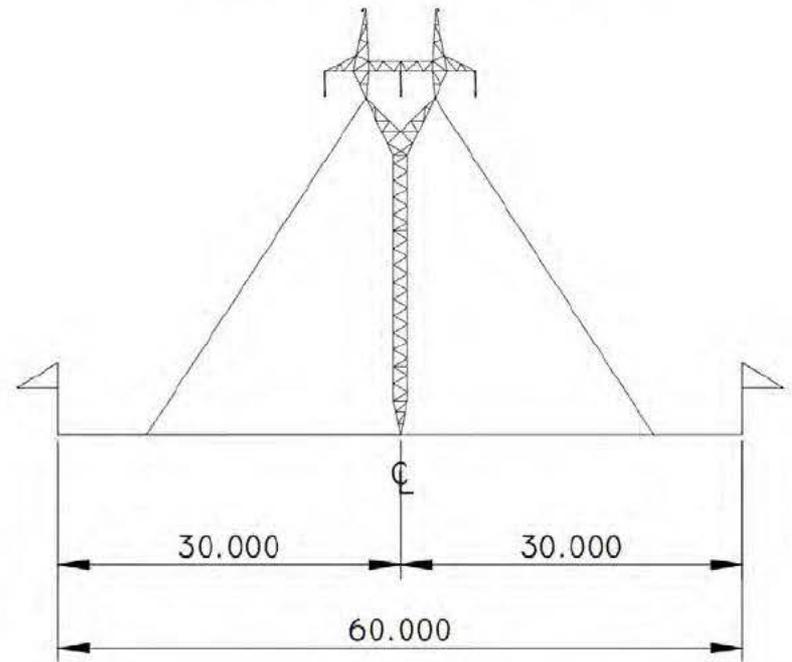
- Replacement of 8 generating units
- Extend the operable life of the station to at least 2055
- Increase of 52 MW of power – enough to power 35,000 homes



New transmission line (PW75)

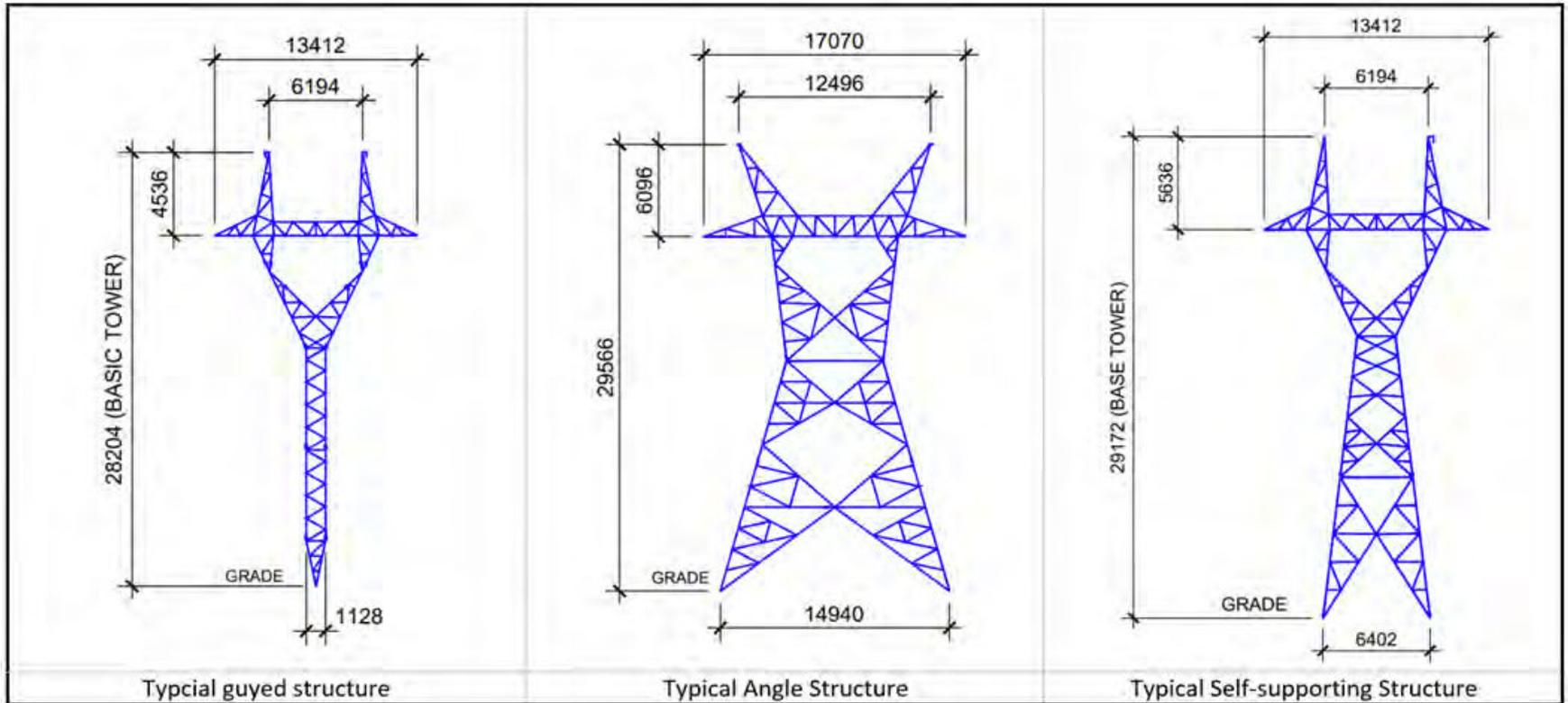
- New 115-kV transmission line
- Routed partly along existing ROW
- New route between Lee River DSC and Whiteshell substation

115KV TRANSMISSION LINE
TYPICAL GUYED LATTICE SUSP. STR.

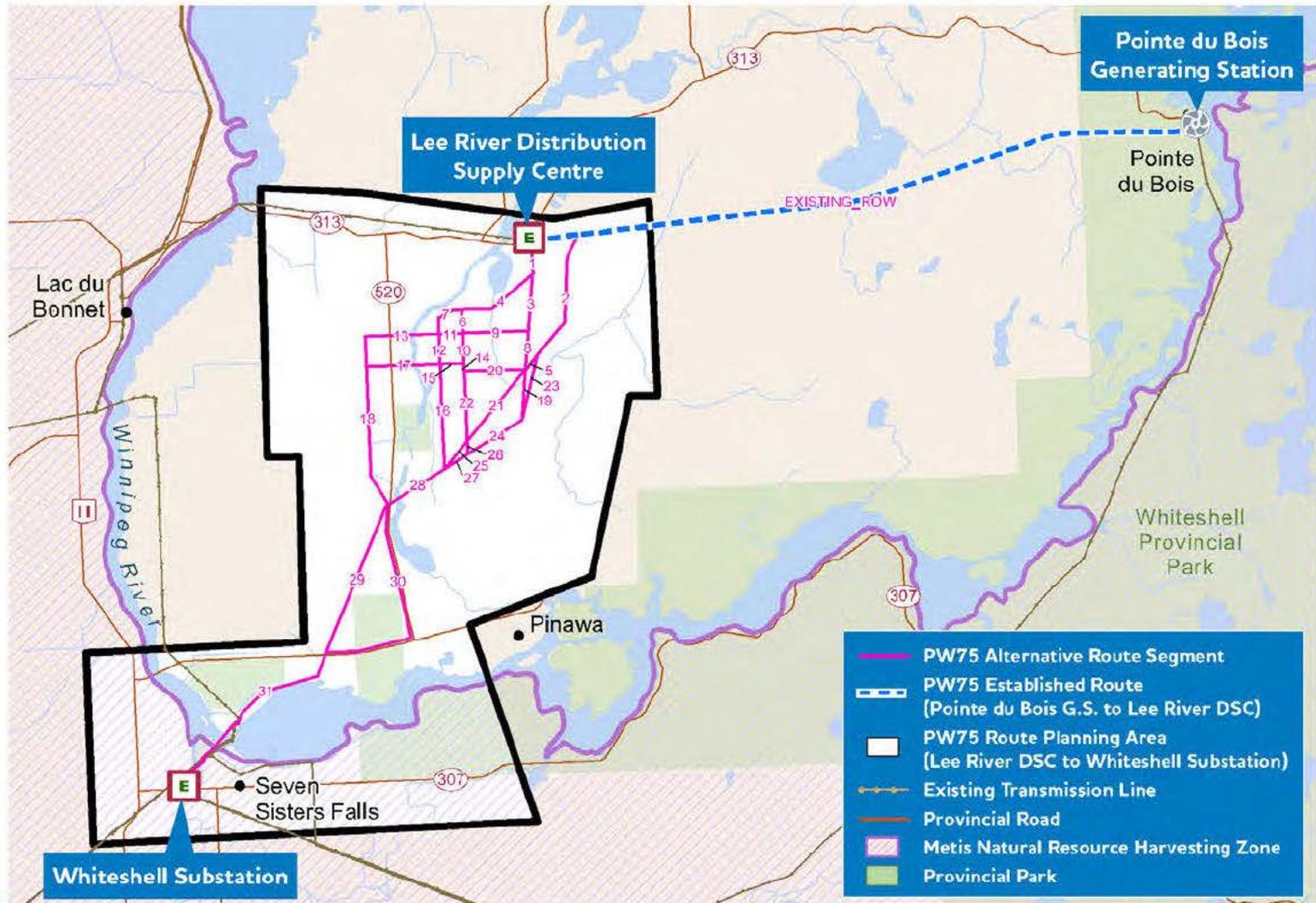


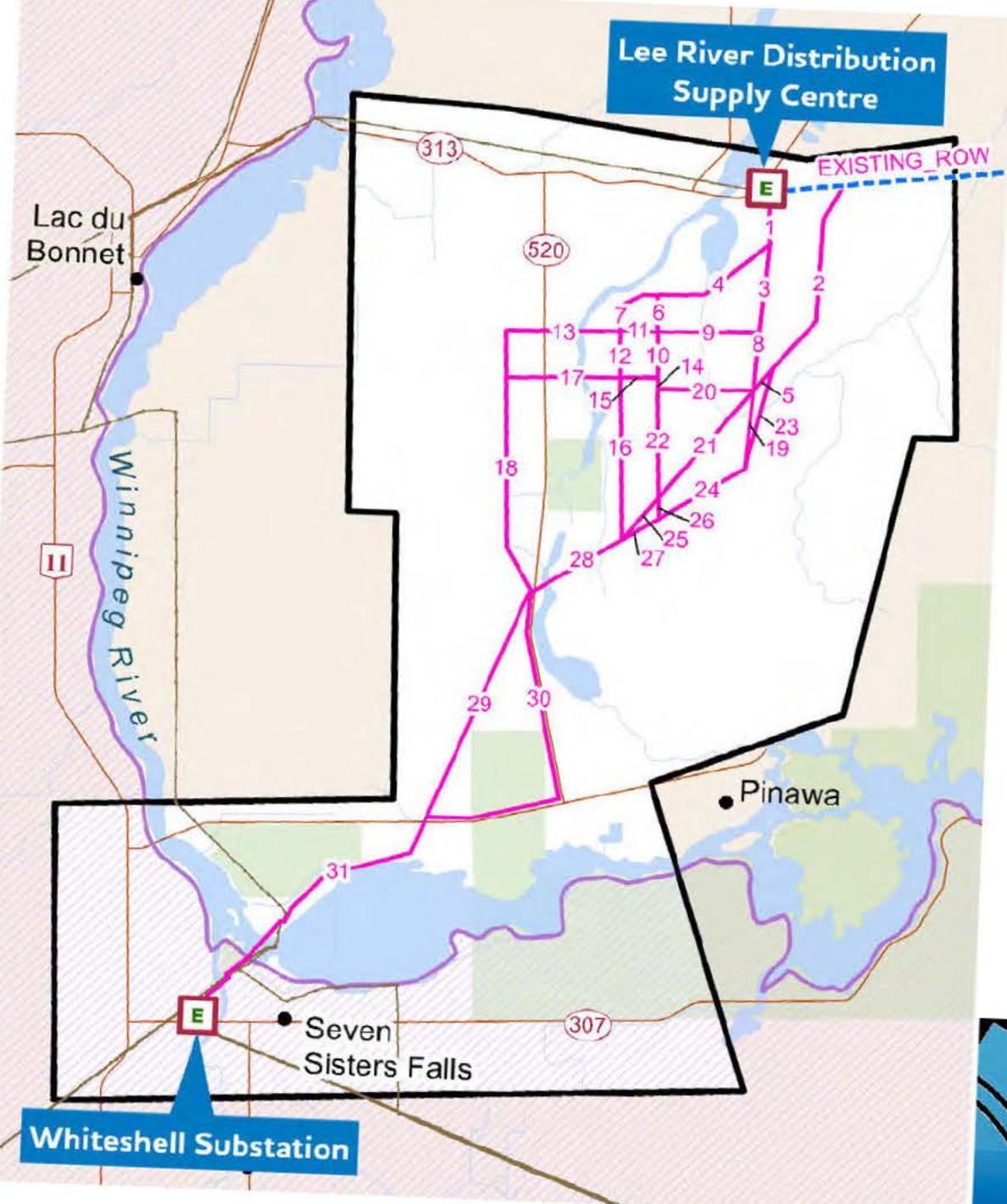
TYPICAL RIGHT OF WAY
115KV TRANSMISSION LINE

PW75 potential tower design



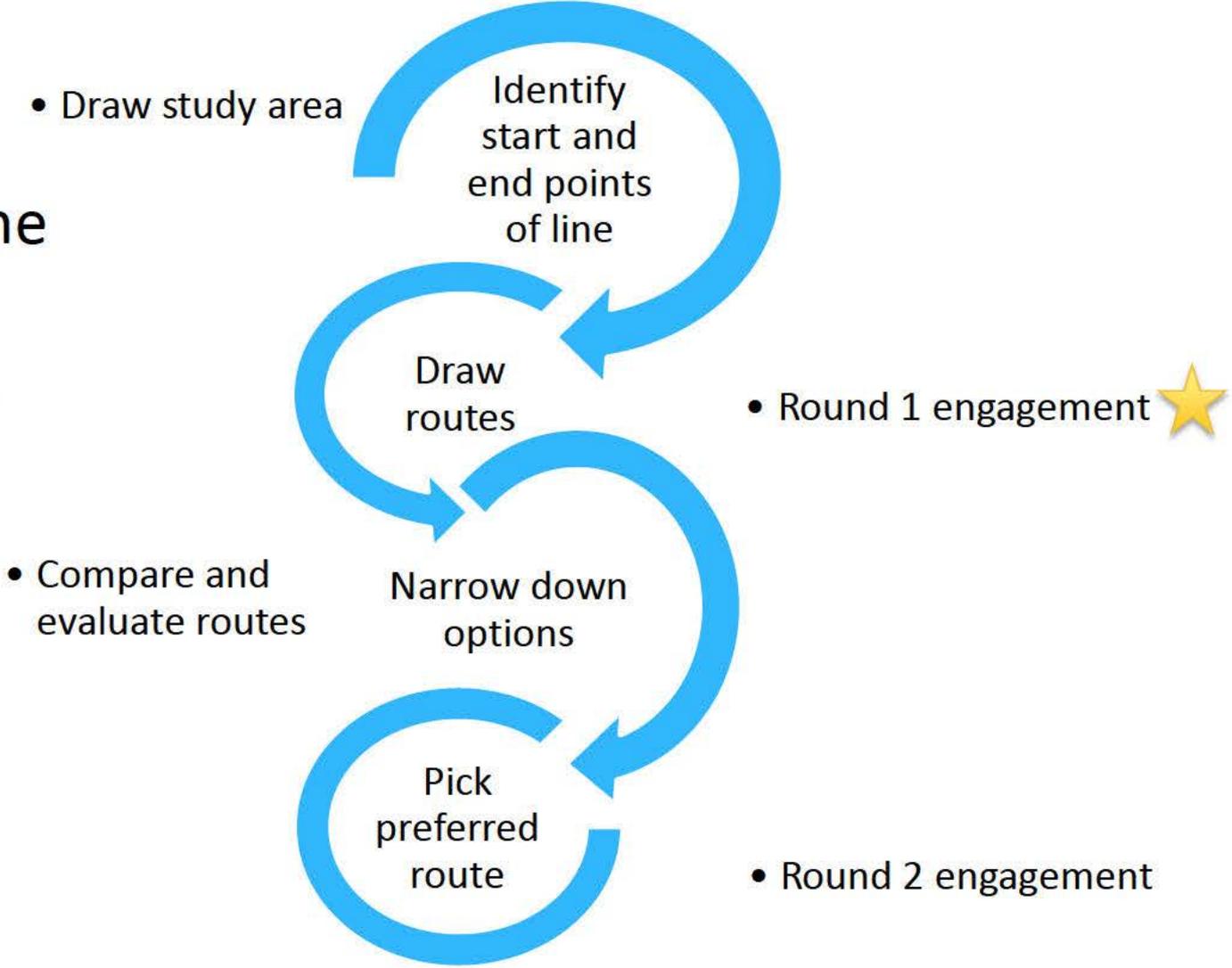
PW75 alternative route segments





PW75 alternative route segments

Transmission line routing and engagement process



PW75 engagement

Round 1 engagement

Spring – fall 2022

- Introduce the project
- Present alternative route segments
- Answer questions
- Identify and document concerns
- Use feedback to inform the preferred route selection process

Round 2 engagement

Winter 2023

- Present findings from Round 1
- Present the preferred route
- Answer questions
- Identify and document concerns
- Discuss potential effects and possible mitigation measures

How we're engaging

- Virtual information sessions
- Meetings with rural municipalities
- Meetings with First Nations, the Manitoba Métis Federation and Grand Council Treaty #3
- Online survey
- Interactive map and feedback portal
- Email and telephone communication



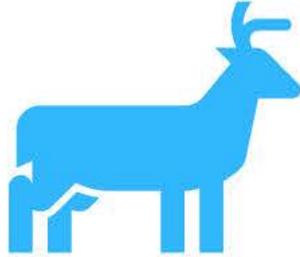
Key issues



Proximity to homes



Noise levels



Wildlife and fish



Water levels and flows



Other projects

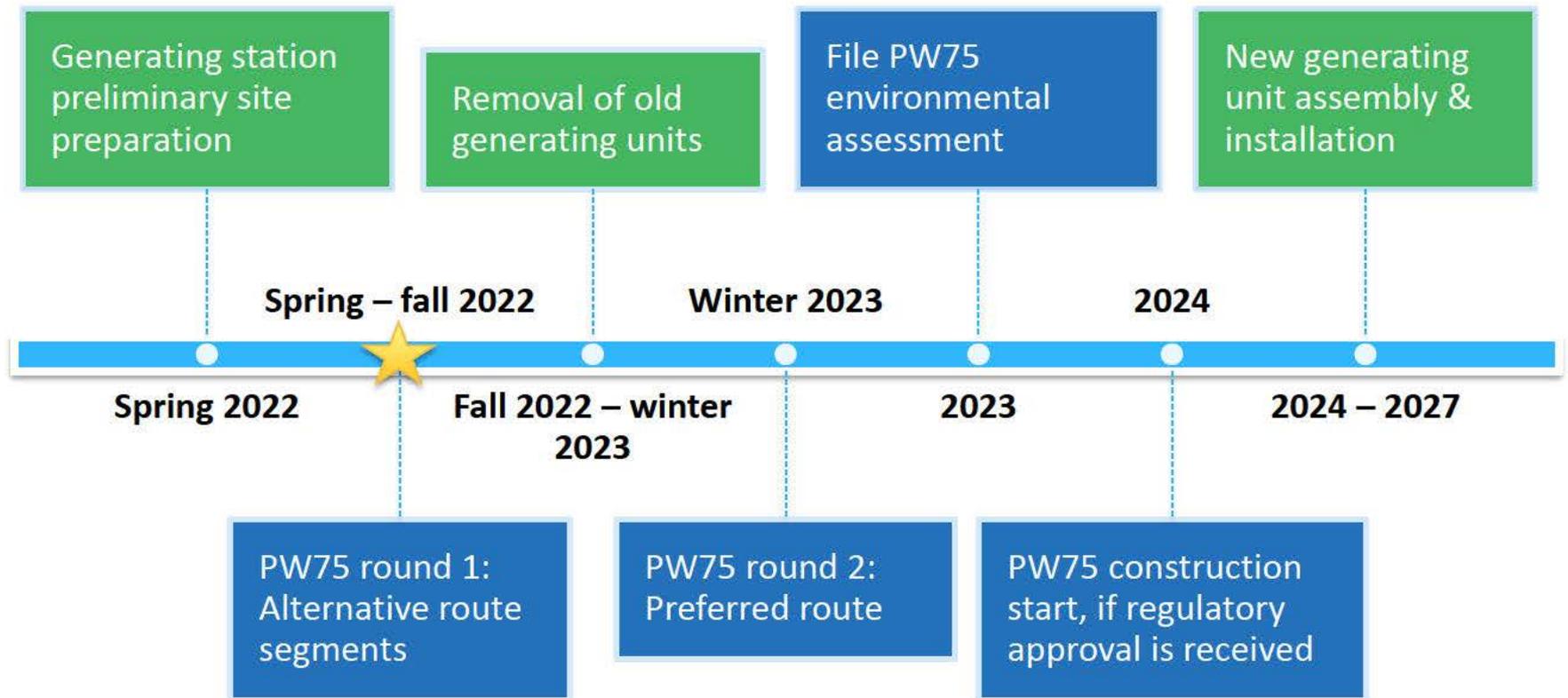


Culture and heritage



Employment opportunities

Project schedule



Thank you

The project team wants to hear from you. For more information about the Pointe du Bois Renewable Energy Project (PREP) and to sign up for email notices, please visit <https://www.hydro.mb.ca/prep>

Discussion

- General questions and concerns?
- Location specifics – segments?

Resources

- Website: www.hydro.mb.ca/prep
- [Interactive map and feedback portal](#)
- [Online survey](#)
- Document library:
[https://www.hydro.mb.ca/projects/system_renewal/pointe du bois/library/](https://www.hydro.mb.ca/projects/system_renewal/pointe_du_bois/library/)

Meeting Notes

Meeting: PREP virtual information session #1		
Date: July 13, 2022	Time: 7:00 – 8:00 pm	Location: MS Teams
Number of participants	1	
Meeting Description		
A Round 1 virtual information session to learn about the project and to ask questions, voice concerns, and share feedback on the alternative route segments to help inform MH's routing and plans.		
Owner	Action Item:	Status
MH	Share ways that MH can assist with minimizing access to transmission line rights-of-way on private property.	Complete
MH	Confirm how many lines are strung on a 115-kV transmission line.	Complete
MH	Determine what the involvement, if any, of an individual who leases Crown land would be in right-of-way use discussions.	Ongoing
MH	Share information and resources on EMF and transmission lines.	Complete

Discussion		
Category	Community Comment/Concern	MH Response
Introductory Remarks	Participant shared they have been a resident of Lac du Bonnet for 47 years and owns 4 titles of agricultural land near the Lee River DSC. Participant shared that there are some concerns and feedback related to some of the alternate route segments.	MH noted that this is the purpose of the virtual information session and encouraged the participant to ask questions and share feedback.
Property	Participant shared they live and have property along the Lee River on Belluk Road, which are very close to or directly along several of the alternative route segments. Participant shared they also have a set of existing hydro lines through one of their properties. Participant asked whether they have the option to allow MH to cross property.	MH shared that if a transmission line is to be routed through private property a compensation package is offered. Compensation is offered at 150% of fair market value for the entire right-of-way (ROW) width plus the distance of the line on the property. MH's preference is to work out an easement agreement with the landowner as ownership of the easement lands is maintained. This approach is preferred over the expropriation process.
Access	Participant shared concerns with a ROW opening up access to private property and how to control this. Participant shared they currently have existing easement that has	MH acknowledged the concern and will follow up with the participant on concerns with accessing the ROW.

Discussion		
Category	Community Comment/Concern	MH Response
	lots of people using it during hunting season. Fencing that has been placed to keep livestock in gets broken by hunters and recreational vehicles. The participant shared the property has been in the family for about 100 years and was purchased with intent to keep it as they remember it being used. Have ½ mile along the Lee River that will be kept unmaintained. Participant acknowledged that new ROW would open up the area to others. Participant asked if there are ways that MH can assist with minimizing access to rights-of-way on private property.	
Routing	It doesn't appear that MH would want to make a route through the bush or portions that have no residents and no agricultural land. It seems that the alternative route segments stick closer to roadways, existing ROW.	In putting forth potential alternative route segments, MH tries to balance multiple perspectives, so this means proposing segments on both Crown and private lands in addition to existing linear corridors.
Property	Participant asked whether the landowner maintains ownership when a 60-metre easement is registered on a land title.	MH confirmed that the Hydro easement allows ownership to be maintained by the owner of the property.
Access	Participant asked that if easement means the landowner maintains ownership, whether people have to contact the landowner to access that portion of the ROW.	In this case, MH would need to reach out to the property owner in advance of work taking place on the ROW. When conducting work on easements that fall on private property, MH plans work so that impacts are minimized.
Agriculture	Participant noted they use crop sprayers are used on some of their properties and asked how tall the towers will be and whether this would be a concern.	MH shared that tower design has not been confirmed at this point. Typically for this size of line, the tower height will range between 29 to 60 metres tall.
Routing	Participant asked how many lines a 115 kV transmission line has.	MH shared that there are 3 lines and that they will confirm this with participant in follow up.
Property	Participant asked at what point existing easements are reviewed by landowners and MH.	MH noted that negotiating easement agreements is something that is done on new projects. MH does not typically reopen or reinitiate discussions on existing easement agreements if not making

Discussion		
Category	Community Comment/Concern	MH Response
		changes to infrastructure on that easement. When property with an existing hydro easement is purchased, it is part of the land title and gets passed down.
Property	<p>Participant shared they have a long-term lease on Crown land that is strictly for forage along one of the alternative route segments. The participant asked how MH would deal with that portion of the land that currently being leased. The participant asked what their involvement would be in any discussions related to a right-of-way be if they lease the Crown Land.</p> <p>Own three properties on Section 5-15-12 and this leased Crown land is along segments #16 to #22.</p>	MH will add this as a follow up item. MH noted that any further details on location of this land with respect to which alternative route segments are of concern would be helpful.
Routing	Participant asked what the tower span would be if the line was routed along their property.	MH shared that on agricultural land, self-supporting towers would typically be used, and the span would be approximately 300 to 345 meters.
Health and safety	The participant asked about the hazards of 115 kV lines and if there were pamphlets or information to share	MH shared that the main concern we hear is related to EMF (electromagnetic fields). MH has compiled information from Health Canada and other reliable sources on EMF and will share brochures and resources with participant.
Additional Feedback	Need to spend some time looking at the segments more closely on the feedback and mapping portal and join another info session to share specific concerns related to specific segments.	Feedback on specific alternative route segments will be valuable to receive. There are several virtual information sessions scheduled and another option to share this type of information would be via email or phone. MH shared the appropriate email to use for sharing specific concerns and comments.

Meeting Notes

Meeting: PREP Virtual information session #2		
Date: July 14 th , 2022	Time: 12:00pm-1:00pm	Location: Virtual
Number of participants	10	
Meeting Description		
A Round 1 virtual information session to learn about the project and to ask questions, voice concerns, and share feedback on the alternative route segments to help inform MH's routing and plans.		

Owner	Action Item:	Status
MH	Distribute meeting minutes and presentation to participants.	Complete
MH	Provide contact information for public engagement team to participants.	Complete
MH	Follow-up with participant about accessing private property along the right-of-way.	Complete

Discussion		
Category	Community Comment/Concern	MH Response
Routing	Participants asked whether there will be new right-of-way (ROW) or widening of an existing ROW.	MH will be widening the existing ROW from 30 to 60m for the portion of the transmission line from Pointe du Bois Generating Station to the Lee River Distribution Supply Centre (DSC). For the portion of the line from Lee River DSC to the Whiteshell substation, MH will be routing along a new ROW that has not yet been determined.
Routing	A participant asked why MH is not using existing ROWs for the entire project.	MH does not have existing infrastructure across the entire project area. There is no current transmission line corridor between Lee River DSC and Whiteshell substation. The existing P3/P4 line, between Pointe du Bois and the Lee River, and the existing S1/S2 lines between Point du Bois and Winnipeg are unable to carry new loads from the station due to their current condition.
Routing	A participant asked why the line could not be routed down PR520	MH clarified it was not feasible to run the transmission line along PR520 because of houses that run along both sides of the road.

Discussion		
Category	Community Comment/Concern	MH Response
Routing	A participant asked why MH is using more private property opposed to Crown land.	MH is trying to balance the use of both land types.
Economics	Participants asked why the project is only expected to be used until 2055 and why Manitobans are investing in this project.	MH is reinvesting in existing assets. It is more cost effective to refurbish existing assets than building new assets. The project area has little existing infrastructure and this project will increase electrical grid reliability in the area.
Property	A participant asked what kind of impacts happen to directly affected landowners and how they can make their concerns known during the process.	MH is interested in understanding land use for properties and land in the area. The more we can understand the individual situation the more we are able to help with making reasonable accommodation.
Property	A participant asked that after MH is done, what support do landowners have from Hydro with potential changes to environment. The participant was concerned with increased recreational vehicle traffic, trespassing on property.	This is a concern MH is aware of and will follow up with the participant.
Property	A participant asked how MH acquires the land for the ROW.	MH prefers to acquire an easement for the land use. Land is paid at 150% fair market value. The land stays in the name of the property owner. This is a one-time payment made at the time of construction.
Property	A participant asked how MH deals with the impact of property value post-construction.	MH has identified that while property value can go down during construction, it does not have a significant impact on property value over time.
Engagement	Participants asked how they can ensure that the engagement process is interactive.	Follow-up information will be sent out after the meeting, including the presentation slides, meeting minutes and links to maps and other project resources. The follow-up email will also include contact information for the engagement team for the project.
Engagement	A participant asked whether MH is reaching out to recreational user groups in the area.	MH confirmed we have reached out to recreational user groups in the area and have been providing them with project information.

Route segment #	Comment	Concern / Response
2	A participant asked if this segment is a realistic route option.	Participant was wondering if the route will be back-tracking from the Lee River DSC to the other alternative route segments.
Summary	A participant asked if there is a preferred route identified.	MH clarified that there would be a preferred route presented in round 2 (not round 1)

Meeting Notes

Meeting: PREP Virtual information session #3		
Date: July 20 th , 2022	Time: 12:00pm-1:00pm	Location: Virtual
Type of meeting	Virtual Information Session	
Number of participants	3	
Meeting Description		
A Round 1 virtual information session to learn about the project and to ask questions, voice concerns, and share feedback on the alternative route segments to help inform MH's routing and plans.		

Owner	Action Item:	Status
MH	Distribute meeting minutes and presentation to participants	Complete
MH	Follow up with participant on estimated workforce numbers for the project	Complete
MH	Add participant information to list of local businesses for future employment and business opportunities on this project	Complete

Discussion		
Category	Community Comment/Concern	MH Response
Economics	A participant asked how many people MH is looking to hire to complete this project.	MH will follow up on this question with participant.
Economics	A participant asked how an individual would pursue working on this project.	Participants can provide their information to be added to a list of businesses considered in the project. MH will add the participant's information to the list.
Roads	A participant asked how the project might affect the road to Pointe du Bois and whether the project will affect traffic.	This project will increase the road traffic in the area, but it will be small compared to previous projects (such as the Pointe du Bois spillway). Current traffic estimates are 3-4 trucks per day. We do not expect the project to affect the condition of the road to Pointe du Bois like previous projects have. MH is investing money over the next few years to fix the portion of the road in the community of Pointe du Bois.

Meeting Notes

Meeting: PREP Virtual information session #4		
Date: July 21 st , 2022	Time: 7:00pm-8:00pm	Location: Virtual
Number of participants	2	
Meeting Description		
A Round 1 virtual information session to learn about the project and to ask questions, voice concerns, and share feedback on the alternative route segments to help inform MH's routing and plans.		

Owner	Action Item:	Status
MH	Confirm whether Southern Chiefs Organization has been specifically engaged with on the project.	Ongoing
MH	Provide participants with contact information for Indigenous engagement lead for project.	Complete

Discussion		
Category	Community Comment/Concern	MH Response
Roads	Participant asked if there will be impacts in the community of Pointe du Bois because of this project.	The portion of PR313 leading into the community of Pointe du Bois is under Manitoba Infrastructure's (MI) jurisdiction. MI has been made aware of this project and MI will follow their road maintenance procedures for PR313. For the portion of the road in the community of Pointe du Bois, MH is planning to undertake immediate maintenance, and a long-term upgrade of this section of the roadway next year. MH anticipates 3-4 trucks per day traveling to Pointe du Bois for the project during construction.
Water levels & flows	A participant asked how the upgrades to the generating station are expected to change water levels and flows in Pointe du Bois.	Water levels and flows are not anticipated to have any noticeable changes for residents and cottagers in the area as a result of the project.
Other projects	A participant asked how this work relates to the work being done in Pinawa.	At this stage, there are no major MH projects planned in the Pinawa area that would have overlapping timelines with the work in the Pointe du Bois area.

Discussion		
Category	Community Comment/Concern	MH Response
Engagement	A participant asked what the Indigenous engagement process has been on the project.	To-date, MH has reached out to the following First Nation and Métis communities: Black River First Nation, Brokenhead Ojibway Nation, Hollow Water First Nation, the Manitoba Métis Federation, Peguis First Nation, Sagkeeng First Nation, and Grand Council Treaty 3. Other communities may develop an interest as the project progresses and would be included in engagement activities if they express an interest. MH noted they would provide the participant with the Indigenous engagement lead contact information if there were additional follow-up questions.
Engagement	A participant asked if Southern Chiefs Organization has been specifically engaged on this project.	MH to follow up.
Engagement	A participant asked which rural municipalities have been engaged	MH has engaged with the following rural municipalities: Lac du Bonnet, Alexander, Whitemouth, Reynolds, and the Local Government District of Pinawa.
Economics	A participant asked whether the purpose of this project was to increase electricity exports to Minnesota.	MH noted that while the provincial power grid is interconnected, the primary purpose of this project is to reinvest in the Pointe du Bois generating station and to improve power reliability to Lee River and Lac du Bonnet areas.
Economics	A participant noted that tourism and agriculture are the two main economic opportunities in the area and are interested in how tourism operators and agricultural producers feel about the project.	MH has been in contact with potentially affected landowners and recreational user groups in the area about the project to understand interests and concerns. The goal of transmission line routing is to balance interests and perspectives and to minimize overall impacts of the project.
Engagement	Participants thanked MH for being open and transparent in the engagement process and for providing opportunities for involvement early on in the process.	N/A

Meeting Notes

Meeting: PREP Round 1 Engagement meeting		
Date: August 9, 2022	Time: 12:00 – 1:00 pm	Location: MS Teams
Type of meeting	Round 1 Information Session	
Facilitator	Geneva Cloutis	
Note taker	Chantal Brodbeck	
Number of participants	9	
Meeting Description		
A Round 1 virtual information session to learn about the project and to ask questions, voice concerns, and share feedback on the alternative route segments to help inform MH's routing and plans.		

Owner	Action Item:	Status
MH	Contact participant with more information on why the old Atomic Energy of Canada Laboratory (AECL) site does not have an alternative route segment in it.	Complete
MH	Share information on current contractors and opportunities for local hiring with participant.	Complete
MH	Contact participant with more information on why the proposed route segments don't follow the existing line that runs between Seven Sisters and Point du Bois.	Complete
MH	Contact participant with more information on regulations on building in proximity to the right-of-way.	Complete

Discussion		
Category	Community Comment/Concern	MH Response
Routing	Participant asked whether there has been consideration of routing the transmission line through the Old Uranium Research (AECL/CNL) lab area.	The CNL/AECL sites were evaluated for routing but are not being considered for several reasons: the lands are Federal property which requires additional levels of approvals, the sites have yet to be decommissioned, there will be nuclear products left on-site, some AECL sites are located outside of the data planning area and would add significant line length and cost.
Aesthetics	Participant expressed concerns on the change of aesthetic that will occur if a	Aesthetic concerns are taken into consideration when evaluating the route segments.

Discussion		
Category	Community Comment/Concern	MH Response
	transmission line is put on their property.	
Engagement	Participant asked how further feedback can be submitted and what the timeline is for providing feedback?	The MH website where surveys can be submitted was shown to the group, along with how to access the alternative route segment map where participants can provide feedback on specific areas or points of interest. The survey and feedback portal will be open until August 30.
Property	Participant asked what would happen if participants didn't want the transmission line to go across their land and didn't want to sign the easement agreement.	MH noted most concerns of transmission lines can be addressed through routing, such as minor adjustments to the placement of the tower on the land. Conversations on how to accommodate concerns and work together with landowners are ongoing.
Engagement	Participant was concerned that they were not directly contacted that these meetings were occurring. Participant suggested sending direct mail to all the landowners in the area.	In Round 1 engagement, MH uses a variety of engagement methods to contact property owners, residents and interest groups in the area to reach a broader audience. MH noted the participant's concern and preference and will take it into consideration for future rounds of engagement and other projects.
Decommissioning	Participant asked what the plan is around the portion of the transmission line that runs from Lee River DSC to Winnipeg and whether that line will be decommissioned. Additionally, what is the timeline for the project?	The plan is to eventually decommission the second half of the line at a later date, but the scope of that work is not included in this Project. MH would keep the old P3/P4 line while they build PW75, once the new line is in service then the old line would be decommissioned. The timeline for construction of the transmission line is 2024-2027, pending regulatory approval.
Construction & operation	Participant asked if the contracts for the Project have been approved?	Two contracts for the Project have been approved for preliminary work related to the generating station:

Discussion		
Category	Community Comment/Concern	MH Response
		Owner's Engineer Services and Fabrication and Supply of Intake Bulkhead Gates.
Economics	Participant asked if there is a preference for local hires?	There will not be as many economic opportunities for this project as there have been for other recent large MH projects (such as the Pointe du Bois spillway project). However, there will still be preferences to hire local and Indigenous communities for employment where available.
Routing	Participant noted that there is an existing line that runs between Slave Falls and Pointe du Bois and asked whether following that route was considered.	There are reliability issues in the Lee River area which is why these route segment options are being presented, as well as to leverage the required decommissioning of the old P3/P4 line. Routing the line between Pointe du Bois and Slave Falls was evaluated but was not considered for this project given the large amount of provincial park the line would travel through. This would require widening the right-of-way throughout the park and is notably longer than the options being presented.
Property	Participant asked if you could build on or around the right-of-way is there is an easement plan.	Landowners cannot build on the right-of-way once the easement agreement has been signed. In general, landowners can build anywhere outside of the right-of-way. Easement width must be designed to accommodate everything an adjacent landowner may build or do immediately adjacent to an easement on their own property. Metal buildings and fences built after the transmission line is in place cause safety risks, and any metal structures need to be grounded for safety.
Property	Participant expressed concerns around the current market on agricultural land	MH noted this concern.

Discussion		
Category	Community Comment/Concern	MH Response
	versus the future market for land that has not been developed regarding determining easement agreements.	

Meeting Notes

Meeting: PREP Round 1 engagement meeting		
Date: August 10, 2022	Time: 7:00 – 8:15 pm	Location: MS Teams
Type of meeting	Virtual Information Session	
Number of participants	3	
Meeting Description		
A Round 1 virtual information session to learn about the project and to ask questions, voice concerns, and share feedback on the alternative route segments to help inform MH's routing and plans.		

Owner	Action Item:	Status
Participant	Provide MH with information on ski trails in the Pinawa area.	

Discussion		
Category	Community Comment/Concern	MH Response
Routing	What are the constraints for routing transmission lines?	There are several constraints considered by MH in determining feasible corridors for transmission lines. These include, but are not limited to: proximity to buildings, non-spannable waterbodies, provincial park reserves and protected areas, active mines and quarries, airports and runways, heritage and archaeological sites, waste disposal grounds, water and wastewater treatment areas, and known contaminated sites.
Economics, Vegetation	The generating station is very old, and the 2055 timeline is relatively short compared to the regrowth for mature forests that would need to be removed on this project. The environment to cost ratio on the generating station asset is unclear.	The Pointe Du Bois powerhouse is over 110 years old, and due to its current condition, it requires upgrades to extend its life to support the continued generation of renewable energy into the future until the 2050s. The life extension of the powerhouse provides an opportunity to add new generating units that restores generation output at the plant. Manitoba Hydro has not determined if it is technically or economically

Discussion		
Category	Community Comment/Concern	MH Response
		<p>feasible to extend the life of the powerhouse beyond the 2050s; however, we have analyzed the cost of energy produced by generation at Pointe du Bois with the proposed upgrades vs other methods of power production. The levelized cost of energy is comparable to, or lower than, wind and solar intermittent generation resource options, but the hydro resource provides the major economic and reliability benefit of providing firm power to meet peak loads. Therefore, the energy produced by the PREP would have a low cost compared to other generation resource options available to Manitoba Hydro for future development.</p> <p>Understanding the environment to cost ratio is a complex question where the response includes a balancing of project need with impacts to the environment at the short, medium and long term. An environmental assessment is being prepared with input from affected communities that will characterize these effects and describe the need for the project. The assessment will be included in the application submitted to the Department of Environment, Climate and Parks' Environmental Approvals Branch for their review. The Environmental Approvals Branch, in collaboration with other government departments, is charged with ensuring that the environment is protected and maintained in such a manner as to sustain a high quality of life, including</p>

Discussion		
Category	Community Comment/Concern	MH Response
		<p>social and economic development, recreation and leisure for this and future generations.</p> <p>A few points about the environmental and economic costs we understand at this early stage of planning include:</p> <ul style="list-style-type: none"> • An existing generation facility is being upgraded, and Manitoba Hydro is also seeking to expand an existing right-of-way for a large portion of the Project, reducing clearing needs when compared to a new, more direct route for the PW75 right-of-way. • The GHG impact of conversion of the right-of-way was estimated to be 22.5 kt of CO₂e emissions; however, net global GHG reductions over the life of the Project were estimated to range between 7,270 and 8,800 kt of CO₂e. Gross emission reductions are around 400 times the GHG emissions resulting from the creation of the PW75 right-of-way. The GHG payback of the project is overwhelmingly positive. • A multi-round routing process has been adopted for the PREP where Manitoba Hydro is seeking feedback from potentially affected landowners, subject matter experts, including Indigenous communities and government representatives on routing preferences and concerns. This local information helps Manitoba Hydro to plan a project with tailored mitigation relevant to the area affected. • A transmission line right-of-way supports a healthy

Discussion		
Category	Community Comment/Concern	MH Response
		<p>grassland/wetland environment, including providing habitat for a variety of species.</p> <ul style="list-style-type: none"> • Manitoba Hydro adopts a broad suite of mitigation measures that reduce impacts to lands, water and people. We remain open to suggestions on mitigation relevant to the project area, including those that would improve the environment to cost ratio. • As a Crown corporation with long history of transmission line and generation construction in the province, we are able to consider the effects of past projects developed in the region. These local examples help inform our assessment, including how rights-of-way contribute environmental benefits on an ongoing basis once established.
Routing	<p>Participant noted that human threats on transmission lines are a concern, increasingly so with global instability. The transmission lines should be “hidden in plain sight” along built corridors. The cost to go in and repair downed lines in more remote areas is likely significant. The participant asked MH to consider the cost over the life cycle of the asset and reconsider routing along PR520, noting that crossing the road 5-6 times would likely be cost savings over the life of the project than routing in more remote areas and having to do repairs and maintenance.</p>	<p>Seasonal construction and maintenance restrictions are considered in the evaluation of alternative route segments, as well as overall construction and design costs. Angle tower structures add additional cost to transmission line design.</p>
Routing	<p>A participant asked if the Lee River DSC will be back-fed power from Lac du Bonnet.</p>	<p>There are no plans to feed the Lee River DSC from other locations as part of the PREP.</p>

Discussion		
Category	Community Comment/Concern	MH Response
Routing	Participant asked if there is an existing transmission line between the Lee River Distribution Center and the Whiteshell Substation? Wondering about considerations regarding widening an existing right of way or following roads such as 520?	There is currently no transmission line between the Lee River DSC and the Whiteshell substation. There are no available existing transmission corridors between these two points that MH could leverage to route PW75. PR520 has several homes along either side of the road that make it undesirable to route along.
Routing	Clarification on how this project builds redundancy into the grid in this area.	The Lee River DSC will be receiving power from the Pointe du Bois generating station, as well as from the Whiteshell substation, as a result of PW75. It is being routed as one transmission line.
Recreation & travel	Concerns that the transmission line will impact ski trails and the TransCanada trail.	MH will develop an Access Management Plan to maximize construction vehicle use of existing roads and trails, rather than disturbing new areas. Recreational activities such as cross-country skiing may be disturbed during construction, but this disruption is expected to be temporary and short term. MH will work with the local ski club to understand the specific location of the ski trail to discuss potential impacts of the transmission line right-of-way on the cross-country ski trail.
Wildlife & habitat	Concerns that routing the line through forest will add to already existing habitat fragmentation	MH considers habitat fragmentation throughout the transmission line routing process. Forests, wetlands, and wildlife habitat are considered during the development of routing corridors. Intactness (the opposite of habitat fragmentation), wildlife habitat, wetlands, riparian habitat and natural forests are all factors considered when narrowing down potential routes. The 'natural environment' is one of the final factors considered when selecting a preferred route.

Discussion		
Category	Community Comment/Concern	MH Response
Routing	Participant commented that since natural spaces are under increasing threat of development, their personal interest is in maintaining "relatively" unaltered natural habitats - including those along the Pinawa channel. Participant recognized that routing choices work to avoid houses, mines, runways, but worries this drives MH towards routes that require clearing more natural habitat.	MH noted this feedback from the participant and their preference to avoid natural habitats.
Routing	Participant expressed a preference for MH to consider routes that go through areas that are already developed, and to avoid natural habitat (such as segments 28 and 30).	MH noted this preference and thanked the participant for the feedback.
Vegetation	Are there plans for MH to offset the forests being removed as part of the project? Participant noted this would have benefits from a climate change perspective and related to federal sustainability goals.	There is no requirement to compensate or offset for the loss of trees as a result of transmission line clearing on the project unless it is included as such in the Licence for the project. MH is open to mitigation ideas for impacts to vegetation.
Vegetation	Participants asked MH not to use herbicides along the ROW for vegetation management.	No herbicides will be used for clearing during construction. Herbicides are an important tool in integrated vegetation management to reduce impacts to the environment during maintenance activities. Herbicides are not used indiscriminately and are used to target tall growing species. An Integrated Vegetation Management Plan will be developed for maintenance of the right-of-way.
Economics	Participant asked MH to reconsider whether addressing demand is to increase supply, or to change the demand. MH should look at revising building codes and working with municipal and provincial bodies.	MH noted this feedback.
Economics	Participant asked MH to consider alternatives to the project and make this clear in the environmental assessment,	MH noted this feedback.

Discussion		
Category	Community Comment/Concern	MH Response
	looking at whether there are other options to address demand beyond upgrading the Pointe du Bois generating station.	
Wildlife & habitat	Participant noted that there is Great Grey Owl habitat along PR211 near segment 30.	MH noted this feedback and that it would be used to inform routing and the environmental assessment.
Recreation & travel	There are approximately 30km of ski trail around Pinawa. The ski club does not want the right-of-way to cut through their trail system, nor do they want to see or hear the lines.	MH asked for the participant to provide map information or a shapefile of the ski trails to help inform routing.
Routing	Can the project be routed along Highway 11? There are already highways near transmission lines.	MH noted that a route along Highway 11 was not considered due to the added line length and associated cost.
Fish & fish habitat	Carmine Shiner (endangered species) located in the Lee River, not found upstream of Old Pinawa Dam.	MH noted this feedback and that it would be used to inform routing and the environmental assessment.

Route segment #	Comment
29, 30	Close to ski trails in Pinawa area, where the two segments intersect is close to an old ski trail
2	Does not make sense to backtrack from Lee River DSC
1, 3, 8, 24, 28, 29, 31	Preferential route option
1, 4, 7, 13, 18, 29, 31	Preferential route option

Meeting Notes

PREP virtual information session		
Date: March 15, 2023	Time: 12:00	Location: MS Teams
Number of participants	18	

Owner	Action Item:	Status
Manitoba Hydro	Share information about fibreoptic line repair along the PW75 right-of-way (ROW)	Complete – followed up with participant via email
Manitoba Hydro	Provide information about tower specifications	Complete – followed up with participant via email
Manitoba Hydro	Provide link to detailed maps and .kml or shapefile	Complete - Provided link during meeting and included in meeting notes

Discussion		
Category	Community Comment/Concern	Manitoba Hydro (MH) Response
Other projects	A participant asked why Manitoba Hydro is installing fibreoptic along the same corridor as the P3/P4 right-of-way.	MH responded that they believe Bell MTS is repairing and undergrounding an existing fibreoptic line. MH confirmed that the work is being undertaken by Bell MTS and is repairing an existing line, and responded to participant via email.
Routing	A participant asked when tower locations would be finalized.	MH responded that tower spotting is typically done closer to construction, but we can look at the Trans Canada Trail where it runs along PR211 and how to minimize overall effects to the trail.
Routing	A participant asked why they haven't seen any studies being done on their property. They were under the assumption that project area studies were already completed prior to selecting a preferred route.	MH responded that the entire project area was looked at, and now that we have a preferred route, we are able to identify where points of concern may be. MH offered to meet to discuss specific concerns relating to the property.
Engagement	A participant shared that Manitoba Hydro let everyone else know about the route, but didn't let the affected landowners know about it.	MH responded that letters were sent to both affected landowners and adjacent landowners.
Routing	A participant asked when Manitoba Hydro will have a decision on the line going west	MH responded that they will be reaching out to the other landowner in the area, and will have a

Discussion		
Category	Community Comment/Concern	Manitoba Hydro (MH) Response
	out of the Distribution Supply Centre (DSC).	response in the next couple of weeks.
Engagement	A participant asked where they can see the route in greater detail, and if the mapbooks include the ROW width.	<p>MH provided a link to the project website in the meeting chat, which contains a .kml file, shapefile, and map portal.</p> <p>MH responded that the mapbooks do not include the ROW width but a typical ROW for a project of this size is 60m.</p>
Routing	A participant asked about tower dimensions and height.	<p>MH responded that specifications vary based on locations. In agricultural fields, towers will be self-supporting steel lattice structures, and the span will average between 385m and 400m.</p> <p>Tower height and dimensions will be provided as follow-up information.</p>
Routing	<p>A participant asked when P3 and P4 towers would be decommissioned.</p> <p>A participant asked for the height/dimensions of towers.</p>	<p>MH responded that decommissioning of existing P3 and P4 lines would be around 2026, once PW75 is in service.</p> <p>Tower height and dimensions will be provided as follow-up information.</p> <p><i>Follow-up:</i> Tower height will vary depending on ground cover and clearing requirements but will range from 29 to 60 meters. The tower footprint will be 35-50m for guyed towers, and 5-12m for self-support towers. The average tower span length will be 425m.</p>
Engagement	A participant asked for a link to a detailed map.	MH provided a link to the project website in the meeting chat.
Engagement	A participant asked for a .kml or shapefile.	MH provided a link to the project website in the meeting chat.
Routing	A participant asked if the towers that are currently in place from Pointe du Bois were going to be used or will there be new towers installed?	<p>MH responded that there will be new towers. The current P3 & P4 lines will be kept in operation while PW75 is being built. The current ROW will be widened 38m south of the current ROW between Pointe du Bois and Lee River DSC.</p>

Meeting Notes

PREP virtual information session		
Date: March 21, 2023	Time: 7:00 p.m.	Location: MS Teams
Number of participants	9	

Owner	Action Item:	Status
Manitoba Hydro	Detailed map to be provided to participant	Completed – followed up with participant via email
Manitoba Hydro	Provide information to participant about vegetation management plans and if concerned landowners could be notified of any herbicide application	Completed – provided in meeting notes below
Manitoba Hydro	Provide field study reports to participant	Completed – followed up with participant via email

Discussion		
Category	Community Comment/Concern	MH Response
Environmental Assessment	A participant shared they haven't seen a report from people doing studies on their property. The participant shared that they have concerns with the validity of data being used.	Manitoba Hydro shared that a transmission line project in this area previously went through an environmental assessment process in 2014. New information is being collected to provide more accurate and current data for the 2023 submission. <i>Follow-up:</i> Manitoba Hydro followed up with the participant with the field study data conducted on their property.
Engagement	A participant shared that provided maps are large with no detail specific to property lines.	Manitoba Hydro responded that maps tailored to individual landowners can be provided upon request.
Routing	A participant asked why crop land is given a 2.7x weighting compared to hay land when making routing decisions.	<i>Follow-up:</i> Different types of agricultural lands are assessed based on typical compensation cost. Crop land is considered more valuable and is given a higher multiplier due to its greater economic value than hay land.
Routing	A participant asked about the right-of-way width in terms of a fire break	Manitoba Hydro responded that the current right-of-way between Pointe Du Bois and Lee River DSC has a cleared width of 30m and we will be expanding to the south an additional 38m. <i>Follow-up:</i> while this will create a larger break in mature treed vegetation, grasses, shrubs and immature trees will still be present, as a result the Manitoba Wildfire Program does not consider the ROW an effective fire break.

Discussion		
Category	Community Comment/Concern	MH Response
Vegetation management	<p>A participant shared that herbicide spraying has occurred from Lee River DSC all the way to Bird River to kill Poplar trees.</p> <p>The participant asked what Manitoba Hydro is going to do about overspray on grazing land and compensation if grazing animals get sick.</p> <p>The participant shared that Manitoba Hydro has sprayed Grand Rapids south to lower part of lake Manitoba with spray, bringing the spray south to lower costs. The participant shared concerns that this herbicide then gets incorporated into the water system and will impact cattle. The participant asked how Manitoba Hydro manages when they apply or don't apply herbicides or chemicals.</p>	<p>Manitoba Hydro noted they would follow up with more information on vegetation management practices.</p> <p><i>Follow-up:</i> Vegetation management plans are created for each project based on a variety of criteria, including vegetation, land use, sensitive sites, and land ownership. Herbicides are an important tool for vegetation management on certain tree species in Manitoba. Herbicide application is done with significant planning, following of regulations and best management practices to minimize the effects on the environment. We use buffers on water to prevent herbicides from entering watercourses and work with producers, landowners and Indigenous communities to address site specific concerns with vegetation management.</p>
Vegetation management	<p>A participant shared there are two main drains on their property that run directly to the Lee River, so if chemical spraying does occur it would end up in waterbodies where spawning occurs.</p>	<p>Manitoba Hydro noted they would follow up with more information.</p> <p><i>Follow-up:</i> As described above, Manitoba Hydro follows all regulatory buffers when applying herbicides near water bodies to prevent impacts to water quality and fish habitat.</p>
Wildlife	<p>A participant mentioned concerns of biohazards and transferring diseases from neighbouring cattle operations. With increased opportunity to access land, quads or offroad vehicles are more likely to transfer mud and biohazards. People may also damage fences and if neighbouring cattle get onto the property.</p>	<p>Manitoba Hydro noted they would follow up with more information.</p> <p><i>Follow-up:</i> A biosecurity management plan will be developed as part of the construction environmental protection plan. Manitoba Hydro has standard operating procedures it follows during operations and maintenance. Manitoba Hydro will be developing access management plans for both construction and operation of the line. These plans will address the mitigation measures to be implemented by Manitoba Hydro like fencing and gates to address trespassing and biosecurity concerns.</p>
Wildlife	<p>A participant shared that they question the validity of wildlife data from the past environmental assessment because there are many</p>	<p>Manitoba Hydro responded that additional data was collected this past summer to supplement data collected as part of the previous environmental assessment. These reports have not yet been</p>

Discussion		
Category	Community Comment/Concern	MH Response
	<p>acres of alfalfa in their area and a high density of wildlife between their property and neighbouring property. The participant shared that they understand Manitoba Hydro not wanting to knock down bush, but wildlife density in their area needs to be reconsidered.</p>	<p>finalized for the public. Stantec has been conducting studies on wildlife, vegetation, and fish and fish habitat.</p> <p><i>Follow-up:</i> Manitoba Hydro followed up with the participant with the wildlife and vegetation technical data reports.</p>
Vegetation management	<p>A participant shared that they know Manitoba Hydro has contracted out much of their herbicide spraying along transmission lines. The participant is opposed to spraying as they have many plant species on their property which help to stabilize the bee population; cherry tree, apple trees, flowers and sunflower.</p> <p>The participant shared that anyone adjacent to a Manitoba Hydro right-of-way should have a say if vegetation is cleared manually or if chemicals such as Garlon is used since it is not very environmentally friendly. The participant shared that they know it is sometimes a preference to use herbicides and wants to know if herbicides were to be used if they would be notified about it.</p>	<p>Manitoba Hydro noted they would follow-up with more information for the participant.</p> <p><i>Follow-up:</i> Prior to any herbicide application on private land under easement agreement with Manitoba Hydro, the landowner will be contacted. Due to continuous changes in land ownership and the expansive network of distribution and transmission lines, Manitoba Hydro is unable to contact adjacent landowners directly, however as part of the provincial pesticide use permit application process Manitoba Hydro advertises each spring in major newspapers the locations and types of herbicides it is planning to apply in that year. The public may send written submissions or objections within 15 days of the publication of the notice. Spray exclusion zones can be set up on adjacent property owners to the transmission line right-of-way. All applicable permits will be obtained, and provincial regulations will be adhered to for any herbicide application during the operation phase of the project.</p>
Access	<p>A participant shared an adjacent landowner was not notified of any environmental studies being conducted.</p>	<p>Manitoba Hydro clarified that some sites identified for field work required traversing or accessing private property. In these instances, private landowners were notified by phone call to ask whether field crews could traverse their properties to conduct field studies at these identified sites.</p>

Meeting Notes

PREP open house		
Date: March 25, 2023	Time: 1:00 – 4:00 p.m.	Location: Pioneer Senior Club, Lac du Bonnet
Number of participants	16	

Owner	Action Item:	Status
Manitoba Hydro	Provide information on preference determination model / process	Ongoing
Manitoba Hydro	Explore routing alternative options proposed by participants during meeting	Ongoing
Manitoba Hydro	MH to follow-up with trapper directly to discuss concerns	Complete
Manitoba Hydro	Provide information of siting rationale for Lee River DSC	Complete

Discussion		
Category	Community Comment/Concern	MH Response / Mitigation
Aesthetics	Concern that transmission line would be visible from windows of cottage. Concerns that the change to aesthetics would impact property values and their enjoyment of their properties.	MH noted this concern and shared that property values are not typically affected long-term by the presence of transmission lines.
Access	Landowners immediately adjacent to preferred route shared concerns about trespassing and access along the ROW even if the land were to remain private land. They shared concerns that people who are trespassing ignore signage. They shared safety concerns with people accessing their land illegally and then hunting near their cattle. They also shared concerns that they grow medicinal plants and are concerned that they will be damaged by ATVs accessing their properties. Concerns regarding biosecurity for cattle operation if ATV's bring soil borne pathogens and disease from other locations. Concerns were shared regarding liability with people entering pastures and/or destroying fencing.	MH will develop access management plans, and can draft up commitments to landowners for signage, fencing and other deterrents for trespassing on private land rights-of-way. Manitoba Hydro will work with Manitoba Agriculture and leaseholder to discuss access management within agricultural crown land leases.

