



MANITOBA-MINNESOTA TRANSMISSION PROJECT

Construction Environmental Protection Mapbook

Version: Final 1.06

Date: September 27, 2019

NOTICE: Access routes are approximate. Please refer to Access Management Plan for latest approved access routes.

Document Owner:
Licensing and Environmental Assessment Department
Transmission Planning and Design Division
Transmission Business Unit
Manitoba Hydro

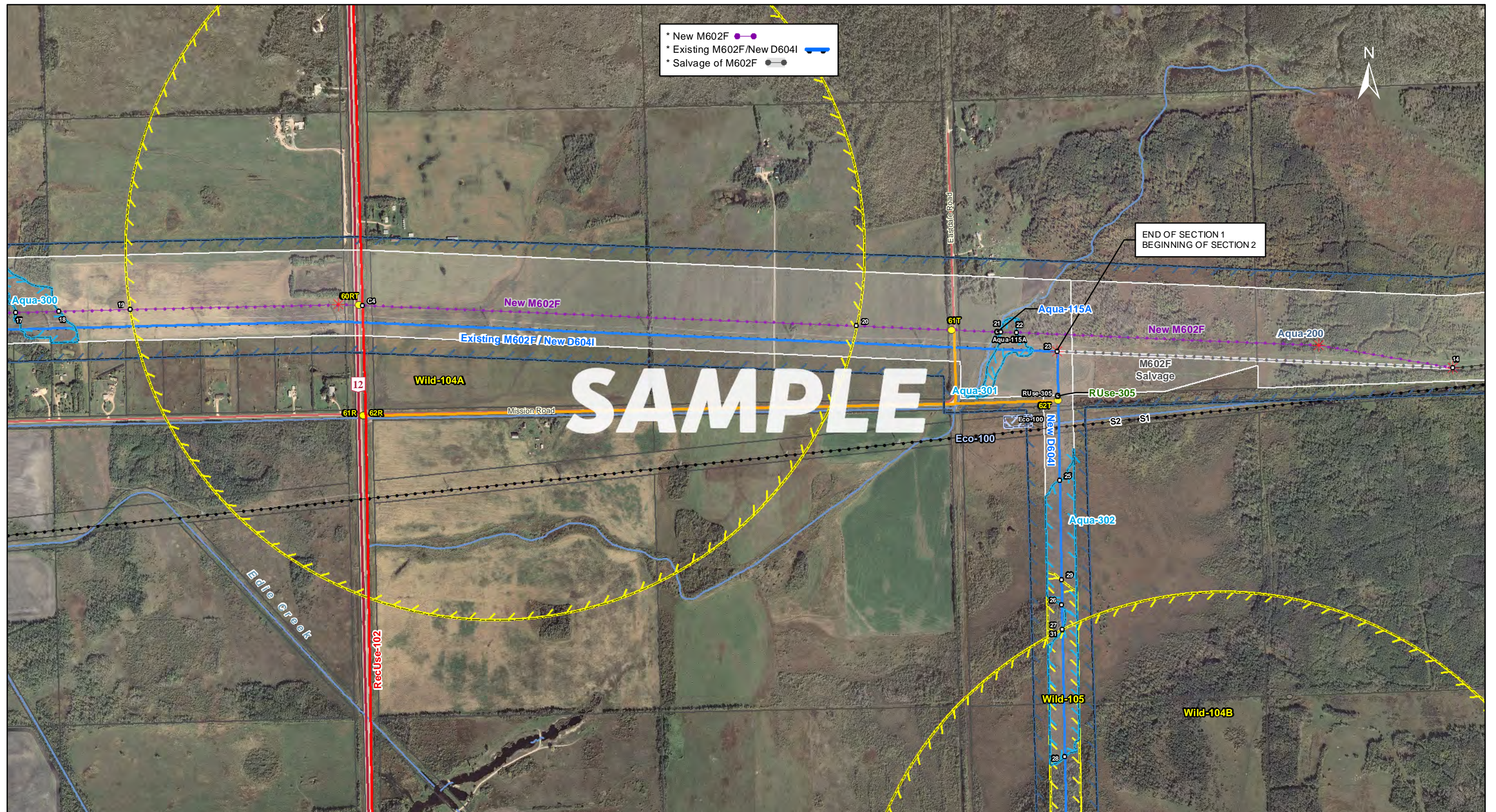
Version Final 1.06
List of Revisions - MMTP Construction Environmental Protection Plan Mapbook

Number	Nature of Revision	Map/Table #	Revised By	Date
Draft	Added Archaeological Points and a Polygon and renumbered	Maps 29, 33 and 52	Manitoba Hydro	20180803
Draft	Added Aqua-400 and Aqua-401 for aquatic Invasive Species mitigation	Map 13	Manitoba Hydro	20180803
Draft	MMTP access routes updated by type - “new trail “, “field access”, “existing gravel/dirt road”, “existing gravel road” and “restricted access”.	Various Pages	Manitoba Hydro	20181127
Draft	Moved Hert-101 to 14 U 612896 5525221	Map 4	Manitoba Hydro	20181218
Draft	Moved MMTP-Aqua-120 to drain	Map 31	Manitoba Hydro	20181218
Draft	Added 12 Species of Concern Points	Map 43, 47, 48 and 52	Manitoba Hydro	20190213
Draft	Updated and modified mitigation measure text for ESS with the following Specific Mitigation Measure ID#s- 204, 206, 213, 312, 402, 408, 710, 711 & 716.	Various Pages	Manitoba Hydro	20190226
Draft	Updated the following mitigation keys adding the provision of construction matting during saturated soil conditions #201,204,205,206,215,301,313,318,408,504,505,710,715,716	Various Pages	Manitoba Hydro	20190405
Draft	Eco-300 polygon was removed as it was within a tower footprint which requires stripping and grubbing of the site making impact on the plant species non-mitigatable at that location	Map #4	Manitoba Hydro	20190405
Draft	Updated mitigation key #205 removing the word “mineral” from the statement: Construction matting will be used to protect the area from rutting and exposure to mineral soil during Non-frozen ground conditions	Various Pages	Manitoba Hydro	20190405
Draft	For mitigation key #408 a mitigation statement was added: “No trees will be removed from outside of the ROW edge, except the removal of danger trees on the ROW edge as identified by Manitoba Hydro”	Page 12 and Page 33	Manitoba Hydro	20190405
Draft	Hert-200 removed as it was previously investigated and are developed as part of Red River Floodway	Map 2	Manitoba Hydro	20190411
Draft	Added Headingly Grand Trunk Trail as RecUse-100A	Map 4	Manitoba Hydro	20190411
Draft	Sensitive Avian habitat Bird Diverters ESS locations adjusted to nearest tower to align with engineering drawings	Various Pages	Manitoba Hydro	20190411
Draft	Hert-116 removed as no longer a concern as sites was recently developed with lagoon.	Map 33	Manitoba Hydro	20190411
Draft	Field access route symbology changed to yellow.	Various Pages	Manitoba Hydro	20190425
Draft	Removed “restricted access” route near tower 162 close to Deacon’s Reservoir.	Map 17	Manitoba Hydro	20190425
Draft	Retired Eco-307B and Eco-307C because they were within the tower footprint which will be grubbed and can’t be protected. Added Ruse-310 point species of concern.	Map 47	Manitoba Hydro	20190510
Draft	Added an Ruse-311 point species of concern	Map 48	Manitoba Hydro	20190510
Draft	Added Aqua-204 point which represents an artesian wellhead and surrounding area	Map 24	Manitoba Hydro	20190510

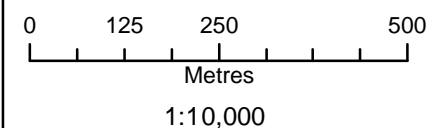
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Number	Nature of Revision	Map/Table #	Revised By	Date
Final 1.00	Updated transmission line modifications, right-of-way and station expansion footprint for Glenboro South Station.	Map 54	Manitoba Hydro	20190527
Final 1.01	Updated the Heritage ESS mitigation measure wording to match the recommendations made by the project Archaeologist. Retired some preliminary sites as they have been investigated and were removed as per project Archaeologist. Updated a number of Aqua ESS based on recommendations stemming from the National Energy Boards review.	All applicable	Manitoba Hydro	20190730
Final 1.02	Updated transmission line modifications and right-of-way. Updated Wild-102 and Wild-103 geometry to reflect the line modifications. Added no trespassing on map 27.	Map 12, 13, 16, 17 & 27	Manitoba Hydro	20190807
Final 1.03	Updated Access routes	Various Pages	Manitoba Hydro	20190822
Final 1.04	Added 6 stick nest ESS sites. Renumbered 'birds and habitat' group (Wild). Access routes updated. MIT key for Aqua 352A changed to #205.	Map 4, 31, 35, 37, 42, 51	Manitoba Hydro	20190906
Final 1.05	Added groundwater well ESS site (Aqua-205). Added load restriction access routes.	Map 8, 12, 29, 31	Manitoba Hydro	20190912
Final 1.06	Added 4 invasive species polygons (Eco-400A, Eco-400B, Eco-401A, Eco-401B)	Map 33, 34	Manitoba Hydro	20190926

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Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: May 03, 2018
Version: Draft



- Land Base**
- Transmission Line
 - Highway
 - Major Road
 - Local Road
 - Railway (Operational)
 - Railway (Discontinued)
 - First Nation
 - Provincial Forest
 - Parcel Fabric

- Project Infrastructure**
- Angle Tower Locations
 - MMTP Final Preferred Route
 - Right of Way
 - Station Expansion
 - Converter Station Footprint
 - M602F Modification (Salvage)
 - M602F Modification (New)

- Sensitive Sites**
- Point Features
 - Linear Features
 - Area Features
- Points of Access**
- Proposed Access Point
 - Proposed Access Route
- *Labels correspond to MMTP Access Management Database
*Some road names have not been verified, use with discretion

- ESS Features**
- Resource Use**
- Forestry
 - Wetland
- Water**
- Water Crossing
 - Groundwater
- Rec Use**
- Trail
- Ecosystem**
- Habitat
- Wildlife**
- Birds and Habitat

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

Draft: For Discussion Purposes Only

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SAMPLE MITIGATION TABLE (See KEY below for additional Information)

ESS Group: Wetlands¹

²
**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-301	Wetland	21 to 22	E-671537 N-5525458	E-671580 N-5525456	43

Potential Effects:⁴
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID #205):⁵

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Remove trees by low-disturbance methods
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

KEY to Sample Mitigation Table

- 1

ESS Group classification of Environmentally Sensitive Sites (ESS) which are shown on the map
- 2

Notation indicates the geometry type of the ESS feature
- 3

ESS location summary; includes the following fields:
 - ESS ID - Site specific ID assigned to each ESS according to naming convention (**See ESS naming convention table**)
 - ESS Name - Brief name/description of ESS
 - Site - identification numbers for the start and stop site points of ESS intersection with the ROW (lines and polygons only)
 - Easting/Northing - UTM Zone 14 coordinates of ESS location (for points only)
 - Start/Stop - UTM Zone 14 coordinates of the start/stop identification numbers listed in the “Location” field (lines and polygons only)
 - Distance – length of ESS feature in meters
- 4

Potential effects identified for ESS listed in the ESS Location Summary table
- 5

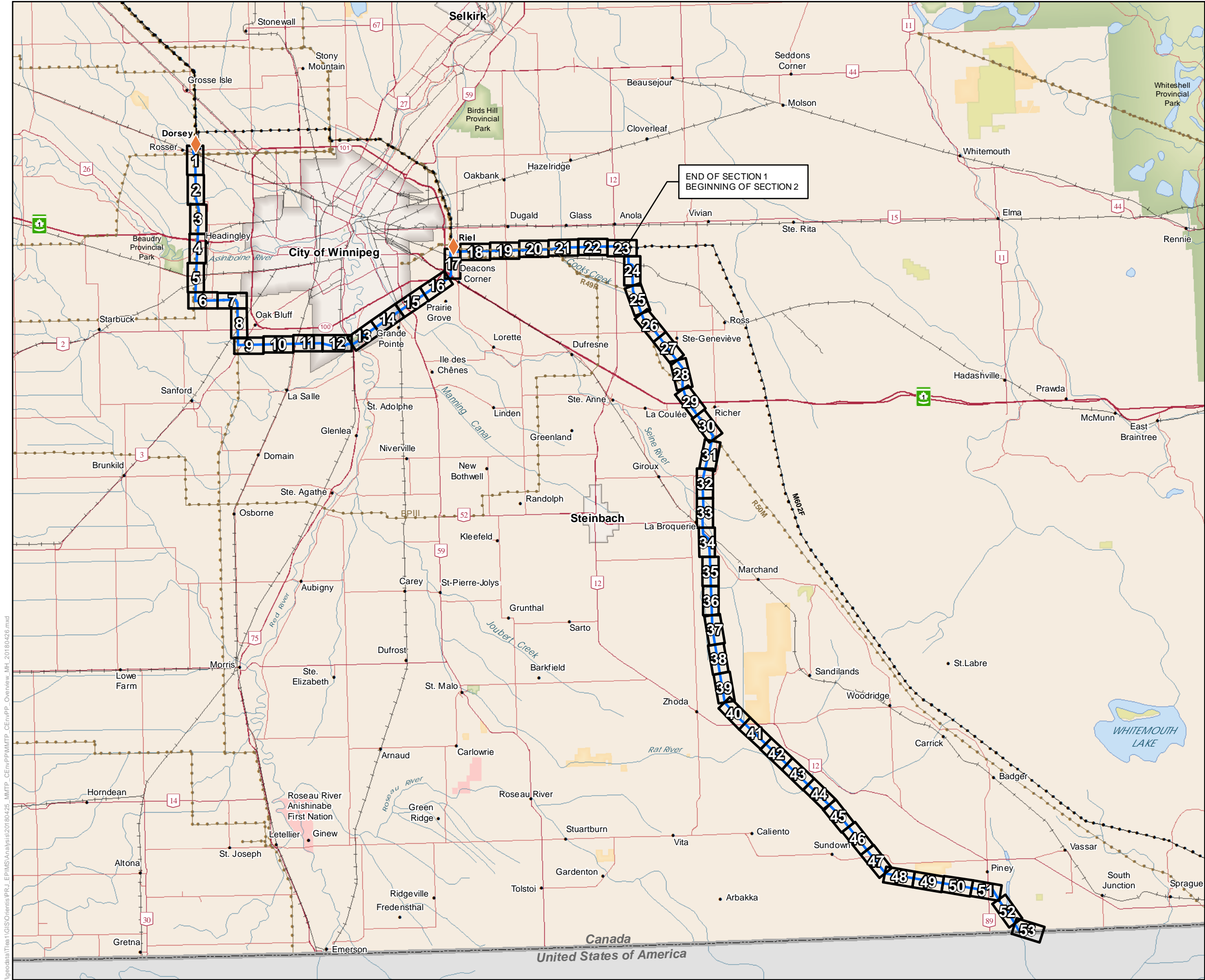
Mitigation measures identified for a specific site. The ID number indicates a specific combination of mitigation measures
- 6