Discussion		
Category	Community Comment/Concern	MH Response / Mitigation
Routing	Concern and request for more information about the route selection process and specifically why Route D was chosen over Route A as it avoids impacts to private land (based on information posted on RM of Lac du Bonnet webpage [Feb 14 meeting agenda])	MH to provide information on route selection process to participants. Complete details will be articulated in the Environmental Assessment to be filed with Manitoba this summer.
Engagement	Concern with overall notification / information sharing on the project to people living in the area. Recommendation to use Lac du Bonnet Clipper	Lac du Bonnet Clipper to be used for advertisements moving forward for this project (many postcards were immediately recycled or left at post office), adjust routing engagement process
Engagement	Concern from RTL holder about delay in field work occurring, removal of traplines earlier than otherwise planned to accommodate planned work	MH to follow-up with trapper directly to discuss concerns
Access	Geotechnical drilling occurred on private land with no heads-up given to the landowner	Moving forward, develop temporary access agreements will be developed. MH will look into broader notification for internal MH staff about the importance of notifying landowners, mobile app for notification in development to be used by field crews
Routing	Preference to route transmission line on the east side of property immediately south of the Lee River DSC away from Belluk Road – less wildlife moving through that portion, less valuable/usable land on that portion of the property	Design looking into feasibility of eastern route alignment within property.
Routing	Participant noted they fly a small plane for recreation and often land in field on NW-15-15-12-E, immediately adjacent to the preferred route and noted the height of existing distribution line.	Design looking into feasibility of eastern route alignment within property. Aerial markers on both distribution and proposed transmission line will be investigated.
Access	Concerns with overall access onto private property and biosecurity concerns with cattle ranch operations	Design looking into feasibility of eastern route alignment, consideration of whether it would be possible/amenable to route the line immediately east of properties on Crown land
Agriculture	Landowner who farms along PR520 felt an alignment along PR520 would have impacted his operations.	MH noted this information.
Wildlife	Landowners along preferred route shared information on wildlife use/travel corridor on wooded area along adjacent undeveloped road allowance and various	MH noted this information.

Discussion		
Category	Community Comment/Concern	MH Response / Mitigation
	animal siting's (deer, bear) on their properties over the years and have not seen moose in the area for many years.	
Wildlife	Landowners shared that wildlife frequently travel between Lee River and forested land to the east.	MH noted this information.
Infrastructure	Participants expressed interest in knowing how the Lee River DSC site was selected and why the connection to Whiteshell Station is required.	<p>The purpose of the DSC installation is to provide a source capacity option to transfer load off the existing Lac du Bonnet Station in order to support growth on the east side of the Winnipeg River over the next 15 years. The area east of Lac du Bonnet has experienced low voltage and protection issues due to increased load growth. The location of the DSC was selected due to its proximity to the Pointe du Bois transmission line (source of power), accessibility, connection to the 25kV distribution network at a location that stabilized voltage all the way to the end of the network in Bird River.</p> <p>The Lee River DSC is fed from the Pointe Du Bois Generating station and while there is an emergency back-up connection to the Lac du Bonnet station it would not be able to support all customers during peak winter load. The creation of a new transmission line between Whiteshell Station and the Lee River DSC will dramatically increase the reliability for the customers in the Lee River and Bird River area.</p>

PW75

Detailed survey results - alternative route segment engagement

Manitoba Hydro undertook a survey during the alternative route segment engagement phase of the project to collect feedback on the values and concerns of interested parties and the public. A total of 15 individuals completed the survey. The information collected in this survey played a role in informing the routing process for PW75, fostering a more inclusive and credible process.

Participants shared a high level of concern for the environment and community. The most common concerns were related to increased access, changes to lifestyle, and impacts on wildlife and wildlife habitat.

1. WHAT IS YOUR CONNECTION TO THE PROJECT AREA?

Participants had the ability to select multiple categories. Seven participants selected more than one category, indicating their involvement in multiple aspects of the area and community. Most survey respondents are residents of the project area. Participants also identified as cottage owners, workers, farmers, harvesters, business owners, or individuals who participate in tourism in the area. Two responses deviated from the predetermined categories: one respondent indicated they engage in outdoor recreation in the area, and another indicated they are an interested citizen.

Table 1: Number of participants for the type of relationship with the Project Area

Relationship to the Project Area	Number
Resident	9
Work	2
Cottager	4
Farm	3
Harvest	2
Business Owner	1
Tourism/hospitality industry	1
Other	2

2. WE ARE DEVELOPING A LIST OF LOCAL BUSINESSES THAT MAY SUPPORT CONSTRUCTION ACTIVITIES IN THE AREA (HOTELS, GAS STATIONS, CONSTRUCTION EQUIPMENT OWNERS, ETC.). IF YOU WOULD LIKE TO BE ADDED TO THIS LIST, PLEASE PROVIDE YOUR CONTACT INFORMATION.

- One respondent provided their contact information.

3. WE ARE INTERESTED IN UNDERSTANDING THE INTERESTS, CONCERNS AND QUESTIONS YOU MAY HAVE RELATED TO THIS PROJECT. THIS FEEDBACK INFORMS OUR PROJECT PLANNING, INCLUDING OUR TRANSMISSION LINE ROUTING AND DESIGN. FOR THE TOPICS BELOW, PLEASE INDICATE YOUR CURRENT LEVEL OF INTEREST.

The four topics include environment, community, economics, and culture. All 15 participants selected a high interest in the environment, and included topics such as water, vegetation, wildlife, wildlife habitat, and other ecosystem components. Another significant topic of interest is the community, with 12 participants indicating they have a high level of interest in the community. Community-related interests include recreational opportunities, proximity to residential areas, as well as factors affecting health and safety. Economic factors such as employment opportunities, construction activities, and the development of project infrastructure received eight participants responding with a high level of interest, four indicated low interest and three expressed moderate interest. The interest in topics surrounding culture received a comparatively lower level of interest among survey participants. Cultural interests included traditional activities, fostering a sense of community and spiritual practice. While overall interest was lower than other topics, some respondents emphasized the importance of considering culture from an Indigenous perspective and the need for Manitoba Hydro to respect Indigenous cultural values.

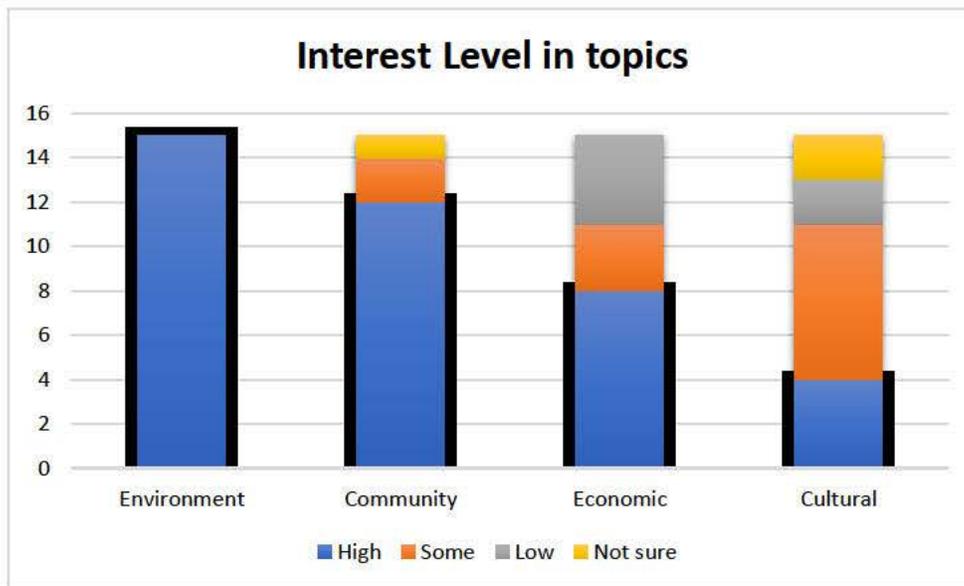


Figure 1: Level of interest for each topic

WHAT ARE YOUR SPECIFIC INTERESTS OR CONCERNS ON THESE TOPICS?

The concerns that were expressed most often have been categorized into three overarching themes: impacts resulting from increased access (theme one), impacts on lifestyle (theme two), and impacts to wildlife and wildlife habitat (theme three).

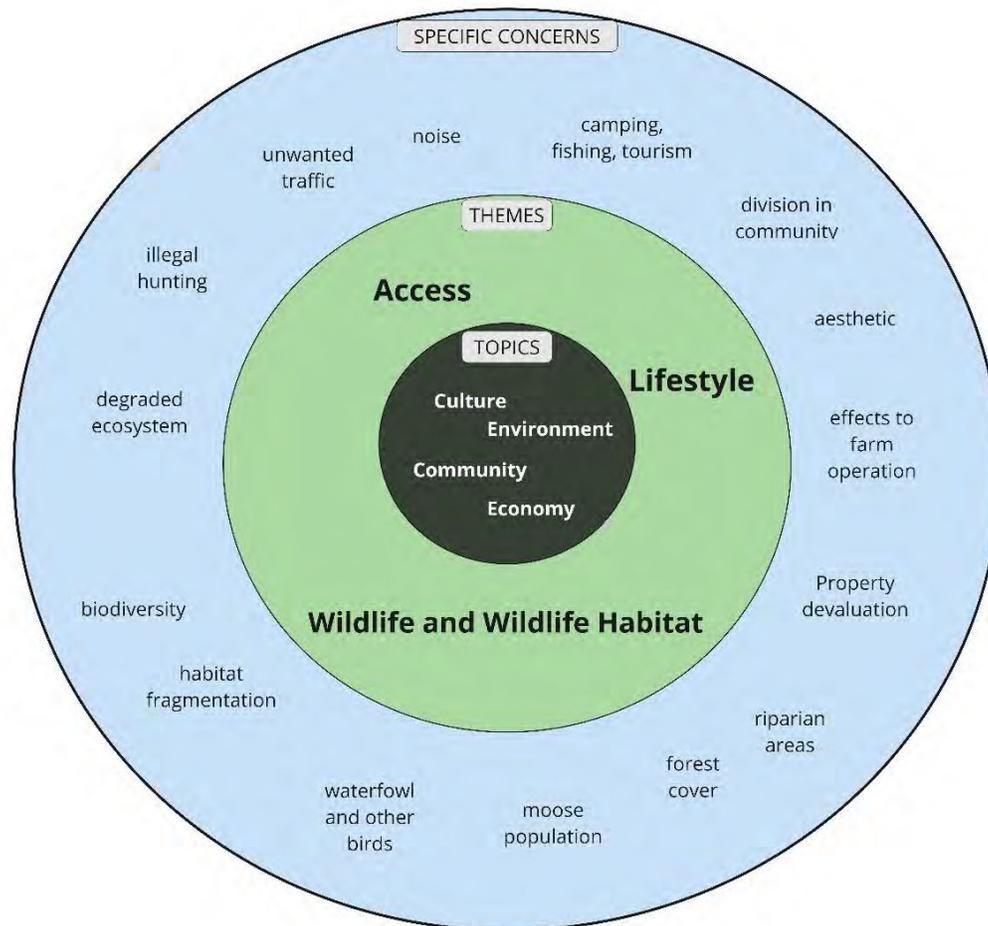


Figure 2: Specific Interests or Concerns

THEME #1: ACCESS

Concerns were raised regarding the potential impacts due to increased access. Participants expressed apprehension about the potential rise in illegal hunting and unwanted traffic, and how those may affect wildlife, wildlife habitat and the degradation of ecosystem integrity over time. Additionally, participants emphasized the potential effects an increase in access will have on the local community and the economic livelihoods of farmers in the area.

Some quotes from the survey respondents are shared below.

*"Once a new line is cut it will provide **further access to off-road vehicles** and further development, a prospect which would continue to degrade that ecosystems integrity over time."*

"Hydro Towers will **bring people travelling by quad** or side by sides, destroying the landscape summer, winter, fall or spring. We have videos of 10 or more quads, making trails on purpose trying to get stuck on purpose. Th moose population will be impacted, as they are trying to make a comeback".

"The trespassing and litter and illegal hunting associated with this activity has put considerable strain on the relationship between landowners and the people using the corridors. Another new corridor will continue to cause even **further division in the community.**"

"The **increased traffic** to residence and farmers, as well as and off-road vehicle traffic outside my front door."

"This proposed line not only affects the habitat in the area but will bring **unwanted traffic** to our farming operation... e.g., quads, atv's, snowmobiles, hunters."

"... this will **bring hunters that will travel that line** and will also negatively impact our cattle operation."

"This proposed line will bring extra **unwanted traffic** and liabilities to our farm operation. Unwanted traffic will also have the potential of bringing disease that will have a negative impact on our herd"

THEME #2: LIFESTYLE

Participants shared concerns that construction and operation of the transmission line will inevitably increase unwanted traffic in the area. This increased traffic will have potential effects on their community, farm operations, and tranquility of the area. We also heard concerns surrounding how the changes in aesthetics will affect lifestyle. A common economic concern shared by participants was about impacts to property values as a result of the transmission line. Some quotes reflecting the responses received are listed below.

"We have **lived in this area our whole lives**. I am a 4th Generation resident to this area. We own and operate a cow/calf operation in the area affected by this Transmission line and strongly disapprove of your routing. I can't believe that your plan did not include crossing Lee River using the Existing Right away! This Hodge podge of routes in the back country is foolish and not thought out."

"Some of the areas proposed **goes through farmland** that has cattle and/or grain/ That is what I call community, and all are not in favor of these routes. Follow the usual route and go along 520 which is the right of way."

"I am totally opposed to the placing of any hydro towers **crossing our farmland**, or any rock ridges, forest or natural spaces"

"**We operate a cattle ranch**, and any towers will bring disease, weed seeds and interrupt wildlife, natural trees, brush or shrubs for animals and me to thrive."

"Additionally, the **visual eyesore** of a transmission line outside my front yard and devaluating my property."

"Many people have **cabins or seasonal places along the river**. This is a popular destination for many in the summer. We are concerned about the placement of High voltage towers anywhere across or along those rivers."

"Cultural also means the **homes and farms that have existed in the Lee River - Old Pinawa Dam areas for over 100 years**. No one wants to see high voltage lines crossing farmland and rural roads."

*"The **devaluation of my property.**"*

*"Lac du Bonnet and the surrounding area benefit greatly from the **camping, fishing, and tourism in the area.** I'm concerned that high voltage lines through this area would be a **blight on the land**"*

THEME #3: WILDLIFE AND WILDLIFE HABITAT

Participants expressed apprehension surrounding how the project may contribute to the degradation of the ecosystem in the project area. Specifically, participants highlighted concerns related to the potential effects on moose population, biodiversity, riparian areas, forest covering, waterfowl, and other birds. Some concerns about wildlife and wildlife habitat are shared below.

*"Habitat fragmentation is an issue that should be considered extremely carefully in the context of developing new transmission lines in an already developed landscape. This area is fortunate to contain several large tracts of uninterrupted forest which provide proximal **habitat** for our game and non-game species, which in turn keeps the surrounding landscape productive"*

*"I would support a plan which uses existing routes to develop these lines rather than **fragmenting habitat**, even if that plan would incur some extra cost or inconvenience to the project."*

*"Putting a line through this area will be **detrimental to the moose population** that is trying to recover. We are devastated that you can't stay on your easement. Heading west. Crossing the Lee River and following Provincial Trunk Highway 502. Which is the only route that makes sense. We do not need powerlines crossing the pristine Pinawa Channel. The cost to go through uncharted forest and swamp, I'm sure supersedes the cost to follow your existing line to path 520!"*

*"I am just concerned with any impact that the project may have on **waterfowl and other birds in the area**, along the Pinawa Channel and Lee River."*

*"Forest cover, riparian areas, biodiversity, and **wildlife.**"*

*"Impact on **land, vegetation, wildlife**, greenspace and my own property and **lifestyle.**"*

4. WHAT TYPE OF IMPACT DO YOU THINK THIS PROJECT MAY HAVE ON YOU?

Six respondents expressed that the project would have negative impacts, six participants responded they do not know, and only one respondent expressed that they would not be impacted by the project.

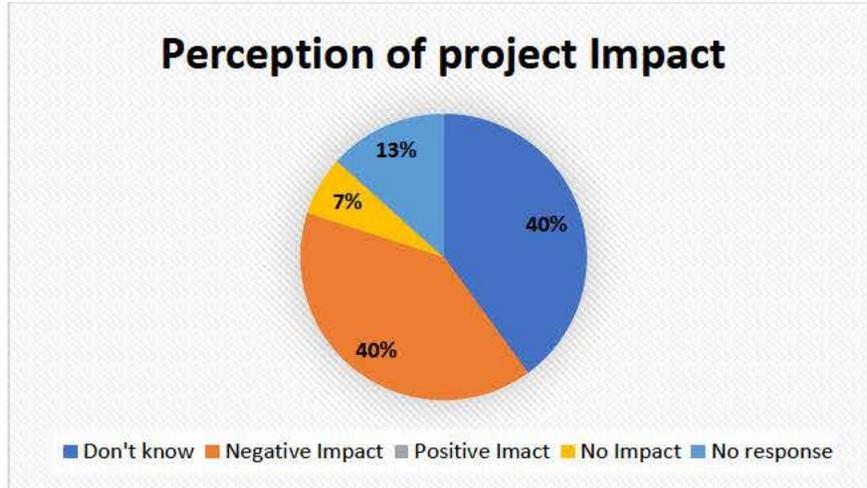


Figure 3: Perception of the type of impact of the project

5. PLEASE EXPLAIN WHAT WILL HAVE A NEGATIVE IMPACT. DO YOU HAVE SUGGESTIONS ON HOW IT COULD BE ADDRESSED?

Participants who identified that the project would have negative impacts were given the option to explain these impacts further and suggest mitigation measures.

Table 2: List of negative impacts and suggestions to address them

Negative Impact	Suggestion
"I believe the development of a new transmission line through intact ecosystems would have negative impacts on our wildlife resources."	"I hope that hydro can find a way to develop the line with minimal landscape impact, clearing, and fragmentation."
"A new transmission line will create another access point for people to trespass, litter, and shoot firearms. My partner and myself own and operate a cattle ranch and try to ensure disease from strange people do not enter our farm. We are vigilant when it comes to who enters our farming area, either through the front door or back door. I am a Metis, who harvests from this land, be it berry picking, mushroom picking etc."	"Find a way to use existing corridors and infrastructure."
"See concerns above."	

6. DO YOU HAVE A PREFERENCE FOR ANY PARTICULAR ALTERNATIVE ROUTE SEGMENTS?

Participants were invited to review the alternative route segments and identify any preferential route segments.

Table 3: Preferred alternative route segments

1,4,6,11,12,16,28,30,31
2
Follow the existing line to 520 all the way to seven sisters.
2- 23-24-27-28 (keep the lines back further east far from farmland, cabins, and the rivers.)
1, 4, 7, 12, 17, 18, 30, 31 (take the route that minimizes the destruction of forest cover and riparian areas. Place route along existing roads.)
2, 23, 24, 27, 28, 29 (I agree with the suggestion of a straight and short route away from private property.)
Use your existing route across Lee River, turning left following pth 520. The lines have been there for over 100 years. Why damage existing habitats and bother others?
My preference would be that the project uses existing linear landscape features and avoids areas with natural cover and/or important animal habitat
Making clear-cuts in wilderness areas affects those areas negatively. So, from an environmental standpoint, the best route is the one that goes along existing roads/trails.

7. DO YOU HAVE ANY CONCERNS WITH ANY ALTERNATIVE ROUTE SEGMENTS?

Participants were invited to review the alternative route segments and identify any segments that were of concern.

Table 4: Alternative route segments of concern

I am strongly against the development of this line on numbers 13, 18, 24, 19, 23, 21, 27, and 2.
13,18
4 -YES! Passes right in front of our property/home
yes.... routes 1,2,3,5,8,9,19,20,23. These impact our cattle and hay fields, which will negatively impact us financially
There are some routes that cross the Pinawa Channel (north of the Old Pinawa Dam) and cut straight across farmland.
Yes, I am concerned with any route proposed through unspoiled forest. Those routes should be removed from consideration, where possible
segments 13, 17 & 18 do impact the Sandhill crane nesting area in addition to running through private property. Many of the other segments also infringe on private property. Avoid the conflicts and keep it as far east as possible and away from private property. It could extend from Rice Lake to the southeast and connect up at the intersection of segments 28 & 29.
Now more than ever disrupting the environment the least should be a top concern. Since so many stressors are already impacting the environment already. The alternative route that stays on the northwestern part and that follows road 520 is the best. People use the river to canoe from Pinawa town to the old Pinawa dam, we don't want the transmission line to go over the river (at section #28) and ruin the wilderness feel that the Pinawa channel has to it. Do not go over the section marked #28 please.

8. HAVE YOU EVER BEEN INVOLVED IN THE ENGAGEMENT PROCESS WITH MANTIOBA HYDRO BEFORE?

Most survey participants have not been involved in a project engagement with Manitoba Hydro before. A total of 11 participants indicated this was their first time involved in engagement with Manitoba Hydro.

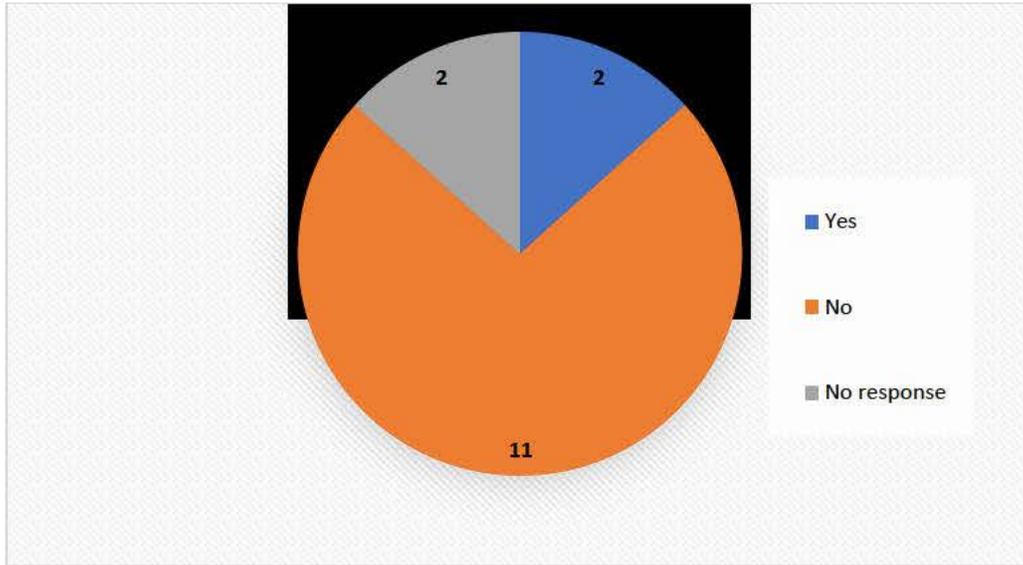


Figure 4: Prior participation in MH engagement

9. DID YOU FIND THE PROJECT INFORMATION ON THE WEBSITE HELPFUL?

Participants were asked about the effectiveness of the Manitoba Hydro website in conveying useful information. Most participants indicated they found the information on the website helpful. 12 participants shared that they found the website helpful, and one expressed that it was not helpful. There were two participants who did not respond to this question.

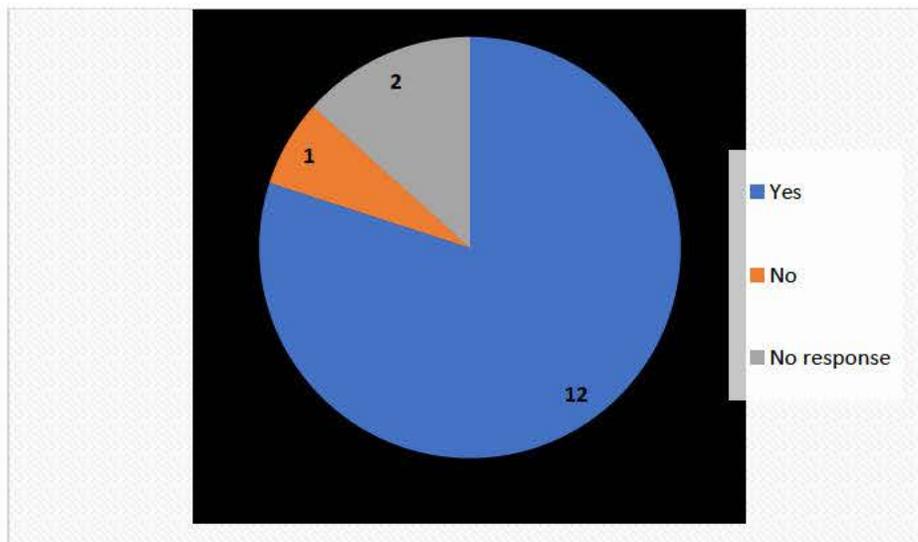


Figure 5: Helpfulness of Manitoba Hydro website

10. DO YOU HAVE ANY OTHER QUESTIONS OR COMMENTS ABOUT THE PROJECT?

Participant responses are shared below:

"Please strongly consider the feedback from the stakeholders of the land, including any users. Thank you"

"Mount one of the old turbines around the powerhouse for nostalgia"

"This is the second attempt on this transmission line. And met strong opposition by environmentalists and homeowner and Manitoba Trappers Association. This project will be met with the same opposition!"

"This is the second attempt on this transmission line. And met strong opposition by environmentalists and homeowner and Manitoba Trappers Association. This project will be met with the same opposition!"

"How will this affect the power in and around seven sisters?"

"You should not be investing substantial resources in the Pointe du Bois station. It is old and cannot produce a significant amount of power. The transmission line comes at a significant environmental and social cost for a very small benefit of the overall project. If MB Hydro needs more power for growth of the region, make a better connection to power that is generated from our new infrastructure in Manitoba."

"Is this a wood pole line or steel tower line?"

"Please keep the public well-informed."

"Will there be consultation before a final route is selected?"

11. HOW DID YOU HEAR ABOUT THIS PROJECT?

The two most common engagement and communication methods for participants to learn about the project were word of mouth, and social media. The least common methods were physical letters and knowledge from past attendance. Figure 6 displays how participants learned about the project.

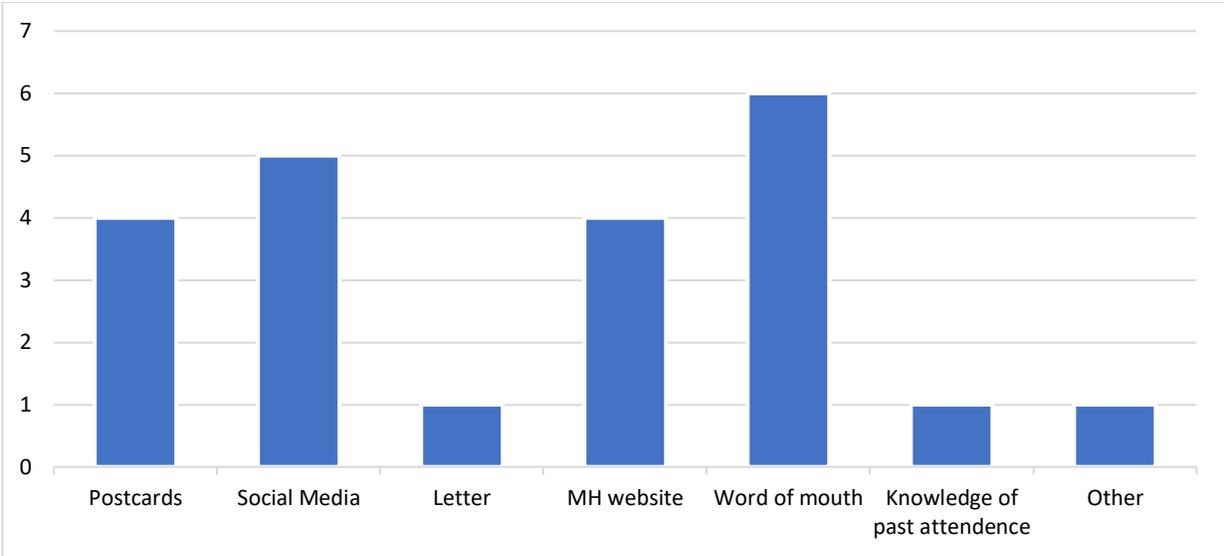


Figure 6: How participants heard about this project

12. WHAT ARE THE BEST WAYS OF SHARING PROJECT INFORMATION?

The method of receiving information from Manitoba Hydro that is the most popular among participants is through email. Five participants responded with emails as their favorite way to receive project information. Other methods of sharing project information identified by participants included postcards, mailed letters, social media, phone calls, project webpage, and information sessions. Figure 7 identifies the participants' preferred mechanisms for sharing project information.

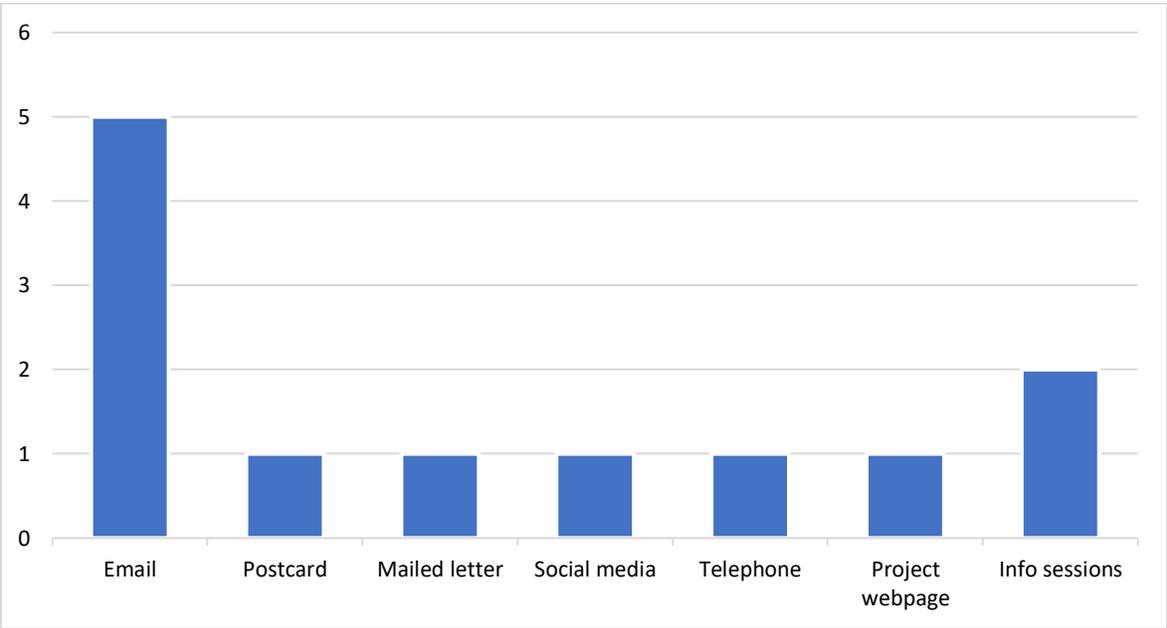


Figure 7: Preferred engagement mechanisms

Pointe du Bois Renewable Energy Project

Engagement summary - what we heard

Engagement summary

The Pointe du Bois Renewable Energy Project (PREP) is a new planned project to increase Pointe du Bois generating station’s supply of renewable, dependable electricity and enhance our transmission capacity and reliability in the area. The PREP is made up of two main parts – a generating unit replacement in the station’s powerhouse and the construction of a new transmission line in the area.

This summer, we reached out to First Nations, the MMF, the Grand Council Treaty #3, Northern Affairs communities, property owners and lease holders, local residents and interested parties to share information and seek feedback about the PREP. Our engagement also included alternative route segment options for the transmission line – the feedback we received will help inform final routing and design of the new line.

Engagement activities to-date

Engagement on the alternative route segments took place from April to December 2022 and included:

- 6 virtual information sessions
- 15 Meetings with local governments, interested parties, First Nations, the Manitoba Métis Federation, and Grand Council Treaty #3
- Engagement Circle #1 & 2 for First Nations, The Manitoba Métis Federation, Grand Council Treaty #3 and Northern Affairs communities
- Online survey & feedback portal

Key engagement themes

Environment

Wildlife & habitat	Vegetation	Water levels & flows	Intactness
<ul style="list-style-type: none"> • Known wildlife sites in the area • Impacts to wetlands 	<ul style="list-style-type: none"> • Vegetation along the right-of-way • Herbicide use and other vegetation management practices 	<ul style="list-style-type: none"> • Impacts to the Winnipeg river • Water regulation and operations 	<ul style="list-style-type: none"> • Habitat fragmentation • Avoiding intact areas

Socio-economic

Agriculture	Economics	Roads	Recreation & travel
<ul style="list-style-type: none"> • Cattle & ranching operations • Biosecurity related to agriculture and livestock operations 	<ul style="list-style-type: none"> • Tourism • The need for the project • Employment & business opportunities • Revenue sharing • Property values 	<ul style="list-style-type: none"> • Traffic • Impact to road quality • Use of roads for construction activities 	<ul style="list-style-type: none"> • Impacts to ski trails • Snowmobile & hiking trails • Use of the right-of-way for recreation

Historical cultural significance

Culture & heritage	Spiritual	Traditional pursuits	Winnipeg River
<ul style="list-style-type: none">• Impacts to important sites• protection of sacred sites• Concern for areas of high culture & heritage potential (particularly waterways)	<ul style="list-style-type: none">• Manito Ahbee (Where the Creator sits)• Ancestors• Importance of incorporating ceremony into the project	<ul style="list-style-type: none">• Harvesting• Impacts to medicines• Impacts to wild rice harvesting	<ul style="list-style-type: none">• Concerns about water regulations and operations• Impacts from water level changes

People and wellbeing

Access & travel	Health & safety	Enjoyment	Customs & protocols	Monitoring
<ul style="list-style-type: none">• Trespassing on right-of-way• Increased access to harvesting areas• Increased pressure on harvesting	<ul style="list-style-type: none">• EMF• collisions with towers• Biosecurity	<ul style="list-style-type: none">• Aesthetics of transmission line• Noise from project construction and operation	<ul style="list-style-type: none">• Need to consider the application of Indigenous laws to the project authorization process	<ul style="list-style-type: none">• Need for monitoring of cultural heritage and the environment• Monitoring needs to occur from the start

Environmental assessment underway

We are developing an environmental assessment report for the transmission line component of the PREP. We will be submitting this report to Manitoba Environment, Climate and Parks for approval before construction work on the transmission line can begin. In addition to informing the design and routing of the transmission line, the feedback we receive helps identify potential impacts of the project and mitigation measures. The environmental assessment report will include information on how and when engagement feedback was incorporated.

For more information:

Projects@hydro.mb.ca

1-877-343-1631

www.hydro.mb.ca/prep

Community ranking for transmission line routing

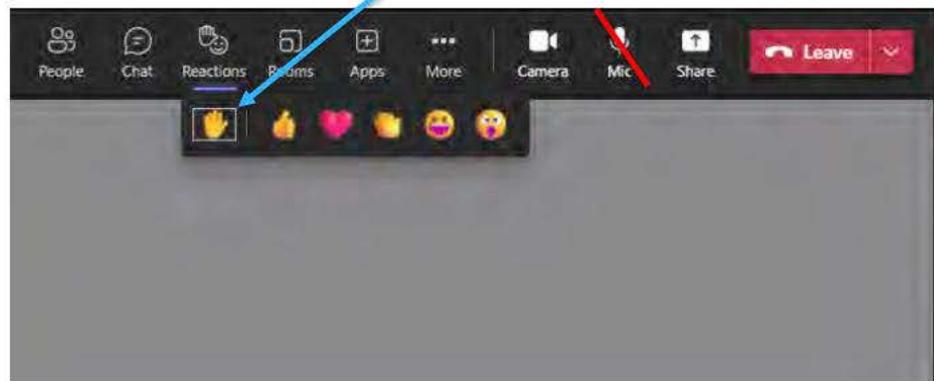
Process overview

January 20, 2023



During the presentation

- Please mute your microphone
- Question period at key points and the end of the presentation
- Questions can also be typed in the comment box



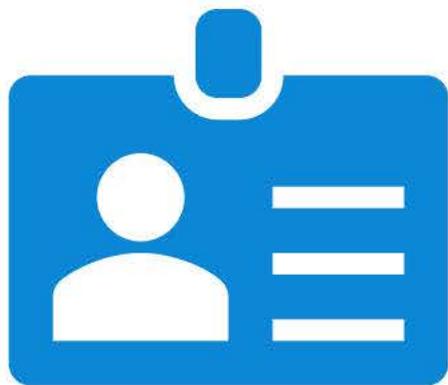
Etiquette for today

- We appreciate your participation, mutual respect and attention
- We will pause for questions at set points
- Key for today is understanding our process, not sharing route preferences (Workshop #2)

Agenda

- Introductions
- Review objectives of meeting
- Background on transmission line routing and the PW75 project timeline
 - How the MH process works
 - How community engagement informs the outcome
- What we heard during engagement to date
- Process discussion
- Wrap up

Introductions



- Please share:
 - Your name
 - Who you are here representing
- Turn your camera on if you are able

Objectives

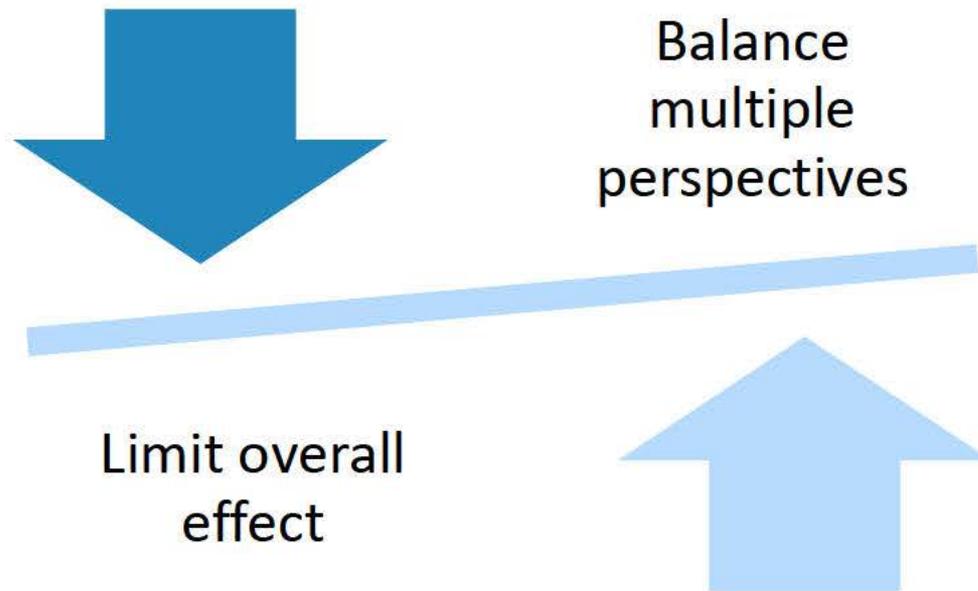


Share background on how we make routing decisions and answer questions



You leave feeling like you understand how your participation will inform the routing process

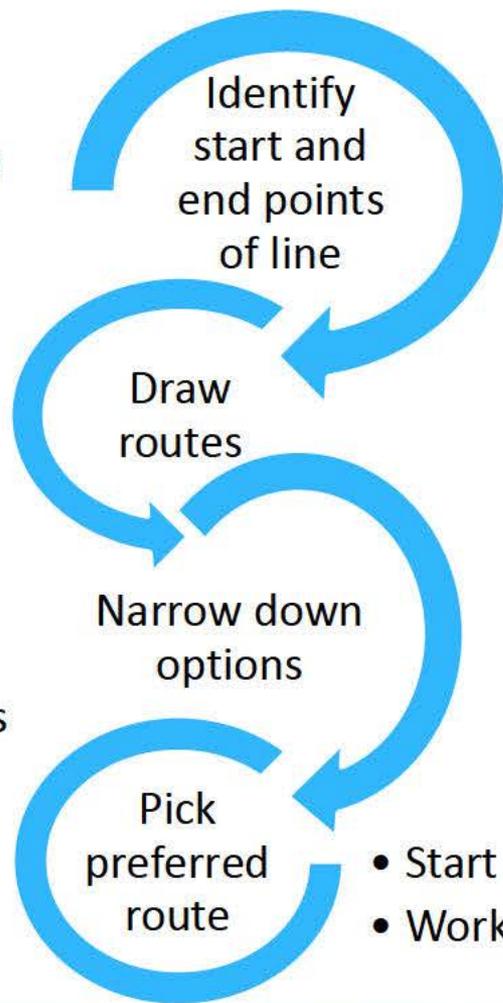
Goals of transmission line routing



Pathway to selecting a route

- Draw study area

- Compare and evaluate routes
- Hold project team workshops



- Start alternative route segment engagement
- Learn from local knowledge and hear concerns

- Start preferred route engagement
- Work to address concerns

Mitigating potential effects

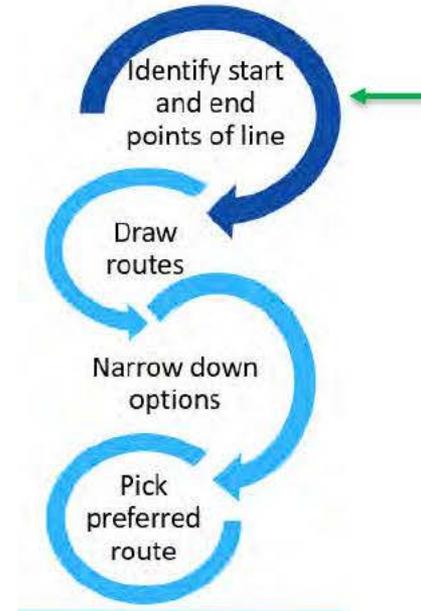
- The routing process is a key tool used to reduce effects
 - some effects are more challenging to mitigate so avoidance through routing is preferred (runways, cemeteries)
 - Manitoba Hydro will work to develop mitigation where we can't avoid effects

The challenge of routing a transmission line

- Identifying the start and end points of the line
- Threading a needle through many constraints
- Considering many diverse interests, land uses and perspectives

We study the area

- Look for homes and other buildings
- Examine land use
- Identify existing linear infrastructure like pipelines, roads
- Map out areas of least preference



Routes are drawn to try and limit effects

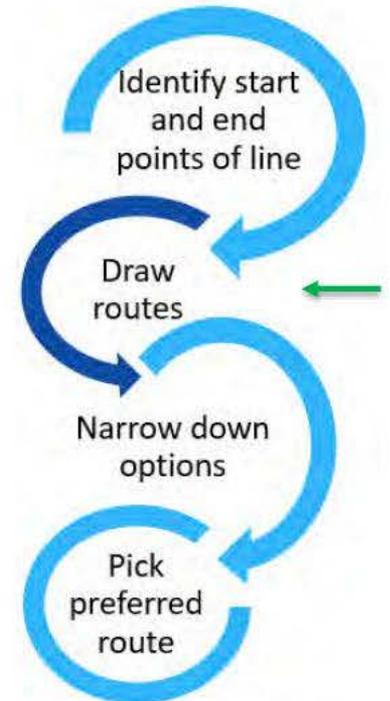
For example, we try to avoid or limit effects to:

- residences
- land of importance to First Nations and the MMF
- recreational areas
- agricultural operations

Avoid or limit **environmental effects**

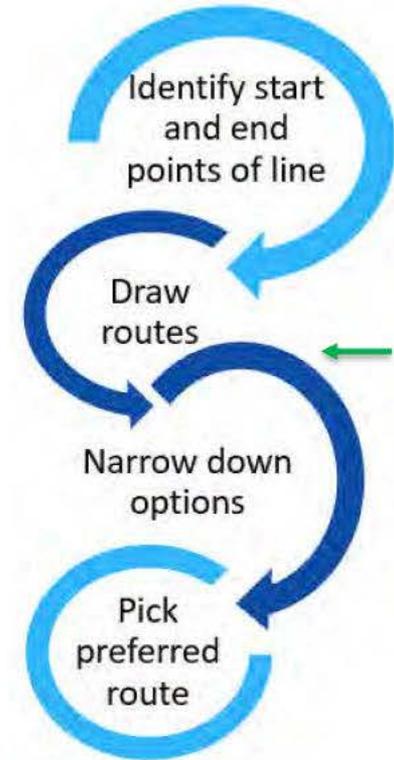
Parallel or follow existing linear developments i.e. roads and drains

Consider length and cost of proposed facilities



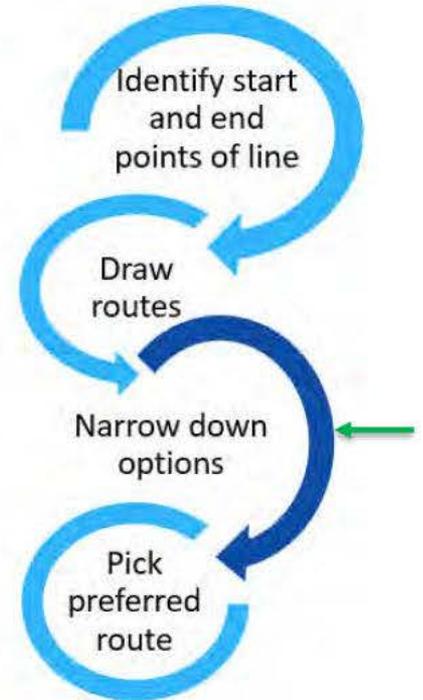
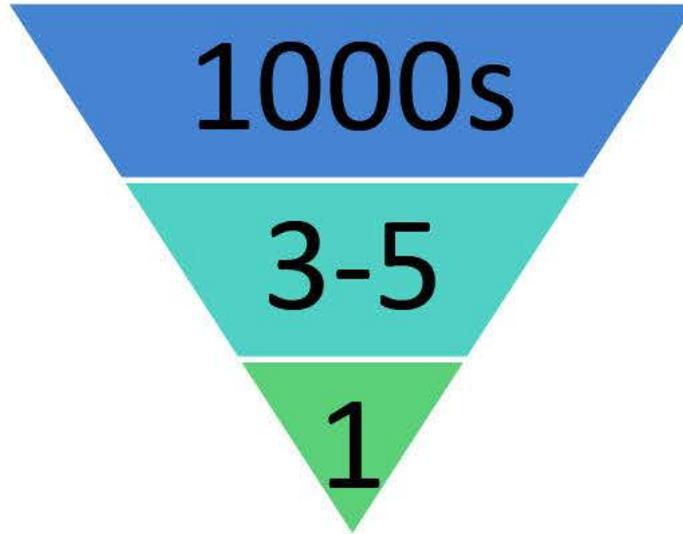
Alternative route segment engagement

- We present the alternative route segments and discuss the options in engagement, where we learn from local knowledge and hear concerns
- Segments of concern and preferential segments help the engagement team develop finalist routes



Project team selects a narrow set of routes

- Using information from further study and engagement
- A set of criteria help compare thousands of alternatives
- Helps keep things transparent and decisions defensible



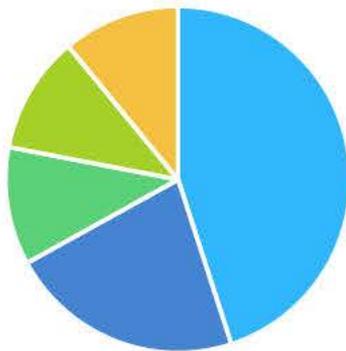
How do we narrow down to 3-5 route alternatives? It's not just about the #s

Engineering



- Cost (45%)
- Reliability (28%)
- Accessibility / constructability (22%)
- Infrastructure crossings (5%)

Natural



- Intactness (45%)
- High quality wildlife habitat (22%)
- Wetlands (11%)
- Riparian Habitat (11%)
- Natural Forest (11%)

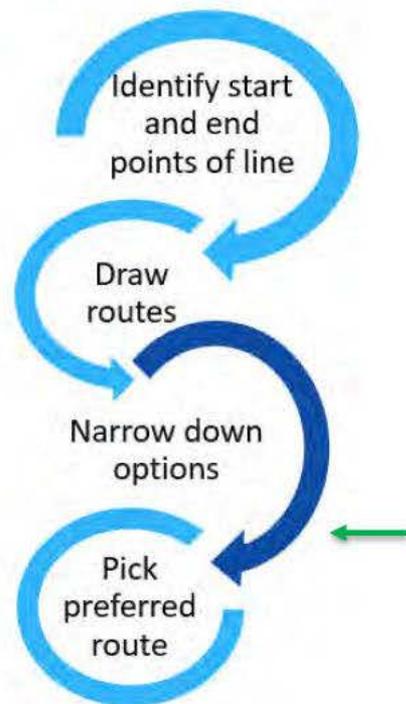
Built



- Residences within 100 m (41%)
- Proposed Developments (16%)
- Special Features (13%)
- Agricultural Crop Land (9%)
- Diagonal Crossings of Agriculture Crop Land (8%)
- Heritage Resources (8%)
- Specialty Agriculture (5%)

Where we are now

- Will be applying a decision-making process for the community perspective that helps to:
 - Share how decisions are made
 - Keep decisions focused on values and from a regional perspective



Project criteria and weightings



Cost



Community



Risk to schedule



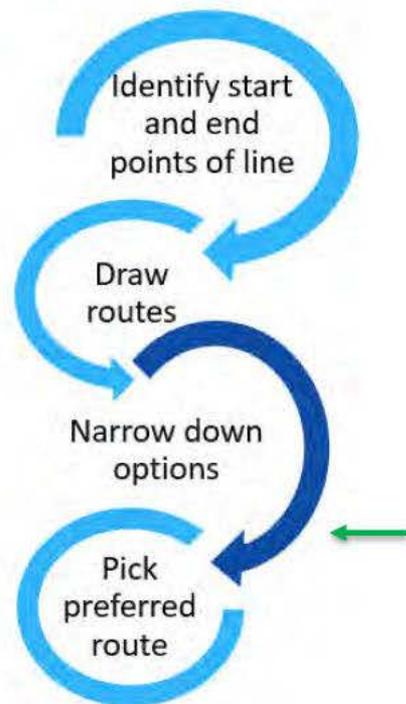
Effect on built environment



Effect on natural environment



System reliability



Comparing routes



- If a route is the **best** option, it gets a **1**
- If all routes are **equally good**, they all get a **1**
- If a route is the **worst** of all the options, it gets a **3**
- If the route is similar to the best option but not quite as good – gets a number larger than 1, by as much to **represent the difference**

What are the factors your community is considering when ranking?

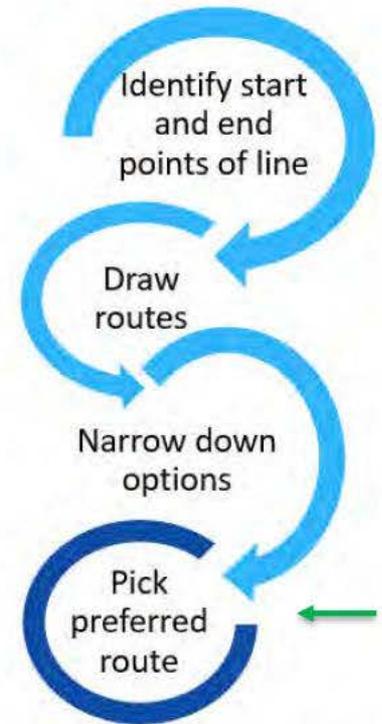
- Please share your considerations on Poll Everywhere: [Pollev.com/gcloutis057](https://pollev.com/gcloutis057)
- Themes to consider: Socio-economics, historical cultural significance, environment, people & wellbeing

Results of poll:

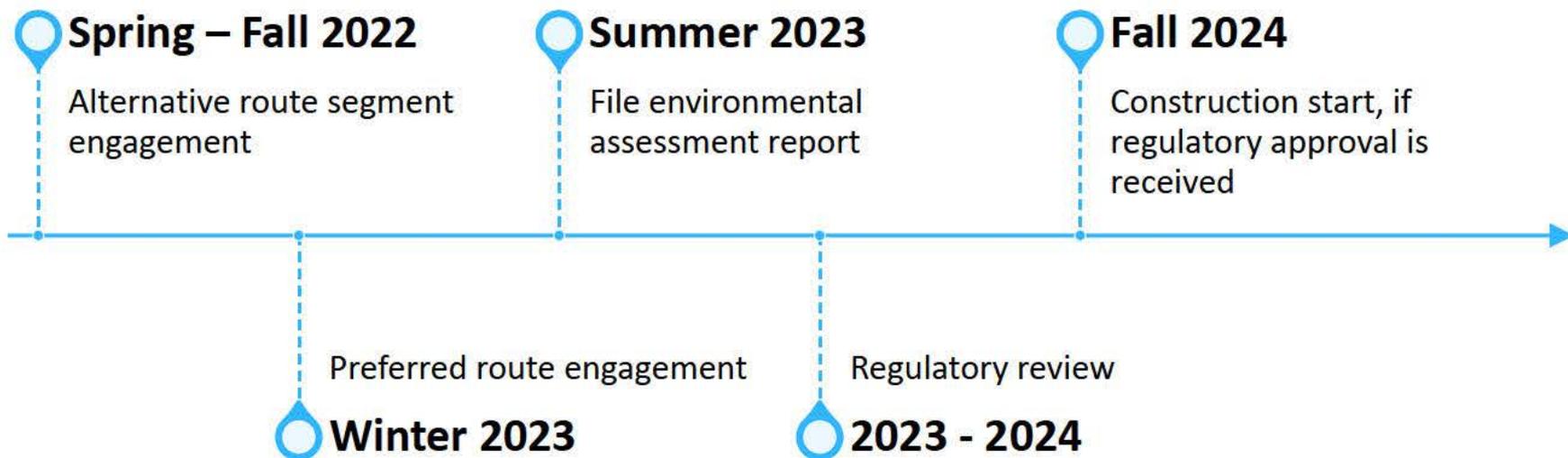
- Irreplaceable
- Food and medicine
- Artifacts
- Environmental impacts
- Cultural heritage
- Loss of wild spaces to practice section 35 rights
- Environment
- Employment
- Wildlife

Preferred route picked from set of finalists

- Information gathered is considered
- Routes compared against one another using a set of criteria and weighting
- Using a model makes the decision more structured, and clear



PW75 project schedule

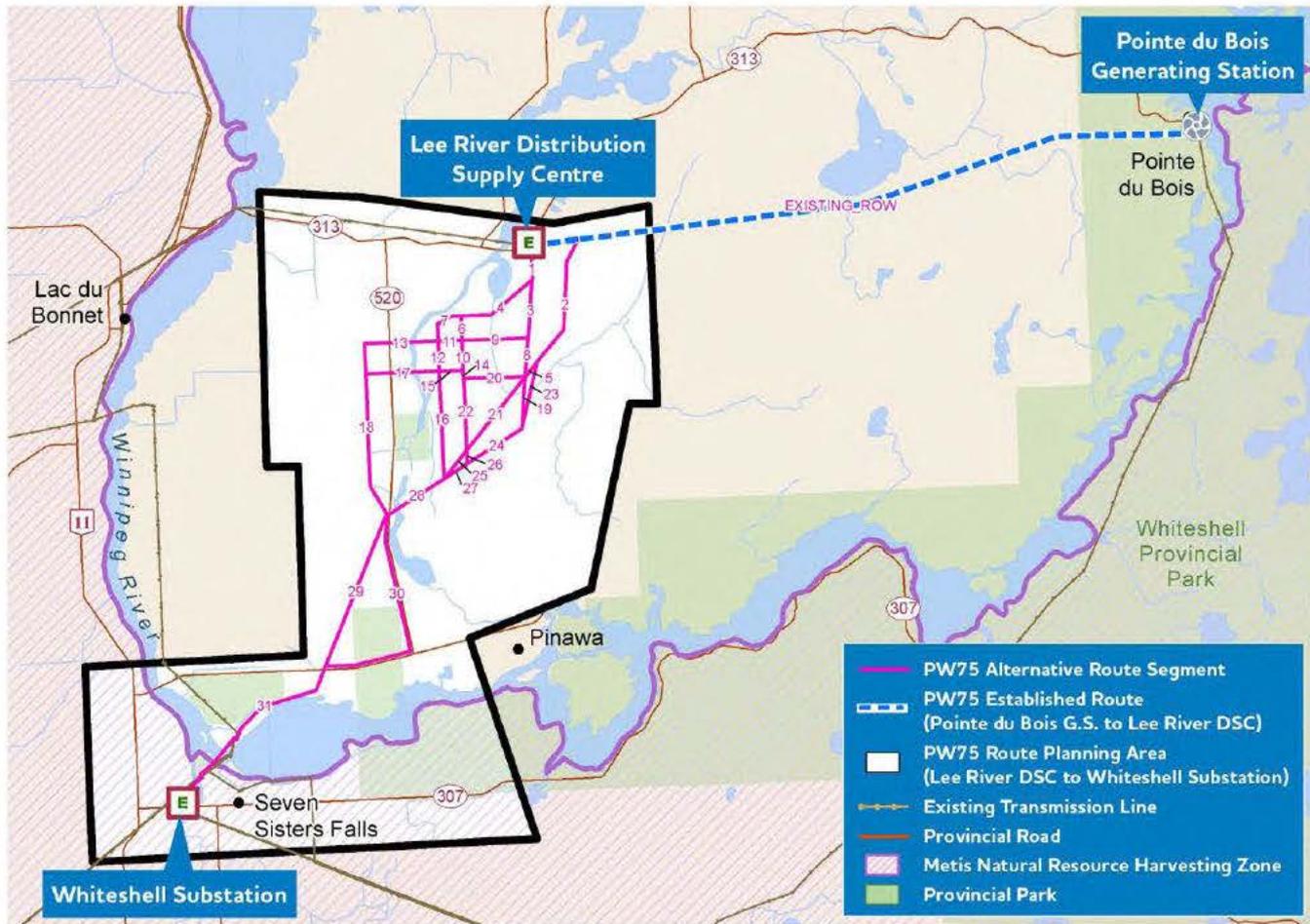


Next steps

- Review engagement feedback
- Discuss process for ranking route finalists from community perspective

What we heard

PW75 – Alternative route segment engagement



Engagement activities to-date

- Open house with Pointe du Bois Cottagers Association
- 6 virtual information sessions in July – August
- 24 meetings with rural municipalities, interested parties, First Nations, the Manitoba Métis Federation, Grand Council Treaty #3 and Northern Affairs communities
- Engagement Circle 1 & 2 for First Nations, the Manitoba Métis Federation, Grand Council Treaty #3 and Northern Affairs communities
- Online survey and feedback portal
- Emails, phone calls, letters

Public feedback – what we've heard

- Trespassing
- Recreational vehicle traffic on private land
- Skiing and snowmobile trails along segments

Agriculture

- Agriculture and livestock operations
- Farming around towers
- Potential biosecurity concerns for cattle

Wildlife & habitat

- Potential habitat fragmentation
- Sandhill crane nesting sites
- Deer wintering sites

Property

- Rights-of-way and controlling access
- Easements
- Property value

Trees & vegetation:

- Vegetation management along the ROW
- Herbicide use
- Removal of trees / forested areas

What We've Heard: FNMEP feedback

Culture & Heritage

Protection of sacred sites

Areas of high potential
(Lee River, river banks)

Spiritual importance -
Manito Ahbee and our
ancestors

Incorporating ceremony
in the project

Impacts to culturally
important vegetation
(wild rice and medicines)

Environment

Shared territory

'Species Health' as overall
indicator of health of the
environment

Consider what is being
left for future
generations; degradation

Need for monitoring
throughout the project

Trees & Vegetation

Concerns about herbicide
use

Impacts to wetlands

Vegetation management
practices

Wildlife & Habitat

Impacts on moose and
deer

Habitat fragmentation is
a concern; importance of
intact areas

Known sites for deer,
sandhill crane, Great
Grey owl

What We've Heard: FNMEP feedback

Economics

Interest in employment & business opportunities

Interest in an Indigenous monitoring program

Consider revenue sharing

Access & Travel

Increase access to area means increased pressure on resources

Increased access alters predator/prey relationship

Impacts to trails

Routing

Avoid intact areas and undisturbed Crown land

Use existing roads and cleared areas

Use previously disturbed or developed areas

Engagement

Focus on needs and benefits

About having a voice at the table and being heard

Differentiate between stakeholders and rightsholders

Summary

- Environmental assessment for PW75 is underway
- Participation in the decision-making process is a heavy burden – we appreciate your involvement

For the second workshop on Jan. 31:

- You'll be sent the top routes via email early next week with instructions on how to prepare for the meeting
- We will work together to try to identify the best balanced route from a community perspective
- The scoring by the Community Preference Team will be part of the larger routing decision

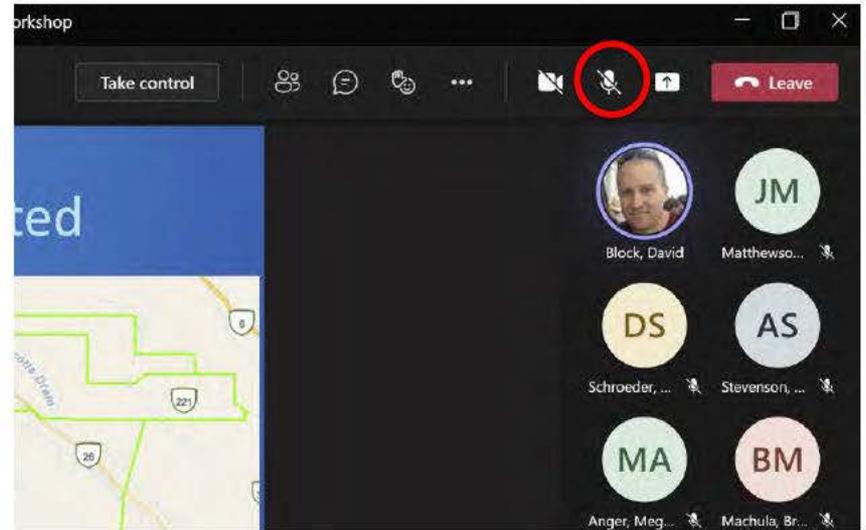
Thank you!