Map on which ESS listed in the ESS Location Summary tables are illustrated

ESS NAMING CONVENTION

CATEGORY	GROUP (Number Series Representing Group)	ESS ID (Category-Group Number)
Access	Intersection (100)	RecUse-100
Ecosystem	Habitat (100)	Eco-100
	Research (200)	Eco-200
	Species of Concern (300)	Eco-300
	Invasive Species (400)	Eco-400
	Traditional Use (500)	Eco-500
Heritage	Archaeological (100)	Hert-100
	Cultural (200)	Hert-200
	Historic (300)	Hert-300
Land Use	Conservation (100)	LUse-100
	Crown Land Encumbrance (200)	LUse-200
	Recreation (300)	LUse-300
	Residential (400)	LUse-400
Resource Use	Agriculture (100)	RUse-100
	Food/Medicinal (200)	RUse-200
	Forestry (300)	RUse-300
	Hunting/Fishing (400)	RUse-400
	Trapping (500)	RUse-500
Soils and Terrain	Permafrost (100-200)	Soils-100
	Erosion (300)	Soils-300
	Terrain (400)	Soils-400
Water	Water Crossing (100)	Aqua-100
	Groundwater (200)	Aqua-200
	Wetlands (300)	Aqua-300
	Aquatic Invasive Species (400)	Aqua-400
Wildlife	Birds and Habitat (100)	Wild-100
	Mammal and Habitat (200)	Wild-200
	Reptiles/Amphibians and Habitat (300)	Wild-300
	Line of Sight Buffer (400)	Wild-400

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Manitoba-Minnesota Transmission Project

Project Infrastructure

- ◆ Converter Station (Existing)
- Final Preferred Route (FPR)

Infrastructure

- Existing 500kV Transmission Line
- Existing 230kV Transmission Line

Map Tile Index - 1:10,000

- Map Series Tile

Landbase

- Community
- Railway
- Trans Canada
- Provincial Highway
- Provincial Road
- City
- First Nation Lands
- Ecological Reserve
- Wildlife Management Area
- Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: April 27, 2018



0 5 10 Kilometres
0 5 10 Miles

1:500,000

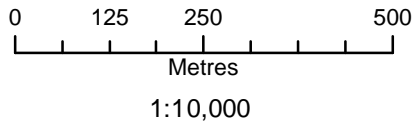
Index of Map Series Construction Environmental Protection Plan

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Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: September 27, 2019
Version: Final 1.06



- Land Base**
- Transmission Line
 - Highway
 - Major Road
 - Local Road
 - Railway (Operational)
 - Railway (Discontinued)
 - First Nation
 - Provincial Forest
 - Parcel Fabric
 - Rural Municipality

- Project Infrastructure**
- Tower Locations
 - Angle Tower Locations
 - MMP Final Preferred Route
 - Right of Way
 - Station Expansion
 - Converter Station Footprint
 - M602F Modification (Salvage)
 - M602F Modification (New)
- *Tower locations subject to final design

- Sensitive Sites**
- Point Features
 - Linear Features
 - Area Features
- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

ESS Features

**Manitoba-Minnesota Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site Locations**

No specific mitigation measures for this map, page intentionally left blank

ESS Group: Cultural

**Features represented as points*

ESS ID	ESS Name	Location
Hert-200	Cemetery	E-613141 - N-5532133

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 328):

- Observe the presence of cemetery and minimize/avoid use of road during ceremony or services

ESS Group: Forestry

**Features represented as points*

ESS ID	ESS Name	Location
RUse-300	Shelterbelt	E-612765 - N-5532162

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-100	Sturgeon Creek Crossing	E-612901 N-5531443	18	11

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats



Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: September 27, 2019
Version: Final 1.06

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|---|---|---|---|
| Land Base <ul style="list-style-type: none">Transmission LineHighwayMajor RoadLocal RoadRailway (Operational)Railway (Discontinued)First NationProvincial ForestParcel FabricRural Municipality | Project Infrastructure <ul style="list-style-type: none">Tower LocationsAngle Tower LocationsMMTP Final Preferred RouteRight of WayStation ExpansionConverter Station FootprintM602F Modification (Salvage)M602F Modification (New) <p>*Tower locations subject to final design</p> | Sensitive Sites <ul style="list-style-type: none">Point FeaturesLinear FeaturesArea Features Points of Access <ul style="list-style-type: none">Existing Gravel RoadExisting Gravel/Dirt RoadField AccessNew TrailRestricted AccessLoad Restriction <p>*Some road names have not been verified</p> | ESS Features <ul style="list-style-type: none">Rec UseTrail |
|---|---|---|---|