Community ranking in transmission line routing

Route scores, preferences and discussion

During the meeting

- Please have your camera on
- Please mute your microphone if not speaking
- This meeting will be more conversational than the last
- People are not expected to but may share confidential information. We appreciate your candor, respect and confidentiality



Agenda

- Welcome Back
- Review
 - Objectives of January 20, 2023 meeting and meeting today
 - Purpose of this scoring exercise
 - Refresher of the MH routing process and how community engagement informs routing outcome
- Share decision making process/rationale for scoring
- Discuss scores
- Next steps and wrap up

Objectives – January 20, 2023 (Meeting 1)



Share background on how we make routing decisions and answer questions

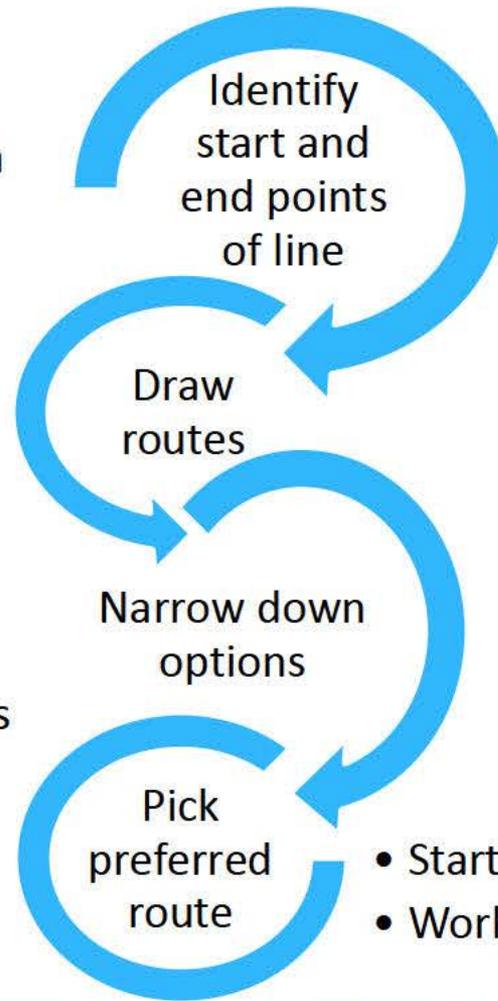


You leave feeling like you understand how your participation will inform the routing process

Pathway to selecting a route

- Draw study area

- Compare and evaluate routes
- Hold project team workshops



- Start alternative route segment engagement
- Gather local knowledge and concerns

- Start preferred route engagement
- Work to address concerns

The challenge of routing a transmission line (Round 1)

- Identifying the start and end points of the line
- Threading a needle through many constraints
- Considering many diverse interests, land uses and perspectives
- Shared a survey
- Asked for feedback on a map portal
- Mitigative segments

Objectives – Today (Meeting 2)



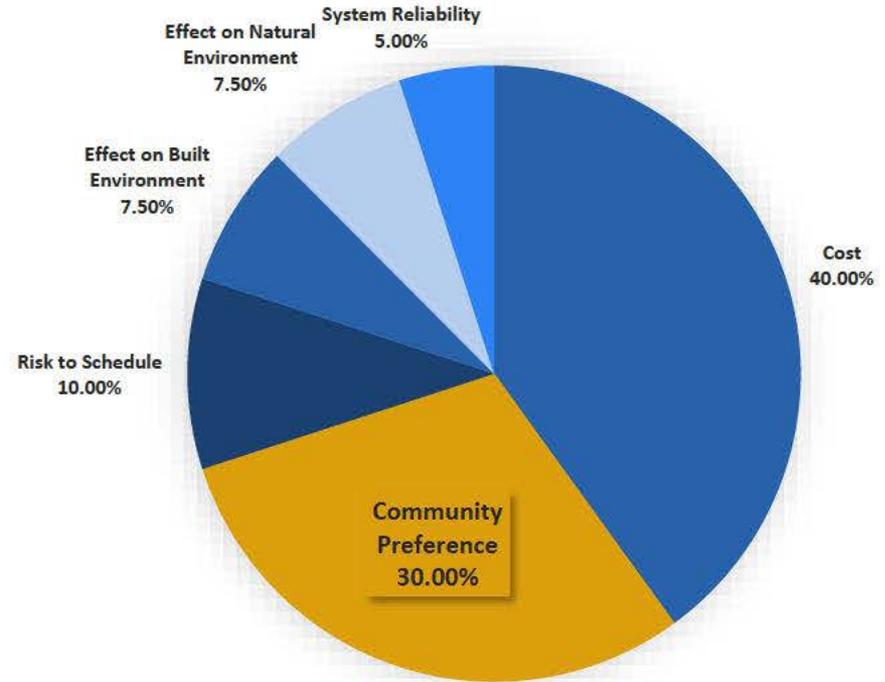
Understand preferences from Community Team participants



Understand the values for the Community perspective in determining a preferred route (30% of decision)

Community Preference Team

- Black River First Nation
- Brokenhead Ojibway Nation
- Manitoba Métis Federation
- Peguis First Nation
- RM of Lac du Bonnet
- Sagkeeng First Nation
- Manitoba Hydro



Transmission line engagement

- Evolved over time
- MH representatives conveyed key concerns in routing process
- Recently moved to more inclusive process



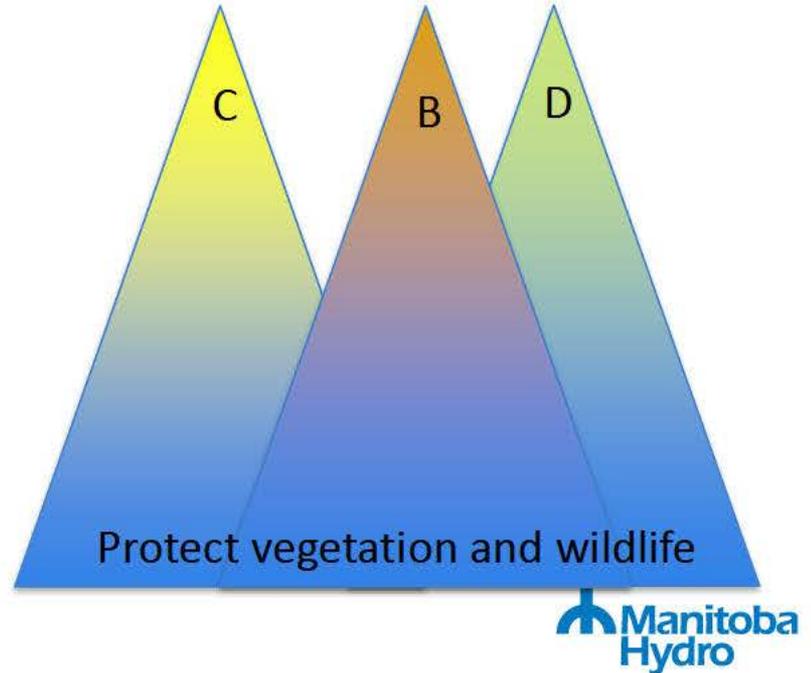
Dealing with lives, homes, livelihoods, cultures and constitutional rights

- Thank you for taking part
- There is no perfect process
- The final route won't be perfect



Putting a number to values

- Different scores but common values described in your responses



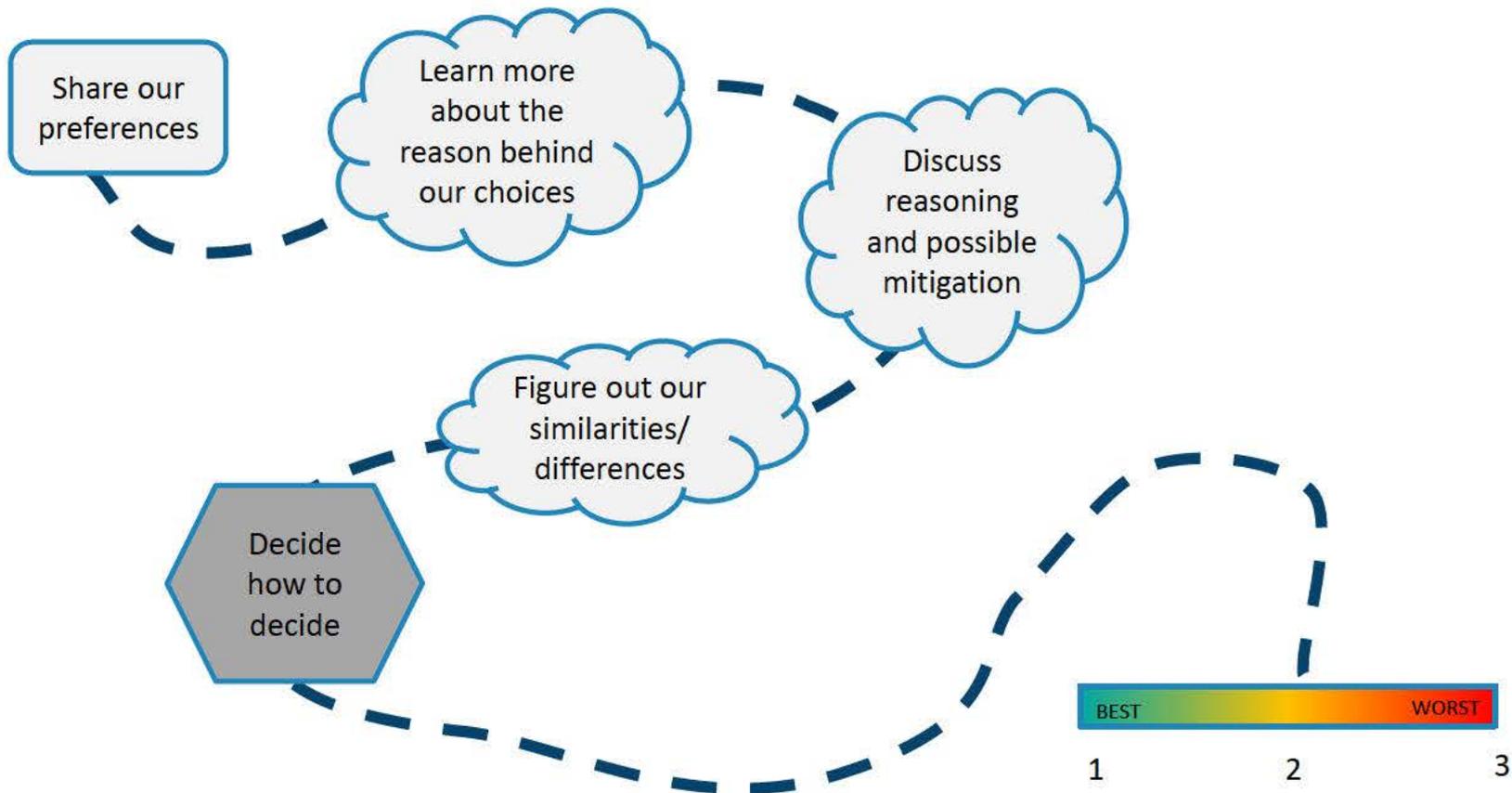
Sharing rationale

- The why matters
- You may hear something you were not aware of
- It's okay to change a score

When grading routes

- If a route is the **best** option, it gets a **1**
- If all routes are **equally good**, they all get a **1**
- If a route is the **worst** of all the options, it gets a **3**
- If the route is similar to the best option but not quite as good – gets a number larger than 1 , by as much to **represent the difference**





Mitigating potential effects

- Some effects are easier to mitigate than others
 - tower placement, easement and tower payments can reduce impacts to agriculture
 - No machine zones, riparian buffers, sediment fencing reduce impacts to waterways
 - Impacts to runways, cemeteries are very difficult to mitigate

Route A

Things we like

- Least intrusive to landowners because it is primarily on Crown land
- Less agricultural risks (biosecurity considerations, crop losses due to increased access and infrastructure in crop land, liability due to access)

Things we don't like

- Area of segment 2 (north part of the line) is relatively undisturbed
- Concerns with impacts to the environment and wildlife that the new footprint may have
- Most invasive from an environmental standpoint
- Increased affects to the livelihood and harvesting activities of Indigenous peoples
- Higher forest and wetland impact
- More fragmentation of intact natural areas (increases in access)

Route B (green)

Things we like

- Better than A to a degree from an environmental perspective
- Follows an existing road allowance (minimizing new fragmentation) through segments 12/16

Things we don't like

- Relatively high potential for heritage finds through segments 12/16 Proximity to the river; would pass area that was once covered by the river and is in a flood plain
- Rock outcrop near the Lee River DSC may have been a vantage point (historical potential)
- More impacts to private property than route A (12 and 16)
- More agricultural impacts (biosecurity, increase in access)

Route C

Things we like

- May be slightly better than B from an environmental perspective as most of it follows the road
- Heritage concerns near to segment 4 and near the outcropping by 10

Things we don't like

- Worst option from an RM perspective
- Some agricultural impacts to private landowners through that middle position of the line (around segment 14)
- Southerly portion will have additional fragmentation
- Northerly portion follows along Balouk Rd. (passes many developed properties)

Route D (orange)

Things we like

- Similar to route B from an environmental perspective
- Parallels road in the southern portions (30 A/B)

Things we don't like

- From RM perspective, this route has both human and environmental impacts - RM looking for the least impact on social and the environment

Route E

Things we like

- Less impacts to agricultural producers and landowners
- Parallels road in the southern portions (30 A/B)

Things we don't like

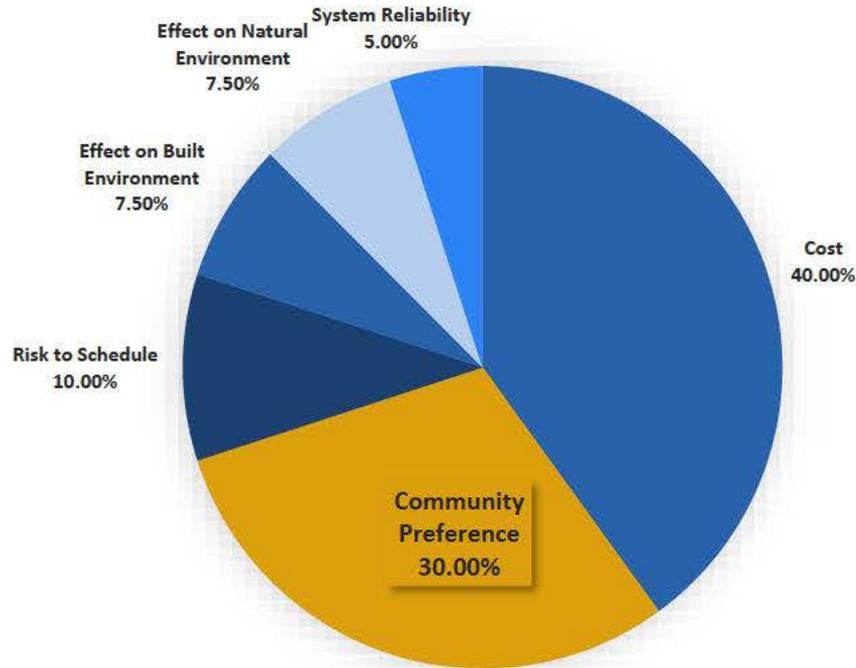
- Similar to A in terms of environmental impacts and impacts to harvesting and traditional livelihood
- Present fairly high environmental impact (similar to A; will go through undeveloped Crown land)

Transmission line engagement

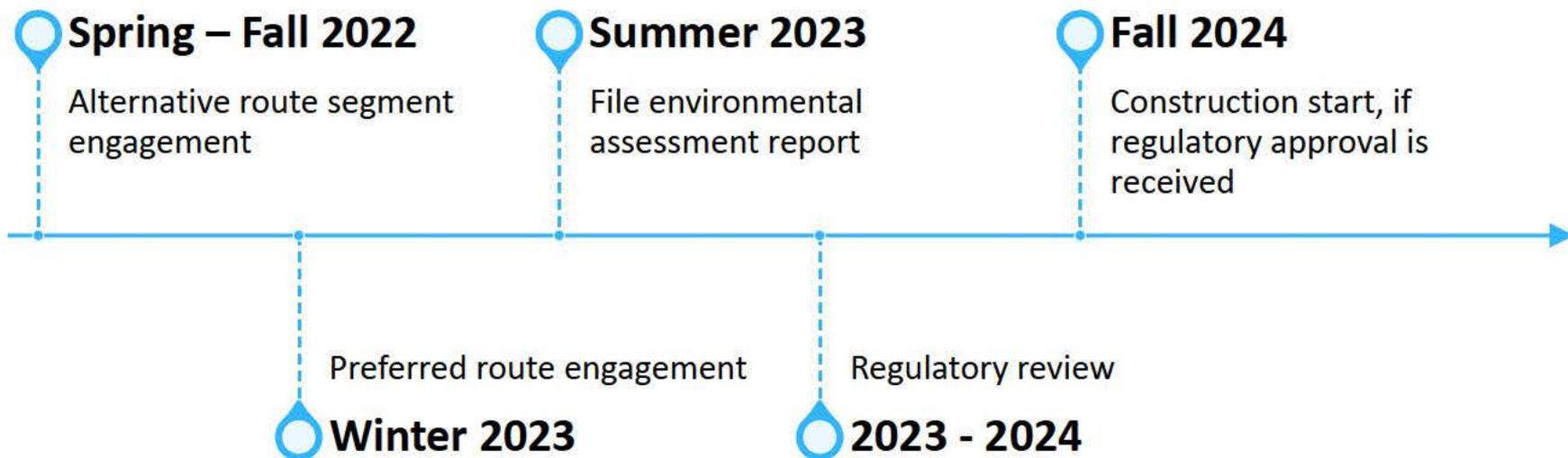
- Learn with each project
- Involving your community on this team based on the assumption that you'd rather be involved with decisions potentially affecting the areas you govern/live/have rights.

Next Steps: Preferred route picked from set of finalists

Our scores will **contribute** to decision, not make the decision



PW75 project schedule



Thank you

Maria M'Lot

mmlot@hydro.mb.ca

Lindsay Thompson

lthompson@hydro.mb.ca

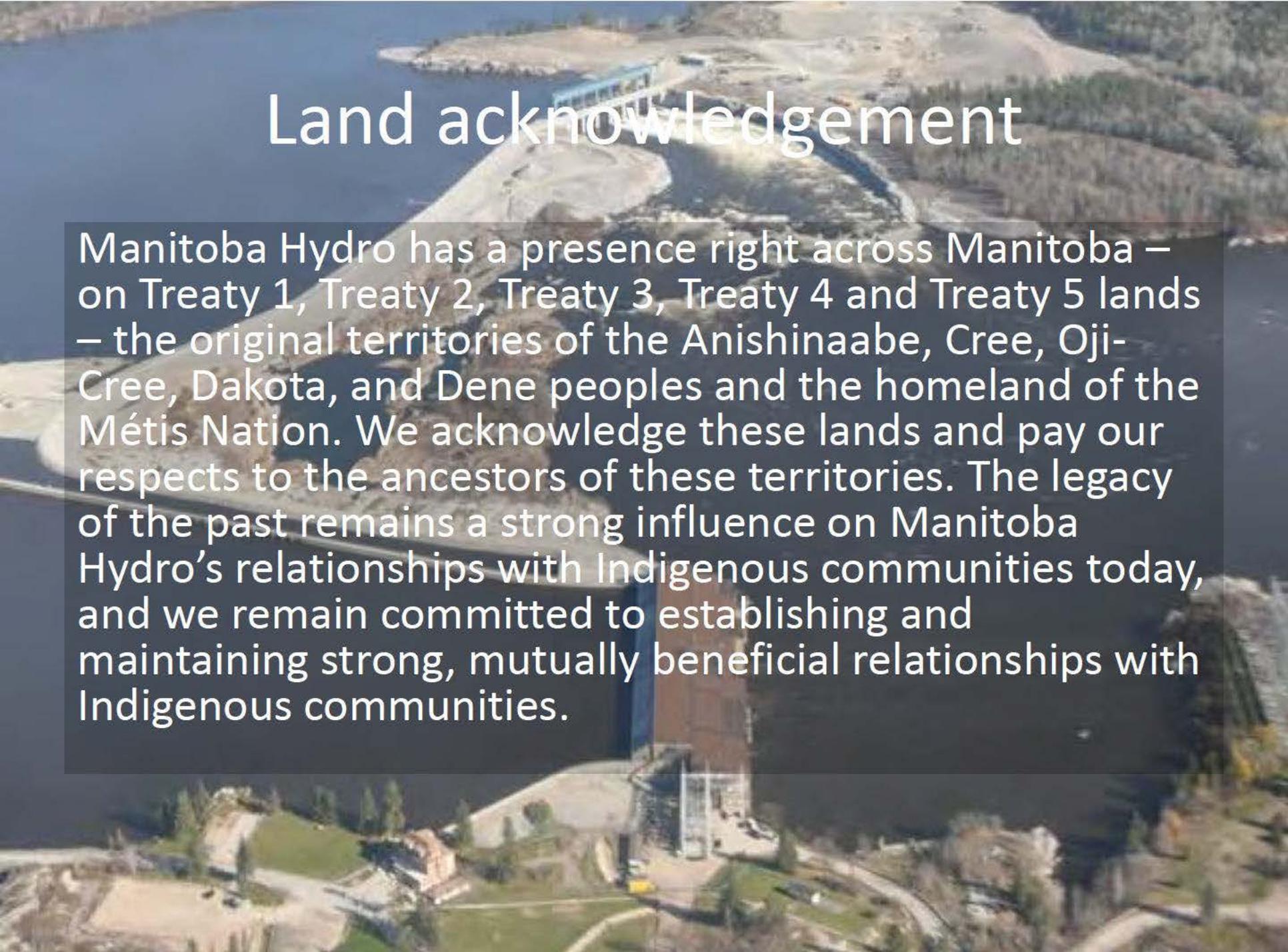


Pointe du Bois Renewable Energy Project (PREP)

Virtual information session presentation

Preferred route for PW75 transmission line

Land acknowledgement

An aerial photograph of a large dam and reservoir. The dam is a long, concrete structure with a spillway on the right side. The reservoir is a large body of water extending to the left. The surrounding landscape is a mix of green trees and brownish, rocky terrain. A semi-transparent dark grey box is overlaid on the center of the image, containing white text.

Manitoba Hydro has a presence right across Manitoba – on Treaty 1, Treaty 2, Treaty 3, Treaty 4 and Treaty 5 lands – the original territories of the Anishinaabe, Cree, Oji-Cree, Dakota, and Dene peoples and the homeland of the Métis Nation. We acknowledge these lands and pay our respects to the ancestors of these territories. The legacy of the past remains a strong influence on Manitoba Hydro's relationships with Indigenous communities today, and we remain committed to establishing and maintaining strong, mutually beneficial relationships with Indigenous communities.

Purpose of the session



Share project
information



Answer questions



Listen to feedback

Meeting outline

Welcome & introductions

Project presentation by Manitoba Hydro

- Generating unit replacement
- PW75 routing process
- Engagement findings to-date
- How we consider routing feedback
- Next steps and project timeline

Questions & answers

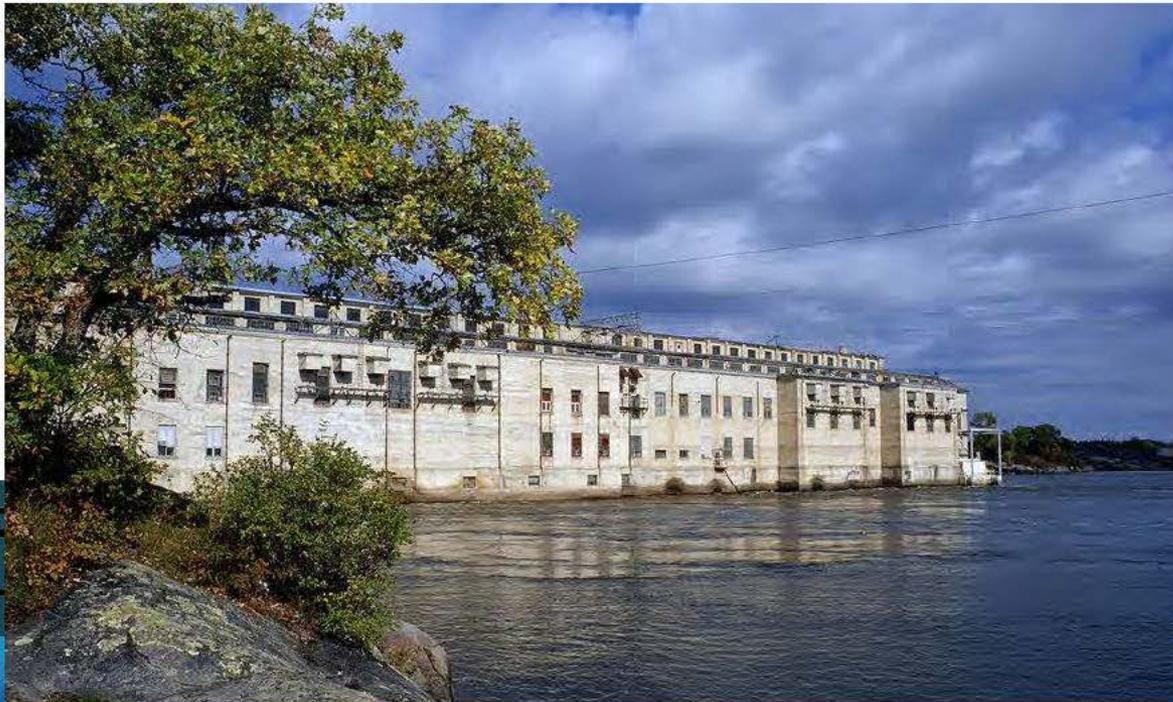
Project description

Generating unit replacement

- Installation of 8 generating units to replace original units nearing end-of-life

New transmission line (PW75)

- New 115-kV transmission line from Pointe du Bois generating station to Whiteshell station



Why is this project needed?



Extend the operable
life of the station to
2055



Enhance transmission
capacity leaving
Pointe du Bois station



Improve reliability in
Lee River and Lac du
Bonnet areas

Generating unit replacement

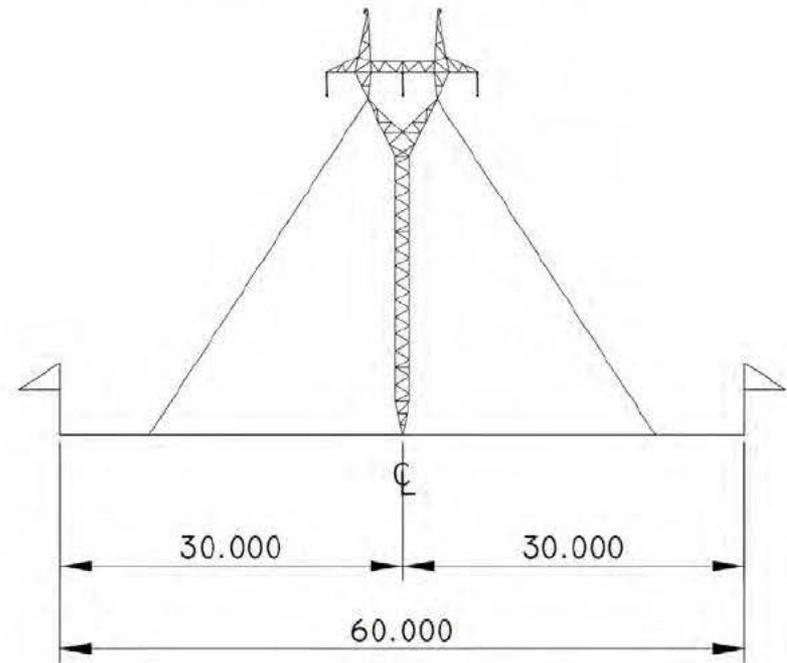
- Installation of 8 new generating units
- Contract for the decommissioning work to be awarded in the coming weeks
- Decommissioning work to take place from Spring 2023 to Spring 2024
- No expected changes to water levels or flows as a result of this work



PW75 transmission line

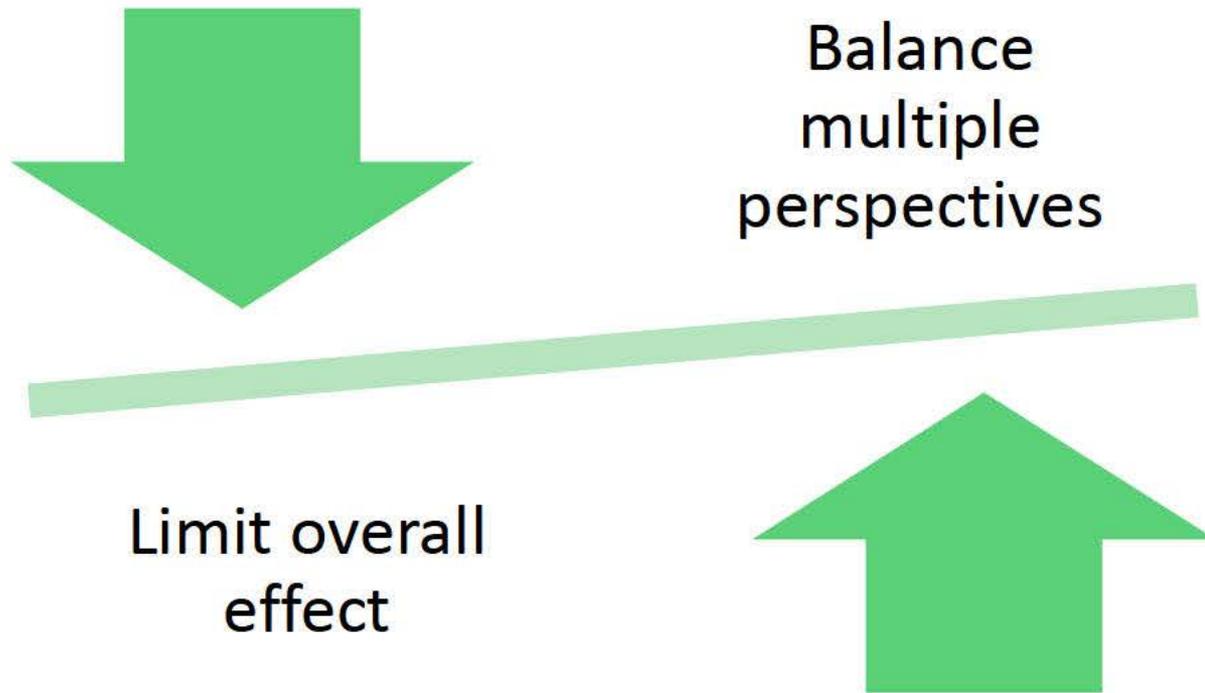
- New 115-kV transmission line
- Routed between Pointe du Bois, through the Lee River DSC, to Whiteshell station
- Expansion of the switchyard at Pointe du Bois and upgrades at both stations to accommodate the new line

115KV TRANSMISSION LINE
TYPICAL GUYED LATTICE SUSP. STR.



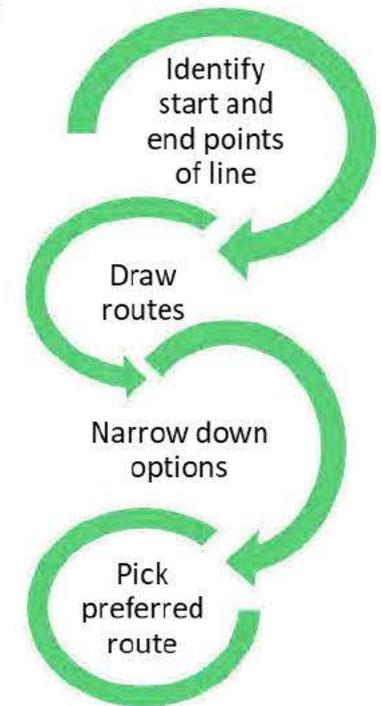
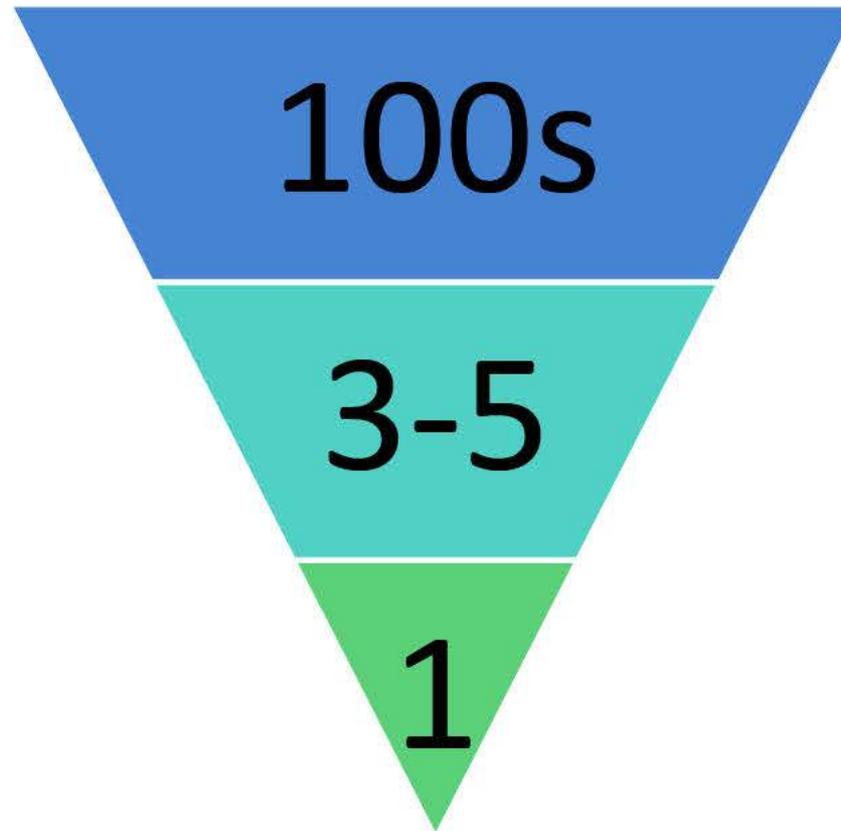
TYPICAL RIGHT OF WAY
115KV TRANSMISSION LINE

Goals of transmission line routing

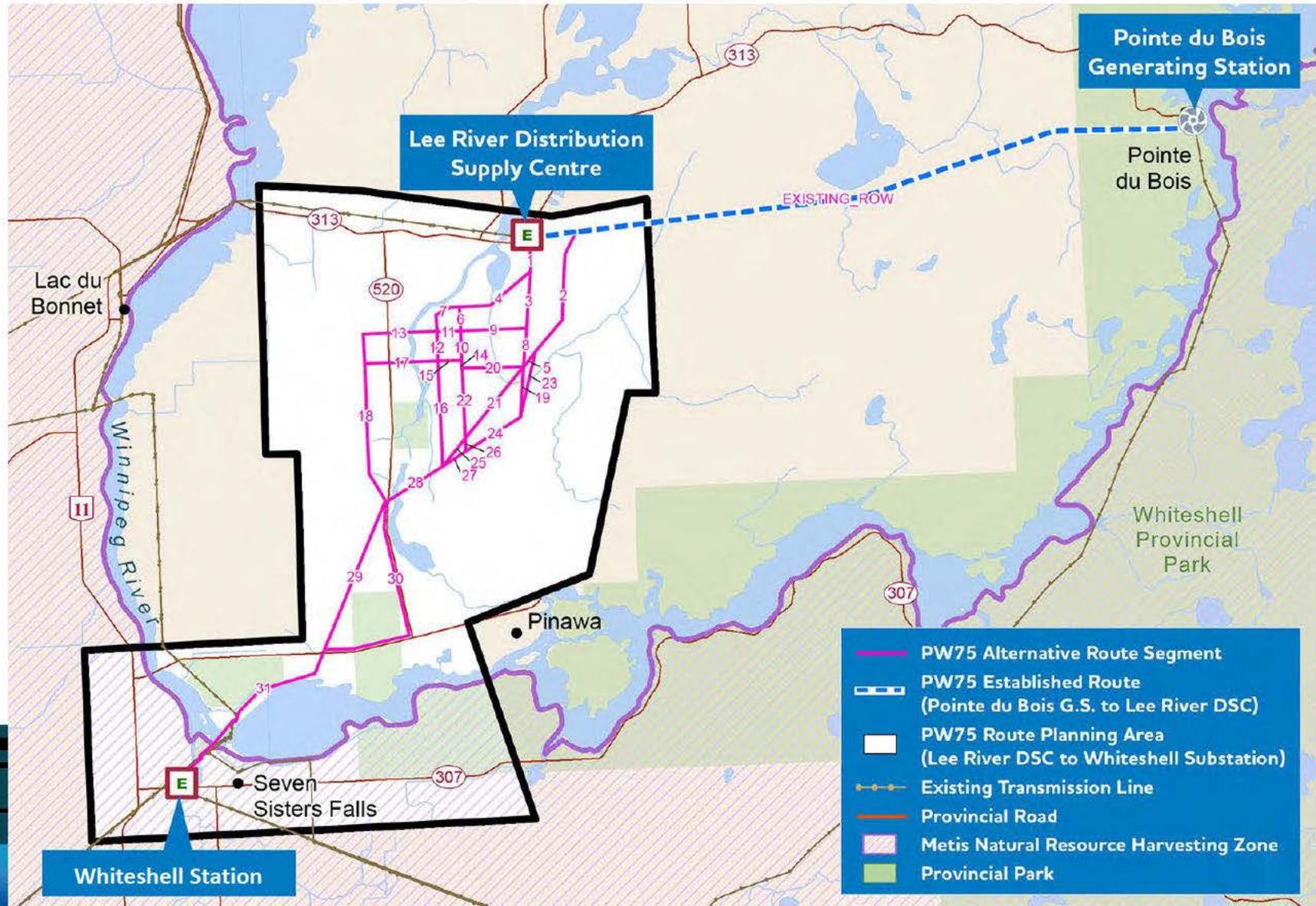


Transmission line routing process

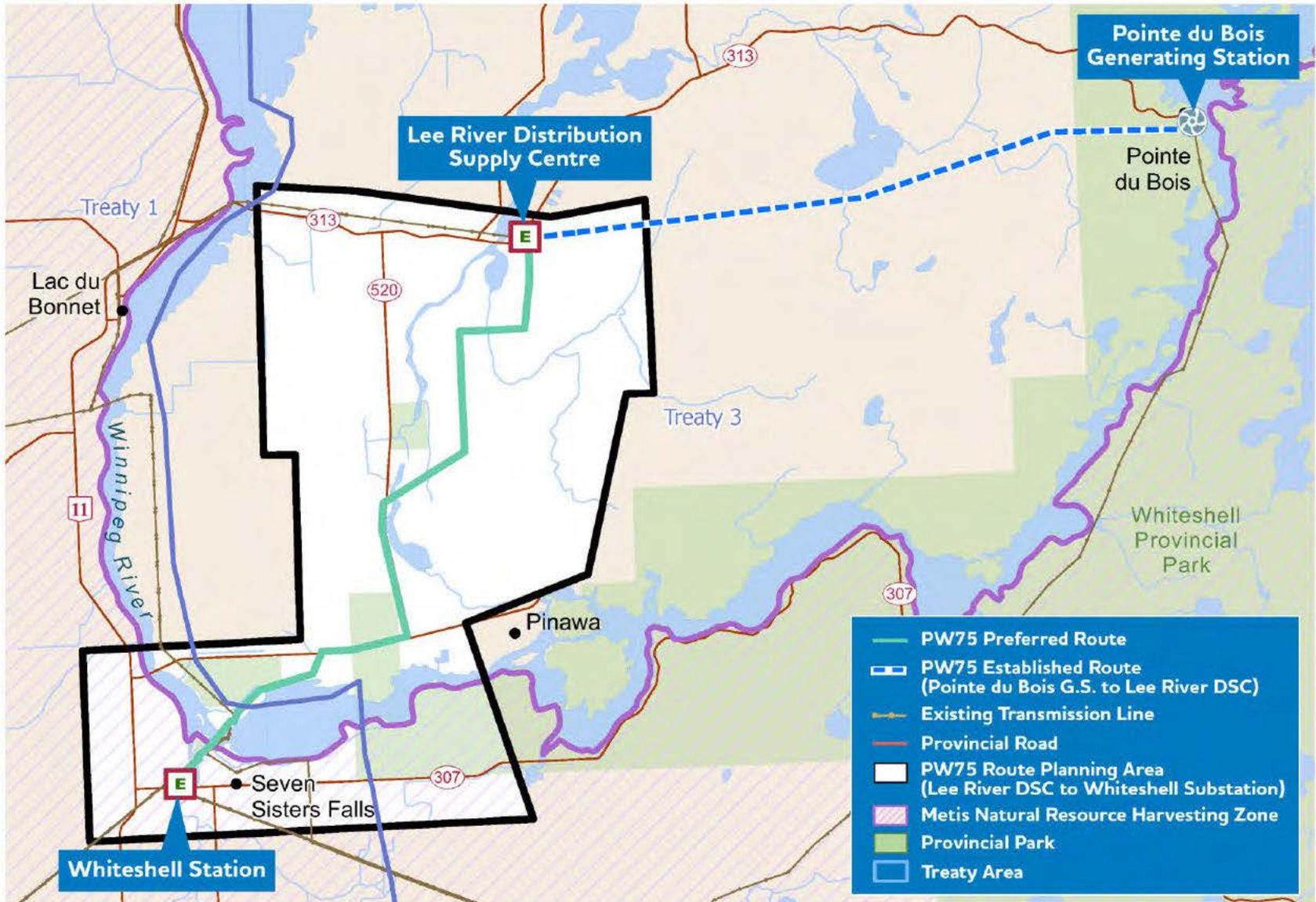
- Using information from studies, field work, engagement, input from experts
- A set of criteria help compare hundreds of alternatives to narrow down to 3-5 options
- Route options are considered and “scored” to determine a preferred route



PW75 - alternative route segments



PW75 – preferred route



Alternative route segment engagement



Online survey and mapping feedback portal



15 meetings with local governments, interested parties, First Nations, the MMF and Grand Council Treaty 3



6 virtual information sessions with 28 participants



Email and telephone communication

What we heard

Environment

- Wildlife and habitat
- Trees and vegetation
- Water levels and flows
- Intactness

Socioeconomic

- Agriculture
- Economics
- Road quality and traffic
- Recreation and travel

Historical cultural significance

- Culture & heritage
- Spiritual importance
- Traditional pursuits

People & wellbeing

- Access and travel
- Health and safety
- Enjoyment
- Monitoring

How do we consider routing feedback?

We sometimes hear opposing preferences

Concerns shared through engagement are considered alongside other routing criteria

First Nations, the Manitoba Métis Federation, and the RM of Lac du Bonnet participated in routing workshops to help inform the preferred route selection

We consider the “mitigatability” of concerns and if/how we can address those concerns

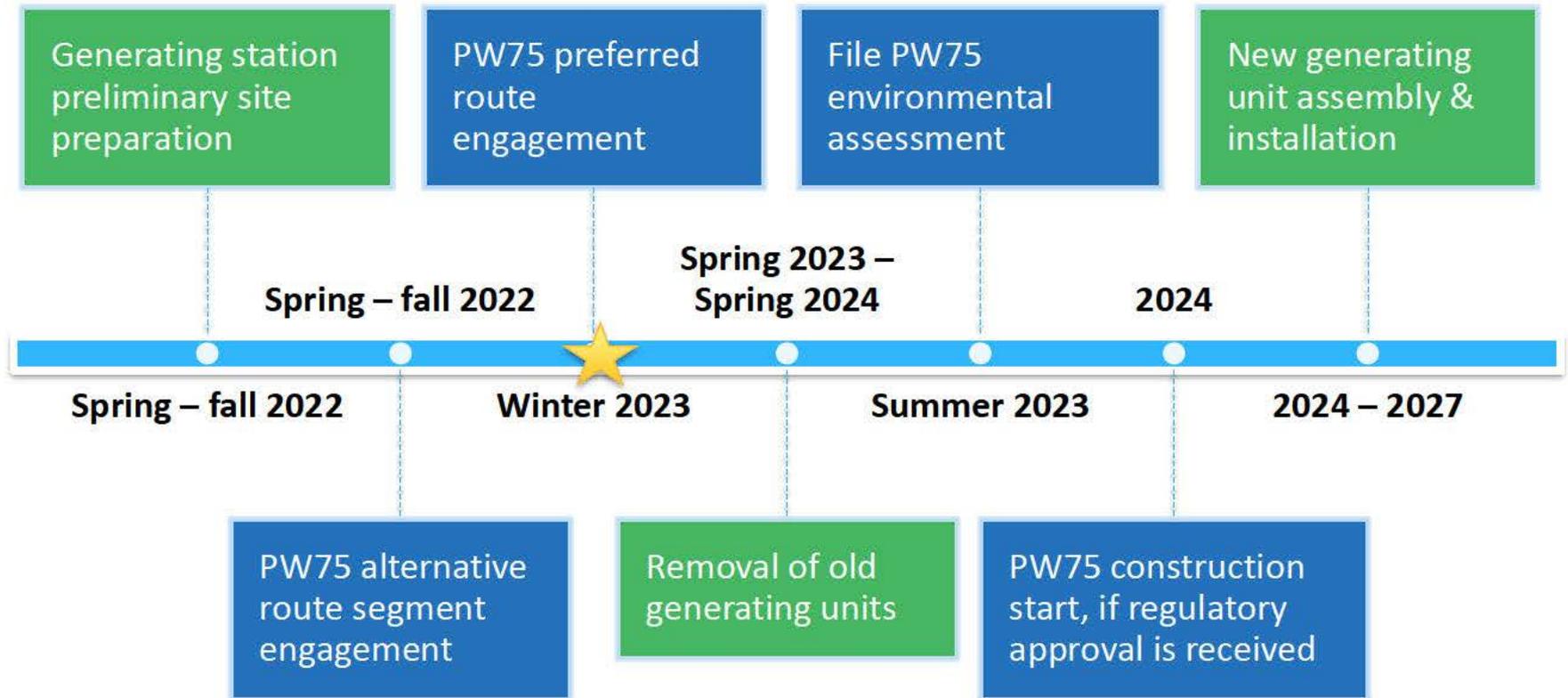
The preferred route aims to limit overall effects

How we're engaging

- Information sessions
- Meetings with rural municipalities and interested parties
- Meetings with First Nations, the Manitoba Métis Federation and Grand Council Treaty #3
- Online survey
- Interactive map and feedback portal
- Email and telephone communication



Project schedule



Thank you

We appreciate you taking the time to participate in our engagement process for the Pointe du Bois Renewable Energy Project (PREP). For more information and to sign up for email notices, please visit

<https://www.hydro.mb.ca/prep>

Questions?



Resources

- Website: www.hydro.mb.ca/prep
 - Preferred route information sheet
 - Engagement summary
 - Detailed maps & GIS data
- [Interactive map and feedback portal](#)
- [Online survey](#)

Meeting Notes

PREP virtual information session		
Date: March 15, 2023	Time: 12:00	Location: MS Teams
Number of participants	18	

Owner	Action Item:	Status
Manitoba Hydro	Share information about fibreoptic line repair along the PW75 right-of-way (ROW)	Complete – followed up with participant via email
Manitoba Hydro	Provide information about tower specifications	Complete – followed up with participant via email
Manitoba Hydro	Provide link to detailed maps and .kml or shapefile	Complete - Provided link during meeting and included in meeting notes

Discussion		
Category	Community Comment/Concern	Manitoba Hydro (MH) Response
Other projects	A participant asked why Manitoba Hydro is installing fibreoptic along the same corridor as the P3/P4 right-of-way.	MH responded that they believe Bell MTS is repairing and undergrounding an existing fibreoptic line. MH confirmed that the work is being undertaken by Bell MTS and is repairing an existing line, and responded to participant via email.
Routing	A participant asked when tower locations would be finalized.	MH responded that tower spotting is typically done closer to construction, but we can look at the Trans Canada Trail where it runs along PR211 and how to minimize overall effects to the trail.
Routing	A participant asked why they haven't seen any studies being done on their property. They were under the assumption that project area studies were already completed prior to selecting a preferred route.	MH responded that the entire project area was looked at, and now that we have a preferred route, we are able to identify where points of concern may be. MH offered to meet to discuss specific concerns relating to the property.
Engagement	A participant shared that Manitoba Hydro let everyone else know about the route, but didn't let the affected landowners know about it.	MH responded that letters were sent to both affected landowners and adjacent landowners.
Routing	A participant asked when Manitoba Hydro will have a decision on the line going west	MH responded that they will be reaching out to the other landowner in the area, and will have a

Discussion		
Category	Community Comment/Concern	Manitoba Hydro (MH) Response
	out of the Distribution Supply Centre (DSC).	response in the next couple of weeks.
Engagement	A participant asked where they can see the route in greater detail, and if the mapbooks include the ROW width.	<p>MH provided a link to the project website in the meeting chat, which contains a .kml file, shapefile, and map portal.</p> <p>MH responded that the mapbooks do not include the ROW width but a typical ROW for a project of this size is 60m.</p>
Routing	A participant asked about tower dimensions and height.	<p>MH responded that specifications vary based on locations. In agricultural fields, towers will be self-supporting steel lattice structures, and the span will average between 385m and 400m.</p> <p>Tower height and dimensions will be provided as follow-up information.</p>
Routing	<p>A participant asked when P3 and P4 towers would be decommissioned.</p> <p>A participant asked for the height/dimensions of towers.</p>	<p>MH responded that decommissioning of existing P3 and P4 lines would be around 2026, once PW75 is in service.</p> <p>Tower height and dimensions will be provided as follow-up information.</p> <p><i>Follow-up:</i> Tower height will vary depending on ground cover and clearing requirements but will range from 29 to 60 meters. The tower footprint will be 35-50m for guyed towers, and 5-12m for self-support towers. The average tower span length will be 425m.</p>
Engagement	A participant asked for a link to a detailed map.	MH provided a link to the project website in the meeting chat.
Engagement	A participant asked for a .kml or shapefile.	MH provided a link to the project website in the meeting chat.
Routing	A participant asked if the towers that are currently in place from Pointe du Bois were going to be used or will there be new towers installed?	MH responded that there will be new towers. The current P3 & P4 lines will be kept in operation while PW75 is being built. The current ROW will be widened 38m south of the current ROW between Pointe du Bois and Lee River DSC.

Meeting Notes

PREP virtual information session		
Date: March 21, 2023	Time: 7:00 p.m.	Location: MS Teams
Number of participants	9	

Owner	Action Item:	Status
Manitoba Hydro	Detailed map to be provided to participant	Completed – followed up with participant via email
Manitoba Hydro	Provide information to participant about vegetation management plans and if concerned landowners could be notified of any herbicide application	Completed – provided in meeting notes below
Manitoba Hydro	Provide field study reports to participant	Completed – followed up with participant via email

Discussion		
Category	Community Comment/Concern	MH Response
Environmental Assessment	A participant shared they haven't seen a report from people doing studies on their property. The participant shared that they have concerns with the validity of data being used.	Manitoba Hydro shared that a transmission line project in this area previously went through an environmental assessment process in 2014. New information is being collected to provide more accurate and current data for the 2023 submission. <i>Follow-up:</i> Manitoba Hydro followed up with the participant with the field study data conducted on their property.
Engagement	A participant shared that provided maps are large with no detail specific to property lines.	Manitoba Hydro responded that maps tailored to individual landowners can be provided upon request.
Routing	A participant asked why crop land is given a 2.7x weighting compared to hay land when making routing decisions.	<i>Follow-up:</i> Different types of agricultural lands are assessed based on typical compensation cost. Crop land is considered more valuable and is given a higher multiplier due to its greater economic value than hay land.
Routing	A participant asked about the right-of-way width in terms of a fire break	Manitoba Hydro responded that the current right-of-way between Pointe Du Bois and Lee River DSC has a cleared width of 30m and we will be expanding to the south an additional 38m. <i>Follow-up:</i> while this will create a larger break in mature treed vegetation, grasses, shrubs and immature trees will still be present, as a result the Manitoba Wildfire Program does not consider the ROW an effective fire break.