**Manitoba-Minnesota Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site Locations**

ESS Group: Trail

**Features represented as lines*

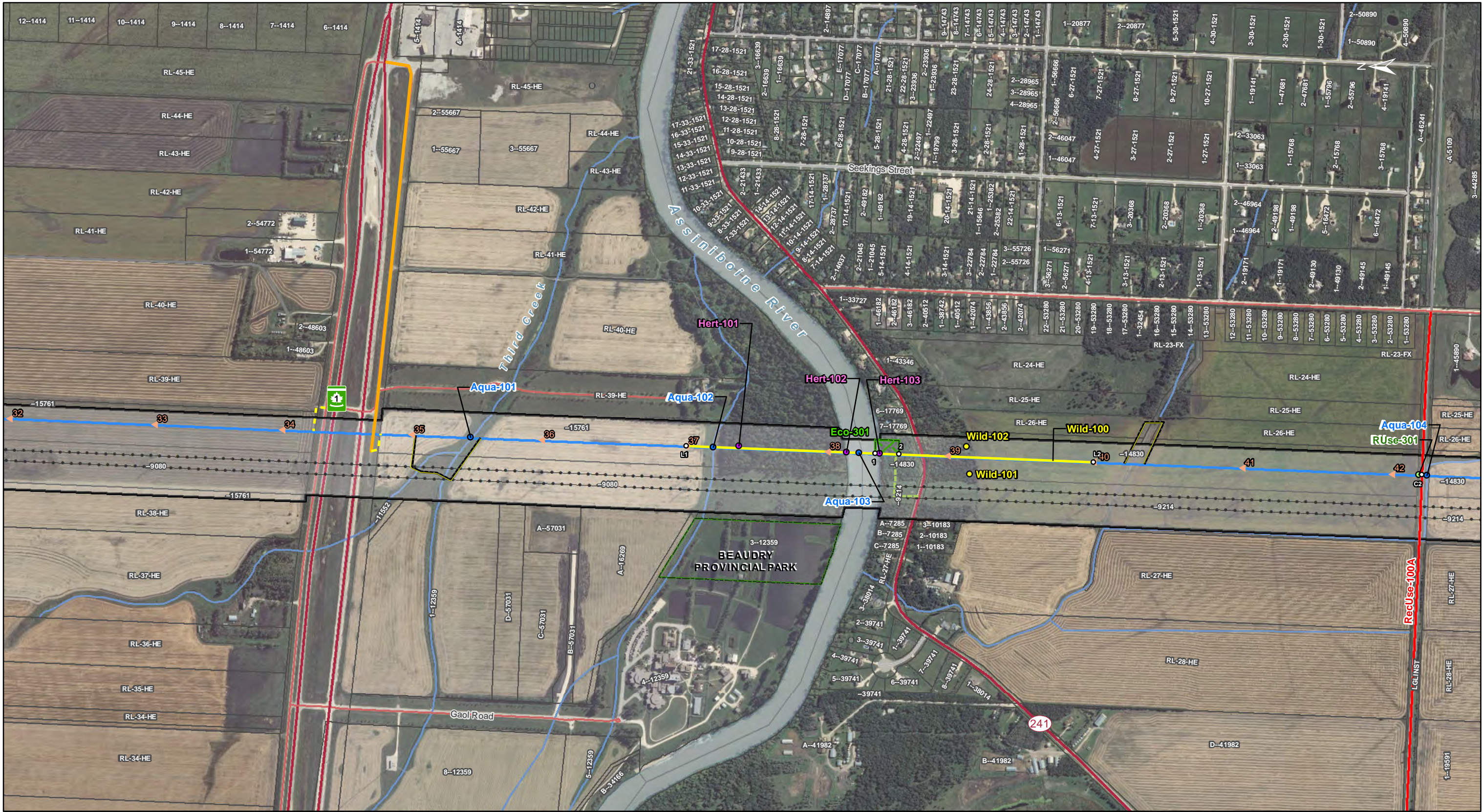
ESS ID	ESS Name	Site	Location
RecUse-100	Trail PT30	C1	E-613020 N-5528354

Potential Effects:

Potential interference with trail users; safety issues

Specific Mitigation (ID# 103):

- Identify and flag where trail intersects ROW
- Avoid surface damage to and obstruction of access route
- Post warning markers and signs at snowmobile trail location during construction
- MH to notify snowmobile club/users and local authorities regarding construction activities and schedule, and address concerns prior to construction



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|---|--|--|---|--|
| Land Base <ul style="list-style-type: none">Transmission LineHighwayMajor RoadLocal RoadRailway (Operational)Railway (Discontinued)First NationProvincial ForestParcel FabricRural Municipality | Project Infrastructure <ul style="list-style-type: none">Tower LocationsAngle Tower LocationsMMTP Final Preferred RouteRight of WayStation ExpansionConverter Station FootprintM602F Modification (Salvage)M602F Modification (New)*Tower locations subject to final design | Sensitive Sites <ul style="list-style-type: none">Point FeaturesLinear FeaturesArea Features Points of Access <ul style="list-style-type: none">Existing Gravel RoadExisting Gravel/Dirt RoadField AccessNew TrailRestricted AccessLoad Restriction*Some road names have not been verified | ESS Features <ul style="list-style-type: none">Heritage<ul style="list-style-type: none">ArchaeologicalResource Use<ul style="list-style-type: none">ForestryWater<ul style="list-style-type: none">Water CrossingWildlife<ul style="list-style-type: none">Birds and HabitatRec Use<ul style="list-style-type: none">Trail | Wildlife <ul style="list-style-type: none">Birds and HabitatEcosystemSpecies of Concern |
|---|--|--|---|--|

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-101	Area of Potential Use	E-612896 - N-5525221
Hert-102	Area of Potential Use	E-612879 - N-5524929

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 318):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Notify project Archaeologist after clearing has been completed so a post clearing assessment can be completed prior to foundation installation
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the two towers on the North side of the river

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-103	Assiniboine River Crossing	E-612875 - N-5524839

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 319):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Notify project Archaeologist after clearing has been completed so a post clearing assessment can be completed prior to foundation installation
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the tower on the South side of the river

ESS Group: Birds and Habitat

*Features represented as points

ESS ID	ESS Name	Location
Wild-101	Stick Nest	E-612820 - N-5524596
Wild-102	Stick Nest	E-612894 - N-5524604

Potential Effects:

Potential disruption of stick nest

Specific Mitigation (ID# 824):

- Nest tree will be located by Environmental Inspector, georeferenced and marked with Flagging tape
- A 200 m setback will be applied during the breeding season (April 30 to July 31) to minimize sensory disturbance during the breeding season
- If nest removal is required, Manitoba Hydro will consult with Sustainable Development to develop mitigation measures for the relocation of the nest

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-100	Assiniboine River crossing	L1 to L2	E-612896 N-5525363	E-612852 N-5524260	1104

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Forestry

*Features represented as points

ESS ID	ESS Name	Location
RUse-301	Shelterbelt	E-612818 - N-5523379

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Species of Concern

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-301	Plant Species of Concern	1 to 2	E-612876 N-5524852	E-612873 N-5524787	65

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Trail

*Features represented as lines

ESS ID	ESS Name	Site	Location
RecUse-100A	Headingley Grand Trunk Trail	C2	E-612817 N-5523371

Potential Effects:

Potential interference with trail users; safety issues

Specific Mitigation (ID# 103):

- Identify and flag where trail intersects ROW
- Avoid surface damage to and obstruction of access route
- Post warning markers and signs at snowmobile trail location during construction
- MH to notify snowmobile club/users and local authorities regarding construction activities and schedule, and address concerns prior to construction

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-101	Third Creek Crossing	E-612919 N-5525948	43	3
Aqua-102	Unnamed Creek Crossing	E-612893 N-5525289	23	15

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-104	Unnamed Drain Crossing	E-612817 N-5523357	N/A	N/A

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 715):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- If wet conditions exist, one time fording or the use construction matting for low water levels or temporary bridge for higher water levels must be authorized by MH Environmental Officer/Inspector
- Use existing trails, roads or cut lines whenever possible as access routes
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Limit machinery fording of the watercourse to a one-time event (over and back) only if no alternative crossing method is available (i.e. matting or temporary bridge)
- If repeated fording of the watercourse is necessary, prior approval from the MH Environmental Officer/Inspector is required
- Locate crossings perpendicular to the bank, whenever possible
- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-103	Assiniboine River Clam Beds	E-612878 N-5524895	108	99

Potential Effects:

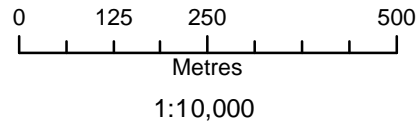
Potential disturbance and habitat loss of clam beds and mapleleaf mussel

Specific Mitigation (ID# 716):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- No fording of Assiniboine River
- Construction contractor will have flag persons in boats both upstream and downstream of the ROW during stringing activities to direct safe passge of boats
- Temporary signs stating "Construction Activity" will be:
 - placed and maintained 200m upstream and 200m downstream of the work
 - legible from a minimum distance of 100m downstream of the work
 - placed and maintained during all periods of conductor stringing during the open water season on all navigable waters
 - visible from all points of marine approach and when snowmobile traffic exists during frozen water conditions
- Ice bridges will be constructed of clean (ambient) water, ice and snow and snowfills will be constructed of clean snow. Materials such as gravel, rock and loose woody material will NOT be used. Crossings will not impede water flow at any time of the year
- Where logs are required for use in stabilizing shoreline approaches, they will be clean and securely bound together and they will be removed before the spring freshet
- When the crossing season is over and where it is safe to do so, a v-notch will be created in the centre of the ice bridge to allow it to melt from the centre and also to prevent blocking fish passage, channel erosion and flooding. Compacted snow and all crossing materials will be removed prior to the spring freshet
- No logs or woody debris will be left within the waterway or on the banks or shoreline where they can wash back into the waterway
- To minimize potential effects of boat use on mussel species and their habitats:
 - The use of boats will be limited to deep water areas at the transmission line crossings,
 - Boats will only approach shore at designated boat launches for stringing across



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Data Source: MB Hydro, ProvMB, NRCAN
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Land Base

- Transmission Line
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Project Infrastructure

- Tower Locations
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 - M602F Modification (New)
- *Tower locations subject to final design

Sensitive Sites

- Point Features
 - Linear Features
 - Area Features
- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

ESS Features

**Manitoba-Minnesota Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site Locations**

No specific mitigation measures for this map, page intentionally left blank

ESS Group: Wetland

**Features represented as polygons*

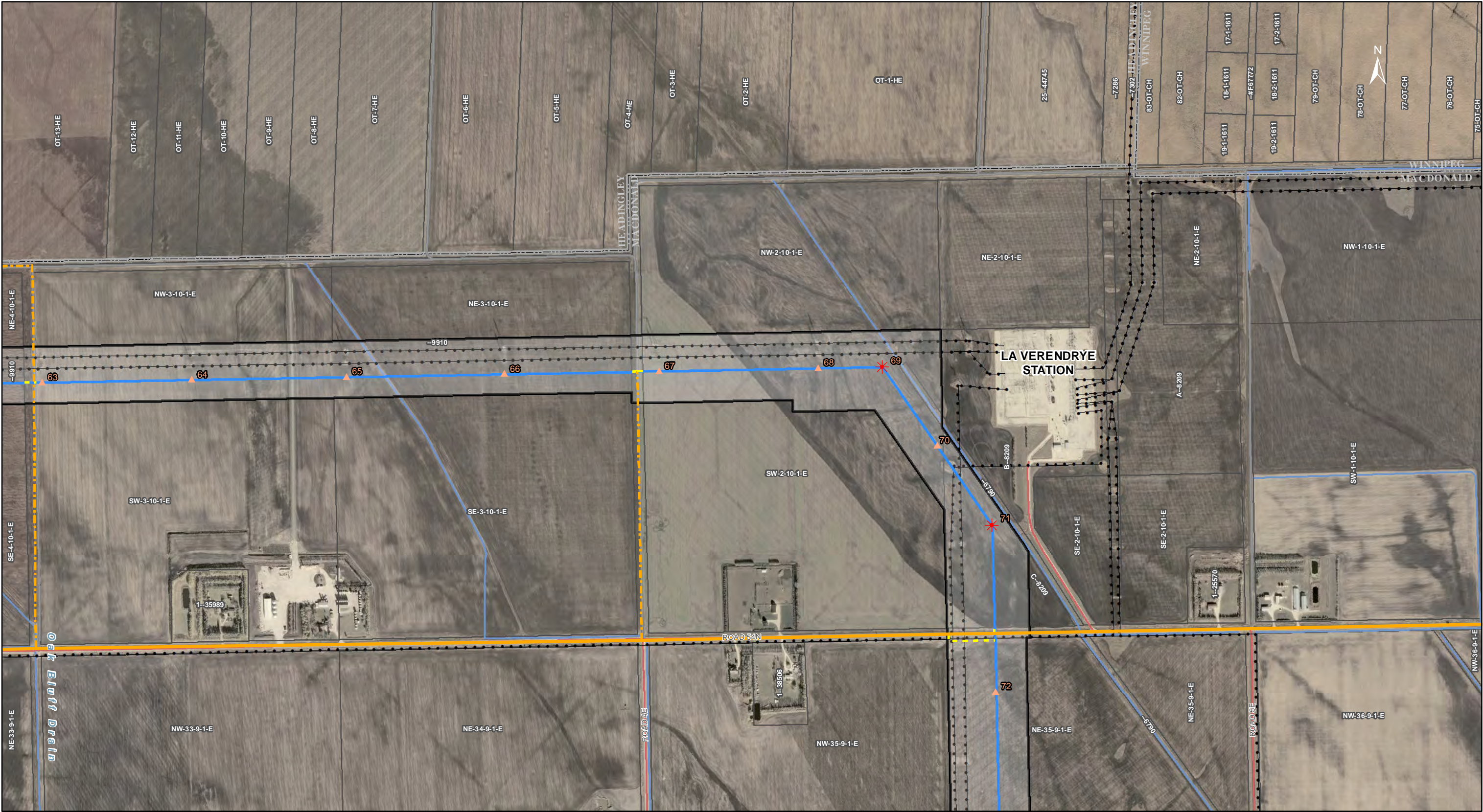
ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-300A	Wetland	3 to 4	E-613281 N-5518098	E-613504 N-5518103	223

Potential Effects:

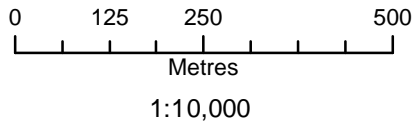
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible



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Land Base

- Transmission Line
- Highway
- Major Road
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- Railway (Operational)
- Railway (Discontinued)
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- Rural Municipality

Project Infrastructure

- Tower Locations
- Angle Tower Locations
- MMP Final Preferred Route
- Right of Way
- Station Expansion
- Converter Station Footprint
- M602F Modification (Salvage)
- M602F Modification (New)
- *Tower locations subject to final design

Sensitive Sites

- Point Features
- Linear Features
- Area Features
- Points of Access
 - Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

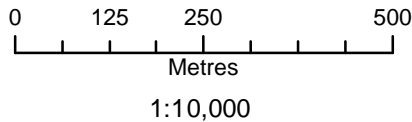
ESS Features

**Manitoba-Minnesota Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site Locations**

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- Land Base**
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- *Some road names have not been verified