Discussion		
Category	Community Comment/Concern	MH Response
Vegetation management	<p>A participant shared that herbicide spraying has occurred from Lee River DSC all the way to Bird River to kill Poplar trees.</p> <p>The participant asked what Manitoba Hydro is going to do about overspray on grazing land and compensation if grazing animals get sick.</p> <p>The participant shared that Manitoba Hydro has sprayed Grand Rapids south to lower part of lake Manitoba with spray, bringing the spray south to lower costs. The participant shared concerns that this herbicide then gets incorporated into the water system and will impact cattle. The participant asked how Manitoba Hydro manages when they apply or don't apply herbicides or chemicals.</p>	<p>Manitoba Hydro noted they would follow up with more information on vegetation management practices.</p> <p><i>Follow-up:</i> Vegetation management plans are created for each project based on a variety of criteria, including vegetation, land use, sensitive sites, and land ownership. Herbicides are an important tool for vegetation management on certain tree species in Manitoba. Herbicide application is done with significant planning, following of regulations and best management practices to minimize the effects on the environment. We use buffers on water to prevent herbicides from entering watercourses and work with producers, landowners and Indigenous communities to address site specific concerns with vegetation management.</p>
Vegetation management	<p>A participant shared there are two main drains on their property that run directly to the Lee River, so if chemical spraying does occur it would end up in waterbodies where spawning occurs.</p>	<p>Manitoba Hydro noted they would follow up with more information.</p> <p><i>Follow-up:</i> As described above, Manitoba Hydro follows all regulatory buffers when applying herbicides near water bodies to prevent impacts to water quality and fish habitat.</p>
Wildlife	<p>A participant mentioned concerns of biohazards and transferring diseases from neighbouring cattle operations. With increased opportunity to access land, quads or offroad vehicles are more likely to transfer mud and biohazards. People may also damage fences and if neighbouring cattle get onto the property.</p>	<p>Manitoba Hydro noted they would follow up with more information.</p> <p><i>Follow-up:</i> A biosecurity management plan will be developed as part of the construction environmental protection plan. Manitoba Hydro has standard operating procedures it follows during operations and maintenance. Manitoba Hydro will be developing access management plans for both construction and operation of the line. These plans will address the mitigation measures to be implemented by Manitoba Hydro like fencing and gates to address trespassing and biosecurity concerns.</p>
Wildlife	<p>A participant shared that they question the validity of wildlife data from the past environmental assessment because there are many</p>	<p>Manitoba Hydro responded that additional data was collected this past summer to supplement data collected as part of the previous environmental assessment. These reports have not yet been</p>

Discussion		
Category	Community Comment/Concern	MH Response
	<p>acres of alfalfa in their area and a high density of wildlife between their property and neighbouring property. The participant shared that they understand Manitoba Hydro not wanting to knock down bush, but wildlife density in their area needs to be reconsidered.</p>	<p>finalized for the public. Stantec has been conducting studies on wildlife, vegetation, and fish and fish habitat.</p> <p><i>Follow-up:</i> Manitoba Hydro followed up with the participant with the wildlife and vegetation technical data reports.</p>
Vegetation management	<p>A participant shared that they know Manitoba Hydro has contracted out much of their herbicide spraying along transmission lines. The participant is opposed to spraying as they have many plant species on their property which help to stabilize the bee population; cherry tree, apple trees, flowers and sunflower.</p> <p>The participant shared that anyone adjacent to a Manitoba Hydro right-of-way should have a say if vegetation is cleared manually or if chemicals such as Garlon is used since it is not very environmentally friendly. The participant shared that they know it is sometimes a preference to use herbicides and wants to know if herbicides were to be used if they would be notified about it.</p>	<p>Manitoba Hydro noted they would follow-up with more information for the participant.</p> <p><i>Follow-up:</i> Prior to any herbicide application on private land under easement agreement with Manitoba Hydro, the landowner will be contacted. Due to continuous changes in land ownership and the expansive network of distribution and transmission lines, Manitoba Hydro is unable to contact adjacent landowners directly, however as part of the provincial pesticide use permit application process Manitoba Hydro advertises each spring in major newspapers the locations and types of herbicides it is planning to apply in that year. The public may send written submissions or objections within 15 days of the publication of the notice. Spray exclusion zones can be set up on adjacent property owners to the transmission line right-of-way. All applicable permits will be obtained, and provincial regulations will be adhered to for any herbicide application during the operation phase of the project.</p>
Access	<p>A participant shared an adjacent landowner was not notified of any environmental studies being conducted.</p>	<p>Manitoba Hydro clarified that some sites identified for field work required traversing or accessing private property. In these instances, private landowners were notified by phone call to ask whether field crews could traverse their properties to conduct field studies at these identified sites.</p>

Meeting Notes

PREP open house		
Date: March 25, 2023	Time: 1:00 – 4:00 p.m.	Location: Pioneer Senior Club, Lac du Bonnet
Number of participants	16	

Owner	Action Item:	Status
Manitoba Hydro	Provide information on preference determination model / process	Ongoing
Manitoba Hydro	Explore routing alternative options proposed by participants during meeting	Ongoing
Manitoba Hydro	MH to follow-up with trapper directly to discuss concerns	Complete
Manitoba Hydro	Provide information of siting rationale for Lee River DSC	Complete

Discussion		
Category	Community Comment/Concern	MH Response / Mitigation
Aesthetics	Concern that transmission line would be visible from windows of cottage. Concerns that the change to aesthetics would impact property values and their enjoyment of their properties.	MH noted this concern and shared that property values are not typically affected long-term by the presence of transmission lines.
Access	Landowners immediately adjacent to preferred route shared concerns about trespassing and access along the ROW even if the land were to remain private land. They shared concerns that people who are trespassing ignore signage. They shared safety concerns with people accessing their land illegally and then hunting near their cattle. They also shared concerns that they grow medicinal plants and are concerned that they will be damaged by ATVs accessing their properties. Concerns regarding biosecurity for cattle operation if ATV's bring soil borne pathogens and disease from other locations. Concerns were shared regarding liability with people entering pastures and/or destroying fencing.	MH will develop access management plans, and can draft up commitments to landowners for signage, fencing and other deterrents for trespassing on private land rights-of-way. Manitoba Hydro will work with Manitoba Agriculture and leaseholder to discuss access management within agricultural crown land leases.

Discussion		
Category	Community Comment/Concern	MH Response / Mitigation
Routing	Concern and request for more information about the route selection process and specifically why Route D was chosen over Route A as it avoids impacts to private land (based on information posted on RM of Lac du Bonnet webpage [Feb 14 meeting agenda])	MH to provide information on route selection process to participants. Complete details will be articulated in the Environmental Assessment to be filed with Manitoba this summer.
Engagement	Concern with overall notification / information sharing on the project to people living in the area. Recommendation to use Lac du Bonnet Clipper	Lac du Bonnet Clipper to be used for advertisements moving forward for this project (many postcards were immediately recycled or left at post office), adjust routing engagement process
Engagement	Concern from RTL holder about delay in field work occurring, removal of traplines earlier than otherwise planned to accommodate planned work	MH to follow-up with trapper directly to discuss concerns
Access	Geotechnical drilling occurred on private land with no heads-up given to the landowner	Moving forward, develop temporary access agreements will be developed. MH will look into broader notification for internal MH staff about the importance of notifying landowners, mobile app for notification in development to be used by field crews
Routing	Preference to route transmission line on the east side of property immediately south of the Lee River DSC away from Belluk Road – less wildlife moving through that portion, less valuable/usable land on that portion of the property	Design looking into feasibility of eastern route alignment within property.
Routing	Participant noted they fly a small plane for recreation and often land in field on NW-15-15-12-E, immediately adjacent to the preferred route and noted the height of existing distribution line.	Design looking into feasibility of eastern route alignment within property. Aerial markers on both distribution and proposed transmission line will be investigated.
Access	Concerns with overall access onto private property and biosecurity concerns with cattle ranch operations	Design looking into feasibility of eastern route alignment, consideration of whether it would be possible/amenable to route the line immediately east of properties on Crown land
Agriculture	Landowner who farms along PR520 felt an alignment along PR520 would have impacted his operations.	MH noted this information.
Wildlife	Landowners along preferred route shared information on wildlife use/travel corridor on wooded area along adjacent undeveloped road allowance and various	MH noted this information.

Discussion		
Category	Community Comment/Concern	MH Response / Mitigation
	animal siting's (deer, bear) on their properties over the years and have not seen moose in the area for many years.	
Wildlife	Landowners shared that wildlife frequently travel between Lee River and forested land to the east.	MH noted this information.
Infrastructure	Participants expressed interest in knowing how the Lee River DSC site was selected and why the connection to Whiteshell Station is required.	<p>The purpose of the DSC installation is to provide a source capacity option to transfer load off the existing Lac du Bonnet Station in order to support growth on the east side of the Winnipeg River over the next 15 years. The area east of Lac du Bonnet has experienced low voltage and protection issues due to increased load growth. The location of the DSC was selected due to its proximity to the Pointe du Bois transmission line (source of power), accessibility, connection to the 25kV distribution network at a location that stabilized voltage all the way to the end of the network in Bird River.</p> <p>The Lee River DSC is fed from the Pointe Du Bois Generating station and while there is an emergency back-up connection to the Lac du Bonnet station it would not be able to support all customers during peak winter load. The creation of a new transmission line between Whiteshell Station and the Lee River DSC will dramatically increase the reliability for the customers in the Lee River and Bird River area.</p>

PW75

Detailed survey results - preferred route

Manitoba Hydro undertook a survey with the aim of gaining a deeper understanding of the concerns regarding the preferred route. A total of 77 individuals completed this survey. The information collected in this survey plays a role in informing Manitoba Hydro about the potential impacts of concern and providing suggestions on potential mitigation measures.

Participants shared a high level of concern for the impacts the project will have on outdoor recreational activities. Specifically, participants were concerned about how the project will impact the mountain bike trail, Granite Groove Out.

1. DO YOU HAVE ANY CONCERNS ABOUT THE PREFERRED ROUTE?

A total of 54 individuals responded they have concerns about the preferred route. 16 participants shared they were unsure, and seven participants shared that they have no concerns about the preferred route.

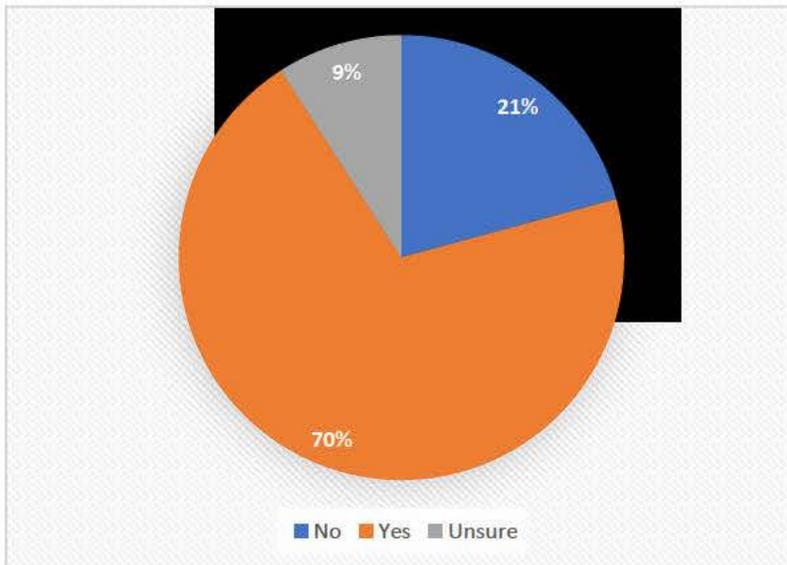


Figure 1: Percentage of participants who had concerns about the preferred route

2. WHAT ARE YOUR CONCERNS?

Participants shared a high level of concern about the potential disturbance this transmission line will bring to the popular mountain bike trail Granite Groove Out. Of the 54 participants that had concerns about the preferred route, 33 participants have concerns about the preferred route passing through the mountain biking trail.

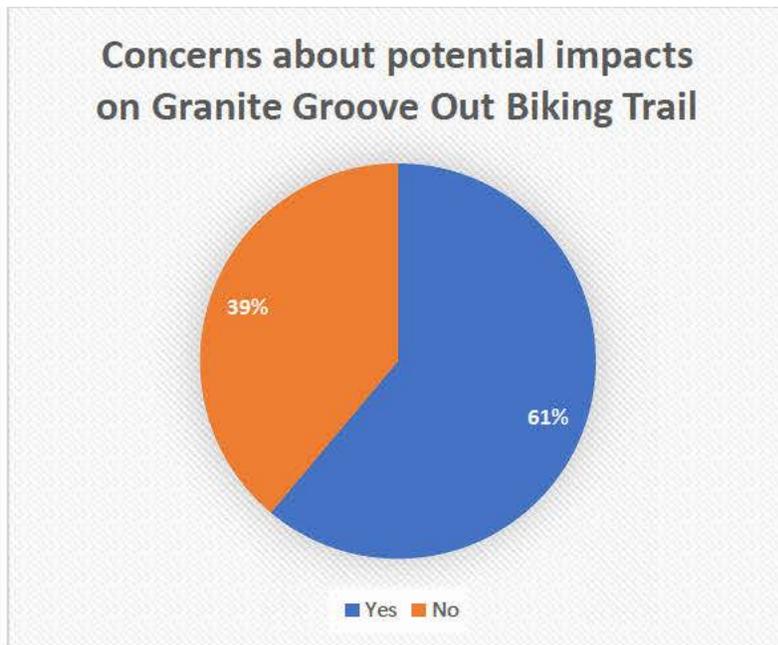


Figure 2: Percentage of participants who had concerns around Granite Groove Out

Some examples of the responses about the mountain biking trail are quoted below.

*"There is a bunch of **Mountain bike trails called Granite Groove Out**. They would get destroyed if it went through there."*

*"The preferred location runs through **prime biking and hiking trails** -granite groove out"*

*"Concerns about maintaining recreation in the area while still delivering the planned sustainable electricity from the station. A **major mountain bike trail** (Granite Groove Out) is near the proposed route, as are some historical hiking trails."*

*"The route looks to cross through what is known as **Granite Groove Out, a very popular mountain bike and hiking trail system**. The parking lot area of which is at (50.2521728, -95.8653823), most of the trail extends out towards (50.2499601, -95.8777969) on the west and (50.2569939, -95.8591592) on the east. It would be really unfortunate for a power line to go right through this pristine area of forest and Canadian Shield. There are many others in the mountain bike community that have voiced concern about it."*

*"The preferred route will compromise a frequented site used by **mountain bikers**, trail runners, and hikers locally known as Granite Groove Out. <https://www.trailforks.com/region/granite-groove-out-25152/>"*

*"The preferred route will be going straight through **existing mountain bike trails** over the old AECL site. It will make the biking/hiking trails at Granite Grove - just off Belluk rd inaccessible. There are very limited good biking trails near Winnipeg, and we need to keep what we have. the proposed new lines will destroy pristine forest and a gorgeous mountain biking trail."*

*"As an avid mountain biker in Manitoba the hydro line proposed will be going directly through section of some of the **best mountain biking trails our province has to offer** at the old Atomic Energy of Canada Ltd. Site. With the proposed lines in that area it will the beautiful natural terrain we have here that is so limited in our province. Please move proposed line northeast of the old Atomic Energy site."*

*"The route crosses through the ex AECL Whitesell underground lab site which is currently heavily used by the **Manitoba Mountain biking community** and other outdoor enthusiasts."*

Demonstrated in *Figure 3*, most concerns received by survey participants were surrounding the mountain bike trail, but participants had other concerns as well. Topics such as changes to the environment, recreation, aesthetics and other recreational activities were shared.



Figure 3: Frequency of topics of concern

Some examples of other concerns that were shared by participants are highlighted below:

*"Minimize the impact on the **Pinawa Channel** and surrounding farmland"*

*"If Mb. Hydro builds the right of way through this site, they will spoil this absolute **natural gem** through deforestation and **create an eyesore** directly across the sight lines of a spectacular 100km view ridge"*

*"I am concerned about potential impact to **existing xc ski and hiking trails** in and near Whitemouth"*

*"I am also concerned about **herbicide sprays** used to clear right of ways for the transmission line. Sprays should be kept away from **the rivers and farmland.**"*

*"Merchantable tree be utilized be offering to rights based users and general public. There is a significant **demand for forest products like firewood in the area.**"*

*"**Beautiful forest** will be ruined. This land is used by all types of groups as **recreational space**, And is sort of a landmark."*

*"The current route is very **detrimental to the environment** near the Lee River substation. It will radically effect wildlife, tourism, land values, safety, very much degrade the recreational value of the old URL site"*

*"There is no discussion about any **recreational trails** along the corridor. This corridor is perfect for a paved active transportation (**walking, hiking, cycling**) corridor connecting Pointe du Bois for Lac du Bonnet."*

3. DO YOU HAVE ANY SUGGESTIONS ON HOW TO ADDRESS YOUR CONCERNS?

Participants had the opportunity to share suggestions on how Manitoba Hydro could address their concerns. 38 participants responded to this question. Many respondents suggested moving the route to avoid the mountain bike trail. Other suggested minimizing the impacts of the line through tower placement or to work with the community to support alternative trail development.

Some examples of suggestions from the participants are listed below:

"Aside from temporary closures, the plan should minimize disruption to these community trails through tower placement and permanent area closures. If they are necessary, work with recreational communities to support alternate trail development. This area of the province is built on a history of hydroelectricity, but it's future depends on coexistence with sustainable recreation, tourism and economic development."

"Avoid trails, use existing ROWs if possible and minimize ROW width. Select side of ROW with least impact to Whitemouth Falls Park."

"Divert it so it doesn't go through MTB TRAIL. or help mtb design and build new trail."

"Don't put the towers in the middle of the bike trails and I'm good. Also please don't block the trails from being used in the summer."

"Ideally minimizing clear cutting the area through the mountain bike trails, it's pristine Canadian Shield forest that is very scenic, and provides a unique mountain bike experience in MB. Would hate to see the landscape or features destroyed."

"If the route could be slightly adjusted to avoid the trail network it would alleviate the concerns of the trail users (which come from across the province)"

"Please continue to consult with the Pinawa Trails Association"

"Commit to building a paved active transportation path along the corridor connecting Pointe du Bois to Lac du Bonnet."

"1) Use existing line routes to minimize environmental and social impact.

2) Used the original preferred route that actually tried to minimize the impact on people not just the cheapest and "to hell" with the impact on local people.

3) Route the line in a manner that keeps it reasonable away from potentially future development (people).

4) Try not to create ugly eyesores that people have to see every day.

5) re-evaluate the need. Up until very recently your plan was to not rebuild point power station as it was deemed un economic, now that has changed? Show reasonable data that this is even necessary and not just a Manitoba Hydro waste taxpayer money project."



**POINTE DU BOIS RENEWABLE ENERGY
PROJECT: WILDLIFE TECHNICAL DATA
REPORT**

March 20, 2023

Prepared for:
Manitoba Hydro

Prepared by:
Stantec Consulting

Project Number:
111477058

Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report

The conclusions in the Report titled POINTE DU BOIS WILDLIFE TECHNICAL DATA REPORT are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Manitoba Hydro (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Developed by:

Leane Wyenberg, M.Sc.

Printed Name

Reviewed by:

Stephen Biswanger, P.Eng.

Printed Name

Approved by:

Stephen Biswanger, P.Eng.

Printed Name



Table of Contents

ABBREVIATIONS	III
1 INTRODUCTION.....	1
1.1 Purpose	1
1.2 Project Background and Overview	1
1.2.1 Spatial Boundaries	2
2 REVIEW OF EXISTING INFORMATION.....	3
2.1 Desktop Review.....	3
2.1.1 Methods.....	3
2.1.2 Results.....	5
2.2 Engagement Data.....	6
2.2.1 Methods.....	6
2.2.2 Results.....	6
3 FIELD STUDIES	7
3.1 Methods.....	7
3.1.1 Aerial Reconnaissance Survey	7
3.1.2 Species At Risk Surveys	7
3.2 Results.....	8
3.2.1 Aerial Reconnaissance Survey	8
3.2.2 Species at Risk Survey.....	9
4 KEY PERSON INTERVIEWS.....	10
4.1 Methods.....	10
4.2 Results.....	10
4.2.1 General.....	10
4.2.2 Moose.....	11
4.2.3 Timber Wolf	12
4.2.4 Black Bear	12
4.2.5 White-tailed Deer.....	13
5 SUMMARY OF KEY RESULTS AND FINDINGS	14
6 REFERENCES	16
6.1 Literature Cited	16
6.2 Personal Communications	18

LIST OF TABLES

Table 3-1 Summary of ARU Recordings Analyzed for the SAR Surveys	8
------------------------------------------------------------------------	---

LIST OF MAPS

Map 2-1 Game Hunting Areas	5
Map 3-1 Survey Locations 2022	7
Map 3-2 Survey Results 2022.....	8



LIST OF APPENDICES

APPENDIX A TABLES.....1
APPENDIX B QUESTIONS FOR THE PROVINCIAL WILDLIFE AUTHORITIES1



Abbreviations

ARU	autonomous recording unit
Km	kilometre
KPI	key person interview
kV	kilovolt
LSA	Local Study Area
PDA	Project Development Area
RSA	Regional Study Area
TDR	technical data report
EC	Environmental Component
EAP	<i>Environment Act</i> Proposal
m	metre
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
MESEA	<i>The Manitoba Endangered Species and Ecosystems Act</i>
MMF	<i>Manitoba Metis Federation</i>
SARA	<i>Species at Risk Act</i>
SAR	species at risk
SOCC	species of conservation concern
PR	Provincial Road



1 Introduction

1.1 Purpose

The purpose of this Technical Data Report (TDR) is to provide new or updated information regarding the existing conditions for wildlife and wildlife habitat in the region that would support the Pointe du Bois Renewable Energy Project's Pointe du Bois to Whiteshell (PW75) Transmission Line (the Project). Wildlife and wildlife habitat was selected as an Environmental Component (EC) because it is a critical part of a functioning ecosystem and plays a vital role in ecological and biological processes. Wildlife and wildlife habitat also provide aesthetic, recreational, economic, and cultural value to Indigenous communities, stakeholders, the public, local businesses, and government agencies. Although wildlife and wildlife habitat were considered holistically, this technical data report is focused on updating existing information for species at risk, migratory birds, and large mammals. Field studies for furbearers and amphibians didn't occur because existing information was considered adequate to conduct an assessment.

This TDR contains information that will be used to guide the transmission line route selection process and inform Environmental Assessment predictions of potential Project-related effects on wildlife and wildlife habitat. It describes how desktop information was gathered, and how information gaps were identified and addressed through additional desktop research, key person interviews (KPIs) and/or field studies. Results of the studies are reported and summarized to provide an overview of current conditions for wildlife and wildlife habitat.

1.2 Project Background and Overview

Manitoba Hydro seeks to construct and operate the proposed Project that includes approximately 50-kilometres (km) of new 115 kilovolt (kV) transmission line, approximately half of which follows an existing transmission line corridor from the Pointe du Bois Generating Station to the Lee River Distribution Supply Centre that will be widened, with the remainder following a new corridor from Lee River Distribution Supply Centre to the Whiteshell Station.

Manitoba Hydro filed an *Environment Act* Proposal (EAP) in June 2014 with subsequent supporting information provided in response to the Technical Advisory Committee and public review prior to placing the Project on hold in July 2015. Manitoba Hydro has since adopted the Electric Power Research Institute and Georgia Transmission Corporation routing method for overhead electric transmission line routing and has obtained approvals for the construction and operation of other transmission line projects. Manitoba Hydro now seeks to re-open the *Environment Act* Licence application process for the Project that will include new engagement efforts and the new routing method to determine the final preferred route for the Project between the Lee River Distribution Supply Centre and the Whiteshell Station, with plans to file a new EAP in 2023.

While portions of the information provided in support of the 2014 EAP submission remain valid, the passage of time and evolution of Manitoba Hydro's approach to transmission projects requires a



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report

1 Introduction

redeveloped EAP submission in keeping with Manitoba Hydro's current engagement and transmission line routing practices.

1.2.1 SPATIAL BOUNDARIES

The following spatial boundaries have been used to guide the development of the wildlife and wildlife habitat TDR:

Project Development Area (PDA): Subject to final design, a 60-metre (m) wide right-of-way with 25- to 30-m-tall, transmission towers spaced approximately 425 m apart.

Local Study Area (LSA): a 1-km buffer of the proposed alternate routes which is based on measurable effects of noise on wildlife (e.g., Benitez-Lopez et al. 2010; Shannon et al. 2016), while also considering maximum recommended setback distances for sensitive habitat features (MB CDC 2021a). This is also consistent with LSA boundaries used for other recent transmission line projects in Manitoba (Manitoba Hydro 2015).

Regional Study Area: (RSA): a 15-km buffer of the proposed alternate routes that is used to capture information on a broader area to provide regional context, which is consistent with other recent transmission line projects in Manitoba (Manitoba Hydro 2015). The RSA encompasses the home ranges or dispersal distances of most wide-ranging species potentially affected by the Project, including black bear (*Ursus americanus*; 5 to 25 km² for female bears [Government of British Columbia 2001]), white-tailed deer (*Odocoileus virginianus*; 89 km² [Lesage et al. 2000]), and non-migratory moose (*Alces alces*; 97 km² [Hauge and Keith 1981]).



2 Review of Existing Information

A combination of desktop information sources including previous field data collection (Section 2.1), engagement (Section 2.2), supplemental field studies (Section 3.0), and key person interviews (Section 4.0) were reviewed to understand the occurrence, distribution, and habitat association of wildlife within the RSA, including species at risk (SAR) and species of conservation concern (SOCC).

SAR are species listed as special concern, threatened, or endangered under Schedule 1 of the federal SARA (Government of Canada 2022) or as threatened or endangered under the provincial *Endangered Species and Ecosystems Act* (MESEA), and SOCC are species assessed as special concern, threatened, or endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (Government of Canada 2022) or by the Manitoba Conservation Data Centre as provincially rare (*i.e.*, S1 or S2 rankings; MB CDC 2022).

2.1 Desktop Review

2.1.1 METHODS

2.1.1.1 Existing Data

Background information was obtained through several sources, literature reviews, federal, provincial, not-for-profit publications and data sources, and personal communications with provincial authorities. Below is an overview of some of the key resources used during background reviews to assist in establishing the baseline conditions for wildlife.

- The Manitoba Hydro Environmental Assessment Report that was submitted as part of the EAP which summarizes the existing terrestrial environment (Section 5.4) and the effects assessment (Section 7.2.3.4) that was submitted in 2014 (Manitoba Hydro 2014).
- SARA Public Registry is a database containing the status of species assessed and listed under the SARA and by COSEWIC, and associated documentation including assessment and status reports, recovery strategies, and management strategies (Government of Canada 2022).
- Critical Habitat for Species at Risk National Dataset – Canada - This dataset displays the geographic areas within which critical habitat for terrestrial species at risk, listed on Schedule 1 of the federal Species at Risk Act (SARA), occurs in Canada (Government of Canada 2022b).
- *The Endangered Species and Ecosystem Act* (MESEA) species list is a current listing of wildlife species afforded legal protection in Manitoba (Government of Manitoba 2022).
- The Manitoba Conservation Data Centre maintains a database for biodiversity in Manitoba, including SAR and SOCC observation data (MB CDC 2022).



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report

2 Review of Existing Information

- Black River First Nation Moose Monitoring and Tracking Project – Final Report (2022). Final report of monitoring of moose in GHA 26 by member of Black River First Nation.
- Birds Canada is a database repository for several bird survey programs (Birds Canada 2022), including:
 - Manitoba Breeding Bird Atlas, a five-year citizen-science project documenting the distribution of breeding birds in Manitoba.
 - Manitoba Nocturnal Owl Survey a citizen-science project documenting the distribution of breeding owls in Manitoba.
 - Canadian Nightjar Survey a citizen-science project documenting the distribution of breeding nightjars (i.e., common nighthawk [*Chordeiles minor*] and eastern whip-poor-will [*Antrostomus vociferus*]) in Manitoba.
 - eBird a global database of locational data for bird species.
- The Manitoba Herps Atlas a database containing locational information regarding amphibian species (MHA 2022).
- Provincial wildlife reports for the region:
 - 2020 big game survey results (Government of Manitoba 2020).
 - Hard to be a moose in a changing world - Brochure (Government of Manitoba 2020).
- Environmental impact statement for the Pointe du Bois Spillway Replacement Project (Manitoba Hydro 2011).
- Environmental impact statement for the Slave Falls Tramway Conversion Project (Manitoba Hydro 2008).
- Environmental Monitoring Program Bipole III Transmission Project- Mammals Technical Report Year 5 (2018/19) – Part A – Bipole III Transmission Project (Manitoba Hydro 2019).
- Environmental assessment and monitoring results for the Lake Winnipeg East System Improvement Transmission Project (Manitoba Hydro 2013; Manitoba Hydro 2019).
- Several field studies completed in 2013 in support of the initial EAP (Appendix C in Manitoba Hydro 2014):
 - Breeding bird survey: point-count survey at 225 locations used to establish the existing condition for forest breeding birds, including SAR/SOCC.
 - SAR survey: an autonomous recording unit (ARU) based survey at 12 locations used to identify wetland habitats that support nocturnally active SAR/SOCC.



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report

2 Review of Existing Information

- Amphibian survey: a nocturnal wetland survey at 93 locations used to evaluate the distribution and relative abundance of breeding amphibians and incidental information on reptiles.
- Aerial wildlife survey: a late winter aerial survey used to identify the distribution and relative abundance of large mammals.
- Reconnaissance survey: an aerial survey of the preferred alternate routes used to evaluate potentially sensitive wildlife habitats and provide incidental observations of wildlife (e.g., beaver lodges, raptor nests).
- A multispecies aerial survey was completed by Manitoba Hydro in February 2022 to update existing baseline data for moose in the RSA (Joro Consultants 2022).

2.1.2 RESULTS

Previous baseline data targeted habitat types having potential to support wildlife throughout the RSA, including SAR/SOCC with potential to interact with the Project (e.g., wetland species). There are new proposed alternate route segments that were previously not considered in the EAP submission in 2014 and field studies in 2022 were used to inform data gaps associated with the new alternate route segments (Section 3).

The Project overlaps the range of 25 SAR (16 birds, three mammals, two herptiles, and four insects) and seven SOCC (four birds and three insects) including 12 additional species added since submission of the EAP (Appendix A, Table A-1). Most species, except for mammals (i.e., bats) and one insect, have been detected within the LSA. The LSA does not overlap any critical habitat for non-aquatic SAR and there are no notable areas that concentrate SAR/SOCC.

Moose populations in some portions of Manitoba continue to be under pressure from predation, disease, harvest pressure, climate change and a changing landscape (Black River First Nation 2022) (Government of Manitoba 2020). Population estimates for moose in Game Hunting Area 26 (which includes much of the RSA) have been increasing since 2010 when moose conservation closures were implemented in some areas (Black River First Nation 2022; Government of Manitoba 2020; Map 2-1). Moose densities are higher in northern areas of the GHA. Recent multispecies surveys within the RSA yielded two detections of two moose (i.e., four moose total) approximately 7 km northwest of the Pointe du Bois Generating Station and one moose track approximately 12 km southwest of the Pointe du Bois Generating Station (Joro Consultants 2022).

The Bipole III and [Lake Winnipeg East System Improvement Transmission](#) Projects were completed in Manitoba in 2018. Both projects traversed large areas of moose habitat over broad regions including areas placed under a Moose Conservation Closure in 2011. Monitoring was conducted with aerial surveys, camera trap program, and a university research project. Overall, the moose populations in the study areas appeared relatively stable between pre and post construction phases. There was no significant relationship between density of moose and distance to ROW during or after project construction. No moose were killed or injured as part of project construction.



Pointe du Bois (PW75) Transmission Project

Project Infrastructure

- PW75 Alternative Route Segment
- PW75 Established Route (Pointe du Bois G.S. to Lee River DSC)

Assessment Area

- Wildlife and Wildlife Habitat Regional Study Area
- Wildlife and Wildlife Habitat Local Study Area

Moose Conservation Closures

- Closed to all Moose Hunters*

* Please refer to the hunting guide for information on licenced moose hunting seasons

Game Hunting Area

- | | |
|-----|-----|
| 25A | 34B |
| 26 | 35 |
| 34 | 36 |

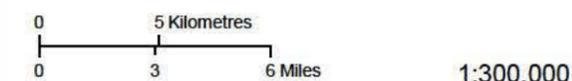
Existing Infrastructure

- Electrical Station
- Generating Station
- Existing Transmission Line

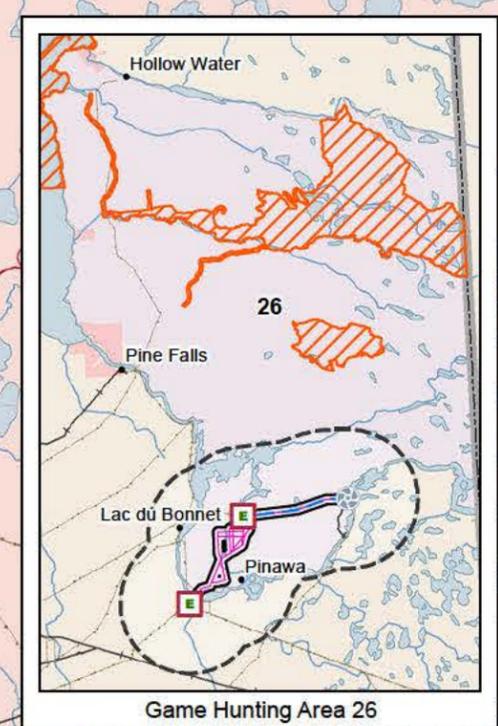
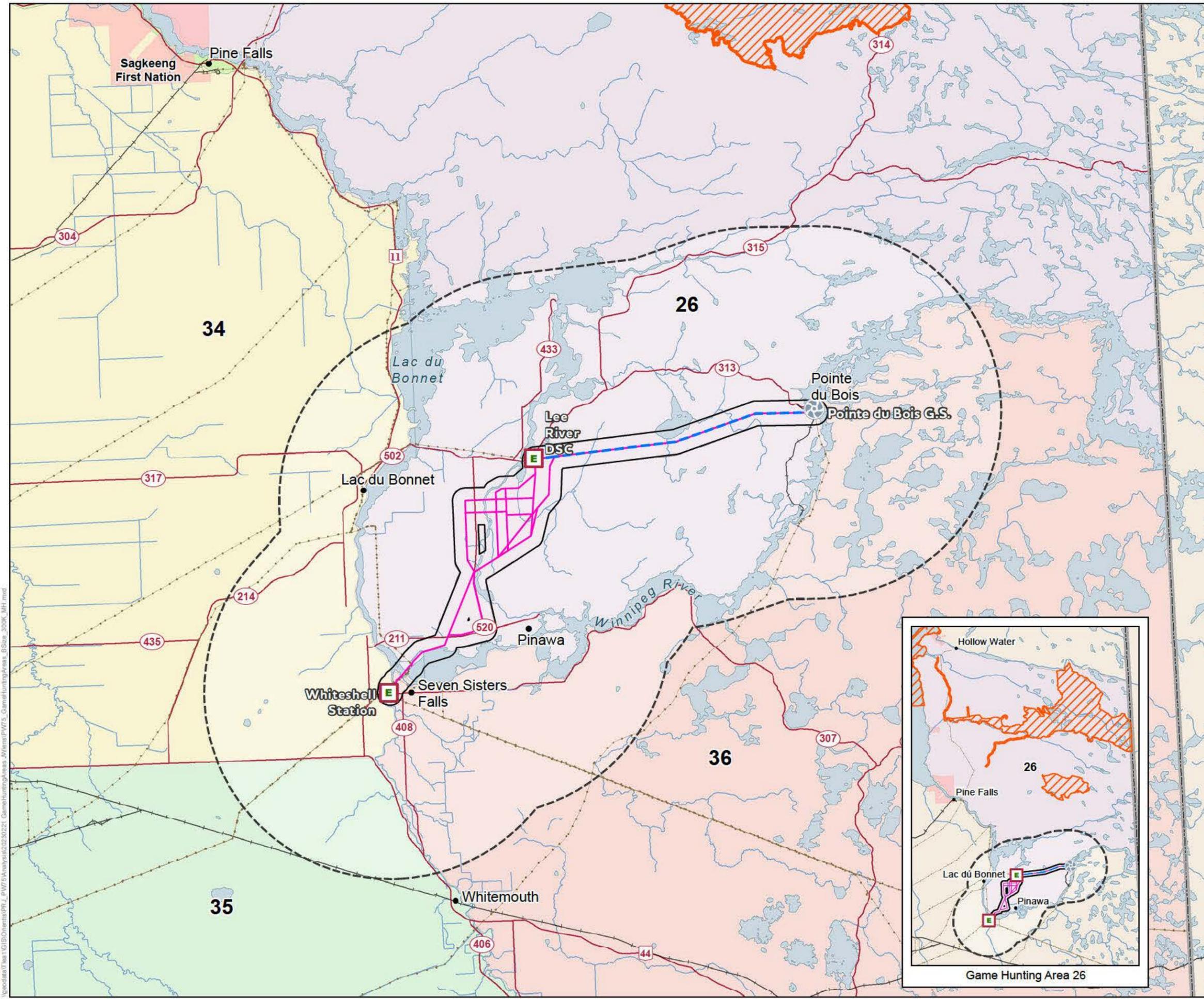
Landbase

- Community
- Railway
- Provincial Highway
- Provincial Road
- First Nation Land

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: February 21, 2023



Game Hunting Areas



\\cedars1\Tree\GIS\Orients\PR_P\PW75\Analysis\2022\2021_GameHuntingAreas_Maps\PW75_GameHuntingAreas_BSize_300K_MH.mxd

Figure 2-1

2.2 Engagement Data

2.2.1 METHODS

Engagement information was obtained through the 2014 EAP's public engagement feedback and technical advisory committee comments and initial feedback from the ongoing public and First Nation and Métis engagement. Feedback was used to inform the 2022 field studies.

2.2.2 RESULTS

Previous public comments on the Project (Government of Manitoba 2014) indicated concern for adverse effects on mature forest and wetland habitat, including on beavers (*Castor canadensis*), and on the goose breeding ponds along Provincial Road (PR) 211 approximately 6 km west of Pinawa. As a result, field surveys in 2022 (Section 3) focused on the new proposed alternate route segments and portions of the PDA that were underrepresented in data collection in 2013, including mature forest and wetland habitats, and the goose breeding ponds.

Previous technical committee comments on the Project (Government of Manitoba 2014) indicated concern for adverse effects to moose and moose habitat, particularly along undisturbed preferred alternate route segments. Moose is a priority species in the region and recommendations to reduce adverse effects to the species included: 1) avoiding direct loss of habitat by routing the Project along existing linear features (e.g., PRs 520 and 211) to the extent practicable; and 2) implementing a monitoring program to evaluate Project effects on moose.

Ongoing public engagement for the Project has indicated the following wildlife areas of interest:

- Reported sensitive white-tailed deer habitat near segments 13 and 18.
- Two sandhill crane (*Grus canadensis*) nesting areas along segments 13 and 18.
- Great gray owl (*Strix nebulosa*) habitat along PR 211, near alternative route segment 30.

Ongoing First Nation and Métis engagement for the Project has indicated the following wildlife areas of interest:

- An area described as recently opened and known for deer, grouse, and berries that includes most of segment 3, northeastern portion of segment 4, northern half of segment 8, and the portion of segment 9 east of Boggy Creek Road, was mentioned during Engagement Circle #1 (August 24, 2022).
- Segments 2, 5, 19, 23, 24, 27, and 28 were said to run through virgin wildlands during Engagement Circle #1.



3 Field Studies

3.1 Methods

The field surveys undertaken in 2022 were designed to augment existing field data collection from 2013 (Section 2.1.1.2) and included an aerial reconnaissance survey and species at risk surveys, described in greater detail below. Surveys focused on new proposed alternate route segments and portions of the PDA that were underrepresented in data collection in 2013 (which both present data gaps), and/or areas identified during engagement (Section 2.2). A focus was placed on species or groups of species most likely to be affected by the Project and incidental detections of other notable wildlife species were also collected.

3.1.1 AERIAL RECONNAISSANCE SURVEY

An aerial reconnaissance survey was undertaken to identify sensitive wildlife features (e.g., waterbird colonies, raptor stick nests) that may have established along the proposed routes since baseline surveys were completed in 2013. An aerial overflight of the proposed alternate routes was completed on June 16, 2022, using a helicopter travelling approximately 200 m above ground level at a speed of approximately 120 km/h. Two qualified biologists, one on each side of the helicopter, and an Energy and Infrastructure Coordinator with the Manitoba Métis Federation (MMF) surveyed for sensitive wildlife features within approximately 400 m on either side of the aircraft. Observations were georeferenced using a handheld GPS and results were mapped relative to the Project.

3.1.2 SPECIES AT RISK SURVEYS

SAR surveys were undertaken to identify bird SAR in areas and/or habitats along the proposed routes that were underrepresented in previous field data collection efforts and included the use of ARUs and point-count breeding bird survey methods.

3.1.2.1 Autonomous Recording Units Survey

The ARU survey was completed at 10 survey sites in remote areas along the proposed routes (Map 3-1) in habitats that have the potential to support SAR (e.g., yellow rail [*Coturnicops noveboracensis*], common nighthawk, eastern whip-poor-will). The ARUs were deployed on June 16, 2022, using a helicopter and programmed to record early-morning, evening, and nighttime breeding SAR bird activity for a period of approximately four weeks. A qualified biologist reviewed select 10-minute audio recordings, following published guidance from standardized survey protocols, to identify target SAR and general breeding bird activity from the dates and times summarized in Table 3.1.



Pointe du Bois (PW75) Transmission Project

Survey Locations

- Recording Unit Survey Location
- Breeding Bird Survey Location

Assessment Area

- Wildlife and Wildlife Habitat Local Study Area
- Wildlife and Wildlife Habitat Regional Study Area

Project Infrastructure

- PW75 Alternative Route Segment
- PW75 Established Route (Pointe du Bois G.S. to Lee River DSC)

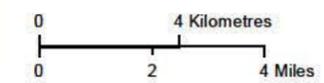
Existing Infrastructure

- E Electrical Station
- Generating Station
- Existing Transmission Line

Landbase

- Community
- + Railway
- Provincial Highway
- Provincial Road
- Ecological Reserve
- Wildlife Management Area
- Provincial Park

Coordinate System: UTM Zone 14N NAD83
 Data Source: MBHydro, ProvMB, NRCAN
 Date Created: November 01, 2022



1:205,000

Survey Locations 2022

I:\geodocs\Treat\GIS\Orienta\PRJ_PW75\Analysis\2022\0606_WhiteTDR_DRoether\PW75_TECHREP_SurveyLocations2022_0606_2022_MH.mxd

Table 3-1 Summary of ARU Recordings Analyzed for the SAR Surveys

Target Species	ARU Recording Date and Time (2022)			
	Date 1	Date 2	Date 3	Time of Day when Recordings were Started (hh:mm)
Common Nighthawk	June 17	July 1	July 15	21:40 ^a
Eastern Whip-poor-will	June 17	July 1	July 15	23:10 ^a
Yellow Rail	June 17	June 24	July 1	01:00 ^b
Songbirds	June 17	-	-	05:15 ^c

NOTES:
^a Canadian Nightjar Survey protocol (Knight et al. 2019)
^b Canadian Wildlife Service yellow rail survey protocol (Bazin and Baldwin 2007)
^c Manitoba Breeding Bird Atlas (MB BBA 2010)

3.1.2.2 Breeding Bird Survey

The breeding bird survey was completed on June 22, 2022, at 17 survey sites along the proposed alternative route segments (Map 3-1) by a two-person team using a standardized 10-minute point-count method (Ralph et al. 1995) starting at sunrise and ending no later than 4.5 hr after sunrise (Bibby et al. 2000). A single biologist detected and recorded birds heard or observed within a 100-m radius (hereinafter, plot). Key information collected included species and direction and distance of bird from the observer. Birds detected outside of the 10-minute listening period, beyond 100 m, or flying over the plot, were recorded as incidental observations. Surveys were completed during suitable weather (i.e., clear visibility, wind ≤20 km/h, temperature >0°C, and precipitation not exceeding a light, intermittent drizzle).

3.2 Results

Results of the 2022 field data collection are described below by respective survey.

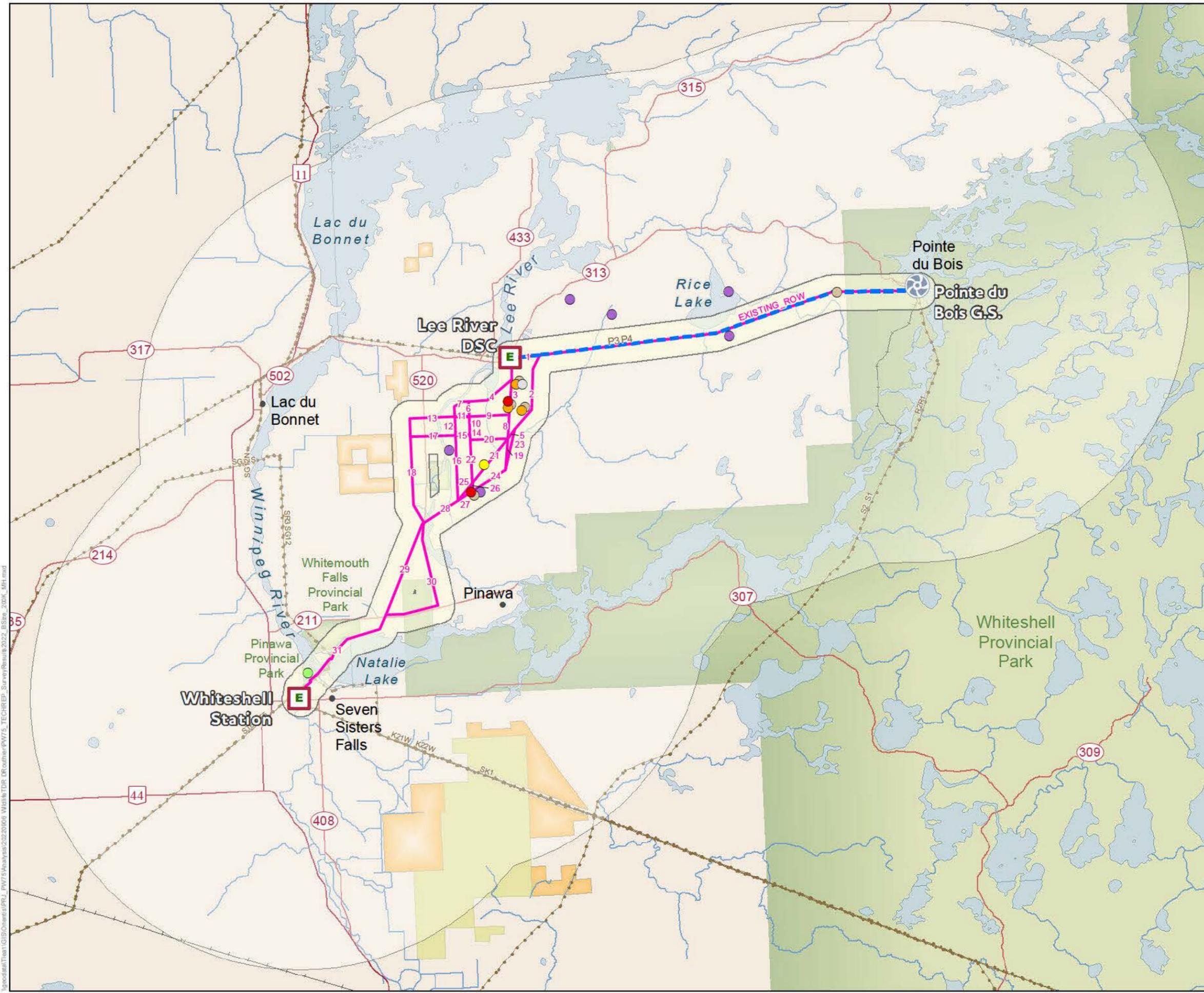
Incidental observations of SAR include one juvenile northern leopard frog (*Lithobates pipiens*) along the Whitemouth River during a fish habitat assessment on July 20, 2022 (Map 3-2).

3.2.1 AERIAL RECONNAISSANCE SURVEY

The aerial reconnaissance survey yielded observations of six pairs of breeding trumpeter swan (*Cygnus buccinator*), including three pairs within the LSA (Map 3-2). One adult pair and one juvenile sandhill crane were also observed within the LSA. Black bear was detected on several occasions along the proposed routes and there were no detections of raptor stick nests (including on existing transmission line towers), or moose. The Project does not traverse any habitats that were observed to support colonial nesting birds or wetland habitats that are likely to concentrate breeding birds. However, notable watercourses that are traversed and that may support concentrations of birds are the Lee, Whitemouth, and Winnipeg rivers.



Pointe du Bois (PW75) Transmission Project



- Survey Observations**
- Yellow Rail
 - Eastern Wood-Pewee
 - Northern Cardinal
 - Eastern Whip-Poor-Will
 - Common Nighthawk

- Incidental Observations**
- Northern Leopard Frog
 - Trumpeter Swan

- Assessment Area**
- Wildlife and Wildlife Habitat Local Study Area
 - Wildlife and Wildlife Habitat Regional Study Area

- Project Infrastructure**
- PW75 Alternative Route
 - PW75 Established Route (Pointe du Bois G.S. to Lee River DSC)

- Existing Infrastructure**
- E Electrical Station
 - Generating Station
 - Existing Transmission Line

- Landbase**
- Community
 - + Railway
 - 12 Provincial Highway
 - 30 Provincial Road
 - Ecological Reserve
 - Wildlife Management Area
 - Provincial Park

Coordinate System: UTM Zone 14N NAD83
 Data Source: MBHydro, ProvMB, NRCAN
 Date Created: November 01, 2022

1:205,000

Survey Results 2022

Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report

3 Field Studies

Although not traversed by the Project, Rice Lake and Natalie Lake are within the LSA and may support concentrations of birds.

3.2.2 SPECIES AT RISK SURVEY

3.2.2.1 Autonomous Recording Units Survey

The ARU survey resulted in observations of common nighthawk at five of 10 survey sites, eastern whip-poor-will at three of 10 survey sites, and yellow rail at one site (Map 3-2). The yellow rail was detected incidentally on June 17, 2022, at 05:15 during the examination of the songbird recording. Further analysis of audio files resulted in no additional detections of yellow rail. Two other bird SAR/SOCC were also detected: eastern wood-pewee (*Contopus virens*; at two sites) and northern cardinal (*Cardinalis cardinalis*; at two sites; Map 3-2).

A total of 43 bird species were detected during examination of the ARU recordings with the number of species at each site ranging from nine to 14 species (mean = 10.9; Appendix A, Table A-2). Species detected most often were American robin (*Turdus migratorius*; at 10 sites), red-winged blackbird (*Agelaius phoeniceus*; at nine sites), common yellowthroat (*Geothlypis trichas*; at nine sites), and red-eyed vireo (*Vireo olivaceus*; at eight sites).

The ARU survey also yielded incidental detections of American toad (*Anaxyrus americanus*), wood frog (*Lithobates sylvaticus*), gray tree frog (*Dryophytes versicolor*), and spring peeper (*Pseudacris crucifer*).

3.2.2.2 Breeding Bird Survey

The breeding bird survey did not yield any detections of SAR/SOCC but did yield detections of 40 bird species with the number of species at each plot ranging from two to 14 (mean = 6.1 species; Appendix A, Table A-3). Species detected most often were common yellowthroat (at nine sites), red-eyed vireo (at nine sites); red-winged blackbird (at 8 sites), and song sparrow (*Melospiza melodia*; at eight sites) (Appendix A, Table A-3).



4 Key Person Interviews

4.1 Methods

Five provincial government staff and/or university researchers identified as potentially having information that would be pertinent to understanding the wildlife community, habitat, and/or predator-prey interactions in the RSA and surrounding region were deemed key persons for interviews. Key persons were interviewed via telephone using questionnaires developed by the Project Team (Appendix B). Information from key person interviews are considered professional opinion and support understanding of the project area and current conditions for wildlife and wildlife habitat.

Interviews involved the following persons:

- Manitoba Natural Resources and Northern Development Regional Wildlife Manager – Eastern Region (seeking feedback on wildlife population trends and factors influencing trends; locations of wildlife movement corridors, calving areas, mineral licks).
- Manitoba Natural Resources and Northern Development Regional Fisheries Manager – Eastern Region (also a landowner in Project area; seeking feedback on siting a transmission line in the eastern region).
- Manitoba Natural Resources and Northern Development Habitat Mitigation Biologist – Head Office (seeking to understand where important habitats for wildlife occur in the area, protected areas and areas currently being considered for future protections).
- Two researchers from Memorial University of Newfoundland studying moose/wolf interactions in GHA 26 (to comment on predator-prey dynamics in the region).

To better understand Indigenous perspectives and knowledge related to the wildlife community, habitat, and/or predator-prey interactions in the RSA, four engaged First Nations and the MMF were invited to conduct their own interviews, if interested, of First Nation members and Métis citizens recognized as having knowledge and wisdom on these topics. Information gathered from these interviews will be documented alongside other feedback collected through the engagement process and included in relevant sections of the environmental assessment report that will be compiled for the project.

4.2 Results

4.2.1 GENERAL

Feedback received on the proposed route segments indicated a preference for routing within altered areas such as along existing linear features, developed areas, and/or agricultural areas (Whiklo 2023, pers. comm.; Kroeker 2023, pers. comm.; Dupont 2022, pers. comm). Traditionally, the province has recommended new linear features follow existing developments (Kiss pers. comm). Transmission lines routed through agricultural lands are less disruptive to animal and human movement (Kroeker 2023, pers.



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report

4 Key Person Interviews

comm.). It was recommended to route in common corridors and away from natural areas to limit the creation of new access (Whiklo 2023, pers. comm.; Kroeker 2023, pers. comm.; Dupont 2022, pers. comm.). Transmission line right of ways (ROWS) are used as travel corridors for recreational users, resource users, white-tailed deer, and predators (e.g., wolves). People see transmission line ROWs as access points and travel along them, increasing potential for fires caused by ATVs, weed transmission, and littering (Kroeker 2023, pers. comm.). Concern was expressed about routing along existing features and increasing ROW width, particularly in sensitive areas (Kiss 2023, pers. comm.). If routing along roads, limit loss of adjacent treed habitat (Kroeker 2023, pers. comm.).

4.2.2 MOOSE

The RSA overlaps the southern portion of Game Hunting Area (GHA) 26 near Pointe du Bois, Lee River, and the Winnipeg River. In 2011, moose hunting closures were instated in various parts of the province to promote the recovery of moose in Manitoba. Currently, GHA 26 remains closed to licenced moose hunting, and portions of the GHA near Happy Lake Road and Translicence Road also remain closed to non-licensed hunting (Whiklo 2023, pers. comm.). Various factors are thought to be contributing to the decline of moose in Manitoba, including the RSA. They include hunting, predation, disease and parasites, severe weather events, and climate change. Brainworm (*Parelaphostrongylus tenuis*) is thought to be a major driver of moose mortality in GHA 26, although it is unknown how many moose are killed by brainworm compared to other factors such as predation, vehicle collisions, and winter tick (Whiklo 2023, pers. comm.). Brainworm is a meningeal worm parasite deadly to moose but not its host, white-tailed deer. Brainworm is considered ubiquitous in the region's white-tailed deer population (Whiklo 2023, pers. comm.)

Aerial survey and collaring data indicate that moose tend to occur in the northern half of GHA 26 (Whiklo 2023, pers. comm.; Dupont 2022, pers. comm.; Kingdon 2023, pers. comm.). The southern half of the GHA, which includes the RSA, has not been a high-use area for moose in recent decades (Whiklo 2023, pers. comm.; Dupont 2022, pers. comm.). The abundance of white-tailed deer and prevalence of brainworm is thought to be limiting moose occupancy of the southern portion of the GHA where the Project is located (Dupont 2022, pers. comm., Whiklo 2023, pers. comm.).

The province recently completed aerial surveys for moose in GHA 26 in 2020. Moose surveys are planned to occur in GHA 26 January or February 2023 (Whiklo 2023, pers. comm.; Dupont 2022, pers. comm.). Efforts to restore moose in the area include hunting closures, increased bag limits for white-tailed deer, and extended white-tailed deer hunting seasons to promote the reduction of deer (to reduce brainworm transmission to moose).

Even though moose have not been known to occur within the LSA for decades, biologists indicated that proposed transmission line has the potential to negatively affect the recovery of moose in this region. Although moose population densities in this RSA are very low, areas of the province having success in recovering moose populations (e.g., Duck Mountains) have implemented measures to keep people out, and transmission lines can work against this by creating new linear access for humans and predators to reach previously remote areas (Whiklo 2023, pers. comm.). The southern portion of GHA 26, including the RSA, provides a buffer to moose restoration/protection zones located in the northern half of GHA 26.



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report

4 Key Person Interviews

The southern portion of the GHA is also an area for moose recovery (Whiklo 2023, pers. comm.; Dupont 2022, pers. comm.).

Moose prefer mixedwood forest stands and wetlands and avoid areas of rugged terrain (Kingdon 2023, pers. comm.). Although data is limited, key areas for moose calving are thought to be near bodies of water (lake shore, river shore, peninsulas, islands) (Dupont 2022, pers. comm.). There are no defined overwintering areas for moose in the RSA as moose population densities are very low (Whiklo pers. comm.). Based on local moose collaring data (GPS locations from 54 collared moose collected between 2012 – 2020), moose avoid linear features in GHA 26 (e.g., logging roads, primary roads, transmission lines), but not all linear features are avoided the same (Kingdon 2023, pers. comm.). Moose habitat selection models indicate that there is a stronger avoidance response by moose when transmission lines are in proximity to primary roads. Model results indicate moose avoid linear features and areas adjacent but that the effect plateaus at about 300-500 m (Kingdon 2023, pers. comm.).

4.2.3 TIMBER WOLF

Populations of timber wolf (*Canis lupus*) in GHA 26 are quite high and stable (Whiklo 2023, pers. comm.). This is based on anecdotal evidence from conservation officers as the province has not conducted formal wolf surveys in recent years. Wolves are found throughout GHA 26, with slightly more than half the population found in the southern part of GHA 26 (Dupont 2022, pers. comm.). Wolves are known to den in GHA 26, often using multiple dens throughout the denning season (Dupont 2022, pers. comm.). Beaver lodges are considered potentially sensitive features as a high proportion of wolf packs use abandoned beaver lodges for denning. Wolf dens are also found in sandy areas near bodies of water (ponds, rivers, lakes, creeks) (Dupont 2022, pers. comm.).

Wolves can be harvested under authority of big game license and/or by trappers. In the past, the province encouraged wolf reduction by hunters and trappers to support recovery of moose in GHA 26. This measure was not considered effective as wolf populations increased despite harvest pressure. Discussions are ongoing about the management of wolves in the region.

When asked about wolf use of transmission lines, biologists indicated that wolves use transmission line ROWs as highways (Whiklo 2023, pers. comm.). Research indicates wolves generally avoid roads and highways and select for tertiary roads (Kingdon 2023, pers. comm.) Based on GPS collared data gathered between 2014-2018, use of transmission lines by wolves increased with increased snowmobile use (Dupont 2022, pers. comm.).

4.2.4 BLACK BEAR

Populations of black bear in GHA 26 are considered stable or increasing (Whiklo 2023, pers. comm.; Dupont 2022, pers. comm.). This is based on anecdotal evidence from conservation officers, hunters, the number of human and black bear disturbance reports, and the abundance of resident and non-resident hunters and outfitters in the area (Whiklo 2023, pers. comm.). The province has not conducted a formal black bear survey as there is no optimal way to survey this species. The trend in resident black bear hunting has remained constant over the last 10 years although marked increases were observed in 2020/2021 due to the pandemic (Whiklo 2023, pers. comm.). Factors contributing to a stable black bear



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report

4 Key Person Interviews

population include the availability of various land cover types for food and shelter (e.g., agriculture, forest, wetlands) and the adaptability of the species (Whiklo 2023, pers. comm.; Dupont 2022, pers. comm.). Bears may benefit from transmission lines due to opportunistic predation opportunities and forage (e.g., berries) availability (Whiklo 2023, pers. comm.; Dupont 2022, pers. comm.). Bears are known to den in the RSA, however their locations can vary year to year (Whiklo 2023, pers. comm.).

4.2.5 WHITE-TAILED DEER

The population status of white-tailed deer in GHA 26 is not monitored as the species can be difficult to accurately survey. Based on anecdotal evidence from conservation officers and crop depredation reports, the general long-term population trend for white-tailed deer is stable. Factors favoring white-tailed deer in this area include the prevalence of edge habitat due to habitat fragmentation (e.g., linear disturbances, forestry), availability of cropland and early succession forest (forage), and their high reproductive rate. While brainworm is widespread throughout deer in this region, it has no adverse effects on deer health. In terms of seasonal habitat use, white-tailed deer fawn throughout the region and overwinter in dense coniferous forest (Whiklo 2023, pers. comm.; Dupont 2022, pers. comm.). Although there is no identified overwintering deer habitat in the RSA, deer have been known to congregate in cedar bogs (Whiklo 2023, pers. comm.). Deer are considered abundant in the Old Pinawa Dam area (Kroeker 2023, pers. comm.).

White-tailed deer populations continue to expand northwards and have been observed as far north as Bissett, MB (Whiklo 2023, pers. comm.). In GHA 26, management of this species has focused on measures to decrease deer abundance due to the threat they pose to moose recovery. Measures include issuing more deer licenses and extending hunting seasons to increase deer harvest. Resident hunting has increased in GHA 26 over the last 10 years, however there are not enough hunters in Manitoba to reduce deer numbers in this area (Whiklo 2023, pers. comm.). Severe weather events have a greater effect on deer populations, particularly prolonged cold winters, and spring ice storms (Whiklo 2023, pers. comm.; Dupont 2022, pers. comm.).

When asked about white-tailed deer use of transmission lines, biologists indicated that deer benefit from the creation of edge habitat and increased mobility along transmission line ROWs (Whiklo 2023, pers. comm.; Dupont 2022, pers. comm.).



5 Summary of Key Results and Findings

Key results and findings of the field studies in 2022 are:

- Detections of northern leopard frog and yellow rail were made in wetland habitats in the LSA.
- Detections of common nighthawk and eastern whip-poor-will were made in terrestrial habitats within the LSA.
- Three detections of breeding trumpeter swans in the LSA and three additional detections within the RSA.
- One adult pair and one juvenile sandhill crane were observed in hayland/pasture habitats within the LSA.
- Black bear was detected on several occasions during the overflight along the proposed routes.
- There were no detections of raptor stick nests, including on existing transmission line towers.
- There were no incidental detections of moose.
- Recent (winter 2022) multispecies aerial survey documented a very low moose density. Survey results yielded three detections of the species within the eastern portion of the RSA (four individuals and one track; Joro Consultants 2022).
- The Project does not traverse any habitats that were observed to support colonial nesting birds or wetland habitats that are likely to concentrate breeding birds.
- Notable watercourses that are traversed by the Project and that may support concentrations of birds are the Lee, Whitemouth, and Winnipeg rivers.
- Although not traversed by the Project, Rice Lake and Natalie Lake are within the LSA and may support concentrations of birds.

Key results and findings of the key person interviews are:

- The provincial biologists recommended routing the Pointe du Bois transmission line through developed areas, along existing linear features, and/or in agricultural areas to reduce habitat loss, fragmentation effects, and predator and human access into remote areas.
- The southern half of the GHA, which includes the RSA, has not been a high-use area for moose in recent decades.
- The Project could potentially negatively affect the recovery of moose in the southern half of the GHA by reducing and/or fragmenting potential moose habitat and increasing predator and human access.



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report

5 Summary of Key Results and Findings

- Brainworm is widespread in white-tailed deer throughout this region. It has no adverse effects on deer health but is thought to be a major driver of moose mortality in GHA 26.
- Modeling indicates that moose avoid areas within 300 – 500 m of linear features.
- Populations of timber wolf, black bear, and white-tailed deer are considered stable in the GHA, which includes the RSA.
- Timber wolf, black bear, and white-tailed deer are known to use transmission lines for travel and/or foraging.
- There are no defined overwintering or calving areas for moose or white-tailed deer in the RSA, however both species are known to use dense coniferous forest in the winter.



6 References

6.1 Literature Cited

Bazin, R., and F.B. Baldwin. 2007. Canadian Wildlife Service standardized protocol for the survey of Yellow Rails in the Prairie and Northern Region. Technical Report. Environment Canada, Canadian Wildlife Service, Prairie and Northern Region, Winnipeg, Manitoba. 22 pp.

Benitez-Lopez, A., R. Alkemade, and P. Verweij. 2010. The impact of roads and other infrastructure on mammal and bird populations: a meta-analysis. *Biological Conservation*. 143:1307-1316.

Black River First Nation Moose Monitoring and Tracking Project – Final Report (2022). Black River First Nation. Unpublished.

Bibby, C.J., N.D. Burgess, D.A. Hill, and S. Mustoe. 2000. Bird Census Techniques. Second Edition. Academic Press, London.

Birds Canada. 2022. Manitoba Breeding Bird Atlas, Manitoba Nocturnal Owl Survey, Canadian Nightjar Survey, and eBird. Data accessed from NatureCounts, a node of the Avian Knowledge Network, Birds Canada. Available: <http://www.naturecounts.ca/>. Accessed September 2022.

Government of British Columbia. 2001. Black bears in British Columbia. Available at: <https://www.env.gov.bc.ca/wld/documents/blackbear.pdf>. Accessed October 2022.

Government of Canada. 2022. Species at risk public registry. Available at: <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>. Accessed September 2022.

Government of Canada. 2022b. Critical Habitat Squares for Species at Risk. Available at: <https://open.canada.ca/data/en/dataset/47caa405-be2b-4e9e-8f53-c478ade2ca74>. Accessed January 2023.

Government of Manitoba. 2014. Public Registry 5716.00 - Manitoba Hydro - Pointe du Bois Transmission Project. Available at: <https://www.gov.mb.ca/sd/eal/registries/5716mbhydropointedubois/index.html>. Accessed September 2022.

Government of Manitoba 2020. Hard to be a moose in a changing world. Brochure. Available at: https://www.gov.mb.ca/nrnd/fish-wildlife/pubs/fish_wildlife/hard-to-be-a-moose.pdf. Accessed January 2023.

Government of Manitoba. 2020. 2020 big game surveys. Available at: https://www.gov.mb.ca/nrnd/fish-wildlife/pubs/fish_wildlife/hunting/2020biggame_results.pdf. Accessed October 2022.



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report

6 References

- Government of Manitoba. 2022. Species listed under the Manitoba Endangered Species and Ecosystems Act. Available at: <https://www.gov.mb.ca/nrnd/fish-wildlife/wildlife/ecosystems/index.html>. Accessed September 2022.
- Hauge, T., and L. Keith. 1981. Dynamics of moose populations in northeastern Alberta. *Journal of Wildlife Management* 45:573-597.
- Joro Consultants. 2022. MB Hydro Pointe du Bois Multispecies Survey Field Report. February 14, 2022.
- Knight E., K. Hannah, M. Brigham, J. McCracken, G. Falardeau, M.-F. Julien, and J.-S. Guenette. 2019. Canadian nightjar survey protocol. Bird Studies Canada and Environment and Climate Change Canada. Edmonton, Alberta. 22 pp.
- Lesage, L., M. Crête, J. Huot, A Dumont, and J-P. Ouellet. 2000. Seasonal home range size and philopatry in two northern white-tailed deer populations. *Canadian Journal of Zoology* 78(11):1930-1940.
- Manitoba Hydro. 2008. Environmental impact statement for the Slave Falls Tramway Conversion Project. Available at: <https://www.gov.mb.ca/sd/eal/registries/5282tramway/>. Accessed October 2022.
- Manitoba Hydro. 2011. Environmental impact statement for the Pointe du Bois Spillway Replacement Project. Available at: <https://www.gov.mb.ca/sd/eal/registries/5471pointe/>. Accessed October 2022.
- Manitoba Hydro. 2013. Environmental assessment reports for the Lake Winnipeg East System Improvement Transmission Project. Available at: https://www.gov.mb.ca/sd/eal/registries/5624lake_winnipeg/index.html Accessed January 2023.
- Manitoba Hydro. 2019. Environmental monitoring reports for the Lake Winnipeg East System Improvement Transmission Project. Available at: https://www.gov.mb.ca/sd/eal/registries/5624lake_winnipeg/index.html Accessed January 2023
- Manitoba Hydro. 2019. Bipole III Transmission Project Mammals Monitoring Report. Available at: https://www.hydro.mb.ca/docs/regulatory_affairs/projects/bipole3/environmental_protection/mammals_monitoring_program_technical_report_2019_part_a_part_1.pdf. Accessed January 2023.
- Manitoba Hydro. 2014. Pointe du Bois Transmission Project – Environmental Assessment Report. Available at: <https://www.gov.mb.ca/sd/eal/registries/5716mbhydropointedubois/index.html>. Accessed September 2022.
- Manitoba Hydro. 2015. Manitoba-Minnesota Transmission Project environmental impact statement – 9: assessment of potential environmental effects on wildlife and wildlife habitat. Available at: https://www.hydro.mb.ca/docs/regulatory_affairs/projects/mmtpeis/mmtpeis_chapter09_wildlife_and_wildlife_habitat.pdf. Accessed September 2022.
- MB BBA (Manitoba Breeding Bird Atlas). 2010. Guide for point counters. Available at: https://www.birdatlas.mb.ca/download/Point_Counting_Guide_April_22.pdf. Accessed September 2022.



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report

6 References

MB BBA (Manitoba Breeding Bird Atlas). 2022. Species and effort maps. Available at: https://www.birdatlas.mb.ca/index_en.jsp. Accessed September 2022.

MB CDC (Manitoba Conservation Data Centre). 2021a. Recommended development setback distances and restricted activity periods for birds by wildlife feature type. Available at: <https://www.manitoba.ca/fish-wildlife/cdc/pubs/mbccdc-bird-setbacks-nov2021.pdf>. Accessed September 2022.

MB CDC. 2021b. Animal list. Available at: <https://www.gov.mb.ca/nrnd/fish-wildlife/cdc/pubs/animal-list-mbccdc-2021-nov.pdf><https://www.gov.mb.ca/nrnd/fish-wildlife/cdc/index.html>. Accessed September 2022.

MB CDC. 2022. Historical Records and Species and Plant Database from Manitoba Sustainable Development. Available at: https://www.gov.mb.ca/sd/environment_and_biodiversity/cdc/index.html. Accessed September 2022.

MHA (The Manitoba Herps Atlas). 2022. The Manitoba Herps Atlas. Available at: http://www.naturenorth.com/Herps/Manitoba_Herps_Atlas.html. Accessed September 2022.

Ralph, C.J., J.R. Sauer, and S. Droege. 1995. Monitoring Bird Populations by Point Counts [online]. General Technical Report PSW-GTR-149. Albany, CA: Pacific Southwest Research Station, Forest Service, US. Department of Agriculture. 187 pp.

Shannon G., M. McKenna, L. Angeloni, K. Crooks, K. Fristrup, E. Brown, K. Warner, M. Nelson, C. White, J. Briggs J, S. McFarland, and G. Wittemyer. 2016. A synthesis of two decades of research documenting the effects of noise on wildlife. *Biol Rev.* 91:982–1005.

6.2 Personal Communications

Dupont, Daniel. 2022. PhD Candidate. Wildlife Evolutionary Lab, Biology Department, Memorial University of Newfoundland.

Kingdon, Katrien. 2023. PhD Candidate. Wildlife Evolutionary Lab, Biology Department, Memorial University of Newfoundland.

Kiss, Brian. 2022. Habitat Mitigation Biologist. Manitoba Natural Resources and Northern Development.

Kroeker, Derek. 2023. Manitoba Regional Fisheries Manager, Integrated Resource Management Team Member, Eastern Region. Manitoba Natural Resources and Northern Development.

Whiklo, Todd. 2023. Manitoba Regional Wildlife Manager, Integrated Resource Management Team, Member, Eastern Region. Manitoba Natural Resources and Northern Development.



APPENDICES



Appendix A Tables

Table A-1 SAR and SOCC with Potential to occur within the Wildlife and Wildlife Habitat RSA

Species		Federal Status		Provincial Status		Habitat Association	Species Detections ⁵	
Common Name	Scientific Name	SARA ¹	COSEWIC ²	ESEA ³	MB CDC ⁴		LSA	RSA
Mammals								
Little brown myotis	<i>Myotis lucifugus</i>	Endangered	Endangered	Endangered	S2N, S5B	Open forest	-	-
Northern myotis	<i>Myotis septentrionalis</i>	Endangered	Endangered	Endangered	S3S4N, S4B	Open forest	-	-
American badger	<i>Taxidae taxus taxus</i>	Special Concern	Special Concern	Not Listed	S4	Grassland	-	-
Birds								
Trumpeter swan	<i>Cygnus buccinator</i>	No status	No status	Endangered	S2B	Wetland	✓	✓
Western grebe*	<i>Aechmophorus occidentalis</i>	Special concern	Special concern	Not listed	S3S4B	Open water	✓	✓
Horned grebe*	<i>Podiceps auratus</i>	No status	Special concern	Not listed	S3B	Wetland	✓	✓
Least bittern	<i>Ixobrychus exilis</i>	Threatened	Threatened	Endangered	S2S3B	Wetland	✓	✓
Yellow rail	<i>Coturnicops noveboracensis</i>	Special concern	Special concern	Not listed	S3B	Wetland	✓	✓
Lesser yellowlegs*	<i>Tringa flavipes</i>	Not Listed ^o	Threatened	Not listed	S4B	Riparian	-	-
Short-eared owl	<i>Asio flammeus</i>	Special concern ^o	Threatened	Threatened	S2S3B	Grassland	✓	✓
Common nighthawk	<i>Chordeiles minor</i>	Threatened ^o	Special Concern	Threatened	S2S3B	Open forest	✓	✓
Eastern whip-poor-will	<i>Antrostomus vociferous</i>	Threatened	Threatened	Threatened	S2S3B	Open forest	✓	✓
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	Endangered	Endangered	Threatened	S3B	Open forest	✓	✓
Bank swallow	<i>Riparia riparia</i>	Threatened	Threatened	Not listed	S4B	Riparian	✓	✓



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report
Appendix A Tables

Table A-1 SAR and SOCC with Potential to occur within the Wildlife and Wildlife Habitat RSA

Species		Federal Status		Provincial Status		Habitat Association	Species Detections ⁵	
Common Name	Scientific Name	SARA ¹	COSEWIC ²	ESEA ³	MB CDC ⁴		LSA	RSA
Barn swallow	<i>Hirundo rustica</i>	Threatened ^o	Threatened	Not listed	S4B	Grassland, farmland,	✓	✓
Olive-sided flycatcher	<i>Contopus cooperi</i>	Threatened ^o	Special Concern	Threatened	S2S3B	Open forest	✓	✓
Eastern wood-pewee	<i>Contopus virens</i>	Special concern	Special concern	No status	S3B	Open forest	✓	✓
Golden-winged warbler	<i>Vermivora chrysoptera</i>	Threatened	Threatened	Threatened	S2S3B	Open forest, forest edge	✓	✓
Pine warbler*	<i>Setophaga pinus</i>	Not listed	Not assessed	Not listed	S3S4B	Forest	-	✓
Canada warbler	<i>Cardellina canadensis</i>	Threatened ^o	Special concern	Threatened	S3B	Open forest	✓	✓
Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened	Threatened	Not listed	S3S4B	Grassland	✓	✓
Northern cardinal*	<i>Cardinalis cardinalis</i>	Not listed	Not assessed	Not listed	S1S2	Open forest	✓	✓
Evening grosbeak*	<i>Coccothraustes vespertinus</i>	Special Concern	Special Concern	Not listed	S2S3	Mature forest	✓	✓
Amphibians and Reptiles								
Northern leopard frog	<i>Lithobates pipiens</i>	Special concern	Special concern	Not listed	S4	Wetland	✓	✓
Snapping turtle	<i>Chelydra serpentina serpentine</i>	Special Concern	Special Concern	Not listed	S3	Wetland	✓	✓
Invertebrates								
Transverse lady beetle*	<i>Coccinella transversoguttata</i>	Special concern	Special concern	Not listed	N/A	Forest, grassland, riparian	-	-
Nine-spotted Lady Beetle*	<i>Coccinella novemnotata</i>	Not listed ^o	Endangered	Not listed	N/A	Forest, grassland, riparian	-	-



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report
Appendix A Tables

Table A-1 SAR and SOCC with Potential to occur within the Wildlife and Wildlife Habitat RSA

Species		Federal Status		Provincial Status		Habitat Association	Species Detections ⁵	
Common Name	Scientific Name	SARA ¹	COSEWIC ²	ESEA ³	MB CDC ⁴		LSA	RSA
Yellow-banded bumble bee*	<i>Bombus terricola</i>	Special Concern	Special concern	Not listed	N/A	Forest, grassland, riparian	✓	✓
Suckley's cuckoo bumble bee*	<i>Bombus suckleyi</i>	Not listed*	Threatened	Not listed	N/A	Forest, grassland, riparian	-	-
Gypsy cuckoo bumble bee*	<i>Bombus bohemicus</i>	Endangered	Endangered	Not listed	N/A	Forest, grassland, riparian	-	-
Monarch	<i>Danaus plexippus</i>	Special concern ^o	Endangered	Not listed	N/A	Forest, grassland, riparian	-	-
Manitoba oakworm moth*	<i>Anisota manitobensis</i>	Not listed ^o	Special concern	Not listed	N/A	Oak forest	-	-

Notes:

* - Indicates species designated as a SAR/SOCC since submission of the EAP in 2014 (Manitoba Hydro 2014)

¹ - Species listed under Schedule 1 of the *Species at Risk Act* (Government of Canada 2022); ^{oo} indicates species under consideration for addition or status change

² - Species listed by the Committee on the Status of Endangered Wildlife in Canada (Government of Canada 2022)

³ - Wildlife species at risk in Manitoba listed under *The Endangered Species and Ecosystems Act* (Government of Manitoba 2022)

⁴ - Manitoba Conservation Data Centre (MB CDC 2022); ranks are:

S = Province-wide status

1 = Very rare throughout its range or in the province (5 or fewer occurrences, or very few remaining individuals). May be especially vulnerable to extirpation

2 = Rare throughout its range or in the province (6 to 20 occurrences). May be vulnerable to extirpation

3 = Uncommon throughout its range or in the province (21 to 100 occurrences)

4 = Widespread, abundant, and apparently secure throughout its range or in the province, with many occurrences, but the element is of long-term concern (>100 occurrences)

5 = Demonstrably widespread, abundant, and secure throughout its range or in the province, and essentially impossible to eradicate under present conditions

S#S# = Range of uncertainty about the exact rarity of the species

B = Breeding status of a migratory species

N = Non-breeding status of a migratory species

⁵ - Desktop review record or detection during 2022 field surveys, where "✓" = positive detection(s) and "-" = no detections



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report
Appendix A Tables

Table A-2 Species Detected at Sunrise using the Autonomous Recording Unit Survey

Site ID	Dominant Habitat	Easting ¹	Northing ¹	Common Name	Scientific Name
1	Wetland	296284	5569933	Alder Flycatcher	<i>Empidonax alnorum</i>
				American Robin	<i>Turdus migratorius</i>
				Blue Jay	<i>Cyanocitta cristata</i>
				Red-eyed Vireo	<i>Vireo olivaceus</i>
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>
				Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>
				Scarlet Tanager	<i>Piranga olivacea</i>
				Swamp Sparrow	<i>Melospiza georgiana</i>
				White-throated Sparrow	<i>Zonotrichia albicollis</i>
2	Wetland	295541	5570144	Alder Flycatcher	<i>Empidonax alnorum</i>
				American Robin	<i>Turdus migratorius</i>
				Blue Jay	<i>Cyanocitta cristata</i>
				Common Raven	<i>Corvus corax</i>
				Common Yellowthroat	<i>Geothlypis trichas</i>
				Northern Cardinal	<i>Cardinalis cardinalis</i>
				Ovenbird	<i>Seiurus aurocapilla</i>
				Red-eyed Vireo	<i>Vireo olivaceus</i>
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>
White-throated Sparrow	<i>Zonotrichia albicollis</i>				
3	Pasture (flooded)	293785	5566941	American Crow	<i>Corvus brachyrhynchos</i>
				American Robin	<i>Turdus migratorius</i>
				Common Loon	<i>Gavia immer</i>
				Common Yellowthroat	<i>Geothlypis trichas</i>
				Ovenbird	<i>Seiurus aurocapilla</i>
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>
				Swainson's Thrush	<i>Catharus ustulatus</i>
				Swamp Sparrow	<i>Melospiza georgiana</i>
				Wilson's Snipe	<i>Gallinago delicata</i>
Yellow Rail	<i>Coturnicops noveboracensis</i>				
4	Forested	294467	5567965	American Crow	<i>Corvus brachyrhynchos</i>
				American Robin	<i>Turdus migratorius</i>
				Baltimore Oriole	<i>Icterus galbula</i>
				Common Yellowthroat	<i>Geothlypis trichas</i>
				Ovenbird	<i>Seiurus aurocapilla</i>
				Red-eyed Vireo	<i>Vireo olivaceus</i>
				Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>
				Ruby-crowned Kinglet	<i>Regulus calendula</i>
				Swamp Sparrow	<i>Melospiza georgiana</i>
5	Wetland	296078	5571391	American Robin	<i>Turdus migratorius</i>
				Belted Kingfisher	<i>Megaceryle alcyon</i>
				Blue Jay	<i>Cyanocitta cristata</i>



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report
Appendix A Tables

Table A-2 Species Detected at Sunrise using the Autonomous Recording Unit Survey

Site ID	Dominant Habitat	Easting ¹	Northing ¹	Common Name	Scientific Name
				Canada Goose	<i>Branta canadensis</i>
				Common Raven	<i>Corvus corax</i>
				Common Yellowthroat	<i>Geothlypis trichas</i>
				Eastern Wood-Pewee	<i>Contopus virens</i>
				Marsh Wren	<i>Cistothorus palustris</i>
				Red-eyed Vireo	<i>Vireo olivaceus</i>
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>
				White-throated Sparrow	<i>Zonotrichia albicollis</i>
6	Wetland	314035	5574881	Alder Flycatcher	<i>Empidonax alnorum</i>
				American Robin	<i>Turdus migratorius</i>
				Canada Goose	<i>Branta canadensis</i>
				Common Yellowthroat	<i>Geothlypis trichas</i>
				Least Flycatcher	<i>Empidonax minimus</i>
				Northern Flicker	<i>Colaptes auratus</i>
				Ovenbird	<i>Seiurus aurocapilla</i>
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>
				Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>
				Ruby-crowned Kinglet	<i>Regulus calendula</i>
				Swainson's Thrush	<i>Catharus ustulatus</i>
				Swamp Sparrow	<i>Melospiza georgiana</i>
				White-throated Sparrow	<i>Zonotrichia albicollis</i>
7	Forested	293087	5565282	Alder Flycatcher	<i>Empidonax alnorum</i>
				American Robin	<i>Turdus migratorius</i>
				Belted Kingfisher	<i>Megaceryle alcyon</i>
				Common Nighthawk	<i>Chordeiles minor</i>
				Common Raven	<i>Corvus corax</i>
				Common Yellowthroat	<i>Geothlypis trichas</i>
				House Finch	<i>Haemorhous mexicanus</i>
				Northern Cardinal	<i>Cardinalis cardinalis</i>
				Red-breasted Nuthatch	<i>Sitta canadensis</i>
				Red-eyed Vireo	<i>Vireo olivaceus</i>
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>
				Sandhill Crane	<i>Grus canadensis</i>
				White-throated Sparrow	<i>Zonotrichia albicollis</i>
				Wilson's Snipe	<i>Gallinago delicata</i>
8	Wetland	291883	5565077	Alder Flycatcher	<i>Empidonax alnorum</i>
				American Crow	<i>Corvus brachyrhynchos</i>
				American Robin	<i>Turdus migratorius</i>
				Common Grackle	<i>Quiscalus quiscula</i>
				Common Raven	<i>Corvus corax</i>
				Common Yellowthroat	<i>Geothlypis trichas</i>



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report
Appendix A Tables

Table A-2 Species Detected at Sunrise using the Autonomous Recording Unit Survey

Site ID	Dominant Habitat	Easting ¹	Northing ¹	Common Name	Scientific Name
				Red-eyed Vireo	<i>Vireo olivaceus</i>
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>
				Sedge Wren	<i>Cistothorus stellaris</i>
				Western Kingbird	<i>Tyrannus verticalis</i>
9	Forested	290864	5564631	American Robin	<i>Turdus migratorius</i>
				Baltimore Oriole	<i>Icterus galbula</i>
				Black-capped Chickadee	<i>Poecile atricapillus</i>
				Blue Jay	<i>Cyanocitta cristata</i>
				Common Yellowthroat	<i>Geothlypis trichas</i>
				Gray Catbird	<i>Dumetella carolinensis</i>
				Philadelphia Vireo	<i>Vireo philadelphicus</i>
				Red-eyed Vireo	<i>Vireo olivaceus</i>
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>
				Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>
				Savannah Sparrow	<i>Passerculus sandwichensis</i>
				Western Kingbird	<i>Tyrannus verticalis</i>
10	Forested	286588	5557998	American Robin	<i>Turdus migratorius</i>
				Baltimore Oriole	<i>Icterus galbula</i>
				Black-backed Woodpecker	<i>Picoides arcticus</i>
				Common Loon	<i>Gavia immer</i>
				Eastern Bluebird	<i>Sialia sialis</i>
				Great Blue Heron	<i>Ardea herodias</i>
				Mallard	<i>Anas platyrhynchos</i>
				Red-eyed Vireo	<i>Vireo olivaceus</i>
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>
				Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>
Wilson's Snipe	<i>Gallinago delicata</i>				
NOTES:					
¹ UTM NAD83 Zone 14N					



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report
Appendix A Tables

Table A-3 Species Detected during the Breeding Bird Survey

Site ID	Dominant Habitat	Eastin ¹	Northing ¹	Common Name	Scientific Name	Count
1	Forested	723307	5572249	American Crow	<i>Corvus brachyrhynchos</i>	1
				Black-and-white Warbler	<i>Mniotilta varia</i>	1
				Brown-headed Cowbird	<i>Molothrus ater</i>	1
				Clay-colored Sparrow	<i>Spizella pallida</i>	1
				Red-eyed Vireo	<i>Vireo olivaceus</i>	1
				Song Sparrow	<i>Melospiza melodia</i>	1
2	Forested	723307	5572249	Black-and-white Warbler	<i>Mniotilta varia</i>	1
				Black-throated Green Warbler	<i>Setophaga virens</i>	1
				Brown-headed Cowbird	<i>Molothrus ater</i>	1
				Nashville Warbler	<i>Leiothlypis ruficapilla</i>	1
				Ring-billed Gull	<i>Larus delawarensis</i>	1
				Song Sparrow	<i>Melospiza melodia</i>	1
3	Barren	723274	5571607	Pileated Woodpecker	<i>Dryocopus pileatus</i>	1
				Red-breasted Nuthatch	<i>Sitta canadensis</i>	1
				Red-eyed Vireo	<i>Vireo olivaceus</i>	1
				White-throated Sparrow	<i>Zonotrichia albicollis</i>	1
				Yellow Warbler	<i>Dendroica petechia</i>	1
4	Grassland	721926	5571164	American Crow	<i>Corvus brachyrhynchos</i>	1
				American Goldfinch	<i>Spinus tristis</i>	1
				American Redstart	<i>Setophaga ruticilla</i>	1
				Black-and-white Warbler	<i>Mniotilta varia</i>	1
				Cedar Waxwing	<i>Bombycilla cedrorum</i>	1
				Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	1
				Clay-colored Sparrow	<i>Spizella pallida</i>	1
				Common Yellowthroat	<i>Geothlypis trichas</i>	1
				Red-eyed Vireo	<i>Vireo olivaceus</i>	1
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>	1
				Sandpiper Sp.	<i>Scolopacidae sp.</i>	1
				Song Sparrow	<i>Melospiza melodia</i>	1
				Veery	<i>Catharus fuscescens</i>	1
Yellow Warbler	<i>Dendroica petechia</i>	1				
5	Barren	723271	5571152	Blue Jay	<i>Cyanocitta cristata</i>	1
				Nashville Warbler	<i>Leiothlypis ruficapilla</i>	2
				Ovenbird	<i>Seiurus aurocapilla</i>	1
				Red-eyed Vireo	<i>Vireo olivaceus</i>	1
				Song Sparrow	<i>Melospiza melodia</i>	1
				White-throated Sparrow	<i>Zonotrichia albicollis</i>	1
7	Wetland	722173	5570371	Ovenbird	<i>Seiurus aurocapilla</i>	2
				Red-breasted Nuthatch	<i>Sitta canadensis</i>	1
8	Forested	722021	5570358	Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	1



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report
Appendix A Tables

Table A-3 Species Detected during the Breeding Bird Survey

Site ID	Dominant Habitat	Eastin ¹	Northing ¹	Common Name	Scientific Name	Count
				Common Yellowthroat	<i>Geothlypis trichas</i>	1
				Least Flycatcher	<i>Empidonax minimus</i>	1
				Song Sparrow	<i>Melospiza melodia</i>	1
				Veery	<i>Catharus fuscescens</i>	1
9	Forested	717743	5567739	Common Yellowthroat	<i>Geothlypis trichas</i>	2
				Red-eyed Vireo	<i>Vireo olivaceus</i>	1
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>	1
				Wilson's Snipe	<i>Gallinago delicata</i>	1
10	Forested	717763	5567315	American Redstart	<i>Setophaga ruticilla</i>	1
				Black-and-white Warbler	<i>Mniotilta varia</i>	1
				Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	1
				Nashville Warbler	<i>Leiothlypis ruficapilla</i>	1
				Red-eyed Vireo	<i>Vireo olivaceus</i>	1
				Yellow-rumped Warbler	<i>Setophaga coronata</i>	1
11	Forested	718970	5560958	Alder Flycatcher	<i>Empidonax alnorum</i>	1
				Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	2
				Indigo Bunting	<i>Passerina cyanea</i>	1
				Ovenbird	<i>Seiurus aurocapilla</i>	1
				Red-eyed Vireo	<i>Vireo olivaceus</i>	2
				Song Sparrow	<i>Melospiza melodia</i>	1
				White-throated Sparrow	<i>Zonotrichia albicollis</i>	1
12	Wetland	719200	5560019	Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	1
				Common Yellowthroat	<i>Geothlypis trichas</i>	1
				Ovenbird	<i>Seiurus aurocapilla</i>	1
				Sedge Wren	<i>Cistothorus stellaris</i>	1
				Yellow Warbler	<i>Dendroica petechia</i>	1
13	Forested	718416	5559400	American Robin	<i>Turdus migratorius</i>	1
				Canada Jay	<i>Perisoreus canadensis</i>	1
				Magnolia Warbler	<i>Setophaga magnolia</i>	1
				Mourning Warbler	<i>Geothlypis philadelphia</i>	1
				Nashville Warbler	<i>Leiothlypis ruficapilla</i>	1
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>	1
				Song Sparrow	<i>Melospiza melodia</i>	1
14	Wetland	717565	5559290	American Robin	<i>Turdus migratorius</i>	1
				Nashville Warbler	<i>Leiothlypis ruficapilla</i>	1
				Swainson's Thrush	<i>Catharus ustulatus</i>	1
				White-throated Sparrow	<i>Zonotrichia albicollis</i>	1
15	Wetland	716406	5559210	American Crow	<i>Corvus brachyrhynchos</i>	1
				Black-and-white Warbler	<i>Mniotilta varia</i>	1
				Canada Jay	<i>Perisoreus canadensis</i>	1
				Common Yellowthroat	<i>Geothlypis trichas</i>	1



Pointe du Bois Renewable Energy Project: Wildlife Technical Data Report
Appendix A Tables

Table A-3 Species Detected during the Breeding Bird Survey

Site ID	Dominant Habitat	Eastin ¹	Northing ¹	Common Name	Scientific Name	Count
				Mallard	<i>Anas platyrhynchos</i>	1
				Northern Waterthrush	<i>Parkesia noveboracensis</i>	1
				Red-eyed Vireo	<i>Vireo olivaceus</i>	1
				Song Sparrow	<i>Melospiza melodia</i>	1
				White-throated Sparrow	<i>Zonotrichia albicollis</i>	2
16	Forested	715851	5559359	American Crow	<i>Corvus brachyrhynchos</i>	1
				Black-capped Chickadee	<i>Poecile atricapillus</i>	2
				Common Yellowthroat	<i>Geothlypis trichas</i>	1
				Mallard	<i>Anas platyrhynchos</i>	1
				Red-winged Blackbird	<i>Agelaius phoeniceus</i>	5
				Ring-necked Duck	<i>Aythya collaris</i>	1
19	Forested	712413	5555857	American Crow	<i>Corvus brachyrhynchos</i>	1
				Black-capped Chickadee	<i>Poecile atricapillus</i>	1
				Clay-colored Sparrow	<i>Spizella pallida</i>	1
				Common Yellowthroat	<i>Geothlypis trichas</i>	2
				Lincoln's Sparrow	<i>Melospiza lincolnii</i>	1
				Ring-billed Gull	<i>Larus delawarensis</i>	1
				Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	1
				Sedge Wren	<i>Cistothorus stellaris</i>	2
20	Forested	712106	5555610	American Redstart	<i>Setophaga ruticilla</i>	1
				Black-and-white Warbler	<i>Mniotilta varia</i>	1
				Black-capped Chickadee	<i>Poecile atricapillus</i>	1
				Blue-headed Vireo	<i>Vireo solitarius</i>	1
				Common Yellowthroat	<i>Geothlypis trichas</i>	2
				Least Flycatcher	<i>Empidonax minimus</i>	1
				Red-eyed Vireo	<i>Vireo olivaceus</i>	1
				Sedge Wren	<i>Cistothorus stellaris</i>	1
				Yellow Warbler	<i>Dendroica petechia</i>	2
				Yellow-rumped Warbler	<i>Setophaga coronata</i>	1
NOTES:						
¹ UTM NAD83 Zone 14N						



Appendix B Questions for the Provincial Wildlife Authorities



Manitoba Hydro Pointe du Bois Renewable Energy Project Key Person Interview Questions for Wildlife and Wildlife Habitat

Questions for the Province Wildlife Authorities

General

1. What concerns might you have regarding transmission line development in built up areas (i.e., along roads, highways, existing transmission lines)?
2. What concerns might you have regarding transmission line development on undeveloped lands?
3. What concerns may you have regarding any of the proposed alternate route segments? If so, which ones and what is/are the concern(s)?
4. Do you have any suggestions for mitigating potential negative effects on wildlife as a result of the Pointe du Bois transmission line development?

Moose

5. We know that portions of GHA 26 have been under a moose hunting conservation closure since 2011. The results of the 2020 big game survey indicated an estimated moose population in GHA 26 of 823 individuals (90% confidence interval: 699-947). Is there any more recent information on the status of the population?
6. Where were moose observed during the 2020 GHA 26 survey relative to the Pointe du Bois Project (high- or low-density blocks)?
7. We understand these to be the most significant factors facing moose in Manitoba, based on the "Hard to be a Moose publication " [hard-to-be-a-moose.pdf \(gov.mb.ca\)](#) They include:
 - hunting
 - predation
 - disease and parasites
 - habitat alteration
 - severe weather events
 - climate change
 - others?

Would you feel comfortable ranking these factors for the Pointe du Bois to Pinawa area? Feel free to include other factors you feel are influencing current moose populations in eastern Manitoba.

What are your rankings based on? (e.g., Provincial data, personal observations, research)

8. Do you think the proposed transmission line could affect the Pinawa/Pointe du Bois moose population? If so, how?

9. Is the Province managing factors influencing moose populations (i.e., those described in #7 above) and if so, which ones and how are they managing them?
10. Are there areas in the Pointe du Bois / Pinawa area that are important for moose (overwintering, calving, summer foraging)? If so, can you describe where these are located? Locations will not be published.
11. Do you have any suggestions for mitigating potential effects on moose as a result of the Pointe du Bois transmission line development?

White-tailed deer

12. What is the population status of white-tailed deer in the Pointe du Bois / Pinawa area (declining, stable, increasing or unknown)? What is this knowledge based on?
13. What factors are contributing to the population status of deer in this area? What is this knowledge based on?
14. Has the resident hunting increased, decreased or remained constant in the area over the last 10 years?
15. Are there areas in the Pointe du Bois / Pinawa area that are important for deer (overwintering, calving, summer foraging)? If so, please describe where these are located relative to the Project. (Locations will not be published).
16. Do you think the proposed transmission line could affect the Pinawa/Pointe du Bois deer population? If so, how?

Timber Wolf

17. What is the population status of timber wolf in the Pointe du Bois / Pinawa area (declining, stable, increasing, or unknown)?
18. Are wolf populations being managed? If so, why? Are measures effective?
19. Do you have information on known denning sites in the Pointe du Bois / Pinawa area? If so, can you describe where these are located relative to the Project
20. How do wolves use transmission line ROWs in SE Manitoba? What is this knowledge based on? Do you have any suggestions for mitigation?

Black Bear

21. What is the population status and distribution of black bear in the Pointe du Bois / Pinawa area? In eastern MB? In MB (declining, stable, increasing or unknown)(any high or low density areas)? What is this knowledge based on?
22. What factors are contributing to the population status of bear in the Pointe du Bois / Pinawa area? What is the most influential factor?
23. Do you think the proposed transmission line could affect the Pinawa/Pointe du Bois black bear population? If so, how?
24. Has the resident bear hunting increased, decreased or remained constant in the area over the last 10 years?
25. Do you have information on known bear den site in the Pinawa/ Pointe du Bois area? If so, would you be willing to provide us the locations?

Sensitive Wildlife Species

26. Would you have any mitigation suggestions for sensitive species in Pinawa/Pointe du Bois area? Overwintering areas, den sites, rookeries, raptor nests, sharp-tailed grouse leks, snake hibernacula, endangered species habitat, turtle breeding areas, or other areas of wildlife significance in the Pointe du Bois / Pinawa area?

Questions for Predator-Prey Researchers

27. What is your research focused on?
28. Where in eastern Manitoba is your research located?
29. How long have you been studying predator- prey dynamics in eastern MB?
30. What insights have you gained regarding the distribution and relative abundance of wolves and moose within your study, if any?
31. What concerns might you have regarding transmission line development in built up areas (i.e., along roads, highways, existing transmission lines)?
32. What concerns might you have regarding transmission line development on undeveloped lands?
33. Do you foresee any benefits to wildlife with the development of a transmission line?
34. Do you feel there will be any negative aspects to wildlife with transmission line development? If so, please describe.
35. Do you have any concerns with the proposed route segments? If so, which ones and what is the concern?
36. Do you know of white-tailed deer or moose calving areas, rutting areas, overwintering areas, wolf dens, sharp-tailed grouse leks, snake hibernacula, turtle breeding areas, or other areas of wildlife significance in the Pointe du Bois / Pinawa area?

To:	James Matthewson Manitoba Hydro 360 Portage Ave, Wpg MB	From:	Eric Turenne and Clio Bonnett Stantec 500-311 Portage Ave, Wpg, MB
File:	111477058	Date:	February 9, 2023

Reference: Pointe du Bois Renewable Energy Project – Fish Habitat Assessment of the Whitemouth River Crossing

1.0 INTRODUCTION

Manitoba Hydro retained Stantec Consulting Ltd. (Stantec) to provide environmental services for the construction and operation of the proposed Pointe du Bois Renewable Energy Project's Pointe du Bois to Whiteshell (PW75) Transmission Line (the Project). The proposed Project involves the construction of a new, approximately 50-km long, 115 kV transmission line between Pointe du Bois and the existing Whiteshell substation. Approximately half of the Project routing follows an existing transmission line corridor, which extends from the Pointe du Bois Generating Station to the Lee River Distribution Supply Centre and will be widened to accommodate the Project. A new corridor will then extend the line from the Lee River Distribution Supply Centre to its terminus at the Whiteshell Substation.

Initial desktop and field assessments for the Project were completed in support of the *Environment Act* Proposal (EAP) filed in June 2014 after which, the Project was placed on hold. Manitoba Hydro has re-opened engagement efforts, is developing a revised proposed routing, and intends to file a revised EAP in spring of 2023. The current proposed routing of the Project crosses the Whitemouth River, approximately 850 m upstream of the confluence with the Winnipeg River (Map 1, Attachment A). In September 2018, a critical habitat order came into force for Carmine Shiner which designated this reach of the Whitemouth River as critical habitat for the species (Government of Canada 2018). In 2020, the status of Carmine Shiner was revised and listed as endangered under Schedule 1 of the *Species at Risk Act* (SARA).

In support of the revised EAP and associated regulatory applications, a fish community and habitat assessment was completed at the proposed crossing location at the Whitemouth River. This memo summarizes existing fish and fish habitat conditions at the Whitemouth River crossing location.

2.0 METHODS

2.1 DESKTOP ASSESSMENT

2.1.1 Site Description and Hydrology

A desktop review of aquatic and riparian habitat near the Project crossing location at the Whitemouth River was conducted to supplement field-level fish habitat assessments by Stantec in July 2022. Satellite and aerial imagery in Google Earth®, Google Maps®, ArcGIS®, Water Survey of Canada (WSC) gauging stations on the Whitemouth River (05PH003; ECCO 2022) at Whitemouth, MB (approximately 23 km upstream of the PW75 crossing) and available literature were used to describe the environmental setting and condition of the site. These data were also used to assess riparian habitat, describe watershed connectivity and identify habitat features that meet the life history requirements of fish species (e.g., rearing, spawning, migration, overwintering) documented or potentially occurring in the river near the proposed Project crossing location.

February 9, 2023

James Matthewson

Page 2 of 33

Reference: **Pointe du Bois Renewable Energy Project – Fish Habitat Assessment of the Whitemouth River Crossing**

2.1.2 Fish Community

A review of historical fish capture data for the Whitemouth River was conducted using existing literature (Stewart and Watkinson 2004), the federal inventory of streams in Manitoba (Milani 2013), and DFO's aquatic species at risk map (DFO 2022), to compile information on fish species known to occur in the Whitemouth River, or that may occur based on distribution ranges that overlap with the Project study area.

2.1.3 Species of Management Concern

The historical fish species presence and distribution data from the desktop study was reviewed for the presence of fish species listed under Schedule 1 of SARA (Government of Canada 2022a) or by *Manitoba Endangered Species and Ecosystems Act* (MESEA; Government of Manitoba, 2022) whose range may overlap with the Project at the Whitemouth River crossing. Other species designations and status reports were also considered for species potentially at risk but not currently listed at a provincial or federal level, including those by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC; Government of Canada 2022b).

2.1.4 Restricted Activity Timing Window

Restricted activity timing windows (RATW) have been developed to protect fish species and sensitive fish life stages that may be present in the watercourse. RATWs are region-specific and based on species presence and distribution and are used to advise timing of instream construction activities.

The RATW for the Whitemouth River was determined from the Manitoba RATW for the Protection of Fish and Fish Habitat (DFO 2013b).

2.2 FIELD ASSESSMENT

2.2.1 Fish Habitat

Habitat assessment methods were adapted from the British Columbia Resources Inventory Standards Committee Reconnaissance (1:20,000) Fish and Fish Habitat Inventory method (BC RISC 2001) and from the Alberta Transportation Fish Habitat Manual (Alberta Transportation 2009). While other broad habitat classification systems are available in Manitoba (FIHCS 2013), these are better suited for describing and classifying small headwater streams and agricultural drains and generally lack the detail required to describe the habitat's suitability to meet species-specific life history requirements.

The habitat assessment was conducted along six transects of the river, each based on relative distance upstream or downstream of the Project crossing location: 100 m upstream, 50 m upstream, centreline (0 m), 100 m downstream, 200 m downstream, and 300 m downstream. Observations of channel morphology, bottom substrate composition, instream cover and vegetation, flow characteristics and riparian habitat characteristics were combined with aerial imagery and *in situ* measurements of water quality to assess and categorize aquatic habitat at the Whitemouth River crossing. Habitat characteristics assessed throughout the assessment reach (100 m upstream to 300 m downstream of the crossing location) were then incorporated into a physical habitat classification system that rates the quality of each macro-habitat type based on physical characteristics (e.g., cover, substrate) with respect to the life history requirements of fish species (e.g., rearing, spawning, migration, overwintering) documented or potentially occurring in the vicinity of the Project. Fish habitat suitability for migration, spawning, rearing, and overwintering for the Whitemouth River

was rated (i.e., good, moderate, poor, or none) according to its suitability to support these life history requirements.

3.0 RESULTS

3.1 DESKTOP REVIEW

3.1.1 Site Description and Hydrology

The Whitemouth River watershed in southern Manitoba encompasses 4,464 km² of primarily forest and peatlands that are typical of the Lake of the Woods and Superior Mixed Forest ecoregions in which the Project is situated (Becker and Hamel 2017; Marshall and Schut 1999; The Nature Conservancy (TNC) 2001). In its lowest reaches and downstream of the town of Whitemouth, MB, the Whitemouth River is generally wide (>50 m), shallow and relatively slow moving, alternating between slightly meandering and sinuous flow patterns until it reaches its confluence with the Winnipeg River at Whitemouth Falls Provincial Park, less than 1 km downstream of the proposed Project crossing location. This portion of the river is flanked by a narrow-forested corridor, consisting predominantly of deciduous trees and shrubs, which extends roughly 30-50 m to either side of the river before transitioning to predominantly agricultural cropland.

Mean monthly discharge in the Whitemouth River at Whitemouth (WSC gauging station 05PH003; ECCC 2022) is reported at 15.34 m³/s (for months of record between 1942 and 2020), with a mean primary water level of 268.59 m above sea level (asl) (for months of record between 2002 and 2020). Around the time field investigations were conducted (July 20, 2022), discharge and water levels in the Whitemouth River were increasing sharply, from 14.2 m³/s and 268.53 m asl on July 19, 2022, to a peak of 84.0 m³/s and 269.99 m asl on July 21, 2022, following a considerable rain event on July 19, 2022. These values represent more than five-fold increases from mean flows (six-fold increase from the previous day July 19, 2022) and a 1.4 m increase in primary water level above the mean (1.46 m increase from the previous day).

3.1.2 Fish Community

A total of 56 fish species were identified as having distributions within Manitoba that overlap the Whitemouth River and its tributaries, or the Winnipeg River at Whitemouth Falls Provincial Park (Stewart and Watkinson 2004). Of these, 17 species are known to occur in the Whitemouth River basin, including tributaries such as the Bog River, Birch River, Plum Creek, Monk Creek, Kellner Creek, Oldenberg Creek and several other unnamed drains and headwater tributaries (Milani 2013). A summary of species known or suspected to occur in the Whitemouth River is provided in Table 1.

February 9, 2023

James Matthewson

Page 4 of 33

Reference: Pointe du Bois Renewable Energy Project – Fish Habitat Assessment of the Whitemouth River Crossing

Table 1 Status and occurrence of fish species in the Whitemouth River watershed

Species Information ¹			Legislated Status		Scientific Review or Recommendation		Occurrence ^{1,6}
Family	Common Name	Scientific Name	SARA ²	MESEA ³	COSEWIC ⁴	MB CDC ⁵	
Petromyzontidae	Chesnut Lamprey	<i>Ichthyomyzon castaneus</i>	DD	Not Listed	No Status	S3	-
	Northern Brook Lamprey	<i>Ichthyomyzon fossor</i>	Not Listed	Not Listed	En	SU	✓
	Silver Lamprey	<i>Ichthyomyzon unicuspis</i>	Not Listed	Not Listed	SC	SU	-
Acipenseridae	Lake Sturgeon	<i>Acipenser fulvescens</i>	Not Listed	Not Listed	En	S2	-
Hiodontidae	Mooneye	<i>Hiodon tergisus</i>	Not Listed	Not Listed	No Status	S5	-
Cyprinidae	Lake Chub	<i>Couesius plumbeus</i>	Not Listed	Not Listed	No Status	S5	-
	Common Shiner	<i>Luxilus cornutus</i>	Not Listed	Not Listed	No Status	S5	✓
	Pearl Dace	<i>Margariscus margarita</i>	Not Listed	Not Listed	No Status	S5	-
	Hornyhead Chub	<i>Nocomis biguttatus</i>	NR	Not Listed	NR	S4	✓
	Golden Shiner	<i>Notemigonus crysoleucas</i>	Not Listed	Not Listed	No Status	S5	-
	Emerald Shiner	<i>Notropis atherinoides</i>	Not Listed	Not Listed	No Status	S5	-
	Blackchin Shiner	<i>Notropis heterodon</i>	NR	Not Listed	NR	S4	-
	Blacknose Shiner	<i>Notropis heterolepis</i>	Not Listed	Not Listed	No Status	S5	-
	Spottail Shiner	<i>Notropis hudsonius</i>	Not Listed	Not Listed	No Status	S5	-
	Carmine Shiner	<i>Notropis percobromus</i>	En	Not Listed	En	S2	✓
	Weed Shiner	<i>Notropis texanus</i>	NR	Not Listed	NR	S4	-
	Mimic Shiner	<i>Notropis volucellus</i>	Not Listed	Not Listed	No Status	S5	✓
	Northern Redbelly Dace	<i>Chrosomus eos</i>	Not Listed	Not Listed	No Status	S5	✓
	Finescale Dace	<i>Chrosomus neogaeus</i>	Not Listed	Not Listed	No Status	S5	✓
	Catostomidae	Bluntnose Minnow	<i>Pimephales notatus</i>	NR	Not Listed	NR	S4
Fathead Minnow		<i>Pimephales promelas</i>	Not Listed	Not Listed	No Status	S5	✓
Longnose Dace		<i>Rhinichthys cataractae</i>	Not Listed	Not Listed	No Status	S5	✓
Quillback		<i>Carpionus cyprinus</i>	Not Listed	Not Listed	No Status	S5	-
Longnose Sucker		<i>Catostomus catostomus</i>	Not Listed	Not Listed	No Status	S5	-
White Sucker		<i>Catostomus commersonii</i>	Not Listed	Not Listed	No Status	S5	✓
Ictaluridae	Silver Redhorse	<i>Moxostoma anisurum</i>	Not Listed	Not Listed	No Status	S5	-
	Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>	Not Listed	Not Listed	No Status	S5	-
	Black Bullhead	<i>Ameiurus melas</i>	Not Listed	Not Listed	No Status	S5	-
	Brown Bullhead	<i>Ameiurus nebulosus</i>	Not Listed	Not Listed	No Status	S5	-
	Channel Catfish	<i>Ictalurus punctatus</i>	Not Listed	Not Listed	No Status	S5	-
Esocidae	Tadpole Madtom	<i>Noturus gyrinus</i>	Not Listed	Not Listed	No Status	S5	-
	Northern Pike	<i>Esox lucius</i>	Not Listed	Not Listed	No Status	S5	✓
Umbridae	Central Mudminnow	<i>Umbra limi</i>	Not Listed	Not Listed	No Status	S5	✓
Osmeridae	Rainbow Smelt	<i>Osmerus mordax</i>	Not Listed	Not Listed	No Status	SNA	-

Species Information ¹			Legislated Status		Scientific Review or Recommendation		Occurrence ^{1,6}
Family	Common Name	Scientific Name	SARA ²	MESEA ³	COSEWIC ⁴	MB CDC ⁵	
Salmonidae	Cisco	<i>Coregonus artedii</i>	Not Listed	Not Listed	No Status	S5	-
	Lake Whitefish	<i>Coregonus clupeaformis</i>	Not Listed	Not Listed	No Status	S5	-
Percopsidae	Troutperch	<i>Percopsis omiscomaycus</i>	Not Listed	Not Listed	No Status	S5	-
Gadidae	Burbot	<i>Lota lota</i>	Not Listed	Not Listed	No Status	S5	✓
Gasterosteidae	Brook Stickleback	<i>Culea inconstans</i>	Not Listed	Not Listed	No Status	S5	✓
	Ninespine Stickleback	<i>Pungitius pungitius</i>	Not Listed	Not Listed	No Status	S5	-
Cottidae	Mottled Sculpin	<i>Cottus bairdii</i>	Not Listed	Not Listed	No Status	S5	-
	Slimy Sculpin	<i>Cottus cognatus</i>	Not Listed	Not Listed	No Status	S5	-
	Spoonhead Sculpin	<i>Cottus ricei</i>	NR	Not Listed	NR	S5	-
Centrarchidae	Rock Bass	<i>Ambloplites rupestris</i>	Not Listed	Not Listed	No Status	S5	-
	Smallmouth Bass	<i>Micropterus dolomieu</i>	Not Listed	Not Listed	No Status	SNA	-
	Largemouth Bass	<i>Micropterus salmoides</i>	Not Listed	Not Listed	No Status	SNA	-
	Black Crappie	<i>Poxomis nigromaculatus</i>	Not Listed	Not Listed	No Status	S5	-
Percidae	Iowa Darter	<i>Etheostoma exile</i>	Not Listed	Not Listed	No Status	S5	✓
	Johnny Darter	<i>Etheostoma nigrum</i>	Not Listed	Not Listed	No Status	S5	✓
	Yellow Perch	<i>Perca flavescens</i>	Not Listed	Not Listed	No Status	S5	-
	Logperch	<i>Percina caprodes</i>	Not Listed	Not Listed	No Status	S5	-
	Blackside Darter	<i>Percina maculata</i>	Not Listed	Not Listed	No Status	S5	✓
	River Darter	<i>Percina shumardi</i>	Not Listed	Not Listed	No Status	S5	-
	Sauger	<i>Sander canadensis</i>	Not Listed	Not Listed	No Status	S5	-
	Walleye	<i>Sander vitreus</i>	Not Listed	Not Listed	No Status	S5	-

Notes:

✓ Indicates species has historical presence in the Whitemouth River and its tributaries

- Indicates the distribution of the species overlaps the study area¹ but no verified records of occurrence are available

¹ Species information (i.e., family, common name, scientific name) from Stewart and Watkinson, 2004, except *Chrosomus spp.* With revised taxonomy

² *Species at Risk Act* (SARA) (Government of Canada 2022a); considered a species of management concern if assessed as threatened (T) or endangered (En). NR = Not at Risk, SC = Special Concern, DD = data deficient

³ *Manitoba Endangered Species and Ecosystems Act* (MESEA) (Government of Manitoba 2022); considered a species of management concern if assessed as threatened or endangered

⁴ Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (Government of Canada 2022b); assessed as a species of management concern if assigned a status of special concern (SC) threatened (T) or endangered (En)

⁵ Manitoba Conservation and Climate Data Centre (MB CDC 2021); assessed as a species of management concern if ranked as S1 (very high risk of extirpation) or S2 (high risk of extirpation)

⁶ Milani 2013

February 9, 2023

James Matthewson

Page 6 of 33

Reference: **Pointe du Bois Renewable Energy Project – Fish Habitat Assessment of the Whitemouth River Crossing**

3.1.3 Species of Conservation Concern

Of the 17 species known to occur in the Whitemouth River and its tributaries, Carmine Shiner is listed as endangered under Schedule 1 of SARA (Government of Canada, 2022a), and the Whitemouth River near the proposed Project crossing is mapped critical habitat for the species (DFO 2022).