- ESS Features**
- Water**
- Water Crossing

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Water Crossing

**Features represented as points*

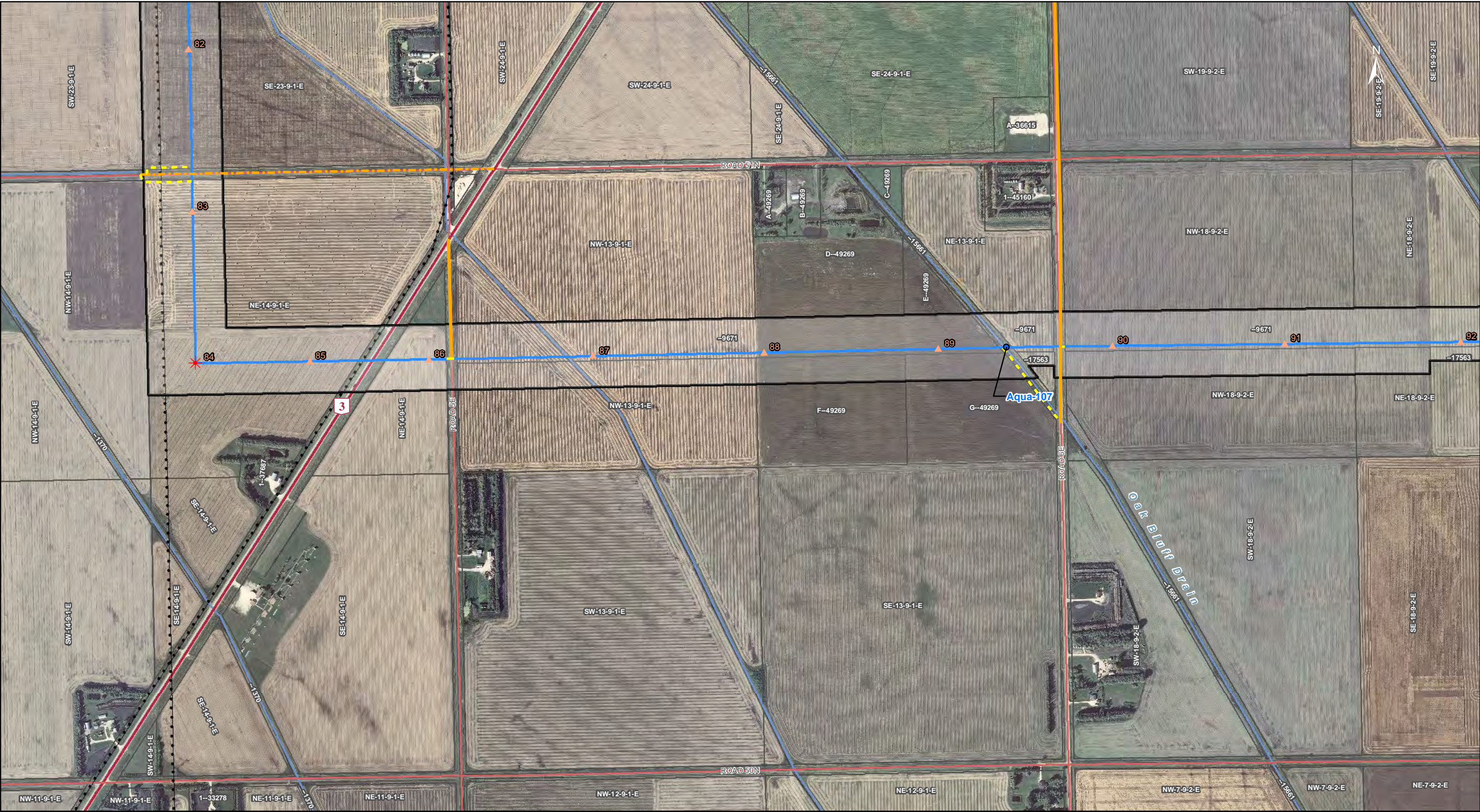
ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-105	Unnamed Drain Crossing	E-618449 N-5515051	N/A	N/A
Aqua-106	Oak Bluff Drain Crossing	E-618468 N-5514203	N/A	N/A

Potential Effects:

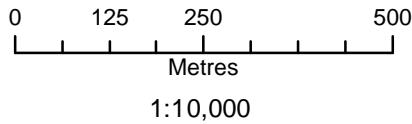
Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 715):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- If wet conditions exist, one time fording or the use construction matting for low water levels or temporary bridge for higher water levels must be authorized by MH Environmental Officer/Inspector
- Use existing trails, roads or cut lines whenever possible as access routes
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Limit machinery fording of the watercourse to a one-time event (over and back) only if no alternative crossing method is available (i.e. matting or temporary bridge)
- If repeated fording of the watercourse is necessary, prior approval from the MH Environmental Officer/Inspector is required
- Locate crossings perpendicular to the bank, whenever possible
- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site



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- ESS Features**
- Water**
- Water Crossing

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-107	Oak Bluff Drain Crossing	E-620707 N-5512076	N/A	N/A

Potential Effects:

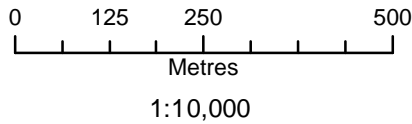
Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 715):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- If wet conditions exist, one time fording or the use construction matting for low water levels or temporary bridge for higher water levels must be authorized by MH Environmental Officer/Inspector
- Use existing trails, roads or cut lines whenever possible as access routes
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Limit machinery fording of the watercourse to a one-time event (over and back) only if no alternative crossing method is available (i.e. matting or temporary bridge)
- If repeated fording of the watercourse is necessary, prior approval from the MH Environmental Officer/Inspector is required
- Locate crossings perpendicular to the bank, whenever possible
- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site



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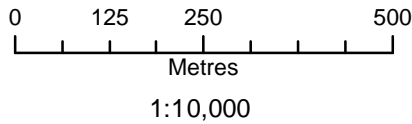
ESS Features

**Manitoba-Minnesota Transmission Project
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- ESS Features**
- Resource Use**
- Forestry
- Wildlife**
- Birds and Habitat

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

**Features represented as lines*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-103	Brady Landfill migratory route	L3 to L4	E-627981 N-5512214	E-631353 N-5511917	3411

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Forestry

**Features represented as points*

ESS ID	ESS Name	Location
RUse-302	Shelterbelt	E-628294 - N-5512222
RUse-303	Shelterbelt	E-629003 - N-5512241

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber



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| Land Base <ul style="list-style-type: none">Transmission LineHighwayMajor RoadLocal RoadRailway (Operational)Railway (Discontinued)First NationProvincial ForestParcel FabricRural Municipality | Project Infrastructure <ul style="list-style-type: none">Tower LocationsAngle Tower LocationsMMTP Final Preferred RouteRight of WayStation ExpansionConverter Station FootprintM602F Modification (Salvage)M602F Modification (New) <p><small>*Tower locations subject to final design</small></p> | Sensitive Sites <ul style="list-style-type: none">Point FeaturesLinear FeaturesArea Features Points of Access <ul style="list-style-type: none">Existing Gravel RoadExisting Gravel/Dirt RoadField AccessNew TrailRestricted AccessLoad Restriction <p><small>*Some road names have not been verified</small></p> | ESS Features <ul style="list-style-type: none">Heritage<ul style="list-style-type: none">ArchaeologicalWater<ul style="list-style-type: none">Water CrossingWildlife<ul style="list-style-type: none">Birds and HabitatLand Use<ul style="list-style-type: none">RecreationResource Use<ul style="list-style-type: none">Forestry |
|---|--|--|---|