Three additional fish species of conservation concern were identified including Lake Sturgeon (*Acipenser fulvescens*), Silver Lamprey (*Ichthyomyzon unicuspis*), and Northern Brook Lamprey (*Ichthyomyzon fossor*). Lake Sturgeon are considered endangered by COSEWIC and are under consideration for Schedule 1 listing (Government of Canada 2022a). This species is known to occur in the Winnipeg River (Government of Canada 2022a), but there are no available records of this species occurring in the Whitemouth River. Silver Lamprey and Northern Brook Lamprey are considered to be of special concern and endangered, respectively, by COSEWIC (Government of Canada, 2022a). Silver Lamprey are not known to occur in the Whitemouth River but are found in the Winnipeg River system (Stewart and Watkinson 2004). Northern Brook Lamprey are known to occur throughout the Whitemouth River watershed (Stewart and Watkinson 2004).

3.1.4 Restricted Activity Timing Window

The RATW for southern Manitoba extends from September 15 to July 15 to protect resident species, including Carmine Shiner (DFO 2013b). If fall spawning species are present (e.g., Lake Whitefish, Cisco), a fall RATW of September 15 to April 30 also applies for projects in or near water (DFO 2013b).

3.2 FIELD ASSESSMENT

3.2.1 Fish Habitat

A field-level habitat assessment of the Whitemouth River was conducted on July 20, 2022. Two Stantec biologists, assisted in the field by Peguis First Nation's Environmental Projects Coordinator, accessed the river by canoe from Whitemouth Falls Provincial Park (UTM 14 U 711996 5556040; see Map 1, Attachment A). At the time of assessment, the Whitemouth River was experiencing high-water conditions with roughly five to six-fold mean discharge and water levels >1.4 m above average (ECCC 2022). Consequently, habitat conditions assessed during field investigations on July 20, 2022, may not be entirely representative of typical summer conditions at the site. However, the field visit provided additional insights into the habitat condition that may be expected during high water events, such as during the spring freshet that coincides with the spawning period of many of the fish species that occur in the Whitemouth River.

Overall, habitat within the assessed reach consisted of a single channel that followed a slightly meandering pattern and included large flat (FL) and deep to moderate run (R1 & R2) sections with deeper pool habitat (P1 or P2) likely present along outside bends in the river. Throughout the assessed reach, the Whitemouth River ranged from 72 m (transect 6, 300 m downstream) to 95 m (transect 3, centreline) wide, with wetted widths ranging from 75 m (transect 5, 200 m downstream and transect 6) to 94 m (transect 3), averaging 83 m bank-to-bank (82 m wetted). Due to high flows and turbidity at the time of field surveys, water depths could not be accurately assessed. However, depths <1 m were only found along the margins of the watercourse. Consequently, maximum depths across each transect likely exceeded 2 m at the time of assessments, whereas depths may typically range from 0.2 to 1.4 m (Fisheries and Oceans Canada 2013a).

In shallow depositional areas along the margins, substrate was homogeneous throughout the study reach, and dominated by fines and clays (<2 mm grain size; 40-80% relative composition), with a slightly higher representation of organics (silt and plant detritus) at transect 4 (100 m downstream) and transect 6 (300 m downstream), where high water flooded into dense emergent vegetation (grasses, sedges, cattails). Any

coarse substrates near the margins would be highly embedded (>75% embedded). Near the crossing, moderately embedded (<50 % embedded) coarse substrates (sand, gravel, cobble, bedrock) are likely prevalent in deeper sections and where current velocities are higher. These were not observed at the time of the field assessments but are apparent in satellite imagery throughout much of the lower Whitemouth River. Cobbles, boulders, and bedrock are abundant and accessible to fish at Whitemouth Falls, 600 m downstream of the crossing (see Attachment B, Photographs 15 to 17).

Banks throughout the assessed reach were found to be moderately stable to stable, owing to the abundant riparian vegetation that provides bank stabilizing function (Attachment B, Photographs 1 to 13). Unstable to moderately stable banks were only documented at transect 5 (200 m downstream), where evidence of previous scour was noted on right bank (facing downstream) and where vegetation had been cleared to the water's edge on the left bank by the property owner (Attachment B, Photograph 9). Despite abundant riparian vegetation that included large deciduous trees, overhead cover provided to the river was minimal (0 to 5% riparian crown closure at all transects) as only branches from the largest trees extended a few metres over the more than 70 m wide river. Except for cover provided by the high turbidity measured during the assessments, total instream cover (e.g., emergent vegetation, undercut banks, large woody debris) was low (5 to 20%) and generally limited to emergent vegetation (i.e., grasses, cattails) along the flooded margins. Instream large woody debris was observed in low density along right bank, between 100 m upstream and 100 m downstream of the crossing, and in moderate quantities at Whitemouth Falls Provincial Park, 600 m downstream of the crossing (Attachment B, Photograph 15).

In situ water quality measurements taken at the upstream extent of the assessed reach (transect 1, 100 m upstream) and at Whitemouth Falls (600 m downstream) are presented in Table 2. Generally, water quality parameters were consistent throughout the reach assessed, with dissolved oxygen ([DO]) concentrations >6.5 mg O₂ L⁻¹ and water temperatures <25 °C suitable for most species that may occur in the Whitemouth River at the site. These parameters are also within the Canadian Water Quality guidelines for the Protection of Aquatic Life (CCME 2022). Turbidity measured at both sample locations was high (>60 NTU) and suboptimal for most fish species (based on habitat preferences described in Stewart and Watkinson, 2004) and was presumably elevated due to increased runoff and flow following the July 19 rain event.

Table 2 Water quality parameters measured during July 20, 2022 fish habitat assessments of the Whitemouth River

Sample ID	Coordinate (UTM)	Temperature (°C)	[DO] (mg O ₂ L ⁻¹)	pH	Conductivity (µS/cm)	Turbidity (NTU)
Transect 1 (100 m US)	14 U 712083 5555345	22.1	6.8	7.17	186.9	64.09
Whitemouth Falls	14 U 711994 5556048	22.2	7.1	6.91	184.6	66.08

Overall, the Whitemouth River at the Project crossing location provides moderate to good quality habitat that meets the life history requirements for most species that may occur at the site (Table 3). The presumed availability of coarse substrates (based on satellite imagery during low flow conditions) and flooded vegetation during high-water observed at the time of assessments provides opportunity to spawn for most fish species that may occur at the site. Spawning potential is further supplemented by high-quality habitat at the nearby Whitemouth Falls Provincial Park. Overwintering potential is contingent on the availability of deep pool habitats as refuge, which are expected to be available based on depths >2 m at the time of assessment, and on winter flows that are sufficient to limit oxygen depletion and the formation of bottom-fast ice. High-quality riparian habitat throughout most of the reach (deciduous forest extending >30 m out from the bank) provides

good riparian function, bank stability and habitat complexity suitable for the diverse and abundant invertebrate communities that support aquatic food webs, creating good rearing habitat for fish species in the Whitemouth River. During low-to-normal flows, Whitemouth Falls may prevent fish from moving upstream into the Whitemouth River from the Winnipeg River, but high-water events may occasionally allow passage. Fish movement appears to be unimpeded in the upstream direction for the approximately 23 km between Whitemouth Falls and Cook Falls near Whitemouth (UTM 15 U 285514 5540126) and may extend beyond this depending on flow characteristics through these hydraulic features during flood events. Downstream movement through these features is expected to be possible under most flow conditions.

The Whitemouth River near the proposed crossing location is mapped critical habitat for the endangered Carmine Shiner, and the species has previously been documented in the lower reaches of the Whitemouth River near the Project crossing location (DFO 2022; DFO 2013a; Becker and Hamel 2017). Their known summer spawning and rearing habitats include large streams and moderate-sized rivers, at depths ranging from 0.12 to 2.8 m, flow velocities <1.7 m/s, conductivities of 102.6 to 265 µS/cm and water temperatures from 15.1 to 21.8 °C (DFO, 2013a). While the species is not known to tolerate high turbidity for extended periods or inhabit streams with high sediment loads and poor visibility, they are known to retreat to slower-flowing edges of flooded rivers into vegetated habitats where they may find refuge from the turbidity and access better foraging opportunities (DFO 2013a). Each of these features associated with known Carmine Shiner habitat are consistent with habitat available at the proposed Project crossing location on the Whitemouth River, and with habitat available downstream of the site at Whitemouth Falls Provincial Park.

Table 3 Habitat quality rating for the Whitemouth River at the Project crossing location

Habitat	Quality Rating	Rationale
Spawning	Good	<ul style="list-style-type: none"> Evidence of flood events may benefit species that utilize flooded riparian vegetation along the margins of the river. Coarse substrates (sand, gravel, cobble) likely available in deeper pools and swift runs under typical flow conditions. High quality spawning habitat available at Whitemouth Falls only a short distance downstream will supplement what may be available at the site.
Rearing	Moderate-Good	<ul style="list-style-type: none"> Boulders may provide velocity refuges if and where available. Instream cover provided by low water clarity and emergent vegetation along banks, especially when flooded. Adequate substrate complexity to develop benthic invertebrate communities to support food webs.
Overwintering	Moderate	<ul style="list-style-type: none"> Low winter flows (ECCC 2022) may present susceptibility to partial bottom-fast ice formation and under-ice oxygen depletion depending on flow and water level at freeze-up. Pools throughout assessment reach may provide suitable habitats for overwintering if sufficient flow is maintained to replenish [DO] and prevent bottom-fast ice formation. Connectivity to nearby high-quality habitat (Whitemouth Falls) provides additional overwintering refuge potential.
Migration	Moderate	<ul style="list-style-type: none"> No barriers to fish movement observed within assessed reach. Flow velocities likely not sufficient to create velocity barriers. Whitemouth Falls likely acts as barrier to upstream fish movement from the Winnipeg River into the Whitemouth River but may be passable during high-water events. Downstream movement is not impeded. Cook Falls (near Whitemouth, 23 km upstream from site) may act as a similar partial barrier to Whitemouth Falls.

3.2.2 Critical Habitat

The Whitemouth River at the Project location is mapped critical habitat. Based on the recovery strategy for Carmine Shiner (DFO 2013a), critical habitat is habitat that meets the essential functions, features, and attributes of each life stage of Carmine Shiner, summarized in Table 4.

Table 4 Essential functions, features, and attributes of critical habitat for Carmine Shiner¹

Life Stage	Habitat Requirement	Feature(s)	Attribute(s)
Spawn to larvae	<ul style="list-style-type: none"> • Spawning • Nursery 	Clear, brown-coloured fast flowing creeks and small rivers	<ul style="list-style-type: none"> • July temperature from 19 to 29°C • Substrates range from sand and gravel to cobble and boulder and bedrock
Young of Year	<ul style="list-style-type: none"> • Feeding • Cover 	Clear, brown-coloured fast flowing creeks and small rivers	<ul style="list-style-type: none"> • Sand, gravel, and cobble substrates
Juveniles	<ul style="list-style-type: none"> • Feeding • Cover 	Clear, brown-coloured fast flowing creeks and small rivers	<ul style="list-style-type: none"> • Feed on mostly aquatic and terrestrial insects, especially dipterans • Gravel and cobble substrates
Adult	<ul style="list-style-type: none"> • Feeding • Cover 	Clear, brown-coloured fast flowing creeks and small rivers	<ul style="list-style-type: none"> • Temperature between 0 to 29°C • Found at depths of 0.1 to 2.8 m • Typically found in or near riffles • Substrates in the Whitemouth River include sand, gravel, cobble, and boulder with numerous riffles • Feed on mostly aquatic and terrestrial insects especially dipterans • May move into deeper pools and eddies in winter
NOTE: ¹ After Carmine Shiner Recovery Strategy (DFO 2013a)			

Based on the features and attributes of the Whitemouth River at the Project crossing location assessed during the field assessment, it is expected that the Whitemouth River affords habitat for all life stages of Carmine Shiner. Substrate is suitable for Carmine Shiner (i.e., coarse including sand, gravel and cobble observed during the assessment), and substrate is likely suitable for colonization of benthic invertebrates. Overhanging riparian vegetation is expected to introduce terrestrial invertebrates into the water, which are a food source for Carmine Shiner. *In situ* water quality parameters recorded in July align with those temperatures provided in the recovery strategy (Table 6; DFO 2013a). It is expected that deeper pools will afford overwintering habitat for Carmine Shiner.

As the site is mapped critical habitat for Carmine Shiner, the critical habitat order (Government of Canada 2018), under subsection 58(1) of the *Species at Risk Act*, prohibits against the destruction of any part of the species' critical habitat, including the immediate riparian zone that is integral to this habitat. As such, a critical habitat buffer would apply to the Whitemouth River wherever Carmine Shiner may be present. Critical habitat buffers are variable across species and jurisdictions, but it is recommended that a 50 m buffer extending beyond the high-water mark on either bank be incorporated in the Project design, based on the most recent provincial guidelines available for species at risk (Government of Manitoba 2008).

4.0 CLOSURE

This memo summarizes the current fish and fish habitat at the proposed Project crossing location on the Whitemouth River.

Should you have any questions or require further clarification on the information presented herein, please contact the undersigned.

Stantec Consulting Ltd.

Eric Turenne M.Sc., P.Biol.
Aquatic Biologist
Phone: 204-227-4418
eric.turenne@stantec.com

Clio Bonnett M.Sc., P.Biol, R.P.Bio
Associate, Aquatic Biologist
Phone: 403-716-1413
clio.bonnett@stantec.com

Attachment: Attachment A – Project Location
 Attachment B – Habitat Photographs

c. Leane Wyenberg – Stantec
 Stephen Biswanger – Stantec

February 9, 2023

James Matthewson

Page 12 of 33

Reference: **Pointe du Bois Renewable Energy Project – Fish Habitat Assessment of the Whitemouth River Crossing**

REFERENCES

- Alberta Transportation. 2009. Fish Habitat Manual: Guidelines and Procedures for Watercourse Crossings in Alberta. October 2001. Revised August 2009. Edmonton, Alberta.
- BC Resources Inventory Standards Committee (RISC). (2001). Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures. *BC Fisheries Information Services Branch*. ISBN 0-7726-4524-8.
- Becker, J. & C. Hamel. 2017. Whitemouth River Watershed Natural Area Conservation Plan Summary. The Nature Conservancy of Canada, Winnipeg, MB. 18 pp.
- Canadian Council of Ministers of the Environment (CCME). 2022. Canadian Water Quality guidelines for the Protection of Aquatic Life. <https://ccme.ca/en/current-activities/canadian-environmental-quality-guidelines> Accessed September 29 2022.
- Environment and Climate Change Canada (ECCC). 2022. Water Survey of Canada National Hydrometric Network real-time hydrometric data for the Whitemouth River near Whitemouth, MB (05PH003). https://wateroffice.ec.gc.ca/report/real_time_e.html?stn=05PH003. Accessed September 29 2022.
- Fisheries and Oceans Canada (DFO). 2022. Aquatic species at risk map. Available at: <https://www.dfo-mpo.gc.ca/species-especies/sara-lep/map-carte/index-eng.html> Accessed September 29 2022.
- Fisheries and Oceans Canada (DFO). 2013a. Recovery Strategy for the Carmine Shiner (*Notropis percobromus*) in Canada. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada. Ottawa viii + 46 pp.
- Fisheries and Oceans Canada (DFO). 2013b. Manitoba Restricted Activity Timing Windows for the Protection of Fish and Fish Habitat. Available at <https://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/mb-eng.html> Accessed September 29 2022.
- Fish Inventory and Habitat Classification System (FIHCS). 2013. Manitoba Water Stewardship, Fisheries Branch.
- Government of Canada. 2018. *Critical Habitat of Carmine Shiner (Notropis percobromus)* Order. Canada Gazette Part II, Vol. 152, No. 19.
- Government of Canada. 2022a. Species at Risk Public Registry. Available at: <http://www.sararegistry.gc.ca/default.asp?lang=En&n=24F7211B-1>. Accessed September 29 2022.
- Government of Canada. 2022b. Committee on the Status of Endangered Wildlife in Canada. Available at <http://www.cosewic.gc.ca/default.asp?lang=en&n=F3AE41D5-1>. Accessed September 29 2022.
- Government of Manitoba. 2008. Forest Management Guidelines for Riparian Management Areas. Manitoba Conservation, Forestry Branch. Winnipeg, MB. Available at: https://www.gov.mb.ca/nrnd/forest/pubs/practices/riparian_mgmt_re_sept2009.pdf. Accessed September 29 2022.
- Government of Manitoba. 2022. The Endangered Species and Ecosystems Act. Available at <http://web2.gov.mb.ca/laws/statutes/ccsm/e111e.php>. Accessed September 29 2022.

- Manitoba Conservation Data Centre (MB CDC). 2021. Animal List 2021 November. Wildlife, Fisheries and Enforcement Branch. <https://gov.mb.ca/nrnd/fish-wildlife/cdc/pubs/animal-list-mbccdc-2021-nov.pdf>. Accessed September 29 2022.
- Marshall, I.B. and P.H. Schut 1999. A National Ecological Framework for Canada – Overview. Ecosystems Science Directorate, Environment Canada and Research Branch, Agriculture and Agri-Food Canada. Ottawa, ON. Retrieved from: <http://sis.agr.gc.ca/cansis/nsdb/ecostrat/intro.html> Accessed September 29 2022.
- Milani, D.W. 2013. Fish community and fish habitat inventory of streams and constructed drains throughout agricultural areas of Manitoba (2002-2006). Fisheries and Oceans Canada, Fisheries Protection Program. 887 pp.
- Stewart, K.W., Watkinson, D.A. 2004. The Freshwater Fishes of Manitoba. 278p. University of Manitoba Press. Winnipeg, Manitoba, CAN. ISBN 978-0-88755-678-4.
- The Nature Conservancy (TNC) 2001. Ecoregions of the United States of America. The Nature Conservancy, Western Conservation Science Centre. Accessed August 20, 2009 at: <http://gis.tnc.org/data/MapbookWebsite/getimage.php?id=3> Accessed September 29 2022.

February 9, 2023

James Matthewson

Page 14 of 33

Reference: **Pointe du Bois Renewable Energy Project – Fish Habitat Assessment of the Whitemouth River Crossing**

ATTACHMENT A

Project Location

Pointe du Bois (PW75) Transmission Project

- Fish Habitat Assessment**
- Photo Location
 - ▶ Whitemouth River Flow Direction
 - Transect
 - Riparian Critical Habitat Buffer
- Project Infrastructure**
- PW75 Alternative Route
 - PW75 Established Route (Pointe du Bois G.S. to Lee River DSC)
- Existing Infrastructure**
- E Electrical Station
 - Generating Station
 - Existing Transmission Line
- Landbase**
- Community
 - Railway
 - 17 Provincial Highway
 - 30 Provincial Road
 - Ecological Reserve
 - Wildlife Management Area
 - Provincial Park

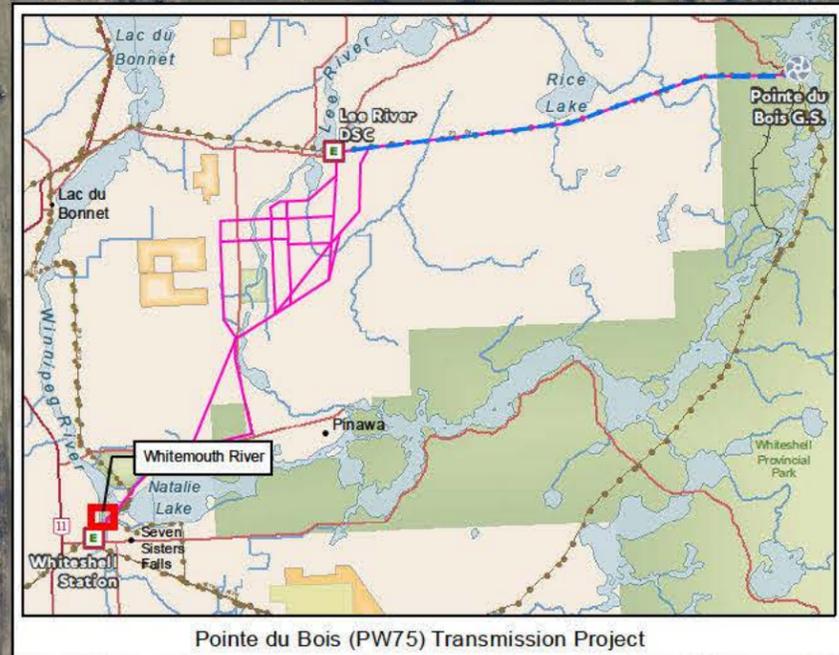


Photo Location



Photo Location - Looking upstream from the river bank



Coordinate System: UTM Zone 14N NAD83
 Data Source: MBHydro, ProvMB, NRCAN
 Date Created: September 29, 2022



Whitemouth River

I:\geodatabases\GIS\Chenieres\PRJ_PW75\Analysis\2022\2022_FishHabitat\ETerrain\PW75_TERRAIN_B5See_100k_MH.mxd

February 9, 2023

James Matthewson

Page 15 of 33

Reference: **Pointe du Bois Renewable Energy Project – Fish Habitat Assessment of the Whitemouth River Crossing**

February 9, 2023

James Matthewson

Page 16 of 33

Reference: **Pointe du Bois Renewable Energy Project – Fish Habitat Assessment of the Whitemouth River Crossing**

ATTACHMENT B

Habitat Photographs

February 9, 2023

James Matthewson

Page 17 of 33

Reference: **Pointe du Bois Renewable Energy Project – Fish Habitat Assessment of the Whitemouth River Crossing**



Photograph 1 Transect 1 [100 m upstream of crossing], facing upstream. Habitat at this location consists of large flat and moderate to deep run features.



Photograph 2 Transect 1 [100 m upstream], facing towards right bank. Riparian habitat consists predominantly of deciduous forest. Emergent vegetation is visible along the shoreline and may provide cover and foraging opportunities. Small quantities of woody debris are also available.



Photograph 3 Transect 1 [100 m upstream], facing downstream. Habitat at this location consists of large flat and moderate to deep run features. Powerlines from the existing hydro corridor are visible.



Photograph 4 Transect 1 [100 m upstream], facing towards left bank. Limited overhead cover along the margin of the river is provided by overhanging branches from deciduous canopy. Emergent vegetation is visible along the shoreline and may provide cover and foraging opportunities.



Photograph 5 Transect 3 [0 m, centreline], facing upstream. Down the centre of the channel, habitat consists of large flat and run sections.



Photograph 6 Transect 3 [0 m, centreline], facing towards right bank. The existing hydro corridor is visible. Pool habitat along the outside bend of the river at this location likely provides overwintering refuge.



Photograph 7 Transect 3 [0 m, centreline], facing towards left bank. The existing hydro corridor is visible. Large flat and run features are characteristic of the inside bend of the river under the existing flood conditions. A moderate amount of emergent vegetation is available for cover along the width of the hydro corridor.



Photograph 8 Transect 3 [0 m, centreline], facing downstream. Flooded emergent vegetation is available on both left and right banks throughout the width of the existing corridor. Habitat along the centre and left bank consists of flat and run-type features.



Photograph 9 Transect 5 [200 m downstream], facing towards left bank. Signs of eroding bank material were noted here where the property owner has cleared most of the large, rooted vegetation (trees and shrubs) to the water's edge (left side of photo). Some scour is visible below the small tree at the left.



Photograph 10 Transect 6 [300 m downstream], facing upstream. Overhead powerlines from the existing hydro corridor are visible in the distance. Riparian habitat on right bank (visible on the left of the image) consists of dense deciduous forest.



Photograph 11 Transect 6 [300 m downstream], facing toward left bank. Properties adjacent to the river are cleared of most large trees but remain well-vegetated with grasses, sedges and shrubs. At high-water, this flooded vegetation likely acts as refuge and foraging habitat for small forage fish, possibly including Carmine Shiner.



Photograph 12 Transect 6 [300 m downstream], facing downstream. Whitemouth Falls appears in the distance.



Photograph 13 Transect 6 [300m downstream], facing towards right bank. Large deciduous trees partially overhang the river at the bank. Flooded and emergent vegetation is available as refuge and foraging habitat.



Photograph 14 Flooded vegetation along the banks of the river, such as in this photo, provide refuge and foraging habitat for forage fish species, possibly including Carmine Shiner.



Photograph 15 Whitemouth Falls Provincial Park, 600 m downstream of PW75 crossing, facing slightly upstream from river access point on right bank (UTM 14 U 711996 5556040). Coarse substrates including bedrock, large boulders and cobbles are abundant, and large woody debris is sparsely scattered across the channel.



Photograph 16 Whitemouth Falls Provincial Park, 600 m downstream of PW75 crossing, facing slightly downstream from river access point on right bank (UTM 14 U 711996 5556040). Abundant coarse substrates and run-riffle-pool sequences are available at this location and likely serve as high-quality spawning habitat for endangered Carmine Shiner.



Photograph 17 Whitemouth Falls Provincial Park, 600 m downstream of PW75 crossing, facing slightly downstream from river access point on right bank (UTM 14 U 711996 5556040). Small cascades followed by pools (centre of image) and eddies (right of image) add additional complexity to the habitat available at this location.

Appendix E Part 2; Status of fish species with current or historical occurrence in the Winnipeg River watershed

Species Information ¹			Legislated Status		Scientific Review or Recommendation	
FAMILY	Species	Scientific Name	SARA ²	MESEA ³	COSEWIC ⁴	MB CDC ⁵
PETROMYZONTIDAE	Chestnut Lamprey	<i>Ichthyomyzon castaneus</i>	DD	Not Listed	No Status	S3
	Northern Brook Lamprey	<i>Ichthyomyzon fossor</i>	Not Listed	Not Listed	En	SU
	Silver Lamprey	<i>Ichthyomyzon uniscuspis</i>	Not Listed	Not Listed	SC	SU
ACIPENSERIDAE	Lake Sturgeon	<i>Acipenser fulvescens</i>	Not Listed	Not Listed	En	S2
HIODONTIDAE	Goldeye	<i>Hiodon alosoides</i>	Not Listed	Not Listed	No Status	S5
	Mooneye	<i>Hiodon tergisus</i>	Not Listed	Not Listed	No Status	S5
CYPRINIDAE	Lake Chub	<i>Couesius plumbeus</i>	Not Listed	Not Listed	No Status	S5
	Common Carp	<i>Cyprinus carpio</i>	N/A	N/A	N/A	N/A
	Common shiner	<i>Luxilus cornutus</i>	Not Listed	Not Listed	No Status	S5
	Pearl Dace	<i>Margariscus margarita</i>	Not Listed	Not Listed	No Status	S5
	Hornyhead Chub	<i>Nocomis biguttatus</i>	NR	Not Listed	NR	S4
	Golden Shiner	<i>Notemigonus chrysoleucas</i>	Not Listed	Not Listed	No Status	S5
	Emerald Shiner	<i>Notropis atherinoides</i>	Not Listed	Not Listed	No Status	S5
	Blackchin Shiner	<i>Notropis heterodon</i>	NR	Not Listed	NR	S4
	Blacknose Shiner	<i>Notropis heterolepis</i>	Not Listed	Not Listed	No Status	S5
	Spottail Shiner	<i>Notropis hudsonius</i>	Not Listed	Not Listed	No Status	S5
	Carmine Shiner	<i>Notropis percobromus</i>	En	Not Listed	En	S2
	Sand Shiner	<i>Notropis stramineus</i>	Not Listed	Not Listed	No Status	S5
	Weed Shiner	<i>Notropis texanus</i>	NR	Not Listed	NR	S4
	Mimic Shiner	<i>Notropis volucellus</i>	Not Listed	Not Listed	No Status	S5
	Northern Redbelly Dace	<i>Choromus eos</i>	Not Listed	Not Listed	No Status	S5
	Finescale Dace	<i>Chrosomus neogaeus</i>	Not Listed	Not Listed	No Status	S5
	Bluntnose Minnow	<i>Pimephales notatus</i>	NR	Not Listed	NR	S4
Fathead Minnow	<i>Pimephales promelas</i>	Not Listed	Not Listed	No Status	S5	
Longnose Dace	<i>Rhinichthys cataractae</i>	Not Listed	Not Listed	No Status	S5	
Creek Chub	<i>Semotilus atromaculatus</i>	Not Listed	Not Listed	No Status	S5	

Species Information ¹			Legislated Status		Scientific Review or Recommendation	
FAMILY	Species	Scientific Name	SARA ²	MESEA ³	COSEWIC ⁴	MB CDC ⁵
CATOSTOMIDAE	Quillback	<i>Carpiodes cyprinus</i>	Not Listed	Not Listed	No Status	S5
	Longnose Sucker	<i>Catostomus catostomus</i>	Not Listed	Not Listed	No Status	S5
	White Sucker	<i>Catostomus commersonii</i>	Not Listed	Not Listed	No Status	S5
	Silver Redhorse	<i>Moxostoma anisurum</i>	Not Listed	Not Listed	No Status	S5
	Golden Redhorse	<i>Moxostoma erythrurum</i>	Not Listed	Not Listed	No Status	S5
	Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>	Not Listed	Not Listed	No Status	S5
ICTALURIDAE	Black Bullhead	<i>Ameiurus melas</i>	Not Listed	Not Listed	No Status	S5
	Brown Bullhead	<i>Ameiurus nebulosus</i>	Not Listed	Not Listed	No Status	S5
	Channel Catfish	<i>Ictalurus punctatus</i>	Not Listed	Not Listed	No Status	S5
	Tadpole Madtom	<i>Noturus gyrinus</i>	Not Listed	Not Listed	No Status	S5
ESOCIDAE	Northern Pike	<i>Esox lucius</i>	Not Listed	Not Listed	No Status	S5
	Muskellunge	<i>Esox masquinongy</i>	Not Listed	Not Listed	No Status	S5
UMBRIDAE	Central Mudminnow	<i>Umbra limi</i>	Not Listed	Not Listed	No Status	S5
OSMERIDAE	Rainbow Smelt	<i>Osmerus mordax</i>	N/A	N/A	N/A	N/A
SALMONIDAE	Cisco	<i>Coregonus artedii</i>	Not Listed	Not Listed	No Status	S5
	Lake Whitefish	<i>Coregonus clupeaformis</i>	Not Listed	Not Listed	No Status	S5
	Shortjaw Cisco	<i>Coregonus zenithicus</i>	Not Listed	Not Listed	T	S2
	Westslope Cutthroat Trout	<i>Oncorhynchus clarkii lewisi</i>	N/A	N/A	N/A	N/A
	Rainbow Trout	<i>Oncorhynchus mykiss</i>	N/A	N/A	N/A	N/A
	Kokanee	<i>Oncorhynchus nerka</i>	N/A	N/A	N/A	N/A
	Brown Trout	<i>Salmo trutta</i>	N/A	N/A	N/A	N/A
	Tiger Trout	(<i>hybrid</i>)	N/A	N/A	N/A	N/A
	Brook Trout	<i>Salvelinus fontinalis</i>	N/A	N/A	N/A	N/A
	Splake	(<i>hybrid</i>)	N/A	N/A	N/A	N/A
Lake Trout	<i>Salvelinus namaycush</i>	Not Listed	Not Listed	No Status	S5	
PERCOPSIDAE	Troutperch	<i>Percopsis omiscomaycus</i>	Not Listed	Not Listed	No Status	S5
GADIDAE	Burbot	<i>Lota lota</i>	Not Listed	Not Listed	No Status	S5
FUNDULIDAE	Banded Killifish	<i>Fundulus diaphanus</i>	Not Listed	Not Listed	No Status	S5

Species Information ¹			Legislated Status		Scientific Review or Recommendation	
FAMILY	Species	Scientific Name	SARA ²	MESEA ³	COSEWIC ⁴	MB CDC ⁵
GASTEROSTEIDAE	Brook Stickleback	<i>Culea inconstans</i>	Not Listed	Not Listed	No Status	S5
	Ninespine Stickleback	<i>Pungitius pungitius</i>	Not Listed	Not Listed	No Status	S5
COTTIDAE	Mottled Sculpin	<i>Cottus bairdii</i>	Not Listed	Not Listed	No Status	S5
	Slimy Sculpin	<i>Cottus cognatus</i>	Not Listed	Not Listed	No Status	S5
	Spoonhead Sculpin	<i>Cottus ricei</i>	NR	Not Listed	NR	S5
	Deepwater Sculpin	<i>Myoxocephalus thompsonii</i>	NR	Not Listed	No Status	S5
MORONIDAE	White Bass	<i>Morone chrysops</i>	N/A	N/A	N/A	S3S4
CENTRARCHIDAE	Rock Bass	<i>Ambloplites rupestris</i>	Not Listed	Not Listed	No Status	S5
	Pumpkinseed	<i>Lepomis gibbosus</i>	Not Listed	Not Listed	No Status	S5
	Bluegill*	<i>Lepomis macrochirus</i>	N/A	N/A	N/A	N/A
	Smallmouth Bass	<i>Micropterus dolomieu</i>	N/A	N/A	N/A	N/A
	Largemouth Bass	<i>Micropterus salmoides</i>	N/A	N/A	N/A	N/A
	Black Crappie	<i>Poxomis nigromaculatum</i>	Not Listed	Not Listed	No Status	S5
PERCIDAE	Iowa Darter	<i>Etheostoma exile</i>	Not Listed	Not Listed	No Status	S5
	Johnny Darter	<i>Etheostoma nigrum</i>	Not Listed	Not Listed	No Status	S5
	Yellow Perch	<i>Perca flavescens</i>	Not Listed	Not Listed	No Status	S5
	Logperch	<i>Percina caproides</i>	Not Listed	Not Listed	No Status	S5
	Blackside Darter	<i>Percina maculata</i>	Not Listed	Not Listed	No Status	S5
	River Darter	<i>Percina shumardi</i>	Not Listed	Not Listed	No Status	S5
	Sauger	<i>Sander canadensis</i>	Not Listed	Not Listed	No Status	S5
	Walleye	<i>Sander vitreus</i>	Not Listed	Not Listed	No Status	S5
SCIENIDAE	Freshwater Drum	<i>Aplodinotus grunniens</i>	Not Listed	Not Listed	No Status	S5
Notes:						
¹ Species information (i.e., family, common name, scientific name) from Stewart and Watkinson, 2004, except Chrosomus spp. With revised taxonomy						
² Species at Risk Act (SARA) (Government of Canada 2022a); considered a species of management concern if assessed as threatened (T) or endangered (En). NR = Not at Risk, SC = Special Concern, DD = data deficient						
³ Manitoba Endangered Species and Ecosystems Act (MESEA) (Government of Manitoba 2022); considered a species of management concern if assessed as threatened or endangered						
⁴ Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (Government of Canada 2022b); assessed as a species of management concern if assigned a status of special concern (SC) threatened (T) or endangered (En)						

Species Information ¹			Legislated Status		Scientific Review or Recommendation	
FAMILY	Species	Scientific Name	SARA ²	MESEA ³	COSEWIC ⁴	MB CDC ⁵
<p>⁵ Manitoba Conservation and Climate Data Centre (MB CDC 2021); assessed as a species of management concern if ranked as S1 (very high risk of extirpation) or S2 (high risk of extirpation)</p> <p>* Bluegill (<i>Lepomis macrochirus</i>) are native to Manitoba and the Red River watershed but are outside their native range in the Winnipeg River</p>						



**POINTE DU BOIS RENEWABLE ENERGY
PROJECT VEGETATION AND WETLANDS
TECHNICAL DATA REPORT**

June 13, 2023

Prepared for:
Manitoba Hydro

Prepared by:
Stantec Consulting

Project Number:
111477058

Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Acronyms / Abbreviations

June 13, 2023

The conclusions in the Report titled POINTE DU BOIS RENEWABLE ENERGY PROJECT VEGETATION AND WETLANDS TECHNICAL DATA REPORT are Stantec’s professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient’s own risk.

Stantec has assumed all information received from Manitoba Hydro (the “Client”) and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec’s contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec’s discretion.

Prepared by: 
Signature

Nicole Kearns MSc, PAg
Printed Name

Reviewed by: 
Signature

Nick DeCarlo P.Biol
Printed Name

Approved by: 
Signature

Stephen Biswanger PEng
Printed Name

Table of Contents

ACRONYMS / ABBREVIATIONS.....	III
1 INTRODUCTION.....	1
1.1 Purpose	1
1.2 Project Background and Overview	1
1.2.1 Spatial Boundaries	2
2 REVIEW OF EXISTING INFORMATION.....	4
2.1 Desktop	4
2.1.1 Methods.....	4
2.1.2 Results.....	4
2.2 Engagement Data.....	6
2.2.1 Methods.....	6
2.2.2 Results.....	6
3 FIELD DATA COLLECTION.....	7
3.1 Methods.....	7
3.1.1 Rare Plant Surveys.....	7
3.1.2 Wetland Function Assessment Survey.....	8
3.1.3 Berry Abundance Survey	8
3.2 Results.....	9
3.2.1 Rare Plant Surveys.....	9
3.2.2 Wetland Function Assessment Survey.....	15
3.2.3 Berry Abundance Survey	15
4 KEY PERSON INTERVIEWS.....	17
4.1 Methods.....	17
4.2 Results.....	17
4.2.1 Weeds.....	17
4.2.2 Wetlands.....	17
5 SUMMARY OF KEY RESULTS AND FINDINGS	19
6 REFERENCES	21
6.1 Literature Cited	21
6.2 Personal Communications	22

LIST OF TABLES

Table 2-1	Historical Records of Plant SOCC in the LSA.....	5
Table 2-2	Summary of Expected Plant SOCC within the Lake of the Woods Ecoregion	6
Table 3-1	Weed Density Distribution Definitions	8
Table 3-2	Vascular Plant SOCC Observed Within the PDA.....	9
Table 3-3	Berry Abundance along the first 1 km of the Existing Transmission Line near Pointe du Bois 16	

LIST OF MAPS

Map 1-1	Vegetation and Wetlands Spatial Boundaries.....	3
Map 3-1	Vegetation and Wetland Survey Locations	11
Map 3-2	Plant SOCC Observations in the PDA	12
Map 3-3	Noxious Weed Observations in the PDA	14
Map 5-1	Vegetation and Wetlands Survey Results.....	20



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Table of Contents

June 13, 2023

LIST OF APPENDICES

APPENDIX A TABLES.....A-1

A.1 Expected Plant SOCC within the Lake of the Woods EcoregionA-1

A.2 Vascular Plant Species Observed during 2022 Rare Plant and
Wetland Assessment Surveys.....A-5

A.3 Wetland Assessment SummaryA-14

APPENDIX B PHOTOGRAPHSB-1

APPENDIX C KPI QUESTIONSC-1



Acronyms / Abbreviations

COSEWIC	Committee on the Status of Endangered Wildlife in Canada
EAP	<i>Environment Act</i> Proposal
EC	Environmental Component
EPRI-GTC	Electric Power Research Institute and Georgia Transmission Corporation
km	kilometre
kV	kilovolt
LSA	Local Study Area
m	metre
MB CDC	Manitoba Conservation Data Centre
MESEA	<i>The Manitoba Endangered Species and Ecosystems Act</i>
PDA	Project Development Area
PW75	Pointe du Bois to Whiteshell Transmission Line
ROW	Right of Way
RSA	Regional Study Area
SAR	species at risk
SARA	<i>Species at Risk Act</i>
SOCC	species of conservation concern
TDR	technical data report



1 Introduction

1.1 Purpose

The purpose of this Technical Data Report (TDR) is to provide new or updated information regarding the existing conditions for vegetation and wetlands in the region that would support the proposed Pointe du Bois Renewable Energy Project's Point du Bois to Whiteshell (PW75) Transmission Line (the Project). Vegetation and wetlands were selected as an Environmental Component (EC) because they are a critical part of a functioning ecosystem and play a vital role in ecological and biological processes and may be affected by the Project. Vegetation, including species of conservation concern (SOCC) and wetlands are habitat for wildlife and also provide aesthetic, recreational, economic, and cultural value to stakeholders, the public, Indigenous communities, local businesses, and government agencies. Field surveys were conducted in 2014 in support of an *Environment Act* Proposal (EAP) prior to the Project being put on hold. Additional desktop data review and field surveys were conducted in 2022 due to the age of previously collected information.

This TDR contains information that will be used to guide the transmission line route selection process and inform Environmental Assessment predictions for vegetation and wetlands. It describes how desktop information was gathered, and how information gaps were identified and addressed through additional desktop research, and field studies. Results of the studies are reported and summarized to provide an overview of current conditions for vegetation and wetlands.

1.2 Project Background and Overview

Manitoba Hydro seeks to construct and operate the proposed Project that includes approximately 50-kilometres (km) of a new 115 kilovolt (kV) transmission line, approximately half of which follows an existing transmission line corridor from the Pointe du Bois Generating Station to the Lee River Distribution Supply Centre that will be widened. The remainder of the transmission line will follow a new corridor from Lee River Distribution Supply Centre to the Whiteshell Station.

Manitoba Hydro filed an EAP in June 2014 with subsequent supporting information provided in response to the Technical Advisory Committee and public review prior to placing the Project on hold in July 2015. Manitoba Hydro has since adopted the Electric Power Research Institute and Georgia Transmission Corporation (EPRI-GTC) routing method for overhead electric transmission line routing and has obtained approvals for the construction and operation of other transmission line projects. Manitoba Hydro now seeks to re-open the *Environment Act* Licence application process for the Project that will include new engagement efforts and the new routing method to determine the final preferred route for the Project between the Lee River Distribution Supply Centre and the Whiteshell Station, with plans to file a new EAP in 2023.



While portions of the information provided in support of the 2014 EAP submission remain valid, the passage of time and evolution of Manitoba Hydro's approach to transmission projects requires a redeveloped EAP submission in keeping with Manitoba Hydro's current engagement and transmission line routing practices.

1.2.1 SPATIAL BOUNDARIES

The following spatial boundaries have been used to guide the development of the vegetation and wetlands TDR (Map 1-1):

- **Project Development Area (PDA):** Subject to final design, a 60-m wide Right of Way (ROW) with 25-30-m tall, transmission towers spaced approximately 425 m apart. This is the area of vegetation removal or direct alteration.
- **Local Study Area (LSA):** a 1-km buffer of the proposed alternate routes, which is used to evaluate measurable effects on vegetation and wetlands. The LSA was chosen so it is large enough to encompass tracts of intact native vegetation greater than 200 ha as they are important in supporting biodiversity (Government of Canada 2013). This is also consistent with LSA boundaries used by wildlife and for other recent transmission line projects in Manitoba (Manitoba Hydro 2015).
- **Regional Study Area: (RSA):** a 15-km buffer of the proposed alternate routes is used to capture information on a broader area to provide regional context, which is consistent with other recent transmission line projects in Manitoba (Manitoba Hydro 2015). Vegetation and wetland information in the RSA is also used to support the Wildlife assessment and captures the home range of the most wide-ranging wildlife species (Wildlife TDR, Section 1.2.1).



Pointe du Bois (PW75) Transmission Project

Project Infrastructure

- PW75 Alternative Route
- PW75 Established Route (Pointe du Bois G.S. to Lee River DSC)

Spatial Boundaries

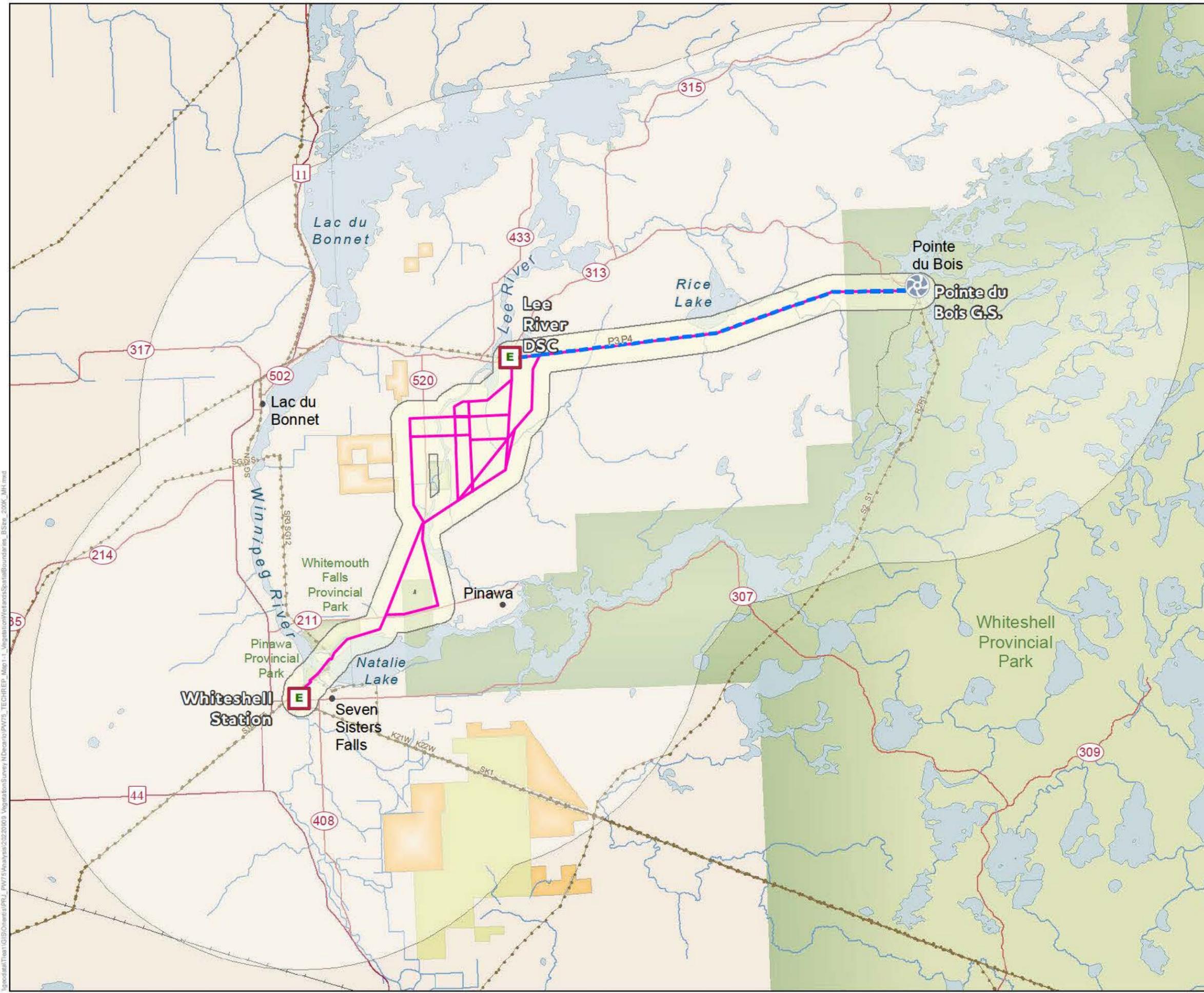
- Vegetation and Wetlands Local Study Area
- Vegetation and Wetlands Regional Study Area

Existing Infrastructure

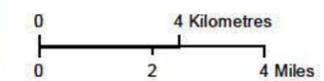
- E Electrical Station
- Generating Station
- Existing Transmission Line

Landbase

- Community
- Railway
- 11 Provincial Highway
- 30 Provincial Road
- Ecological Reserve
- Wildlife Management Area
- Provincial Park



Coordinate System: UTM Zone 14N NAD83
 Data Source: MBHydro, ProvMB, NRCAN
 Date Created: October 06, 2022



1:205,000

Vegetation and Wetlands Spatial Boundaries

2 Review of Existing Information

A combination of desktop information sources, including previous field data collection (Section 2.1), engagement (Section 2.2), and supplemental field studies (Section 3.0) were reviewed to understand the occurrence, distribution, and abundance of vegetation within the RSA, including species at risk (SAR) and SOCC.

SAR are species listed as special concern, threatened, or endangered under Schedule 1 of the federal *Species at Risk Act* (SARA) (Government of Canada 2022) or as threatened or endangered under the *Manitoba Endangered Species and Ecosystems Act* (MESEA). SOCC are species assessed as special concern, threatened, or endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (Government of Canada 2022) or by the Manitoba Conservation Data Centre (MB CDC) as provincially rare (i.e., S1, S2, or S3 rankings; MB CDC 2021).

2.1 Desktop

2.1.1 METHODS

Existing conditions for vegetation and wetlands were identified through a combination of desktop review and field surveys to better understand the occurrence, distribution, and abundance of plant species within the RSA, including SAR and SOCC. This section provides a brief overview of the desktop methods used to collect baseline data.

Background information was obtained through several sources, including literature reviews, as well as federal and provincial data sources. Below is an overview of the resources used during background reviews to assist in establishing the baseline conditions for vegetation and wetlands.

- The Manitoba Hydro Pointe du Bois Transmission Project Environmental Assessment Report (Manitoba Hydro 2014).
- SARA Public Registry and associated documentation including assessment and status reports, recovery strategies, and management strategies (Government of Canada 2022).
- MESEA Species List (Government of Manitoba 2022).
- MB CDC database for biodiversity in Manitoba, including SAR and SOCC observation data (MB CDC 2022a).

2.1.2 RESULTS

The Project is located in both the Stead and Pinawa ecodistricts of the Lake of the Woods ecoregion in the Boreal Shield ecozone. Historical records indicate 16 vascular plant SOCC occurrences, but no occurrences of plant SAR, have been documented in the LSA (Table 2-1). SOCC plants have been documented at 37 locations in the LSA and consist of one tree species, four shrubs, six forbs and five



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report
2 Review of Existing Information

June 13, 2023

graminoid species. Two of the species, a forb and graminoid, are ranked S1 meaning they are at a very high risk of extirpation in Manitoba due to very restricted range, very few populations, very steep population declines, or severe threats to their survival (NatureServe 2022a).

Table 2-1 Historical Records of Plant SOCC in the LSA

Provincial S Rank ¹	Form ²	Scientific Name ³	Common Name ³	Number of Occurrences ³
S1	Forb	<i>Eurybia macrophylla</i>	large-leaved aster	3
S1	Graminoid	<i>Carex merritt-fernaldii</i>	Fernald's sedge	2
S2	Forb	<i>Caulophyllum thalictroides</i>	blue cohosh	1
S2	Forb	<i>Descurainia sophioides</i>	northern tansy mustard	3
S2	Shrub	<i>Ostrya virginiana</i>	hop-hornbeam	7
S2	Tree	<i>Fraxinus nigra</i>	black ash	4
S2?	Graminoid	<i>Carex emoryi</i>	Emory's sedge	1
S2S3	Forb	<i>Osmorhiza claytonii</i>	hairy sweet cicely	3
S2S3	Graminoid	<i>Carex gracillima</i>	graceful sedge	1
S3	Forb	<i>Agalinis tenuifolia</i>	narrow-leaved agalinis	3
S3	Forb	<i>Viola labradorica</i>	early blue violet	1
S3	Graminoid	<i>Carex pauciflora</i>	few-flowered sedge	2
S3	Graminoid	<i>Carex pedunculata</i>	long-stalked sedge	1
S3	Shrub	<i>Cornus alternifolia</i>	alternate-leaved dogwood	2
S3	Shrub	<i>Vaccinium cespitosum</i>	dwarf bilberry	2
S3S4	Shrub	<i>Gaultheria procumbens</i>	teaberry	1
NOTES: ¹ NatureServe 2022b ² MB CDC 2021 ³ MB CDC 2022a				

In addition to the documented vascular plant SOCC, 126 vascular plant SOCC are expected in the Lake of the Woods ecoregion (Table 2-2; Appendix A.1). Vascular plant SOCC expected to occur in the Lake of the Woods ecoregion include 4 trees, 9 shrubs, 71 forbs, 8 ferns/fern allies, 32 graminoids (i.e., grasses, sedges, rushes), and 2 vines. Based on the MB CDC (2022), two plant SAR, the endangered Great Plains ladies'-tresses (*Spiranthes magnicamporum*) and the threatened western silvery aster (*Symphyotrichum sericeum*), are expected in the Lake of the Woods ecoregion. Great Plains ladies'-tresses is a perennial forb of calcareous dry or wet grassland habitats, riverbanks, and floodplains (NatureServe 2022b). Western silvery aster is a perennial forb of open, dry, sandy, or loamy soils, broken limestone outcrops, open forest, and grassland habitats (Flora of North America [FNA] 2022). See Appendix A-1 for a list of vascular plant SOCC expected to occur in the Lake of the Woods ecoregion.



**Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report
2 Review of Existing Information**

June 13, 2023

Table 2-2 Summary of Expected Plant SOCC within the Lake of the Woods Ecoregion

Plant Form	Provincial Rank										Total No. of SOCC
	S1	S1?	S1S2	S1S3	S2	S2?	S2S3	S3	S3?	SH	
Tree	0	0	1	0	1	0	2	0	0	0	4
Shrub	1	0	1	0	1	0	1	5	0	0	9
Forb	15	3	8	1	14	9	9	11	0	1	71
Fern/Fern allies	2	1	0	0	2	0	1	1	1	0	8
Graminoid	6	0	0	0	5	2	7	11	1	0	32
Vine	0	0	0	0	0	0	0	0	0	2	2
Total Number of SOCC	24	4	10	1	23	11	20	28	2	3	126

2.2 Engagement Data

2.2.1 METHODS

Engagement information was obtained through the 2014 EAP’s public engagement feedback and technical advisory committee comments as well as initial feedback from the ongoing public and First Nation and Métis engagement. Feedback was used to inform the 2022 field studies.

2.2.2 RESULTS

During a public meeting held in Pointe du Bois, on June 26, 2022, a comment was made noting that berry picking is common within the first 1 km of the existing transmission line ROW from Pointe du Bois. In conjunction with the rare plant survey, a berry abundance assessment was completed along the northeast portion of the existing transmission line ROW for 1 km starting at Pointe du Bois. See Section 3.1.1 for methods and Section 3.2.1 for results of the berry abundance survey.

During the public meeting in Pointe du Bois on June 22, 2022, a participant noted that Rice Lake, located north of the existing transmission line ROW between Pointe du Bois generating station and the Lee River distribution supply centre, and the surrounding area, is used for wild rice harvesting.

During Engagement Circle #1 which included First Nation representatives and Métis Citizens on August 24, 2022, segments 2, 5, 19, 23, 24, 27, and 28 were said to run through virgin wildlands. As well, Rice Lake was identified as an area used for wild rice (*Zizania* spp.) harvesting.



3 Field Data Collection

The field surveys undertaken in 2022 were designed to augment existing field data collected in 2013 and included a rare plant survey, wetland function assessment, and berry abundance assessment. Rare plant surveys and wetland function assessments were conducted for a sub-sample of locations along the proposed alternative route segments. The berry abundance survey was conducted for a 1 km section at the far northeast end of the existing transmission line near Pointe du Bois as this was indicated to be an important berry-picking area by stakeholders.

3.1 Methods

3.1.1 RARE PLANT SURVEYS

Rare plant surveys were completed on June 16-19, 2022, and August 6-12, 2022, to capture both early and late blooming species. The surveys were completed by two biologists and a staff member of the Manitoba Métis Federation (MMF) for the June 16 to 19 surveys. The rare plant surveys were conducted considering known occurrences of SOCC per the MESEA. The objective of this survey was to evaluate plant SOCC presence along the PDA.

The surveys targeted areas of higher potential habitat for SOCC (e.g., riparian areas, uncommon landcover types), previous rare plant observation locations, and select areas of typical landcover types within the ROW of potential routes. The rare plant surveys followed a stratified meander technique with the crew walking a pre-selected area (120 m wide x 100 m long) and documenting the presence of vascular plants. Rare plant survey method guidance is not available specific to Manitoba. The selected approach aligns with recommendations of other Canadian provinces (i.e., British Columbia [Resources Information Standards Committee 2018], Alberta [Alberta Native Plant Council 2012] and Saskatchewan [Government of Saskatchewan 2021]), and the Canadian Wildlife Service (Henderson 2009). Areas were walked at a speed of approximately 400 m/hour and observed vascular plants within 3 m of the walked path were recorded. Areas walked were recorded using hand-held global positioning devices.

In addition, percent cover of the dominant vascular plant species, tree and shrub height, and percent total ground cover of vascular plants, non-vascular plants, water, litter, and bare ground were recorded in 20 m x 20 m plots in a homogenous area of each plant community near rare plant survey locations. Photos in all four cardinal directions (north, south, east, and west) were taken at the start and end points of each meander and at plot locations.

The location, abundance, extent, phenology, and representative photographs of plant SOCC were documented, when observed. Plants were collected for identification, if needed (only if the population could support e.g., greater than 20 plants).

All vascular plant species were noted, including those that may be traditional use plants. At the time of the surveys, no Project-specific Traditional Land and Resource Use (TLRU) studies had been completed and therefore a Project-specific list of traditionally used plant species is not yet available. Through the ongoing



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

3 Field Data Collection

June 13, 2023

engagement program for the Project, Rice Lake was identified as an area used for wild rice harvesting during the August 24, 2022, engagement circle (see Section 2.2.2).

Noxious weed species listed under *The Noxious Weed Act* were documented opportunistically while conducting the rare plant surveys and wetland function surveys. Location and density distribution were collected when weeds were observed. Density distribution followed a guide for rating invasive species infestations (Saskatchewan Prairie Conservation Action Plan [SKPCAP] 2008) (Table 3-1).

Table 3-1 Weed Density Distribution Definitions

Density Distribution Rank	Definition
1	rare
2	few sporadically occurring individual plants
3	a single plant
4	a single plant plus few sporadically occurring plants
5	several sporadically occurring plants
6	a single patch plus a few sporadically occurring plants
7	a few patches
8	a few patches plus several sporadically occurring plants
9	several well spaced patches

SOURCE:
SKPCAP (2008).

3.1.2 WETLAND FUNCTION ASSESSMENT SURVEY

Wetland function assessments were completed within the PDA between August 6-12, 2022. Survey sites were preselected and completed in conjunction with the late rare plant surveys. Data were collected for indicators of the wetland's ability to provide plant and wildlife habitat, and hydrology and biogeochemistry functions and provide services such as flood attenuation, and water quality protection or improvement. Data collected consisted of plant species composition, abundance and structure, and presence of inlets and outlets, water depth, signs of erosion, presence of human disturbance, pH, and electrical conductivity. Each survey location was photographed, and survey coordinates collected. Plant species composition, abundance, and structure were evaluated in a 20 m x 20 m, or equivalent, plot and a larger area walked to evaluate other attributes including areas near open water. Potential inlets and outlets were identified by desktop prior to the field survey and evaluated in the field if areas were accessible. Collected information may be used to understand unavoidable effects to wetlands.

3.1.3 BERRY ABUNDANCE SURVEY

Approximately 1 km of the existing electrical transmission ROW near Pointe du Bois was assessed for berry producing plant abundance. The existing ROW and approximately 30 m of adjacent natural



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

3 Field Data Collection

June 13, 2023

vegetation was walked and the abundance of berry producing plants was estimated for 20 m x 20 m areas when observed.

3.2 Results

3.2.1 RARE PLANT SURVEYS

A total of 42 locations were surveyed for rare plants in the PDA during the early and late rare plant surveys (Map 3-1). A total of 307 vascular plant species were observed (Appendix A-2). As stated previously, the vascular plant species observed may include traditionally used plant species, but no Project-specific information on plants of traditional importance had been collected to the time of the surveys from Indigenous groups (e.g., TLRU studies, engagement, key person interviews, etc.). Eighteen plant SOCC, including two shrubs, fifteen forbs and one graminoid, were observed at 43 locations within the PDA (Table 3-2; Map 3-2; Appendix B). Most of the observed plant SOCC are provincially ranked S3 or higher, meaning they are uncommon to uncommon/common species. Three observed plant SOCC are provincially ranked S1S2, very rare/rare, to S2, rare. No plant SAR were observed during the surveys.

Table 3-2 Vascular Plant SOCC Observed Within the PDA

Form	Scientific Name	Common Name	Provincial S Rank ¹	Number of Occurrences in the PDA	Lifecycle Duration	Habitat ²
Shrub	<i>Cornus alternifolia</i>	alternate-leaved dogwood	S3	2	perennial	deciduous hardwood forests
Shrub	<i>Vaccinium cespitosum</i>	dwarf bilberry	S3	1	perennial	open, usually dry habitats
Subtotal				3	-	-
Forb	<i>Agrimonia gryposepala</i>	common agrimony	S1S2	1	perennial	edges, open spaces, swamps, and deciduous or mixedwood forests
Forb	<i>Amphicarpaea bracteata</i>	hog-peanut	S3S5	2	annual	dry or moist forests, along roadsides, and in prairie ravines
Forb	<i>Anaphalis margaritacea</i>	pearly everlasting	S3	2	perennial	deciduous or mixedwood forest and open, often disturbed sites
Forb	<i>Corallorhiza striata</i>	striped coralroot	S3	1	perennial	coniferous, deciduous, and mixedwood forests, lakeshores, and swamps
Forb	<i>Cypripedium acaule</i>	pink lady's-slipper	S3	1	perennial	dry to wet forests and bogs



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

3 Field Data Collection

June 13, 2023

Table 3-2 Vascular Plant SOCC Observed Within the PDA

Form	Scientific Name	Common Name	Provincial S Rank ¹	Number of Occurrences in the PDA	Lifecycle Duration	Habitat ²
Forb	<i>Dryopteris cristata</i>	crested wood fern	S3	1	perennial	swamps or open shrubby wetlands
Forb	<i>Erigeron strigosus</i>	rough fleabane	S3S5	4	annual/biennial	woods edges, fields, roadsides, and other open, disturbed sites
Forb	<i>Melampyrum lineare</i>	narrow-leaved cow-wheat	S3S5	1	annual	coniferous and deciduous forests, dry meadows, peatlands, and fens
Forb	<i>Onoclea sensibilis</i>	sensitive fern	S3	6	perennial	open swamps and marshes
Forb	<i>Persicaria sagittata</i>	arrow-leaved tear-thumb	S3	2	annual/perennial	moist shaded sites, meadows, pastures, fens, swamps, and shorelines of ponds and streams
Forb	<i>Pteridium aquilinum</i>	bracken fern	S3	2	perennial	barrens, pastures, and open forests
Forb	<i>Sagittaria rigida</i>	sessile-fruited arrowhead	S2	1	perennial	calcareous or brackish shallow water and shores of ponds, swamps, and rivers, occasionally in deep water
Forb	<i>Solidago uliginosa</i>	bog goldenrod	S3	1	perennial	bogs and marshes
Forb	<i>Stachys tenuifolia</i>	smooth hedge-nettle	S3	1	perennial	-
Forb	<i>Streptopus amplexifolius</i>	clasping twisted-stalk	S2	2	perennial	rich moist coniferous and deciduous forests
Subtotal				28	-	-
Graminoid	<i>Carex intumescens</i>	bladder sedge	S3	12	perennial	coniferous, mixed, and deciduous forests, swamps, and wet meadows
Subtotal				12	-	-
NOTES:						
1. Provincial S Rank (subnational rank) denotes species conservation status rank from the MB CDC. S1 = very rare; S2 = rare; S3 = uncommon; S4 = widespread; S5 = common (MB CDC 2016).						
2. Source: FNA 2022; USDA NRCS National Plant Data Center 2006						



Pointe du Bois (PW75) Transmission Project

Vegetation and Wetland Survey Locations

- Berry Site
- Rare Plant Site
- Rare Plant/Wetland Site

Project Infrastructure

- PW75 Alternative Route Segment
- PW75 Established Route (Pointe du Bois G.S. to Lee River DSC)

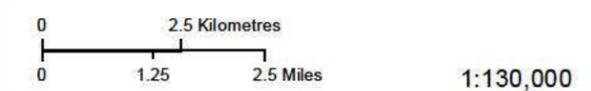
Existing Infrastructure

- Electrical Station
- Generating Station
- Existing Transmission Line

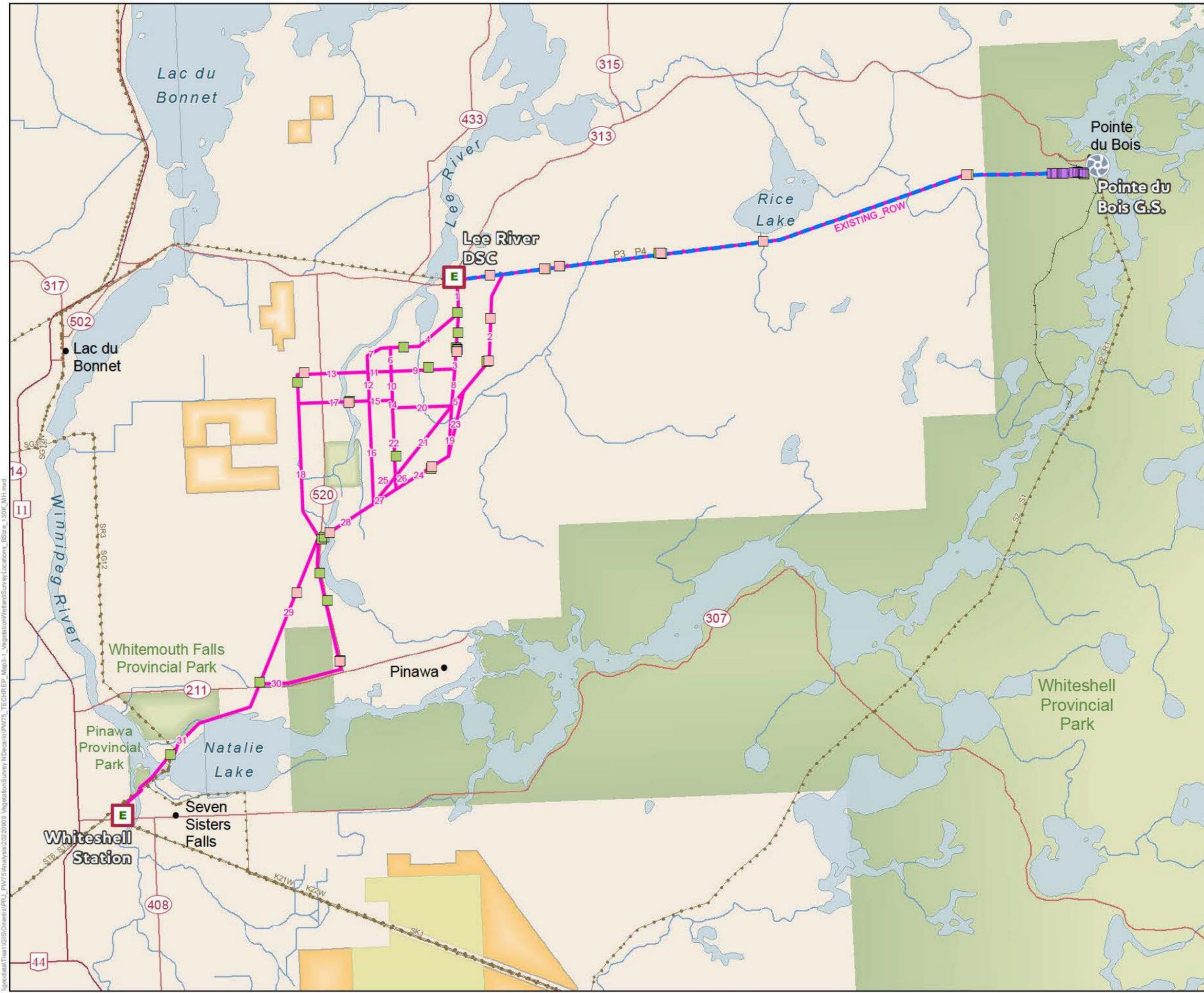
Landbase

- Community
- Railway
- Provincial Highway
- Provincial Road
- Ecological Reserve
- Wildlife Management Area
- Provincial Park

Coordinate System: UTM Zone 14N NAD83
 Data Source: MBHydro, ProvMB, NRCAN
 Date Created: November 01, 2022

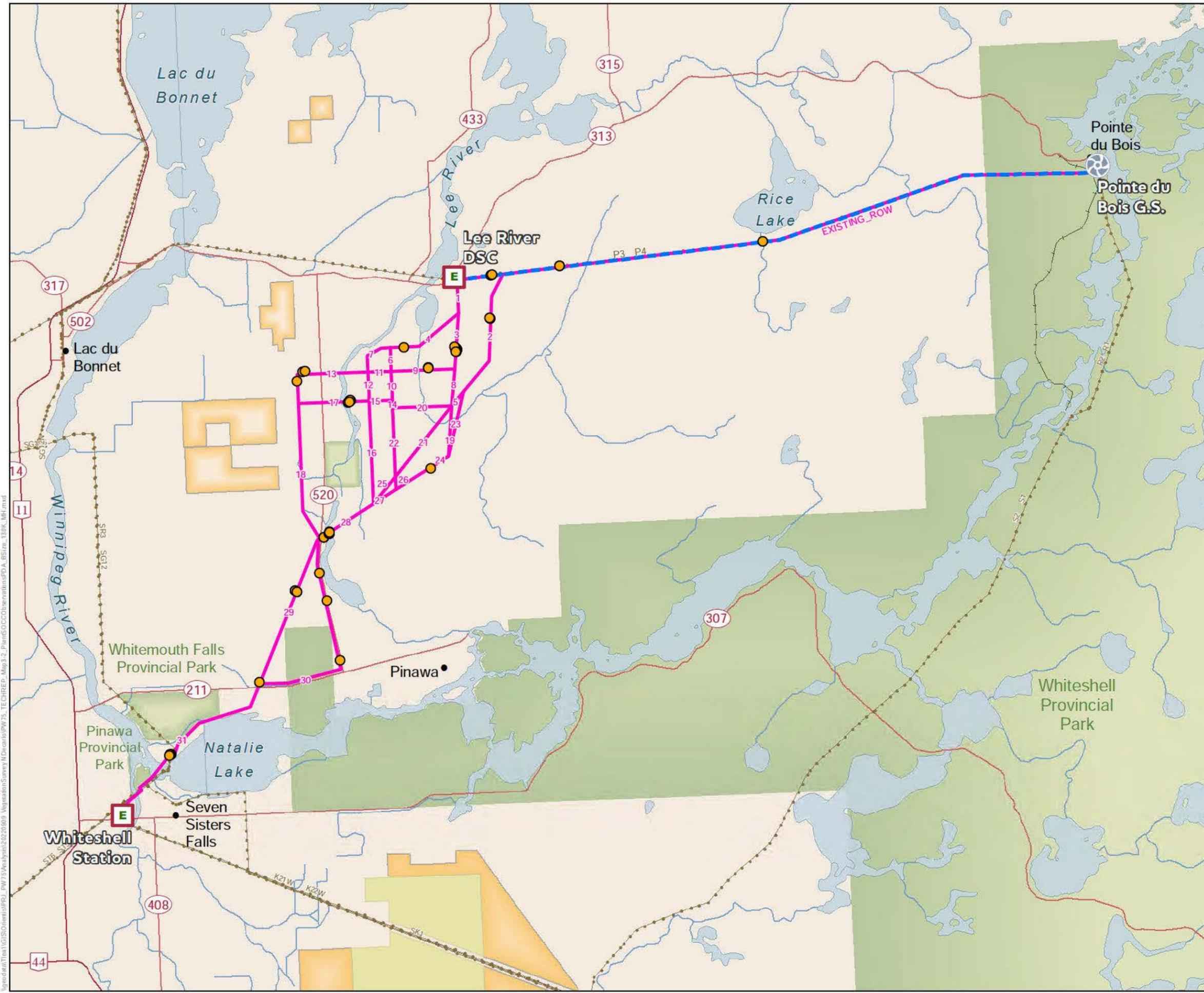


Vegetation and Wetland Survey Locations



I:\geodocs\13015\Chen\Map3-1_PW75_VegetationWetlandSurveyLocations_Map3-1_VegetationWetlandSurveyLocations_IBSize_13015_MH.mxd

Pointe du Bois (PW75) Transmission Project



Plant SOCC Observations

- Plant SOCC Observation

Project Infrastructure

- PW75 Alternative Route
- PW75 Established Route (Pointe du Bois G.S. to Lee River DSC)

Existing Infrastructure

- Electrical Station
- ⊙ Generating Station
- Existing Transmission Line

Landbase

- Community
- Railway
- Provincial Highway
- Provincial Road
- Ecological Reserve
- Wildlife Management Area
- Provincial Park

Coordinate System: UTM Zone 14N NAD83
 Data Source: MBHydro, ProvMB, NRCAN
 Date Created: November 01, 2022



Plant SOCC Observations in the PDA

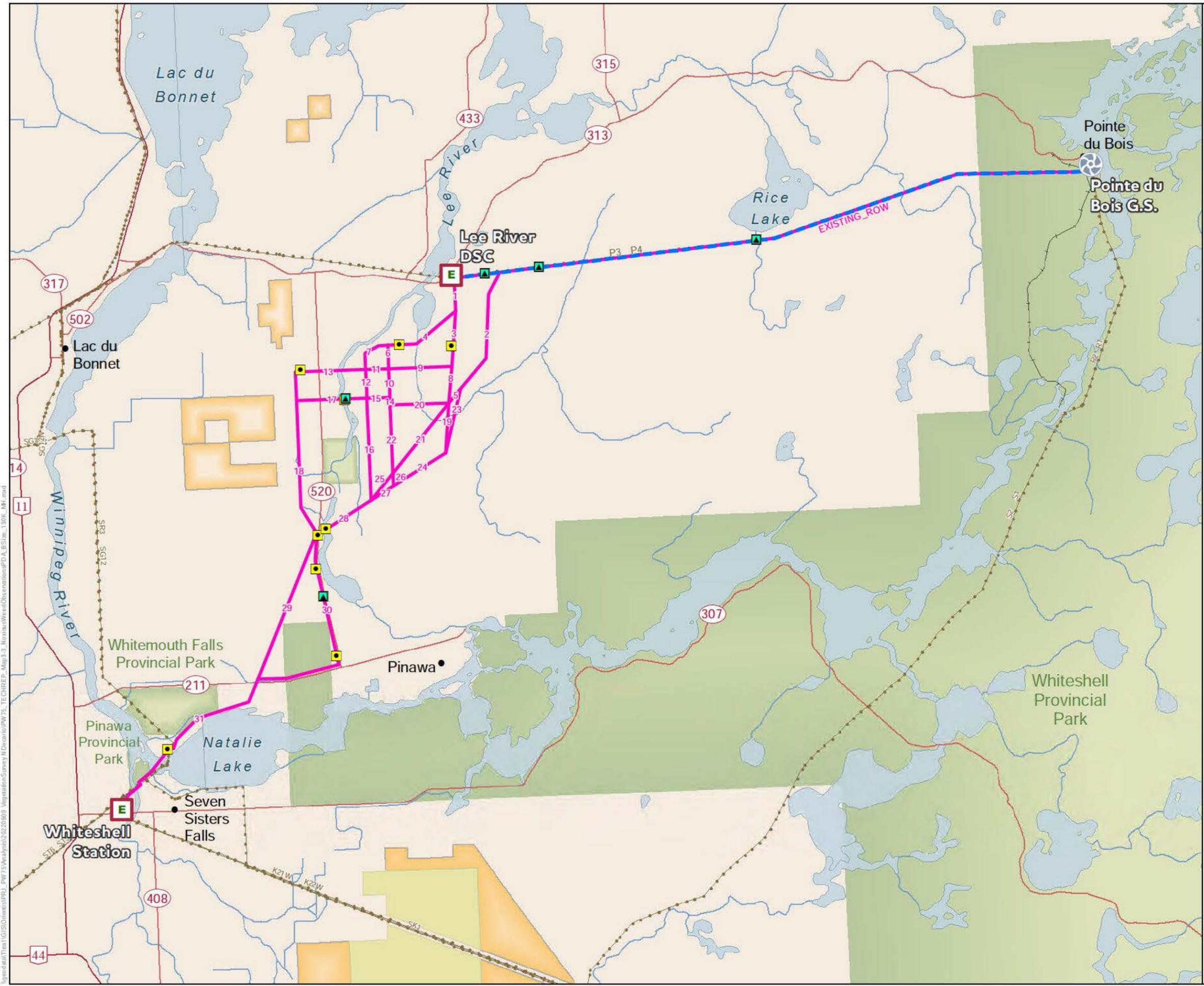
Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report
3 Field Data Collection

June 13, 2023

Two tier 3 noxious weed species were observed in the PDA including Canada thistle (*Cirsium arvense*), and field sow thistle (*Sonchus arvensis*) (Map 3-3). Fourteen occurrences of Canada thistle were found with a density distribution ranging from 1 (rare) to 9 (several well spaced patches). Canada thistle was observed near roads, on the existing ROW, and in naturally vegetated lands. Six occurrences of field sow thistle were observed with a density distribution ranging from 2 (few sporadically occurring individual plants) to 5 (several sporadically occurring plants). Sow thistle plants were identified in both the existing ROW along the PDA and naturally vegetated lands. No tier 1 or 2 noxious weed species were observed during the surveys.



Pointe du Bois (PW75) Transmission Project



Noxious Weed Observations

- Canada Thistle
- ▲ Field Sow-thistle

Project Infrastructure

- PW75 Alternative Route
- PW75 Established Route (Pointe du Bois G.S. to Lee River DSC)

Existing Infrastructure

- E Electrical Station
- Generating Station
- Existing Transmission Line

Landbase

- Community
- + Railway
- 11 Provincial Highway
- 317 Provincial Road
- Ecological Reserve
- Wildlife Management Area
- Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: November 01, 2022



Noxious Weed Observations in the PDA

3.2.2 WETLAND FUNCTION ASSESSMENT SURVEY

A wetland function assessment was completed at 15 sites within the PDA in conjunction with the late rare plant survey. Data collected on the wetland function will support the assessment in the EAP (not included). Assessed wetlands ranged from temporarily flooded shrubby swamps (SS – II), semi-permanently flooded graminoid marshes (MG – IV), and permanently flooded graminoid fens (FG). Disturbance to seasonally flooded, Class III, semi-permanently flooded, Class IV, and permanently flooded marshes are regulated under the Manitoba *Water Rights Act*. Eleven wetlands had standing open water lacking vegetation cover, all fresh water at the time of the survey, with water depth ranging from 0.2 cm to 100 cm. Electroconductivity was $\leq 435 \mu\text{S}/\text{cm}$ and pH ranged from 4.74 to 8.3 (Appendix A.3). Inlets and outlets were present in eight of the wetlands and six of the wetlands had been altered by past human activity, including roads, electrical transmission ROW and agriculture. Signs of current human use consisted of all terrain vehicle tracks on the far east end of the existing PW75 ROW. No erosion was observed. See Appendix A-3 for the data on each wetland site.

3.2.3 BERRY ABUNDANCE SURVEY

Eight species of berry, one rosehip producing plant, one cone producing plant, and 2 nut producing plants were identified along the first (easternmost) 1 km of the existing transmission line (Table 3-3). The most abundant berry species was velvety-leaved blueberry (*Vaccinium myrtilloides*), followed by smooth wild strawberry (*Fragaria virginiana*). At the time of the survey, velvety-leaved blueberry, and chokecherry (*Prunus virginiana*) plants were producing fruit. Other species observed were not producing fruit at the time of the survey. It was noted during the surveys that there were abundant velvety-leaved blueberries for harvest and foraging, including under the transmission line towers.



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report
3 Field Data Collection
 June 13, 2023

Table 3-3 Berry Abundance along the first 1 km of the Existing Transmission Line near Pointe du Bois

Plant Type	Common Name	Scientific Name	Provincial S Rank	Berry Abundance by Site (%) ¹								
				Vacc0 1	Vacc0 2	Vacc0 3	Vacc0 4	Vacc0 5	Vacc0 6	Vacc 07	Rubu0 1	Rubu0 2
Nut Producing	beaked hazelnut	<i>Corylus cornuta</i>	S5	0	0	1	0	0	0	0	0	0
Nut Producing	bur oak	<i>Quercus macrocarpa</i>	S5	0	0	0.1	0	0	0	0	0	0
Berry Producing	Canada wild gooseberry	<i>Ribes oxycanthoides</i>	S5	0	0	0.1	0	0	0	0	0	0.1
Berry Producing	chokecherry	<i>Prunus virginiana</i>	S5	0	0	0	0.1	0	0	0	0	0
Berry Producing	common juniper	<i>Juniperus communis</i>	S5	0	1	0	0	0	0.1	0	0	0
Berry Producing	dewberry	<i>Rubus pubescens</i>	S5	0	0	0	0	0	0	0	0	1
Hip Producing	prickly rose	<i>Rosa acicularis</i>	S5	0	1	0	0	0	0	0	0	0
Berry Producing	<i>Prunus</i> (Unknown Species)	<i>Prunus</i> sp.		0	1	0	0	0	0	0	0	0
Berry Producing	red raspberry	<i>Rubus idaeus</i>	S5	0	0	0	0	0	0	0	0.1	0.1
Berry Producing	Saskatoon	<i>Amelanchier alnifolia</i>	S5	0	0	0.1	0.1	0	0	0	0	0
Berry Producing	smooth wild strawberry	<i>Fragaria virginiana</i>	S5	2	1	0.1	0	1	1	0.1	0	1
Berry Producing	velvet-leaf blueberry	<i>Vaccinium myrtilloides</i>	S5	5	3	2	2	3	3	4	0	2

¹ Berry abundance based on ground cover (%) in a 20 x 20 m plot.



4 Key Person Interviews

4.1 Methods

Key person interview (KPI) contacts were selected for input regarding vegetation and wetlands in the PDA. Key persons were interviewed via telephone using questionnaires developed by the Project Team (Appendix C).

The following KPI contacts were selected to discuss the following:

- Manitoba Weed Supervisors Association for input on weeds in the PDA and active programs for weed control.
- Manitoba Environment and Climate (MEC) water resource officer(s) for input on wetland classification, mitigation measures, and compensation.

4.2 Results

4.2.1 WEEDS

Feedback received on the known weeds in the RAA is that orange hawkweed (*Hieracium aurantiacum*) is a concern (Pingatory 2023, pers. comm.). Orange hawkweed is a perennial forb that is a designated tier 1 noxious weed in Manitoba (Government of Manitoba 2017). Orange hawkweed is introduced and has been found in disturbed sites (e.g., fields, lawns, roadsides), bogs, and areas with clay or sand dominated soils (FNA 2023). Orange hawkweed can be controlled through chemical treatment and tillage; however, it was noted by Pingatory (2023, pers. comm.) that mowing is not effective as control for orange hawkweed.

Feedback received regarding mitigation measures for weed introduction and spread included the following (Pingatory 2023, pers. comm.):

- Clean equipment before entering/exiting the ROW to limit potential weed spread
- Inspect bare ground regularly, including in spring when plants are emerging
- Control for broadleaf plants during pre-emergence for areas when fill is used

4.2.2 WETLANDS

A watershed district does not currently exist for the Project LAA; however, the RAA intersects the eastern portion of the Northeast Red Watershed District (Manitoba Association of Watersheds 2022). The Northeast Red Watershed District has developed an integrated watershed management plan for the Cooks-Devils Creek, which is located beyond the Project RAA.



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report
4 Key Person Interviews

June 13, 2023

MEC indicated licensing under *The Water Rights Act* would be required if there is disturbance of Class III (seasonal), Class IV (semi-permanent) and Class V (permanent) wetlands, and compensation would be required if there is loss of Class III (seasonal) wetlands (Caillier 2023, pers. comm.). MEC also indicated a wetland assessment report detailing the location, extent, and class of wetlands to be disturbed will be required prior to construction.

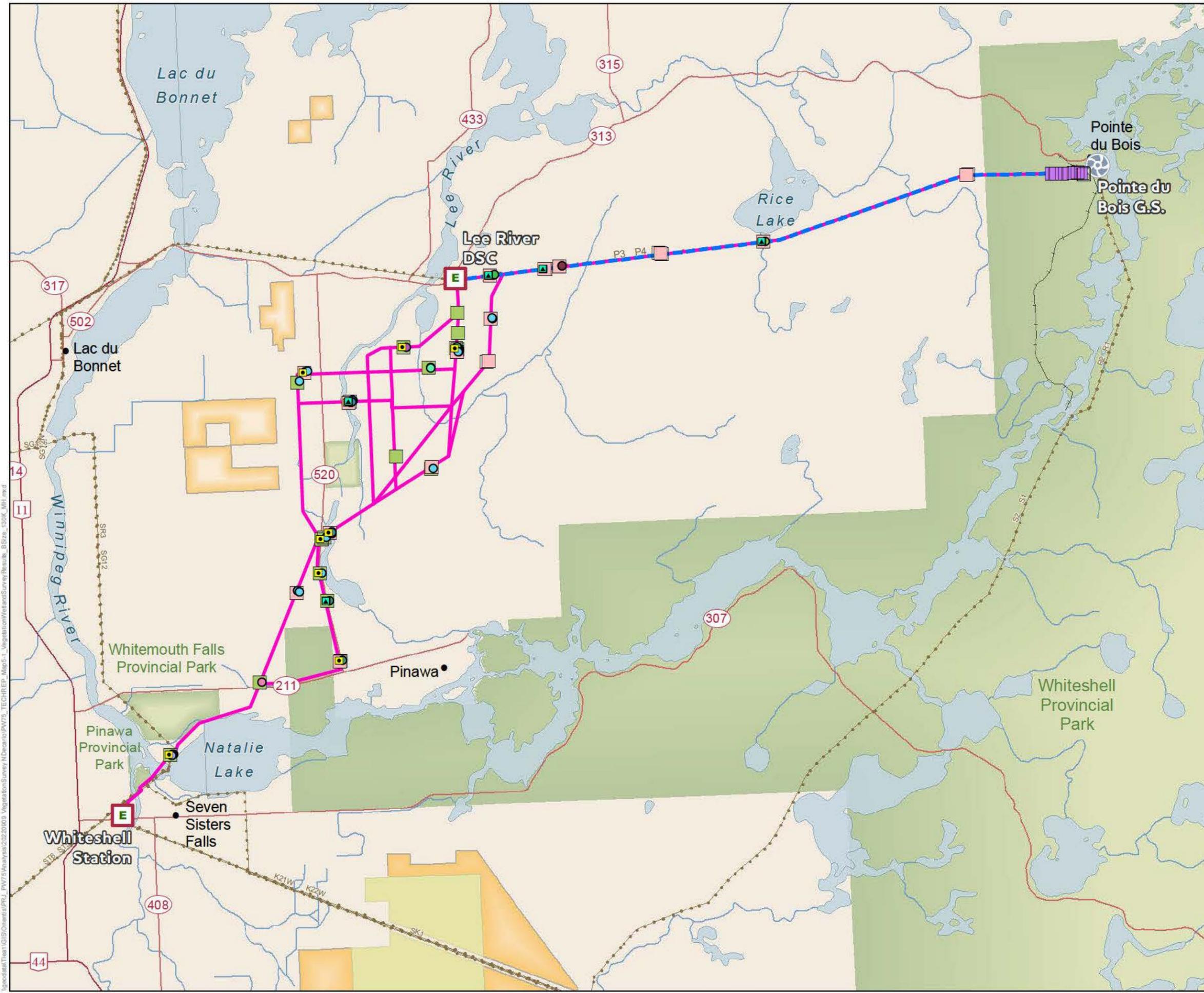


5 Summary of Key Results and Findings

The purpose of this TDR is to provide new or updated information regarding the existing conditions for vegetation and wetlands in the region that would support the Project. A berry abundance survey was completed for the easternmost 1 km of the existing transmission line ROW near Pointe du Bois to gather information on the berry species composition and abundance because of comments received during a public meeting that the area was used for berry harvest (Map 5-1). Rare plant surveys were conducted to supplement the work completed in 2013. Eighteen plant SOCC were observed within the PDA at 43 locations within the PDA (Map 5-1). Plant SOCC observed included 15 forbs, two shrubs, and one graminoid species. None of these species are SAR or listed under the MESEA. Wetland function assessment surveys were completed to support the assessment in the EAP. Fifteen wetlands along the PDA were surveyed in 2022 (Map 5-1). Wetland habitat was altered in wetland areas intersected by the existing PW75 electrical transmission line ROW and all terrain vehicle tracks were observed near the far east end of the existing ROW. Water chemistry (i.e., pH and electroconductivity) was appropriate for the wetland types present. Water levels were elevated in some instances, but this was likely due to beaver activity and potentially above average precipitation. KPI feedback indicates orange hawkweed is a concern and that an application under the Manitoba *Water Rights Act* may be required. Equipment inspection and cleaning, and inspection of project disturbed areas will be important for managing weeds and non-native invasive plants. MEC will be contacted further to clarify applicability of the Manitoba *Water Rights Act*.



Pointe du Bois (PW75) Transmission Project



- | | |
|--------------------------------|----------------------------------|
| Survey Locations | Noxious Weed Observations |
| Berry Site | Canada Thistle |
| Rare Plant Site | Field Sow-histle |
| Rare Plant/Wetland Site | |
| Plant SOCC Observations | |
| Alternate-leaved Dogwood | Hog-peanut |
| Arrow-leaved Tear-thumb | Narrow-leaved Cow-wheat |
| Bladder Sedge | Pearly Everlasting |
| Bog Goldenrod | Pink Lady's-slipper |
| Bracken Fern | Rough Fleabane |
| Clasping Twisted-stalk | Sensitive Fern |
| Common Agrimony | Sessile-fruited Arrowhead |
| Crested Wood Fern | Smooth Hedge-nettle |
| Dwarf Bilberry | Striped Coralroot |

- Project Infrastructure**
- PW75 Alternative Route Segment
 - PW75 Established Route (Pointe du Bois G.S. to Lee River DSC)

- Existing Infrastructure**
- Electrical Station
 - Generating Station
 - Existing Transmission Line

- Landbase**
- Community
 - Railway
 - Provincial Highway
 - Provincial Road
 - Ecological Reserve
 - Wildlife Management Area
 - Provincial Park

Coordinate System: UTM Zone 14N NAD83
 Data Source: MBHydro, ProvMB, NRCAN
 Date Created: October 06, 2022



Vegetation and Wetlands Survey Results

6 References

6.1 Literature Cited

- Alberta Native Plant Council. 2012. Guidelines for rare vascular plant surveys in Alberta – 2012 Update. Alberta Native Plant Council, Edmonton, AB.
- FNA (Flora of North America). 2023. Flora of North America. Accessed February 2023. http://www.efloras.org/flora_page.aspx?flora_id=1.
- Government of Canada. 2012. Species at risk public registry. Accessed September 2022. <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>.
- Government of Canada. 2013. How much habitat is enough? Third Edition. Environment Canada. Toronto, Ontario. Accessed September 2022.
- Government of Manitoba. 2017. The Noxious Weeds Act, RSM 1987, C. N110. Noxious Weeds Regulations
- Government of Manitoba. 2022. Species listed under the Manitoba Endangered Species and Ecosystems Act. Accessed September 2022. <https://www.gov.mb.ca/nrnd/fish-wildlife/wildlife/ecosystems/index.html>.
- Government of Saskatchewan. 2021. Species detection survey protocol: 20.0 Vascular plant. February 2021 Update. Saskatchewan Ministry of Environment Fish, Wildlife and Lands Branch. Regina, SK.
- Manitoba Association of Watersheds. 2022. Map of the Watershed District Boundaries. Available at: <https://manitobawatersheds.org/districts-1>. Accessed: February 2023.
- MB CDC (Manitoba Conservation Data Centre). 2016. MB Conservation Data Centre Data Use Guide. Winnipeg, Manitoba.
- MB CDC. 2021. Vascular and Non-Vascular Plant List. November 2021. Wildlife, Fisheries, and Enforcement Branch. Accessed September 2022. <https://gov.mb.ca/nrnd/fish-wildlife/cdc/pubs/plant-list-mbccdc-2021-nov.pdf>.
- MB CDC. 2022a. Historical Records and Species and Plant Database from Manitoba Sustainable Development. Accessed September 2022. https://www.gov.mb.ca/sd/environment_and_biodiversity/cdc/index.html.
- MB CDC. 2022b. Ecoregions: Plants – Lake of the Woods. Wildlife, Fisheries, and Enforcement Branch. Accessed September 2022. <https://gov.mb.ca/nrnd/fish-wildlife/cdc/ecoregions/index.html>.



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

6 References

June 13, 2023

Manitoba Hydro. 2014. Pointe du Bois Transmission Project – Environmental Assessment Report.

NatureServe. 2022a. NatureServe Global Conservation Status Ranks. NatureServe, Arlington, Virginia. Accessed September 2022.

<https://explorer.natureserve.org/AboutTheData/DataTypes/ConservationStatusCategories>

NatureServe. 2022b. NatureServe Network Biodiversity Location Data accessed through NatureServe Explorer. NatureServe, Arlington, Virginia. Accessed September 2022.

<https://explorer.natureserve.org/>.

Resources Information Standards Committee. 2018. Inventory and survey methods for rare plants and lichens. Standards for components of British Columbia's biodiversity. No. 43. Prepared by: Ministry of Environment and Climate Change Strategy, Ecosystems Branch.

SKPCAP (Saskatchewan Prairie Conservation Action Plan). 2008. Native Grassland and Forest: Rangeland Health Assessment.

USDA NRCS National Plant Data Center. 2006. Plant guide: American hog peanut. Accessed September 2022. https://plants.usda.gov/DocumentLibrary/plantguide/pdf/pg_ambr2.pdf.

6.2 Personal Communications

Ginette Caillier. Senior Water Resource Officer, Manitoba Environment and Climate. Email to Nicole Kearns (Stantec). March 2, 2023.

Kristin Pingatory. Weed Supervisor for Selkirk District Manitoba Weed Supervisors Association. Phone conversation with Nick DeCarlo (Stantec). January 16, 2023.



APPENDICES



Appendix A Tables

A.1 Expected Plant SOCC within the Lake of the Woods Ecoregion

Scientific Name	Common Name	Provincial S Rank	MESEA
<i>Adlumia fungosa</i>	climbing fumitory	SH	-
<i>Agalinis tenuifolia</i>	narrow-leaved agalinis	S2S3	-
<i>Amorpha fruticosa</i>	false indigo	S1S2	-
<i>Anemone americana</i>	liverleaf	S1	-
<i>Antennaria plantaginifolia</i>	plantain-leaved everlasting	S1S2	-
<i>Arabidopsis arenicola</i>	arctic rock cress	S2S3	-
<i>Arethusa bulbosa</i>	dragon's-mouth	S2	-
<i>Arisaema triphyllum</i> ssp. <i>triphyllum</i>	Jack-in-the-pulpit	S1S2	-
<i>Bidens beckii</i>	water-marigold	S3	-
<i>Botrychium simplex</i>	least grapefern	S1	-
<i>Brasenia schreberi</i>	water-shield	S1S2	-
<i>Bromus porteri</i>	Porter's chess	S2S3	-
<i>Calopogon tuberosus</i>	swamp-pink	S2	-
<i>Calystegia spithamea</i>	low bindweed	SH	-
<i>Canadanthus modestus</i>	large northern aster	S2	-
<i>Carex arctata</i>	black sedge	S1	-
<i>Carex castanea</i>	chestnut sedge	S2S3	-
<i>Carex crinita</i>	long-haired sedge	S1	-
<i>Carex douglasii</i>	Douglas sedge	S2	-
<i>Carex emoryi</i>	Emory's sedge	S2?	-
<i>Carex gracillima</i>	slender sedge	S2S3	-
<i>Carex intumescens</i>	swollen sedge	S3	-
<i>Carex livida</i>	livid sedge	S3	-
<i>Carex merritt-fernaldii</i>	Merritt Fernald's sedge	S1	-
<i>Carex pauciflora</i>	few-flowered sedge	S3	-
<i>Carex pedunculata</i>	stalked sedge	S3	-
<i>Carex projecta</i>	necklace sedge	S3?	-
<i>Carex tetanica</i>	rigid sedge	S3	-
<i>Carex vulpinoidea</i>	fox sedge	S3	-
<i>Caulophyllum thalictroides</i>	papoose-root	S2	-
<i>Ceanothus herbaceus</i>	New Jersey tea	S2S3	-
<i>Chelone glabra</i>	turtlehead	S2	-



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Scientific Name	Common Name	Provincial S Rank	MESEA
<i>Circaea canadensis</i> ssp. <i>canadensis</i>	large enchanter's-nightshade	S2	-
<i>Cladium mariscoides</i>	twig rush	S2S3	-
<i>Collinsia parviflora</i>	blue-eyed Mary	S1	-
<i>Corispermum americanum</i> var. <i>americanum</i>	American bugseed	S3	-
<i>Corispermum villosum</i>	hairy bugseed	S1S2	-
<i>Cornus alternifolia</i>	alternate-leaved dogwood	S3	-
<i>Cyperus houghtonii</i>	Houghton's umbrella-sedge	S2S3	-
<i>Cyperus schweinitzii</i>	Schweinitz's flatsedge	S2	-
<i>Cypripedium arietinum</i>	Ram's head lady's-slipper	S2S3	-
<i>Descurainia sophioides</i>	northern flixweed	S2	-
<i>Dicentra cucullaria</i>	Dutchman's-breeches	S1	-
<i>Diphasiastrum tristachyum</i>	ground-cedar	S3	-
<i>Drosera linearis</i>	slender-leaved sundew	S2?	-
<i>Dulichium arundinaceum</i>	three-way sedge	S2	-
<i>Eleocharis obtusa</i>	blunt spike-rush	S1	-
<i>Elymus hystrix</i>	bottle-brush grass	S2	-
<i>Elymus lanceolatus</i>	northern wheat grass	S3	-
<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	thickspike wheatgrass	S3	-
<i>Epigaea repens</i>	mayflower	S3	-
<i>Eriocaulon aquaticum</i>	white-buttons	S1	-
<i>Eriophorum scheuchzeri</i>	Scheuchzeri's cotton-grass	S2?	-
<i>Eurybia macrophylla</i>	white wood aster	S1	-
<i>Fraxinus nigra</i>	black ash	S2S3	-
<i>Galium aparine</i>	cleavers	S3	-
<i>Gentiana rubricaulis</i>	closed gentian	S3	-
<i>Glyceria canadensis</i>	Canada manna grass	S1	-
<i>Goodyera tessellata</i>	tesselated rattlesnake plantain	S2	-
<i>Helianthus nuttallii</i> ssp. <i>rydbergii</i>	tuberous-rooted sunflower	S2	-
<i>Hesperostipa curtiseta</i>	western porcupine grass	S3	-
<i>Heteranthera dubia</i>	water star-grass	S2S3	-
<i>Hudsonia tomentosa</i>	false heather	S3	-
<i>Huperzia lucidula</i>	shining club-moss	SH	-
<i>Huperzia selago</i>	mountain club-moss	S2S3	-
<i>Juncus interior</i>	inland rush	S1	-
<i>Krigia biflora</i>	two-flowered dwarf-dandelion	S2S3	-
<i>Lechea intermedia</i>	pinweed	S1?	-
<i>Leersia oryzoides</i>	rice cutgrass	S3	-



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Scientific Name	Common Name	Provincial S Rank	MESEA
<i>Lonicera canadensis</i>	American fly-honeysuckle	S1	-
<i>Maianthemum racemosum</i>	false spikenard	S1	-
<i>Maianthemum racemosum</i> ssp. <i>racemosum</i>	false spikenard	S1	-
<i>Malaxis monophyllos</i>	white adder's-mouth	S2?	-
<i>Malaxis unifolia</i>	green adder's-mouth	S2?	-
<i>Menispermum canadense</i>	Canada moonseed	S3	-
<i>Micranthes pensylvanica</i>	swamp saxifrage	S1	-
<i>Myriophyllum alterniflorum</i>	water-milfoil	S1S3	-
<i>Myriophyllum farwellii</i>	Farwell's water-milfoil	S1	-
<i>Nymphaea odorata</i>	fragrant water-lily	S2?	-
<i>Nymphaea odorata</i> ssp. <i>odorata</i>	fragrant water-lily	S2	-
<i>Nymphaea odorata</i> ssp. <i>tuberosa</i>	tuberosus white water-lily	S1	-
<i>Nymphaea tetragona</i>	small water-lily	S2?	-
<i>Onoclea sensibilis</i>	sensitive fern	S3?	-
<i>Ophioglossum pusillum</i>	northern adder's-tongue	S1	-
<i>Osmorhiza claytonii</i>	hairy sweet cicely	S2?	-
<i>Osmunda claytoniana</i>	interrupted fern	S2S3	-
<i>Ostrya virginiana</i>	hop-hornbeam	S2	-
<i>Pellaea glabella</i> ssp. <i>glabella</i>	smooth cliffbrake	S1?	-
<i>Persicaria sagittata</i>	arrow-leaved tear-thumb	S3	-
<i>Pinus resinosa</i>	red pine	S2S3	-
<i>Pinus strobus</i>	eastern white pine	S2	-
<i>Platanthera hookeri</i>	Hooker's orchid	S2S3	-
<i>Platanthera lacera</i>	fringed orchid	S1S2	-
<i>Platanthera psycodes</i>	small purple-fringed orchid	S1	-
<i>Pogonia ophioglossoides</i>	rose pogonia	S1	-
<i>Populus grandidentata</i>	large-tooth aspen	S1S2	-
<i>Potamogeton amplifolius</i>	large-leaved pondweed	S3	-
<i>Potamogeton illinoensis</i>	Illinois pondweed	S1?	-
<i>Potamogeton robbinsii</i>	Robbin's pondweed	S2S3	-
<i>Potamogeton spirillus</i>	fennel-leaved pondweed	S1	-
<i>Pyrola americana</i>	round-leaved pyrola	S2?	-
<i>Ranunculus fascicularis</i>	early buttercup	S1	-
<i>Ranunculus hispidus</i> var. <i>caricetorum</i>	bristly buttercup	S2	-
<i>Rhynchospora alba</i>	white beakrush	S3	-
<i>Rhynchospora capillacea</i>	horned beakrush	S2S3	-
<i>Sagittaria rigida</i>	sessile-fruited arrowhead	S2?	-



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Scientific Name	Common Name	Provincial S Rank	MESEA
<i>Sanguinaria canadensis</i>	blood-root	S2	-
<i>Sceptridium multifidum</i>	leathery grape-fern	S3	-
<i>Sceptridium oneidense</i>	blunt-lobed moonwort	S1	-
<i>Scutellaria parvula</i> var. <i>missouriensis</i>	small skullcap	S1?	-
<i>Sisyrinchium campestre</i>	white-eyed grass	S3	-
<i>Solidago juncea</i>	sharp-toothed goldenrod	S1S2	-
<i>Solidago uliginosa</i>	bog goldenrod	S3	-
<i>Sparganium glomeratum</i>	clustered burreed	S1S2	-
<i>Spiranthes magnicamporum</i>	Great Plains ladies'-tresses	S1S2	endangered
<i>Streptopus amplexifolius</i>	clasping twisted-stalk	S2?	-
<i>Symphotrichum sericeum</i>	western silvery aster	S2S3	threatened
<i>Taxus canadensis</i>	Canada yew	S3	-
<i>Thermopsis rhombifolia</i>	golden bean	S2S3	-
<i>Torreyochloa pallida</i> var. <i>fernaldii</i>	pale manna grass	S2	-
<i>Uvularia sessilifolia</i>	small bellwort	S2	-
<i>Vaccinium caespitosum</i>	dwarf bilberry	S3	-
<i>Viola labradorica</i>	early blue violet	S3	-
<i>Viola selkirkii</i>	long-spurred violet	S2	-
<i>Woodsia alpina</i>	northern woodsia	S2	-
<i>Woodsia glabella</i>	smooth woodsia	S2	-
NOTES: MB CDC 2022b.			



A.2 Vascular Plant Species Observed during 2022 Rare Plant and Wetland Assessment Surveys

Scientific Name	Common Name	Provincial S Rank
<i>Abies balsamea</i>	balsam fir	S5
<i>Acer negundo</i>	Manitoba maple	S5
<i>Acer spicatum</i>	mountain maple	S5
<i>Achillea millefolium</i>	common yarrow	SNA
<i>Acorus americanus</i>	American sweetflag	S4S5
<i>Actaea rubra</i>	red baneberry	S5
<i>Agastache foeniculum</i>	blue giant hyssop	S5
<i>Agrimonia gryposepala</i>	common agrimony	S1S2
<i>Agrimonia</i> sp.	unknown agrimony species	-
<i>Agrostis gigantea</i>	redtop	S2S3
<i>Agrostis scabra</i>	rough bentgrass	S5
<i>Alisma triviale</i>	northern water-plantain	S5
<i>Alnus alnobetula</i>	green alder	S5
<i>Alnus alnobetula</i> ssp. <i>crispa</i>	American green alder	S5
<i>Alnus incana</i>	speckled alder	S5
<i>Alnus incana</i> ssp. <i>rugosa</i>	speckled alder	S5
<i>Amelanchier alnifolia</i>	Saskatoon	S5
<i>Amphicarpaea bracteata</i>	hog-peanut	S3S5
<i>Anaphalis margaritacea</i>	pearly everlasting	S3S4
<i>Andromeda polifolia</i>	bog rosemary	S5
<i>Anemonastrum canadense</i>	Canada anemone	S5
<i>Anemone cylindrica</i>	thimbleweed	S5
<i>Anemone multifida</i>	cut-leaved anemone	S5
<i>Anemone quinquefolia</i>	wood anemone	S5
<i>Antennaria parvifolia</i>	small-leaved pussytoes	S4
<i>Anthoxanthum hirtum</i>	hairy sweetgrass	S5
<i>Apocynum androsaemifolium</i>	spreading dogbane	S5
<i>Aquilegia canadensis</i>	wild columbine	S5
<i>Arabis pycnocarpa</i>	cream-flowered rockcress	S4S5
<i>Aralia nudicaulis</i>	wild sarsaparilla	S5
<i>Arctium minus</i>	lesser burdock	SNA
<i>Arctostaphylos uva-ursi</i>	common bearberry	S5
<i>Arnica</i> sp.	unknown arnica species	-
<i>Asparagus officinalis</i>	garden asparagus	SNA



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Scientific Name	Common Name	Provincial S Rank
<i>Athyrium filix-femina</i>	lady fern	S5
<i>Betula papyrifera</i>	paper birch	S5
<i>Betula pumila</i>	bog birch	S5
<i>Bidens frondosa</i>	devil's beggarticks	S4
<i>Botrypus virginianus</i>	rattlesnake fern	S4
<i>Bromus ciliatus</i>	fringed brome	S5
<i>Bromus inermis</i>	smooth brome	SNA
<i>Calamagrostis canadensis</i>	bluejoint reedgrass	S5
<i>Calla palustris</i>	wild calla	S5
<i>Caltha palustris</i>	marsh marigold	S5
<i>Campanula aparinoides</i>	marsh bellflower	S5
<i>Campanula rotundifolia</i>	harebell	S5
<i>Capnoides sempervirens</i>	pink corydalis	S5
<i>Carex aquatilis</i>	water sedge	S5
<i>Carex atherodes</i>	wheat sedge	S5
<i>Carex aurea</i>	golden sedge	S5
<i>Carex bebbii</i>	Bebb's sedge	S5
<i>Carex canescens</i>	hoary sedge	S5
<i>Carex chordorrhiza</i>	creeping sedge	S4S5
<i>Carex crawfordii</i>	Crawford's sedge	S4
<i>Carex deweyana</i>	Dewey's sedge	S5
<i>Carex disperma</i>	two-seeded sedge	S5
<i>Carex gynocrates</i>	northern bog sedge	S5
<i>Carex interior</i>	inland sedge	S4?
<i>Carex intumescens</i>	bladder sedge	S3
<i>Carex sartwellii</i>	Sartwell's sedge	S4?
<i>Carex</i> sp.	unknown sedge species	-
<i>Carex tenuiflora</i>	sparse-flowered sedge	S4S5
<i>Carex trisperma</i>	three-seeded sedge	S4S5
<i>Carex utriculata</i>	northern beaked sedge	S5
<i>Cerastium arvense</i>	field chickweed	S5
<i>Cerastium nutans</i>	long-stalked chickweed	S4S5
<i>Chamaedaphne calyculata</i>	leather-leaf	S5
<i>Chamaenerion angustifolium</i>	fireweed	S5
<i>Cicuta maculata</i>	spotted water-hemlock	S4S5
<i>Cinna latifolia</i>	slender woodreed	S4S5
<i>Circaea alpina</i>	small enchanter's-nightshade	S4S5
<i>Cirsium arvense</i>	Canada thistle	SNA



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Scientific Name	Common Name	Provincial S Rank
<i>Cladonia rangiferina</i>	gray reindeer lichen	S5
<i>Climacium dendroides</i>	northern tree moss	S4S5
<i>Clintonia borealis</i>	blue bead-lily	S4
<i>Comandra umbellata</i>	bastard toadflax	S5
<i>Comarum palustre</i>	marsh cinquefoil	S5
<i>Coptis trifolia</i>	goldthread	S4S5
<i>Corallorhiza striata</i>	striped coralroot	S3S4
<i>Cornus alternifolia</i>	alternate-leaved dogwood	S3
<i>Cornus canadensis</i>	bunchberry	S5
<i>Cornus sericea</i>	red-osier dogwood	S5
<i>Corylus cornuta</i>	beaked hazelnut	S5
<i>Corylus cornuta ssp. cornuta</i>	beaked hazelnut	S5
<i>Crepis tectorum</i>	narrow-leaved hawkbeard	SNA
<i>Cypripedium acaule</i>	pink lady's-slipper	S3S4
<i>Cypripedium parviflorum</i>	yellow lady's-slipper	S5?
<i>Dactylis glomerata</i>	orchard grass	SNA
<i>Dendrolycopodium dendroideum</i>	round-branched tree-clubmoss	S4
<i>Dicranum undulatum</i>	bog broom moss	S4S5
<i>Doellingeria umbellata</i>	flat-topped white aster	S5
<i>Dracocephalum parviflorum</i>	American dragon-head	S5
<i>Drepanocladus aduncus</i>	Knieff's hook moss	S4S5
<i>Dryopteris carthusiana</i>	spinulose wood fern	S5
<i>Dryopteris cristata</i>	crested wood fern	S3S4
<i>Eleocharis palustris</i>	creeping spikerush	S5
<i>Elymus canadensis</i>	Canada wildrye	S4S5
<i>Elymus trachycaulus</i>	slender wildrye	S5
<i>Epilobium palustre</i>	marsh willowherb	S5
<i>Epilobium sp.</i>	unknown willowherb species	-
<i>Equisetum arvense</i>	field horsetail	S5
<i>Equisetum fluviatile</i>	water horsetail	S5
<i>Equisetum hyemale</i>	common scouring-rush	S5
<i>Equisetum sylvaticum</i>	woodland horsetail	S5
<i>Erigeron canadensis</i>	Canada horseweed	S5
<i>Erigeron strigosus</i>	rough fleabane	S3S5
<i>Eriophorum vaginatum</i>	tussock cottongrass	S5
<i>Euthamia graminifolia</i>	grass-leaved goldenrod	S5
<i>Eutrochium maculatum</i>	spotted Joe pye weed	S5
<i>Fragaria vesca</i>	woodland strawberry	S4S5



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Scientific Name	Common Name	Provincial S Rank
<i>Fragaria virginiana</i>	smooth wild strawberry	S5
<i>Fragaria virginiana ssp. glauca</i>	smooth wild strawberry	S5
<i>Fraxinus pennsylvanica</i>	green ash	S4S5
<i>Galeopsis tetrahit</i>	common hemp-nettle	SNA
<i>Galium boreale</i>	northern bedstraw	S5
<i>Galium trifidum</i>	small bedstraw	S5
<i>Galium trifidum ssp. trifidum</i>	small bedstraw	S5
<i>Galium triflorum</i>	sweet-scented bedstraw	S5
<i>Geranium bicknellii</i>	Bicknell's geranium	S5
<i>Geum aleppicum</i>	yellow avens	S5
<i>Geum macrophyllum</i>	large-leaved avens	S4S5
<i>Geum triflorum</i>	three-flowered avens	S4S5
<i>Glyceria grandis</i>	tall mannagrass	S5
<i>Glyceria striata</i>	fowl mannagrass	S5
<i>Gymnocarpium dryopteris</i>	northern oak fern	S4S5
<i>Helianthus maximiliani</i>	Maximilian sunflower	S5
<i>Heuchera richardsonii</i>	Richardson's alumroot	S5
<i>Hieracium umbellatum</i>	umbellate hawkweed	S5
<i>Hylocomium splendens</i>	stairstep moss	S4S5
<i>Impatiens capensis</i>	spotted jewelweed	S5
<i>Impatiens sp.</i>	unknown jewelweed species	-
<i>Juncus arcticus var. balticus</i>	Baltic rush	S5
<i>Juncus longistylis</i>	long-styled rush	S4
<i>Juncus nodosus</i>	knotted rush	S5
<i>Juniperus communis</i>	common juniper	S5
<i>Juniperus horizontalis</i>	creeping juniper	S5
<i>Kalmia polifolia</i>	bog-laurel	S5
<i>Lactuca biennis</i>	tall blue lettuce	S4
<i>Larix laricina</i>	tamarack	S5
<i>Lathyrus ochroleucus</i>	pale vetchling	S5
<i>Lemna sp.</i>	unknown duckweed species	-
<i>Lemna trisulca</i>	star duckweed	S4S5
<i>Linnaea borealis</i>	twinline	S5
<i>Lonicera dioica</i>	limber or twining honeysuckle	S5
<i>Lotus corniculatus</i>	bird's-foot trefoil	SNA
<i>Luzula parviflora</i>	small-flowered woodrush	S4S5
<i>Lycopus americanus</i>	water hore-hound	S5
<i>Lycopus uniflorus</i>	northern bugleweed	S4S5



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Scientific Name	Common Name	Provincial S Rank
<i>Lysimachia borealis</i>	northern starflower	S5
<i>Lysimachia ciliata</i>	fringed loosestrife	S5
<i>Lysimachia</i> sp.	unknown loosestrife species	-
<i>Lysimachia thyrsoiflora</i>	tufted loosestrife	S5
<i>Maianthemum canadense</i>	two-leaved Solomon's-seal	S5
<i>Maianthemum stellatum</i>	star-flowered solomon's-seal	S5
<i>Maianthemum trifolium</i>	three-leaved Solomon's-seal	S5
<i>Matteuccia struthiopteris</i>	ostrich fern	S5
<i>Matteuccia struthiopteris</i> var. <i>pensylvanica</i>	ostrich fern	S5
<i>Medicago lupulina</i>	black medick	SNA
<i>Medicago sativa</i>	alfalfa	SNA
<i>Melampyrum lineare</i>	narrow-leaved cow-wheat	S3S5
<i>Melilotus albus</i>	white sweet clover	SNA
<i>Mentha canadensis</i>	Canada mint	S5
<i>Mentha</i> sp.	unknown mint species	-
<i>Mimulus ringens</i>	square-stemmed monkeyflower	S4
<i>Mitella nuda</i>	mitrewort	S5
<i>Moehringia lateriflora</i>	grove sandwort	S5
<i>Monotropa uniflora</i>	convulsion root	S4
<i>Nuphar variegata</i>	yellow pond-lily	S5
<i>Onoclea sensibilis</i>	sensitive fern	S3?
<i>Orthilia secunda</i>	one-sided wintergreen	S5
<i>Oryzopsis asperifolia</i>	white-grained mountain-ricegrass	S5
<i>Osmorhiza longistylis</i>	smooth sweet cicely	S5
<i>Osmorhiza</i> sp.	unknown cicely species	
<i>Oxalis stricta</i>	yellow wood-sorrel	SNA
<i>Parnassia palustris</i>	marsh grass of Parnassus	S5
<i>Peltigera aphthosa</i>	common freckle pelt lichen	S5
<i>Peltigera canina</i>	dog pelt lichen	S5
<i>Persicaria amphibia</i>	water smartweed	S5
<i>Persicaria lapathifolia</i>	pale smartweed	S5
<i>Persicaria sagittata</i>	arrow-leaved tear-thumb	S3
<i>Petasites frigidus</i>	arctic sweet colt's-foot	S5
<i>Petasites frigidus</i> var. <i>palmatus</i>	palmate-leaved colt's-foot	S5
<i>Petasites frigidus</i> var. <i>sagittatus</i>	arrow-leaved colt's-foot	S5
<i>Phalaris arundinacea</i>	reed canarygrass	S5
<i>Phleum pratense</i>	meadow Timothy	SNA
<i>Phragmites australis</i>	common reedgrass	S5