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-105	La Salle River Crossing	E-633224 - N-5512064

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 320):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the first two towers on the West side of the river

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-103	Brady Landfill migratory route	L3 to L4	E-627981 N-5512214	E-631353 N-5511917	3411
Wild-104	La Salle River crossing	L5 to L6	E-632815 N-5511830	E-633375 N-5512151	645

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-304	Shelterbelt	5 to 6	E-632368 N-5511689	E-632382 N-5511686	14

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Recreation

*Features represented as polygons

ESS ID	ESS Name	Location
LUse-300	Southwood Golf and Country Club	*See Map

Potential Effects:

Potential disruption to recreational use activities

Specific Mitigation (ID# 408):

- Carry out construction activities following any applicable noise bylaws
- MH to notify golf course manager of major noise-generating activities
- Where the golf course borders the ROW limit all equipment to the project footprint only, where possible
- Where the golf course borders the ROW No damage to vegetation on the edge of the Right of Way or pushing debris onto adjacent property
- No trees will be removed from outside of the ROW edge, except the removal of danger trees on the ROW edge as identified by Manitoba Hydro

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-108	La Salle River Crossing	E-633240 N-5512074	31	24

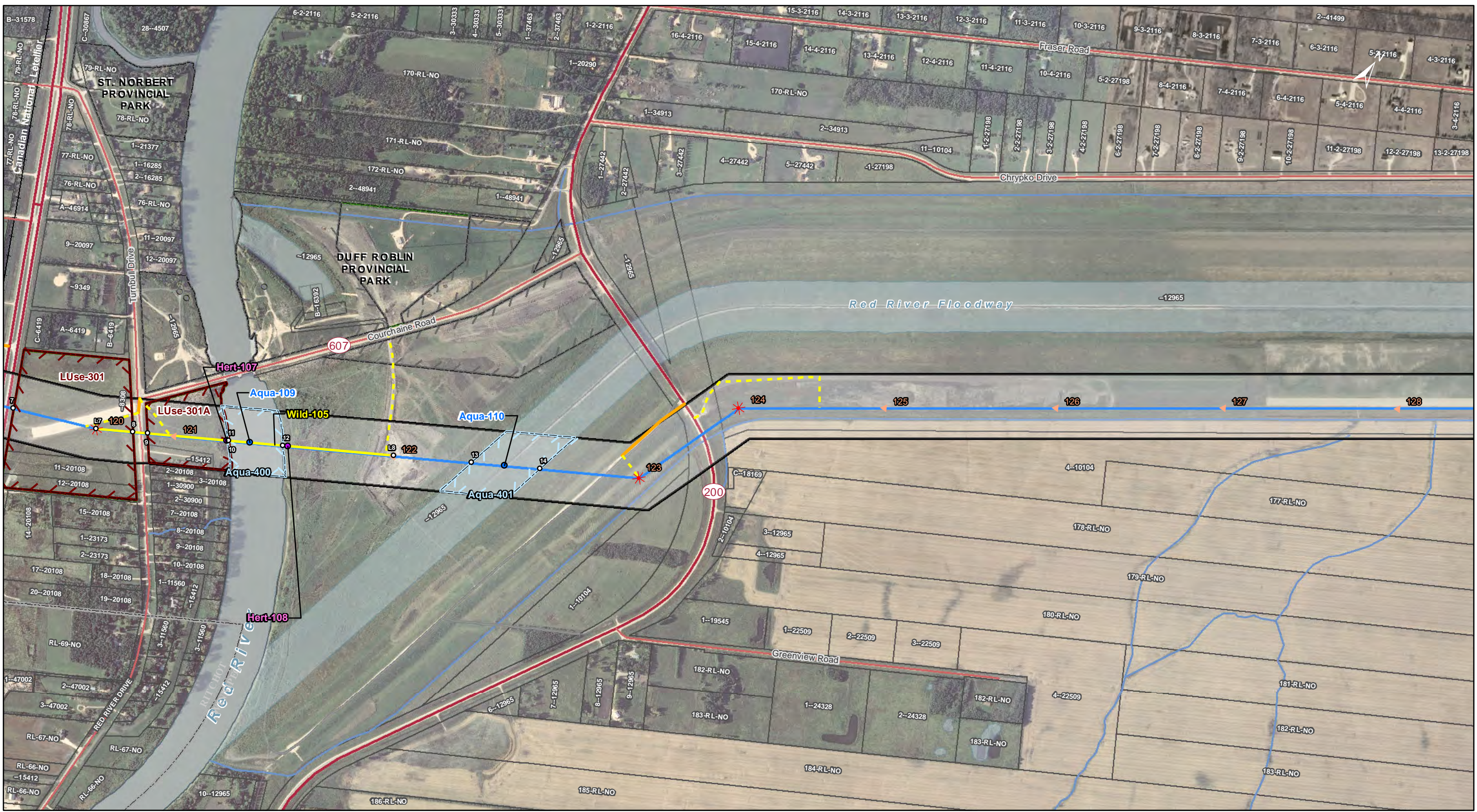
Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 711):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats
- Temporary signs stating "Construction Activity" will be:
 - placed and maintained 200m upstream and 200m downstream of the work
 - legible from a minimum distance of 100m downstream of the work
 - placed and maintained during all periods of conductor stringing during the open water season on all navigable waters
 - visible from all points of marine approach and when snowmobile traffic exists during frozen water conditions
- Ice bridges will be constructed of clean (ambient) water, ice and snow and snowfills will be constructed of clean snow. Materials such as gravel, rock and loose woody material will NOT be used. Crossings will not impede water flow at any time of the year
- Where logs are required for use in stabilizing shoreline approaches, they will be clean and securely bound together and they will be removed before the spring freshet
- When the crossing season is over and where it is safe to do so, a v-notch will be created in the centre of the ice bridge to allow it to melt from the centre and also to prevent blocking fish passage, channel erosion and flooding. Compacted snow and all crossing materials will be removed prior to the spring freshet
- No logs or woody debris will be left within the waterway or on the banks or shoreline where they can wash back into the waterway
- To minimize potential effects of boat use on mussel species and their habitats:
 - The use of boats will be limited to deep water areas at the transmission line crossings,
 - Boats will only approach shore at designated boat launches for stringing across