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Scientific Name	Common Name	Provincial S Rank
<i>Picea glauca</i>	white spruce	S5
<i>Picea mariana</i>	black spruce	S5
<i>Pinus banksiana</i>	jack pine	S5
<i>Plantago major</i>	common plantain	SNA
<i>Pleurozium schreberi</i>	red-stemmed feather moss	S4S5
<i>Poa palustris</i>	fowl bluegrass	S5
<i>Poa pratensis</i>	Kentucky bluegrass	S5
<i>Polypodium virginianum</i>	rock polypody	S5
<i>Polytrichum commune</i>	common haircap moss	S4S5
<i>Populus balsamifera</i>	balsam poplar	S5
<i>Populus tremuloides</i>	trembling aspen	S5
<i>Potentilla gracilis</i>	graceful cinquefoil	SU
<i>Potentilla norvegica</i>	rough cinquefoil	S5
<i>Potentilla</i> sp.	unknown cinquefoil species	-
<i>Prunus nigra</i>	Canada plum	S4
<i>Prunus pennsylvanica</i>	pin cherry	S5
<i>Prunus</i> sp.	unknown cherry/plum species	-
<i>Prunus virginiana</i>	chokecherry	S5
<i>Pteridium aquilinum</i>	bracken fern	S3S4
<i>Ptilium crista-castrensis</i>	Knight's plume moss	S4S5
<i>Pyrola asarifolia</i>	pink pyrola	S5
<i>Quercus macrocarpa</i>	bur oak	S5
<i>Ranunculus acris</i>	common buttercup	SNA
<i>Ranunculus macounii</i>	Macoun's buttercup	S5
<i>Ranunculus pennsylvanicus</i>	bristly crowfoot	S5
<i>Ranunculus</i> sp.	unknown buttercup/crowfoot species	-
<i>Rhododendron groenlandicum</i>	Labrador-tea	S5
<i>Ribes americanum</i>	wild black currant	S5
<i>Ribes glandulosum</i>	skunk currant	S5
<i>Ribes hudsonianum</i>	northern wild black currant	S5
<i>Ribes lacustre</i>	bristly black currant	S4
<i>Ribes oxycanthoides</i>	Canada wild gooseberry	S5
<i>Ribes triste</i>	wild red currant	S5
<i>Rosa acicularis</i>	prickly rose	S5
<i>Rubus arcticus</i>	stemless raspberry	S5
<i>Rubus chamaemorus</i>	cloudberry	S5
<i>Rubus idaeus</i>	red raspberry	S5
<i>Rubus pubescens</i>	dewberry	S5



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Scientific Name	Common Name	Provincial S Rank
<i>Rumex occidentalis</i>	western dock	SNA
<i>Sagittaria cuneata</i>	northern arrowhead	S5
<i>Sagittaria rigida</i>	sessile-fruited arrowhead	S2?
<i>Salix bebbiana</i>	Bebb's or beaked willow	S5
<i>Salix discolor</i>	pussy willow	S5
<i>Salix humilis</i>	gray willow	S4
<i>Salix interior</i>	sandbar willow	S5
<i>Salix lucida</i>	shining willow	S5
<i>Salix maccalliana</i>	velvet-fruited willow	S4
<i>Salix pedicellaris</i>	bog willow	S5
<i>Salix petiolaris</i>	basket willow	S4S5
<i>Salix planifolia</i>	plane-leaved willow	S5
<i>Salix pseudomonticola</i>	false mountain willow	S4S5
<i>Salix pyrifolia</i>	balsam willow	S4S5
<i>Salix scouleriana</i>	Scouler willow	S4
<i>Salix serissima</i>	autumn willow	S4S5
<i>Salix</i> sp.	unknown willow species	-
<i>Sambucus racemosa</i>	red elderberry	S4
<i>Sanicula marilandica</i>	snakeroot	S5
<i>Sarracenia purpurea</i>	pitcher plant	S4S5
<i>Scirpus microcarpus</i>	small-fruited bulrush	S5
<i>Scutellaria galericulata</i>	hooded skullcap	S5
<i>Scutellaria lateriflora</i>	mad-dog skullcap	S4
<i>Sibbaldia tridentata</i>	three-toothed cinquefoil	S5
<i>Silene csereii</i>	smooth catchfly	SNA
<i>Sisyrinchium montanum</i>	strict blue-eyed-grass	S5
<i>Sium suave</i>	water-parsnip	S5
<i>Solanum dulcamara</i>	bittersweet	SNA
<i>Solidago canadensis</i>	Canada goldenrod	S5
<i>Solidago gigantea</i>	giant goldenrod	S5
<i>Solidago missouriensis</i>	Missouri goldenrod	S5
<i>Solidago</i> sp.	unknown goldenrod species	-
<i>Solidago uliginosa</i>	bog goldenrod	S3
<i>Sonchus arvensis</i>	field sow-thistle	SNA
<i>Sorbus decora</i>	showy mountain-ash	S4
<i>Sphagnum angustifolium</i>	narrowleaf peatmoss	S4S5
<i>Sphagnum fuscum</i>	brown peatmoss	S4S5
<i>Sphagnum magellanicum</i>	Magellan's peatmoss	S4S5



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Scientific Name	Common Name	Provincial S Rank
<i>Sphagnum squarrosum</i>	shaggy peatmoss	S4S5
<i>Spinulum annotinum</i>	stiff clubmoss	S5
<i>Spiraea alba</i>	white meadowsweet	S5
<i>Stachys pilosa</i>	hairy hedge-nettle	S5
<i>Stachys tenuifolia</i>	smooth hedge-nettle	S3
<i>Streptopus amplexifolius</i>	clasping twisted-stalk	S2?
<i>Symphoricarpos albus</i>	snowberry	S4S5
<i>Symphoricarpos</i> sp.	unknown snowberry species	-
<i>Symphyotrichum boreale</i>	boreal aster	S4S5
<i>Symphyotrichum ciliatum</i>	rayless alkali aster	S4
<i>Symphyotrichum ciliolatum</i>	Lindley's aster	S5
<i>Symphyotrichum lateriflorum</i>	calico aster	S4
<i>Symphyotrichum puniceum</i>	purple-stemmed aster	S5
<i>Symphyotrichum</i> sp.	unknown aster species	-
<i>Taraxacum officinale</i>	common dandelion	SNA
<i>Thalictrum dasycarpum</i>	tall or purple meadow-rue	S5
<i>Thalictrum</i> sp.	unkown meadow-rue species	-
<i>Thalictrum venulosum</i>	veiny meadow-rue	S5
<i>Tomentypnum nitens</i>	golden fuzzy fen moss	S4S5
<i>Toxicodendron rydbergii</i>	western poison-ivy	S5
<i>Tragopogon dubius</i>	yellow goat's-beard	SNA
<i>Trifolium hybridum</i>	alsike clover	SNA
<i>Trifolium pratense</i>	red clover	SNA
<i>Typha latifolia</i>	common cat-tail	S4S5
<i>Ulmus americana</i>	American elm	S4S5
<i>Urtica dioica</i>	stinging nettle	S5
<i>Vaccinium angustifolium</i>	low sweet blueberry	S4
<i>Vaccinium cespitosum</i>	dwarf bilberry	S3
<i>Vaccinium myrtilloides</i>	velvet-leaf blueberry	S5
<i>Vaccinium oxycoccos</i>	small cranberry	S5
<i>Vaccinium vitis-idaea</i>	bog cranberry	S5
<i>Veronica americana</i>	American speedwell	S4
<i>Viburnum edule</i>	mooseberry	S5
<i>Viburnum opulus</i>	highbush-cranberry	S5
<i>Viburnum opulus</i> var. <i>americanum</i>	highbush cranberry	S5
<i>Viburnum rafinesqueanum</i>	downy arrow-wood	S4S5
<i>Vicia americana</i>	American purple vetch	S5
<i>Viola adunca</i> var. <i>adunca</i>	early blue violet	S5



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Scientific Name	Common Name	Provincial S Rank
<i>Viola canadensis</i>	Canada violet	S5
<i>Viola palustris</i>	marsh violet	S4
<i>Viola pubescens</i>	downy yellow violet	S4
<i>Viola</i> sp.	unknown violet species)	-
<i>Woodsia ilvensis</i>	rusty woodsia	S5
<i>Woodsia</i> sp.	unknown woodsia species	-
<i>Zizia aptera</i>	heart-leaved alexanders	S5
NOTE: Species nomenclature follows MB CDC 2021.		



A.3 Wetland Assessment Summary

Site #	Wetland Class	Open water present (Y/N)	Weeds present	Evidence of human disturbance present (Y/N)	Inlets and outlets present	pH	Electrical Conductivity (µS/cm)	Water depth (cm)
MHRP26-WL	MGIV Marsh - graminoid - semi-permanent	Y	N	N	Y, off row	6.12	72.2	100
MHRP27-WL	SSIII Swamp - shrubby - seasonal	Y	N	N	N	6.32	168	1
Heli6- WL6	FG Fen - graminoid	Y	N	N	Y, off ROW	4.74	36.7	1
MHRP25-WL1-c	FG Fen - graminoid	Y	Y	N	Y, off ROW	6.21	76.6	100
Heli5- WL5	WAV Shallow open water - aquatic vegetation - permanent	Y	Y	Y, ROW	Y, off ROW	6.74	181.5	1
MHRP28-WL3-c	FG Fen - graminoid	Y	Y	Y, ROW	Y, off ROW	6.25	71.2	1
Heli3-WL	SSIII Swamp - shrubby - seasonal	Y	N	N	Y, off ROW	7.05	275	20
Heli1-WL	MGIV Marsh - graminoid - semi-permanent	N	N	N	N	n/a	No water present	No water present
MHRP13-WL	MGIV Marsh - graminoid - semi-permanent	Y	N	Y, road	Y, off ROW	6.97	278	0.2
MHRP3-WL	SSIII Swamp - shrubby - seasonal	N	Y	N	N	N/A	No water present	No water present
MHRP33-WL04-WL	SSIII Swamp - shrubby - seasonal	Y	N	Y, agriculture	Yes	8.06	90.9	1
MHRP105-c	SWc Swamp - wooded coniferous	N	N	N	N	N/A	N/A	No water present
MHRP32-c	SSII Swamp - shrubby - temporary	Y	N	Y, road	N	8.12	90.4	1



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report

Appendix A Tables

June 13, 2023

Site #	Wetland Class	Open water present (Y/N)	Weeds present	Evidence of human disturbance present (Y/N)	Inlets and outlets present	pH	Electrical Conductivity (µS/cm)	Water depth (cm)
MHRP34-c	SSII Swamp - shrubby - temporary	N	Y	N	N	N/A	N/A	No water present
MHRP36-s	INbare Industrial - Bare	Y	N	Y, road	N	8.3	435	1



June 13, 2023

Appendix B Photographs



PHOTO 1 Alternate-leaved dogwood (*Cornus alternifolia*) S3



PHOTO 2 Arrow-leaved tear-thumb (*Persicaria sagittata*) S3



PHOTO 3 Bladder sedge (*Carex intumescens*) S3



PHOTO 4 Bracken fern (*Pteridium aquilinum*) S3



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report
Appendix B Photographs

June 13, 2023



PHOTO 5 Common agrimony (*Agrimonia gryposepala*) S1S3



PHOTO 6 Dwarf bilberry (*Vaccinium cespitosum*) S3



PHOTO 7 Hog-peanut (*Amphicarpaea bracteata*) S3S5



PHOTO 8 Narrow-leaved cow-wheat (*Melampyrum lineare*) S3S5



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report
Appendix B Photographs

June 13, 2023



PHOTO 9 Pearly everlasting (*Anaphalis margaritacea*) S3



PHOTO 10 Rough fleabane (*Erigeron strigosus*) S3S5



PHOTO 11 Sensitive fern (*Onoclea sensibilis*) S3



PHOTO 12 Sessile-fruited arrowhead (*Sagittaria rigida*) S2



Appendix C KPI Questions

Topic: *Water Rights Act* – wetland compensation requirement

Contact: Manitoba Environment and Climate Senior Water Resource Officer Ginette Caillier (East) (phone conversation February 21, 2023 at 4:17 pm and email on March 2, 2023). Local resource water officer **Wendy Lewick** (phone conversation January 12, 2023).

Questions:

- This project is not a water diversion/water management project, but we understand that there is an approval process to construct within wetlands and a compensation process for all projects that affect Class 3, 4, and 5 wetlands in Manitoba. Is this correct?
- Under the *Water Rights Regulations*, are the classes of wetlands based on Stewart and Kantrud 1971? If so, does the *Water Rights Act* only apply to marsh and open water wetlands in the prairie pothole region?
- Are swamp wetlands included? (Schedule C)
- Is area-based compensation the only way to calculate the compensation fee for wetlands?
- Is there any minimum size of impact to a wetland that would require compensation?
- Are class 1 and 2 wetlands protected under the Act (i.e., is any approval required for effects to Class 1 and 2 wetlands)?
- Must all Class 4 and 5 wetlands be avoided, or can they be compensated for as well? What is the process for obtaining approval for disturbing?
- Is there a Watershed District for the Project area and is there a Watershed Plan for this district?
- Are there any vegetation or wetland specific mitigation measures that you think should be incorporated or that you would like to see for this Project?

Topic: Weeds

Contact: Manitoba Weed Supervisors Association – Weed District of Agassiz director Derrick Storoschuk (not available to address questions). Weed Supervisor for Selkirk District - Kristin Pingatory (phone conversation January 16, 2023).



Pointe du Bois Renewable Energy Project Vegetation and Wetlands Technical Data Report
Appendix C KPI Questions

June 13, 2023

Questions:

- Do you have any municipal weed species lists or weeds that are problematic in your municipality or district?
- What are the measures you are using to control these problematic weeds?
- Are there any vegetation or wetlands specific mitigation measures that you think should be incorporated or that you would like to see for this Project?



FORESTRY APPENDIX
FORESTRY RESOURCE PRODUCTIVITY AND VOLUME ESTIMATION - FMU 24 & 30

OBJECT ID	FOREST MANAGEMENT UNIT	COVER TYPE	SPECIES COMPOSITION	AREA (HA)	SOFTWOOD MAI (m ³ /ha/yr)	HARDWOOD MAI (m ³ /ha/yr)	SOFTWOOD VOLUME (m ³)	HARDWOOD VOLUME (m ³)	TOTAL VOLUME (m ³)	PERCENT SOFTWOOD AAC	PERCENT HARDWOOD AAC
165	24	H	AS9T1L	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	24	H	TA10	0.65	0.37	2.05	0.09	0.90	1.00	0.00	0.00
181	24	H	TA10	0.17	0.37	2.05	0.02	0.23	0.26	0.00	0.00
182	24	H	TA10	1.41	0.37	2.05	0.20	1.96	2.16	0.00	0.00
184	24	H	WB7TA2BF1	0.01	0.37	2.05	0.01	0.06	0.07	0.00	0.00
189	24	H	TA8WB2	0.05	0.37	2.05	0.03	0.35	0.38	0.00	0.00
193	24	H	TA6BA2BF2	2.14	0.40	0.70	1.18	14.45	15.63	0.00	0.01
206	24	H	TA10	1.97	0.40	0.70	2.36	31.04	33.40	0.00	0.03
213	24	H	TA9BA1	1.20	0.37	2.05	1.45	19.01	20.45	0.00	0.02
219	24	H	TA9BA1	0.35	0.37	2.05	0.42	5.49	5.91	0.00	0.00
222	24	H	TA10	0.08	0.40	0.70	0.18	2.32	2.50	0.00	0.00
223	24	H	TA10	0.25	0.40	0.70	0.52	6.82	7.34	0.00	0.01
224	24	H	TA10	1.23	0.40	0.70	2.54	33.60	36.14	0.00	0.03
225	24	H	TA8BA1BF1	1.36	0.37	2.05	2.81	37.16	39.96	0.00	0.03
226	24	H	TA10	0.09	0.40	0.70	0.19	2.49	2.68	0.00	0.00
227	24	H	TA10	1.93	0.40	0.70	3.99	52.80	56.79	0.00	0.04
228	24	H	TA8BA1BF1	0.94	0.37	2.05	1.95	25.79	27.74	0.00	0.02
229	24	H	TA8BA1BF1	1.61	0.37	2.05	3.34	44.14	47.47	0.00	0.04
230	24	H	TA10	0.01	0.40	0.70	0.03	0.39	0.42	0.00	0.00
231	24	H	TA10	3.75	0.40	0.70	7.76	102.61	110.36	0.00	0.09
234	24	H	TA8AS1BF1	0.52	0.37	2.05	1.08	14.23	15.31	0.00	0.01
235	24	H	TA8AS1BF1	0.34	0.37	2.05	0.70	9.27	9.97	0.00	0.01
236	24	H	TA9BF1	0.95	0.37	2.05	1.96	25.98	27.95	0.00	0.02
237	24	H	TA9JP1	0.89	0.37	2.05	1.85	24.45	26.30	0.00	0.02
238	24	H	TA9JP1	0.25	0.37	2.05	0.52	6.85	7.37	0.00	0.01
239	24	H	AS9T1L	1.54	0.40	0.70	4.87	26.18	31.05	0.00	0.02
240	24	H	TA8JP1BF1	1.17	0.37	2.05	2.43	32.14	34.57	0.00	0.03
241	24	H	TA8JP1BF1	1.73	0.37	2.05	3.58	47.36	50.94	0.00	0.04
242	24	H	TA8JP1BF1	0.40	0.37	2.05	0.82	10.84	11.66	0.00	0.01
243	24	H	TA6BA3BF1	0.07	0.40	0.70	0.14	1.84	1.98	0.00	0.00
244	24	H	TA6BA3BF1	0.84	0.40	0.70	1.74	23.06	24.80	0.00	0.02
245	24	H	TA9BF1	0.02	0.37	2.05	0.06	0.76	0.82	0.00	0.00
248	24	H	TA9BS1	0.01	0.40	0.70	0.03	0.38	0.41	0.00	0.00
256	24	H	TA10	0.04	0.37	2.05	0.16	2.00	2.16	0.00	0.00
264	24	H	TA10	0.28	0.37	2.05	1.25	15.26	16.51	0.00	0.01
267	24	H	TA10	1.26	0.37	2.05	5.57	67.72	73.29	0.00	0.06
268	24	H	TA10	0.29	0.37	2.05	1.29	15.73	17.02	0.00	0.01
269	24	H	TA5WB3BF2	0.19	0.37	2.05	1.10	12.44	13.53	0.00	0.01
270	24	H	TA5WB3BF2	0.23	0.37	2.05	1.35	15.31	16.66	0.00	0.01
273	24	H	TA7BF2BA1	0.71	0.37	2.05	4.17	47.36	51.54	0.00	0.04
279	24	H	TA8WB2	0.05	0.37	2.05	0.37	3.92	4.29	0.00	0.00
280	24	H	BA6AS2EC2	0.08	0.40	0.70	0.59	6.21	6.80	0.00	0.01
281	24	H	TA6AS4	0.26	0.37	2.05	1.92	20.14	22.06	0.00	0.02
282	24	H	BA6AS2EC2	1.61	0.40	0.70	11.96	125.43	137.39	0.01	0.11
288	24	H	TA9BA1	0.08	0.40	0.70	0.70	6.76	7.46	0.00	0.01
289	24	H	TA9BA1	0.95	0.40	0.70	8.72	83.81	92.53	0.01	0.07
292	24	H	AS4BA4BS2	0.06	0.40	0.70	0.54	2.24	2.78	0.00	0.00
293	24	H	AS4BA4BS2	1.35	0.40	0.70	12.75	52.47	65.22	0.01	0.04
294	24	H	TA6BA4	0.51	0.37	2.05	4.63	44.50	49.13	0.00	0.04
295	24	H	TA6BA4	0.03	0.37	2.05	0.26	2.46	2.71	0.00	0.00
297	24	H	TA6BA4	1.04	0.37	2.05	9.52	91.49	101.01	0.01	0.08
298	24	H	TA6WB2BF2	1.05	0.37	2.05	9.60	92.31	101.91	0.01	0.08
305	24	H	TA10	0.93	0.40	0.70	10.16	88.88	99.04	0.01	0.08
306	24	H	TA10	0.44	0.40	0.70	4.82	42.13	46.95	0.00	0.04
308	24	H	TA9BS1	0.10	0.37	2.05	1.10	9.61	10.71	0.00	0.01
313	24	H	TA8WB1BF1	0.08	0.37	2.05	1.05	8.32	9.37	0.00	0.01
314	24	H	BA8AS2	0.35	0.37	2.05	4.55	36.05	40.60	0.00	0.03
315	24	H	TA8WB1BF1	0.60	0.37	2.05	7.73	61.26	68.99	0.00	0.05
316	24	H	TA6BA2BF2	0.68	0.40	0.70	8.82	69.84	78.65	0.01	0.06
317	24	H	TA6BA2BF2	1.19	0.40	0.70	15.34	121.48	136.82	0.01	0.10
318	24	H	AS6BO2MM2	0.08	0.40	0.70	1.02	4.24	4.24	0.00	0.00
319	24	H	AS6BO2MM2	0.45	0.40	0.70	5.54	17.56	23.10	0.00	0.01
322	24	H	AS8BA2	0.62	0.40	0.70	7.56	23.96	31.52	0.00	0.02
323	24	H	AS8BA2	0.23	0.40	0.70	2.79	8.83	11.61	0.00	0.01
327	24	H	AS10	0.04	0.40	0.70	0.47	1.35	1.82	0.00	0.00
328	24	H	TA8BA2	0.34	0.37	2.05	5.68	36.39	42.07	0.00	0.03
345	24	H	TA8BF2	0.10	0.40	0.70	1.92	11.04	12.96	0.00	0.01
346	24	H	TA8BF2	0.18	0.40	0.70	3.46	19.88	23.35	0.00	0.02
356	24	H	TA9JP1	1.03	0.40	0.70	19.42	111.43	130.85	0.01	0.09
357	24	H	TA8BF2	0.10	0.40	0.70	1.98	11.35	13.33	0.00	0.01
358	24	H	TA8BF2	0.73	0.40	0.70	13.77	79.03	92.80	0.01	0.07
359	24	H	TA8BF2	0.49	0.40	0.70	9.20	52.81	62.01	0.01	0.04
361	24	H	TA6BA2BS1BF1	0.26	0.37	2.05	5.01	28.76	33.78	0.00	0.02
363	24	H	TA6BA2BS1BF1	1.62	0.37	2.05	30.69	176.13	206.82	0.02	0.15
365	24	H	AS7BA2BF1	0.03	0.40	0.70	0.42	1.10	1.53	0.00	0.00
366	24	H	TA6BA3BF1	0.03	0.40	0.70	0.66	3.78	4.44	0.00	0.00
372	24	H	AS7BA2BF1	0.41	0.40	0.70	5.53	14.42	19.95	0.00	0.01
373	24	H	TA6BA3BF1	0.56	0.40	0.70	10.57	60.66	71.23	0.01	0.05
376	24	H	AS9BA1	1.92	0.40	0.70	25.74	67.19	92.93	0.02	0.06
381	24	H	TA7WS2BA1	1.42	0.37	2.05	26.90	154.34	181.24	0.02	0.13
394	24	H	TA6WB2BF2	3.02	0.40	0.70	63.43	324.99	388.42	0.04	0.28
395	24	H	TA6AS2EL1BA1	0.11	0.37	2.05	2.28	11.69	13.97	0.00	0.01
396	24	H	AS6EL2TA2	0.24	0.40	0.70	3.27	7.71	10.98	0.00	0.01
397	24	H	TA6AS2EL1BA1	0.59	0.37	2.05	12.38	63.42	75.79	0.01	0.05
398	24	H	AS6EL2TA2	2.87	0.40	0.70	39.47	93.11	132.58	0.02	0.08
166	24	M	TA4JP3BS2WB1	0.02	0.69	0.39	0.00	0.00	0.00	0.00	0.00
167	24	M	TA4JP3BS2WB1	0.02	0.69	0.39	0.00	0.00	0.00	0.00	0.00
168	24	M	TA4JP3BS2WB1	0.03	0.69	0.39	0.00	0.00	0.00	0.00	0.00
169	24	M	TA4JP3BS2WB1	0.26	0.69	0.39	0.00	0.00	0.00	0.00	0.00
170	24	M	TA4JP3BS2WB1	0.27	0.69	0.39	0.00	0.00	0.00	0.00	0.00

OBJECT ID	FOREST MANAGEMENT UNIT	COVER TYPE	SPECIES COMPOSITION	AREA (HA)	SOFTWOOD MAI (m ³ /ha/yr)	HARDWOOD MAI (m ³ /ha/yr)	SOFTWOOD VOLUME (m ³)	HARDWOOD VOLUME (m ³)	TOTAL VOLUME (m ³)	PERCENT SOFTWOOD AAC	PERCENT HARDWOOD AAC
172	24	M	BS4TA3WB2JP1	0.01	0.69	0.39	0.00	0.00	0.00	0.00	0.00
173	24	M	BS4TA3WB2JP1	0.06	0.69	0.39	0.00	0.00	0.00	0.00	0.00
174	24	M	BS4TA3WB2JP1	0.58	0.69	0.39	0.00	0.00	0.00	0.00	0.00
175	24	M	BS4TA3WB2JP1	0.02	0.69	0.39	0.00	0.00	0.00	0.00	0.00
176	24	M	N/A	1.12	0.69	0.39	0.00	0.00	0.00	0.00	0.00
211	24	M	WS6TA4	0.44	1.05	0.73	7.60	5.20	12.81	0.00	0.00
212	24	M	WS6TA4	0.67	1.05	0.73	11.64	7.96	19.60	0.01	0.01
214	24	M	BS4TA3JP2BF1	0.79	1.05	0.73	13.62	9.32	22.94	0.01	0.01
215	24	M	TA5BS3JP2	1.90	1.05	0.73	32.88	22.50	55.37	0.02	0.02
216	24	M	BF4TA4WS2	0.06	0.69	0.39	1.05	0.72	1.77	0.00	0.00
217	24	M	BF4TA4WS2	0.31	0.69	0.39	5.43	3.72	9.15	0.00	0.00
218	24	M	BF4TA4WS2	0.05	0.69	0.39	0.79	0.54	1.34	0.00	0.00
257	24	M	WS6TA4	0.10	1.05	0.73	5.27	3.21	8.48	0.00	0.00
258	24	M	WS6TA4	0.89	1.05	0.73	46.72	28.52	75.24	0.03	0.02
265	24	M	TA5BF3JP2	0.37	1.05	0.73	19.23	11.74	30.97	0.01	0.01
274	24	M	BF6TA2BA2	1.85	1.05	0.73	113.78	67.57	181.35	0.07	0.06
275	24	M	TA4WS3BF2BA1	0.44	1.05	0.73	30.07	17.43	47.50	0.02	0.01
277	24	M	TA4WS3BF2BA1	1.09	1.05	0.73	74.73	43.33	118.05	0.05	0.04
302	24	M	BS6AS2BA2	1.70	1.05	0.73	124.20	70.43	194.63	0.08	0.06
303	24	M	BS7BA3	1.94	1.05	0.73	142.45	80.79	223.24	0.09	0.07
307	24	M	JP4BS3TA3	0.01	0.69	0.39	1.06	0.59	1.65	0.00	0.00
309	24	M	JP4BS3TA3	0.16	0.69	0.39	12.29	6.83	19.12	0.01	0.01
310	24	M	JP4BS3TA3	0.33	0.69	0.39	25.01	13.90	38.91	0.02	0.01
336	24	M	TA5BF2JP2BS1	0.05	1.05	0.73	3.70	1.95	5.65	0.00	0.00
337	24	M	TA5BF2JP2BS1	0.38	1.05	0.73	27.22	14.35	41.57	0.02	0.01
360	24	M	WS4TA4BF2	2.96	0.69	0.39	202.40	105.02	307.43	0.13	0.09
362	24	M	TA5BS2JP2WS1	0.00	1.05	0.73	0.30	0.16	0.45	0.00	0.00
369	24	M	JP5WB3BF2	0.39	0.69	0.39	26.63	13.82	40.44	0.02	0.01
370	24	M	JP4TA3BF2BS1	0.16	1.05	0.73	11.01	5.71	16.72	0.01	0.00
371	24	M	JP4TA3BF2BS1	0.24	1.05	0.73	16.35	8.48	24.83	0.01	0.01
377	24	M	JP4TA3BF2BS1	0.94	1.05	0.73	64.05	33.23	97.29	0.04	0.03
378	24	M	JP4TA3BF2BS1	1.07	1.05	0.73	72.88	37.82	110.70	0.05	0.03
379	24	M	JP4TA3BF2BS1	0.02	1.05	0.73	1.38	0.72	2.09	0.00	0.00
380	24	M	JP5WB3BF2	2.77	0.69	0.39	189.27	98.21	287.48	0.12	0.08
382	24	M	JP4TA4BF1BS1	0.06	1.05	0.73	3.86	1.97	5.83	0.00	0.00
383	24	M	JP4TA4BF1BS1	0.03	1.05	0.73	2.23	1.14	3.38	0.00	0.00
389	24	M	JP4TA4BF1BS1	0.29	1.05	0.73	18.41	9.41	27.83	0.01	0.01
390	24	M	JP4TA4BF1BS1	0.26	1.05	0.73	16.55	8.46	25.01	0.01	0.01
399	24	M	JP5TA3BS2	3.01	0.69	0.39	163.00	81.03	244.03	0.10	0.07
183	24	N	TA7BF2BS1	0.65	0.45	1.26	2.09	2.83	4.92	0.00	0.00
187	24	N	TA6BF3BA1	0.04	0.45	1.26	0.14	0.18	0.32	0.00	0.00
188	24	N	TA6BF3BA1	0.05	0.45	1.26	0.16	0.21	0.37	0.00	0.00
190	24	N	TA6BF2WS2	0.17	0.45	1.26	0.55	0.75	1.31	0.00	0.00
191	24	N	TA6BF3BA1	0.64	0.45	1.26	2.05	2.79	4.84	0.00	0.00
192	24	N	TA6BF3BA1	0.41	0.45	1.26	1.30	1.77	3.07	0.00	0.00
194	24	N	TA6BF4	0.30	0.45	1.26	0.96	1.30	2.26	0.00	0.00
195	24	N	TA6BF4	0.03	0.45	1.26	0.08	0.11	0.20	0.00	0.00
196	24	N	TA6BF4	1.79	0.45	1.26	5.71	7.75	13.46	0.00	0.01
197	24	N	TA6BF4	0.28	0.45	1.26	0.90	1.23	2.13	0.00	0.00
198	24	N	TA7BF2BS1	0.57	0.45	1.26	1.82	2.47	4.29	0.00	0.00
201	24	N	TA7BF2BS1	0.65	0.45	1.26	2.07	2.81	4.88	0.00	0.00
202	24	N	TA7BF2BS1	0.16	0.45	1.26	0.50	0.67	1.17	0.00	0.00
203	24	N	TA4WS2BF2AS1WB1	0.13	0.45	1.26	0.43	0.58	1.01	0.00	0.00
204	24	N	TA4WS2BF2AS1WB1	0.52	0.45	1.26	1.66	2.26	3.92	0.00	0.00
205	24	N	TA4WS2BF2AS1WB1	0.56	0.45	1.26	1.80	2.44	4.24	0.00	0.00
209	24	N	TA7BF3	0.33	0.45	1.26	2.39	3.42	5.81	0.00	0.00
210	24	N	TA6BF4	0.72	0.45	1.26	5.24	7.49	12.72	0.00	0.01
220	24	N	TA6BF2WS2	0.25	0.45	1.26	3.11	4.62	7.72	0.00	0.00
221	24	N	TA6BF2WS2	1.21	0.45	1.26	14.86	22.06	36.92	0.01	0.02
232	24	N	TA6JP2BF1BS1	0.29	0.45	1.26	3.56	5.28	8.84	0.00	0.00
233	24	N	TA7JP3	0.38	0.45	1.26	4.65	6.90	11.55	0.00	0.01
246	24	N	TA4BF3BA2AS1	1.20	0.45	1.26	21.45	32.78	54.23	0.01	0.03
251	24	N	TA4WB2BF2WS2	0.16	0.45	1.26	3.69	5.77	9.46	0.00	0.00
252	24	N	TA5BA2BF2BS1	0.79	0.45	1.26	18.51	28.96	47.47	0.01	0.02
253	24	N	TA5BA2BF2BS1	0.53	0.45	1.26	12.40	19.41	31.81	0.01	0.02
255	24	N	TA4WB2BF2WS2	5.10	0.45	1.26	120.17	188.08	308.25	0.07	0.16
259	24	N	TA7BF3	0.12	0.45	1.26	2.93	4.59	7.52	0.00	0.00
260	24	N	TA7BF3	0.96	0.45	1.26	22.70	35.53	58.23	0.01	0.03
261	24	N	BF4TA3BA3	0.04	0.45	1.26	1.01	1.58	2.59	0.00	0.00
262	24	N	BF4TA3BA3	0.30	0.45	1.26	7.11	11.13	18.25	0.00	0.01
266	24	N	TA6WS2BF2	0.68	0.45	1.26	16.01	25.06	41.07	0.01	0.02
272	24	N	TA5WS2BA1WB1BF1	2.47	0.45	1.26	71.70	114.51	186.22	0.04	0.10
276	24	N	TA4BF3WB2WS1	1.07	0.45	1.26	36.28	58.96	95.24	0.02	0.05
278	24	N	TA5BA2BF2WS1	0.36	0.45	1.26	12.11	19.67	31.78	0.01	0.02
287	24	N	TA6BF3BA1	0.18	0.45	1.26	6.75	11.13	17.87	0.00	0.01
290	24	N	TA4WS2BF2AS1WB1	1.33	0.45	1.26	51.07	84.25	135.32	0.03	0.07
291	24	N	TA4WS2BF2AS1WB1	1.55	0.45	1.26	59.22	97.70	156.92	0.04	0.08
299	24	N	BA6BS4	0.54	0.45	1.26	20.52	33.85	54.37	0.01	0.03
300	24	N	BA6BS4	1.03	0.45	1.26	39.39	64.99	104.38	0.02	0.06
301	24	N	BA6BS4	0.06	0.45	1.26	2.35	3.88	6.24	0.00	0.00
321	24	N	TA6BF2JP2	0.62	0.45	1.26	28.87	49.42	78.29	0.02	0.04
343	24	N	TA7JP2BS1	0.05	0.45	1.26	2.57	4.49	7.07	0.00	0.00
349	24	N	TA7JP2BS1	0.55	0.45	1.26	27.03	47.19	74.22	0.02	0.04
350	24	N	TA5WB2JP2BF1	1.69	0.45	1.26	82.36	143.81	226.17	0.05	0.12
364	24	N	TA5BF3BA2	2.13	0.45	1.26	103.74	181.13	284.87	0.06	0.15
385	24	N	TA6WS2BF2	0.11	0.45	1.26	5.34	9.40	14.74	0.00	0.01
391	24	N	TA6WS2BF2	0.89	0.45	1.26	43.30	76.28	119.58	0.03	0.06
171	24	S	N/A	0.76	0.71	0.03	0.00	0.00	0.00	0.00	0.00
177	24	S	N/A	0.05	0.68	0.08	0.00	0.00	0.00	0.00	0.00
178	24	S	N/A	0.38	0.68	0.08	0.00	0.00	0.00	0.00	0.00
179	24	S	N/A	0.66	0.71	0.03	0.76	0.31	1.07	0.00	0.00
186	24	S	WS4BF4WB2	0.03	0.68	0.08	0.27	0.18	0.45	0.00	0.00
199	24	S	N/A	0.02	0.71	0.03	0.15	0.03	0.18	0.00	0.00

OBJECT ID	FOREST MANAGEMENT UNIT	COVER TYPE	SPECIES COMPOSITION	AREA (HA)	SOFTWOOD MAI (m³/ha/yr)	HARDWOOD MAI (m³/ha/yr)	SOFTWOOD VOLUME (m³)	HARDWOOD VOLUME (m³)	TOTAL VOLUME (m³)	PERCENT SOFTWOOD AAC	PERCENT HARDWOOD AAC
200	24	S	N/A	1.43	0.71	0.03	8.78	1.77	10.55	0.01	0.00
207	24	S	WS9BA1	0.05	0.68	0.08	0.97	0.53	1.51	0.00	0.00
208	24	S	WS9BA1	0.45	0.68	0.08	8.79	4.79	13.58	0.01	0.00
247	24	S	WS4BF4WB2	0.46	0.68	0.08	22.44	8.60	31.04	0.01	0.01
249	24	S	BS8TL2	0.69	0.84	0.00	28.37	1.32	29.69	0.02	0.00
283	24	S	WS3BF3BS3TA1	0.03	1.25	0.15	2.97	0.72	3.69	0.00	0.00
284	24	S	WS3BF3BS3TA1	0.18	1.25	0.15	14.94	3.64	18.59	0.01	0.00
285	24	S	WS3BF3BS3TA1	0.54	1.25	0.15	45.85	11.18	57.03	0.03	0.01
286	24	S	WS3BF3BS3TA1	1.89	1.25	0.15	160.72	39.19	199.91	0.10	0.03
296	24	S	BS6BF2EC2	0.91	1.25	0.15	83.15	17.60	100.75	0.05	0.01
311	24	S	BS9TL1	0.18	0.84	0.00	20.16	0.24	20.40	0.01	0.00
312	24	S	BS9TL1	2.15	0.84	0.00	236.52	2.82	239.33	0.15	0.00
339	24	S	JP9TA1	0.11	1.50	0.04	13.13	0.68	13.81	0.01	0.00
341	24	S	JP9TA1	0.48	1.50	0.04	59.45	3.07	62.52	0.04	0.00
367	24	S	JP9BS1	0.13	1.50	0.04	15.02	0.96	15.98	0.01	0.00
368	24	S	JP7BS3	0.16	1.25	0.15	13.62	1.48	15.10	0.01	0.00
374	24	S	JP9BS1	0.73	1.50	0.04	85.28	5.45	90.73	0.05	0.00
375	24	S	JP7BS3	0.88	1.25	0.15	74.68	8.11	82.79	0.05	0.01
384	24	S	JP7BF3	0.10	0.68	0.08	8.33	0.79	9.12	0.01	0.00
386	24	S	JP9WB1	0.17	1.50	0.04	18.01	1.43	19.44	0.01	0.00
387	24	S	JP7BS1TL1WB1	0.33	0.68	0.08	26.07	2.49	28.56	0.02	0.00
388	24	S	JP7BF3	0.48	0.68	0.08	37.89	3.62	41.51	0.02	0.00
392	24	S	JP9WB1	1.10	1.50	0.04	119.05	9.43	128.48	0.07	0.01
393	24	S	JP7BS1TL1WB1	2.07	0.68	0.08	164.07	15.65	179.73	0.10	0.01
401	24	S	BS10	0.48	0.84	0.00	61.86	0.08	61.94	0.04	0.00
402	24	S	BS10	0.49	0.84	0.00	63.30	0.08	63.38	0.04	0.00
404	24	S	BS10	6.15	0.84	0.00	800.80	0.98	801.78	0.50	0.00
405	24	S	BS9TL1	0.51	0.84	0.00	66.12	0.08	66.20	0.04	0.00
406	24	S	BS10	0.05	0.84	0.00	6.26	0.01	6.27	0.00	0.00
407	24	S	BS10	0.93	0.84	0.00	116.87	0.12	116.99	0.07	0.00
408	24	S	BS10	0.09	0.84	0.00	11.73	0.01	11.75	0.01	0.00
409	24	S	BS10	0.64	0.84	0.00	79.85	0.08	79.93	0.05	0.00
410	24	S	BS8TL2	0.24	0.84	0.00	24.62	0.01	24.64	0.02	0.00
6	24	NonPro	N/A	0.12	0	0	0	0	0	0	0
20	24	NonPro	N/A	0.02	0	0	0	0	0	0	0
24	24	NonPro	N/A	0.07	0	0	0	0	0	0	0
26	24	NonPro	N/A	0.10	0	0	0	0	0	0	0
27	24	NonPro	N/A	0.10	0	0	0	0	0	0	0
30	24	NonPro	N/A	0.12	0	0	0	0	0	0	0
32	24	NonPro	N/A	0.13	0	0	0	0	0	0	0
36	24	NonPro	N/A	0.01	0	0	0	0	0	0	0
44	24	NonPro	N/A	0.08	0	0	0	0	0	0	0
46	24	NonPro	N/A	0.10	0	0	0	0	0	0	0
50	24	NonPro	N/A	0.13	0	0	0	0	0	0	0
52	24	NonPro	N/A	0.15	0	0	0	0	0	0	0
56	24	NonPro	N/A	0.17	0	0	0	0	0	0	0
72	24	NonPro	N/A	0.28	0	0	0	0	0	0	0
77	24	NonPro	N/A	0.03	0	0	0	0	0	0	0
78	24	NonPro	N/A	0.30	0	0	0	0	0	0	0
83	24	NonPro	N/A	0.35	0	0	0	0	0	0	0
85	24	NonPro	N/A	0.39	0	0	0	0	0	0	0
86	24	NonPro	N/A	0.39	0	0	0	0	0	0	0
87	24	NonPro	N/A	0.40	0	0	0	0	0	0	0
96	24	NonPro	N/A	0.51	0	0	0	0	0	0	0
97	24	NonPro	N/A	0.52	0	0	0	0	0	0	0
98	24	NonPro	N/A	0.52	0	0	0	0	0	0	0
103	24	NonPro	N/A	0.57	0	0	0	0	0	0	0
104	24	NonPro	N/A	0.06	0	0	0	0	0	0	0
107	24	NonPro	N/A	0.66	0	0	0	0	0	0	0
110	24	NonPro	N/A	0.70	0	0	0	0	0	0	0
113	24	NonPro	N/A	0.73	0	0	0	0	0	0	0
118	24	NonPro	N/A	0.77	0	0	0	0	0	0	0
133	24	NonPro	N/A	1.07	0	0	0	0	0	0	0
137	24	NonPro	N/A	1.17	0	0	0	0	0	0	0
140	24	NonPro	N/A	1.20	0	0	0	0	0	0	0
141	24	NonPro	N/A	1.25	0	0	0	0	0	0	0
148	24	NonPro	N/A	0.69	0	0	0	0	0	0	0
149	24	NonPro	N/A	1.35	0	0	0	0	0	0	0
151	24	NonPro	N/A	2.33	0	0	0	0	0	0	0
152	24	NonPro	N/A	2.44	0	0	0	0	0	0	0
156	24	NonPro	N/A	3.22	0	0	0	0	0	0	0
157	24	NonPro	N/A	3.22	0	0	0	0	0	0	0
160	24	NonPro	N/A	0.03	0	0	0	0	0	0	0
161	24	NonPro	N/A	0.38	0	0	0	0	0	0	0
162	24	NonPro	N/A	4.07	0	0	0	0	0	0	0
163	24	NonPro	N/A	0.45	0	0	0	0	0	0	0
164	24	NonPro	N/A	0.19	0	0	0	0	0	0	0
2	24	NonFor	N/A	0.09	0	0	0	0	0	0	0
5	24	NonFor	N/A	0.09	0	0	0	0	0	0	0
7	24	NonFor	N/A	0.22	0	0	0	0	0	0	0
8	24	NonFor	N/A	0.24	0	0	0	0	0	0	0
9	24	NonFor	N/A	0.90	0	0	0	0	0	0	0
10	24	NonFor	N/A	0.01	0	0	0	0	0	0	0
11	24	NonFor	N/A	3.44	0	0	0	0	0	0	0
12	24	NonFor	N/A	0.17	0	0	0	0	0	0	0
14	24	NonFor	N/A	0.39	0	0	0	0	0	0	0
15	24	NonFor	N/A	0.01	0	0	0	0	0	0	0
16	24	NonFor	N/A	0.44	0	0	0	0	0	0	0
17	24	NonFor	N/A	0.30	0	0	0	0	0	0	0
18	24	NonFor	N/A	1.49	0	0	0	0	0	0	0
19	24	NonFor	N/A	2.62	0	0	0	0	0	0	0
21	24	NonFor	N/A	0.06	0	0	0	0	0	0	0
22	24	NonFor	N/A	0.04	0	0	0	0	0	0	0

OBJECT ID	FOREST MANAGEMENT UNIT	COVER TYPE	SPECIES COMPOSITION	AREA (HA)	SOFTWOOD MAI (m ³ /ha/yr)	HARDWOOD MAI (m ³ /ha/yr)	SOFTWOOD VOLUME (m ³)	HARDWOOD VOLUME (m ³)	TOTAL VOLUME (m ³)	PERCENT SOFTWOOD AAC	PERCENT HARDWOOD AAC
23	24	NonFor	N/A	0.03	0	0	0	0	0	0	0
25	24	NonFor	N/A	0.08	0	0	0	0	0	0	0
29	24	NonFor	N/A	0.11	0	0	0	0	0	0	0
31	24	NonFor	N/A	0.12	0	0	0	0	0	0	0
35	24	NonFor	N/A	53.28	0	0	0	0	0	0	0
37	24	NonFor	N/A	0.01	0	0	0	0	0	0	0
38	24	NonFor	N/A	0.02	0	0	0	0	0	0	0
39	24	NonFor	N/A	0.03	0	0	0	0	0	0	0
41	24	NonFor	N/A	0.04	0	0	0	0	0	0	0
42	24	NonFor	N/A	0.05	0	0	0	0	0	0	0
43	24	NonFor	N/A	0.06	0	0	0	0	0	0	0
48	24	NonFor	N/A	0.12	0	0	0	0	0	0	0
49	24	NonFor	N/A	0.13	0	0	0	0	0	0	0
51	24	NonFor	N/A	0.13	0	0	0	0	0	0	0
53	24	NonFor	N/A	0.08	0	0	0	0	0	0	0
54	24	NonFor	N/A	0.08	0	0	0	0	0	0	0
57	24	NonFor	N/A	0.17	0	0	0	0	0	0	0
58	24	NonFor	N/A	0.18	0	0	0	0	0	0	0
59	24	NonFor	N/A	0.18	0	0	0	0	0	0	0
60	24	NonFor	N/A	0.18	0	0	0	0	0	0	0
61	24	NonFor	N/A	0.18	0	0	0	0	0	0	0
63	24	NonFor	N/A	0.19	0	0	0	0	0	0	0
64	24	NonFor	N/A	0.20	0	0	0	0	0	0	0
66	24	NonFor	N/A	0.22	0	0	0	0	0	0	0
68	24	NonFor	N/A	0.05	0	0	0	0	0	0	0
69	24	NonFor	N/A	0.04	0	0	0	0	0	0	0
70	24	NonFor	N/A	0.17	0	0	0	0	0	0	0
71	24	NonFor	N/A	0.28	0	0	0	0	0	0	0
73	24	NonFor	N/A	0.28	0	0	0	0	0	0	0
74	24	NonFor	N/A	0.33	0	0	0	0	0	0	0
75	24	NonFor	N/A	0.27	0	0	0	0	0	0	0
76	24	NonFor	N/A	0.06	0	0	0	0	0	0	0
79	24	NonFor	N/A	0.34	0	0	0	0	0	0	0
80	24	NonFor	N/A	0.34	0	0	0	0	0	0	0
84	24	NonFor	N/A	0.36	0	0	0	0	0	0	0
88	24	NonFor	N/A	0.43	0	0	0	0	0	0	0
89	24	NonFor	N/A	0.46	0	0	0	0	0	0	0
90	24	NonFor	N/A	0.46	0	0	0	0	0	0	0
91	24	NonFor	N/A	0.28	0	0	0	0	0	0	0
92	24	NonFor	N/A	0.19	0	0	0	0	0	0	0
93	24	NonFor	N/A	0.50	0	0	0	0	0	0	0
94	24	NonFor	N/A	0.18	0	0	0	0	0	0	0
95	24	NonFor	N/A	0.32	0	0	0	0	0	0	0
99	24	NonFor	N/A	0.53	0	0	0	0	0	0	0
101	24	NonFor	N/A	0.49	0	0	0	0	0	0	0
102	24	NonFor	N/A	0.08	0	0	0	0	0	0	0
105	24	NonFor	N/A	0.64	0	0	0	0	0	0	0
106	24	NonFor	N/A	0.66	0	0	0	0	0	0	0
108	24	NonFor	N/A	0.42	0	0	0	0	0	0	0
109	24	NonFor	N/A	0.70	0	0	0	0	0	0	0
111	24	NonFor	N/A	0.71	0	0	0	0	0	0	0
112	24	NonFor	N/A	0.72	0	0	0	0	0	0	0
114	24	NonFor	N/A	0.04	0	0	0	0	0	0	0
115	24	NonFor	N/A	0.19	0	0	0	0	0	0	0
116	24	NonFor	N/A	0.35	0	0	0	0	0	0	0
117	24	NonFor	N/A	0.18	0	0	0	0	0	0	0
119	24	NonFor	N/A	0.77	0	0	0	0	0	0	0
120	24	NonFor	N/A	0.78	0	0	0	0	0	0	0
121	24	NonFor	N/A	0.77	0	0	0	0	0	0	0
122	24	NonFor	N/A	0.04	0	0	0	0	0	0	0
123	24	NonFor	N/A	0.25	0	0	0	0	0	0	0
124	24	NonFor	N/A	0.58	0	0	0	0	0	0	0
125	24	NonFor	N/A	0.52	0	0	0	0	0	0	0
126	24	NonFor	N/A	0.37	0	0	0	0	0	0	0
127	24	NonFor	N/A	0.90	0	0	0	0	0	0	0
128	24	NonFor	N/A	0.21	0	0	0	0	0	0	0
129	24	NonFor	N/A	0.69	0	0	0	0	0	0	0
131	24	NonFor	N/A	0.97	0	0	0	0	0	0	0
134	24	NonFor	N/A	0.01	0	0	0	0	0	0	0
135	24	NonFor	N/A	1.05	0	0	0	0	0	0	0
136	24	NonFor	N/A	1.08	0	0	0	0	0	0	0
138	24	NonFor	N/A	1.18	0	0	0	0	0	0	0
139	24	NonFor	N/A	1.19	0	0	0	0	0	0	0
142	24	NonFor	N/A	1.29	0	0	0	0	0	0	0
143	24	NonFor	N/A	1.37	0	0	0	0	0	0	0
144	24	NonFor	N/A	0.62	0	0	0	0	0	0	0
145	24	NonFor	N/A	0.88	0	0	0	0	0	0	0
146	24	NonFor	N/A	1.90	0	0	0	0	0	0	0
150	24	NonFor	N/A	2.26	0	0	0	0	0	0	0
158	24	NonFor	N/A	3.32	0	0	0	0	0	0	0
159	24	NonFor	N/A	3.37	0	0	0	0	0	0	0
13	24	Water	N/A	0.86	0	0	0	0	0	0	0
47	24	Water	N/A	0.85	0	0	0	0	0	0	0
62	24	Water	N/A	0.85	0	0	0	0	0	0	0
153	24	Water	N/A	0.84	0	0	0	0	0	0	0
154	24	Water	N/A	0.84	0	0	0	0	0	0	0
Totals for FMU 24				289.44	130.18	203.56	5,340.56	5,531.07	10,871.63	3.33	4.69
185	30	H	TASWB3BF2	0.02	0.37	2.05	0.21	0.93	1.14	N/A	N/A
254	30	H	ASSBA2BF2WB1	2.73	0.40	0.70	15.64	78.68	94.33	N/A	N/A
271	30	H	TASWB3BF2	0.57	0.37	2.05	11.82	64.17	75.99	N/A	N/A
326	30	H	TA9JP1	0.11	0.37	2.05	2.71	17.02	19.73	N/A	N/A
330	30	H	TA9JP1	1.36	0.37	2.05	34.21	214.40	248.61	N/A	N/A
347	30	H	TA8BF2	0.36	0.40	0.70	8.98	57.28	66.26	N/A	N/A

OBJECT ID	FOREST MANAGEMENT UNIT	COVER TYPE	SPECIES COMPOSITION	AREA (HA)	SOFTWOOD MAI (m ³ /ha/yr)	HARDWOOD MAI (m ³ /ha/yr)	SOFTWOOD VOLUME (m ³)	HARDWOOD VOLUME (m ³)	TOTAL VOLUME (m ³)	PERCENT SOFTWOOD AAC	PERCENT HARDWOOD AAC
332	30	M	JP7TA3	0.35	1.05	0.73	30.63	21.31	51.94	N/A	N/A
333	30	M	JP7TA3	0.04	1.05	0.73	3.57	2.48	6.05	N/A	N/A
334	30	M	JP7TA3	0.01	1.05	0.73	0.67	0.47	1.14	N/A	N/A
338	30	M	JP5TA5	1.66	1.05	0.73	144.48	100.51	244.99	N/A	N/A
250	30	N	TA4WB2BF2WS2	0.08	0.45	1.26	1.80	2.82	4.62	N/A	N/A
263	30	N	BF4TA3BA3	1.29	0.45	1.26	30.38	47.54	77.92	N/A	N/A
304	30	N	TA7BF2BS1	2.05	0.45	1.26	78.41	129.35	207.76	N/A	N/A
344	30	N	TA7JP2BS1	0.02	0.45	1.26	1.20	2.09	3.29	N/A	N/A
348	30	N	TA7JP3	0.40	0.45	1.26	19.30	33.71	53.01	N/A	N/A
351	30	N	TA7JP2BS1	0.44	0.45	1.26	21.35	37.28	58.63	N/A	N/A
352	30	N	TA7JP2BS1	0.38	0.45	1.26	18.46	32.23	50.69	N/A	N/A
353	30	N	TA7JP2BS1	0.48	0.45	1.26	23.34	40.75	64.09	N/A	N/A
354	30	N	TA7JP2BS1	0.43	0.45	1.26	20.93	36.54	57.47	N/A	N/A
355	30	N	TA7JP2BS1	0.25	0.45	1.26	12.13	21.19	33.32	N/A	N/A
320	30	S	JP7BS1TA1WB1	0.08	0.68	0.08	6.97	0.60	7.57	N/A	N/A
324	30	S	JP7BS1TA1WB1	0.50	0.68	0.08	45.07	3.90	48.96	N/A	N/A
325	30	S	JP7BS1TA1WB1	0.93	0.68	0.08	83.82	7.25	91.07	N/A	N/A
329	30	S	JP8TA2	0.51	1.50	0.04	63.16	3.27	66.42	N/A	N/A
331	30	S	JP10	1.43	1.50	0.04	178.72	9.24	187.96	N/A	N/A
335	30	S	JP6BS3TA1	0.47	0.68	0.08	43.44	3.46	46.90	N/A	N/A
340	30	S	JP9TA1	0.12	1.50	0.04	15.28	0.79	16.07	N/A	N/A
342	30	S	JP9TA1	0.82	1.50	0.04	101.89	5.27	107.16	N/A	N/A
400	30	S	BS10	0.05	0.84	0.00	6.13	0.01	6.13	N/A	N/A
403	30	S	BS10	1.89	0.84	0.00	245.98	0.30	246.28	N/A	N/A
40	30	NonPro	N/A	0.03	0	0	0	0	0	N/A	N/A
65	30	NonPro	N/A	0.20	0	0	0	0	0	N/A	N/A
81	30	NonPro	N/A	0.34	0	0	0	0	0	N/A	N/A
82	30	NonPro	N/A	0.01	0	0	0	0	0	N/A	N/A
100	30	NonPro	N/A	0.55	0	0	0	0	0	N/A	N/A
130	30	NonPro	N/A	0.95	0	0	0	0	0	N/A	N/A
132	30	NonPro	N/A	1.05	0	0	0	0	0	N/A	N/A
147	30	NonPro	N/A	1.97	0	0	0	0	0	N/A	N/A
1	30	NonFor	N/A	0.06	0	0	0	0	0	N/A	N/A
3	30	NonFor	N/A	0.25	0	0	0	0	0	N/A	N/A
4	30	NonFor	N/A	0.50	0	0	0	0	0	N/A	N/A
28	30	NonFor	N/A	0.11	0	0	0	0	0	N/A	N/A
33	30	NonFor	N/A	1.10	0	0	0	0	0	N/A	N/A
34	30	NonFor	N/A	10.98	0	0	0	0	0	N/A	N/A
45	30	NonFor	N/A	0.09	0	0	0	0	0	N/A	N/A
55	30	NonFor	N/A	0.17	0	0	0	0	0	N/A	N/A
67	30	NonFor	N/A	0.24	0	0	0	0	0	N/A	N/A
155	30	NonFor	N/A	2.63	0	0	0	0	0	N/A	N/A
Totals for FMU 30				41.05	21.35	25.60	1,270.70	974.85	2,245.55	N/A	N/A

Notes:

Object ID: Unique identifier applied in dataset.

Species Composition: The species composition of the stand is based on the comparison of the tree count (basal area) for each species to the total tree count (basal area) of the stand expressed as a percentage. n/a means there is no species composition available.

Productivity Code: NonPro Non-Productive. NonFor Non-forested. Water Non-forested. Productive forestland codes are represented by H hardwood dominant M mixedwood (conifer dominant) N mixedwood (hardwood dominant) S softwood dominant.

AAC: Annual Allowable Cut, FMU 24 - softwood 160,575m³/year and hardwood 117,985 m³/year, No AAC is set for FMU 30

MAI: Mean Annual Index - the average yearly volume growth factor applied for volume estimation

Source Pers. Comms, Viveiros, A (2023). Resource inventory and volume estimation - April 4, 2023.