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|---|---|---|---|
| Land Base <ul style="list-style-type: none">Transmission LineHighwayMajor RoadLocal RoadRailway (Operational)Railway (Discontinued)First NationProvincial ForestParcel FabricRural Municipality | Project Infrastructure <ul style="list-style-type: none">Tower LocationsAngle Tower LocationsMMTP Final Preferred RouteRight of WayStation ExpansionConverter Station FootprintM602F Modification (Salvage)M602F Modification (New) <p>*Tower locations subject to final design</p> | Sensitive Sites <ul style="list-style-type: none">Point FeaturesLinear FeaturesArea Features Points of Access <ul style="list-style-type: none">Existing Gravel RoadExisting Gravel/Dirt RoadField AccessNew TrailRestricted AccessLoad Restriction <p>*Some road names have not been verified</p> | ESS Features <ul style="list-style-type: none">Heritage<ul style="list-style-type: none">ArchaeologicalWater<ul style="list-style-type: none">Water CrossingWildlife<ul style="list-style-type: none">Birds and HabitatLand Use<ul style="list-style-type: none">RecreationWater<ul style="list-style-type: none">ALS |
|---|---|---|---|

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: AIS

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-400	Aquatic Invasive Species Control Zone	11 to 12	E-634534 N-5512418	E-634664 N-5512493	151
Aqua-401	Aquatic Invasive Species Control Zone	13 to 14	E-635111 N-5512749	E-635274 N-5512842	187

Potential Effects:

Potential spread of Aquatic Invasive Species from a control zone to unaffected water bodies

Specific Mitigation (ID# 719):

- If equipment or watercraft are required to be in contact with the water or shoreline please refer to the "Aquatic Biosecurity Mitigation Measures" found in the Appendix of the Biosecurity Management Plan

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-107	Red River Crossing	E-634532 - N-5512416

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 320):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the first two towers on the West side of the river

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-108	Red River Crossing	E-634676 - N-5512499

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 321):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the first two towers on the East side of the river

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-105	Red River crossing	L7 to L8	E-634222 N-5512239	E-634926 N-5512643	812

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Recreation

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
LUse-301A	Duff Roblin Provincial Park	9 to 10	E-634536 N-5512419	E-634344 N-5512309	222
LUse-301	Duff Roblin Provincial Park	7 to 8	E-634006 N-5512156	E-634309 N-5512289	331

Potential Effects:

Potential disruption to Provincial Park use

Specific Mitigation (ID# 409):

- Follow all provincial park work permit conditions
- Observe municipal and local by-laws and protocols including noise and work scheduling
- Minimize noise, dust and other emissions from work activities and maintain clean work site
- Provide warning signage for vehicle traffic and public safety

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-110	Red River Floodway Crossing	E-635189 N-5512793	193	9

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-109	Red River Crossing	E-634586 N-5512448	149	145

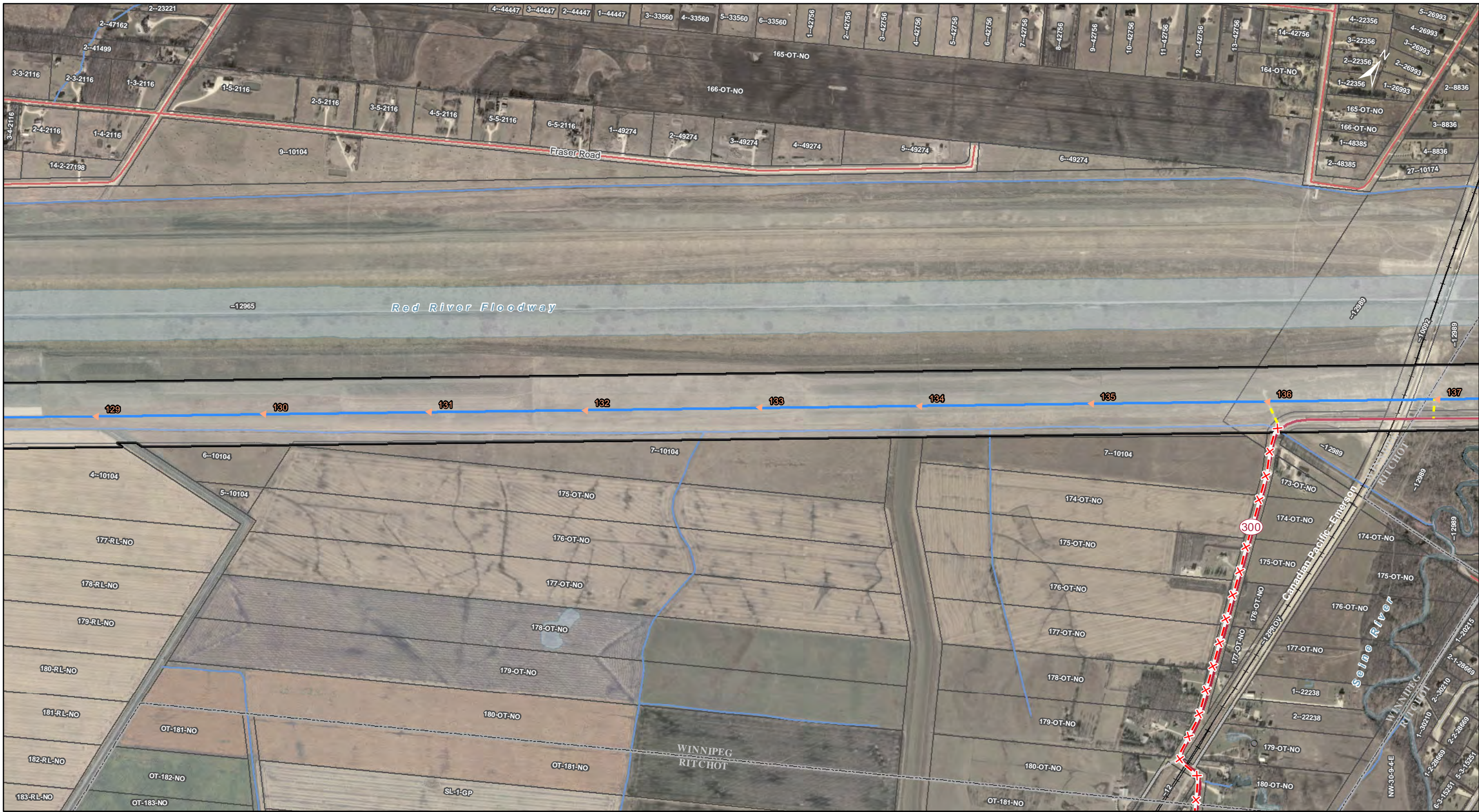
Potential Effects:

Potential disturbance and habitat loss of maple leaf mussel from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks

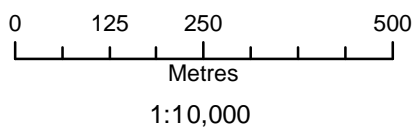
Specific Mitigation (ID# 712):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats
- Temporary signs stating "Construction Activity" will be:
 - placed and maintained 200m upstream and 200m downstream of the work
 - legible from a minimum distance of 100m downstream of the work
 - placed and maintained during all periods of conductor stringing during the open water season on all navigable waters
 - visible from all points of marine approach and when snowmobile traffic exists during frozen water conditions
- Ice bridges will be constructed of clean (ambient) water, ice and snow and snowfills will be constructed of clean snow. Materials such as gravel, rock and loose woody material will NOT be used. Crossings will not impede water flow at any time of the year
- Where logs are required for use in stabilizing shoreline approaches, they will be clean and securely bound together and they will be removed before the spring freshet
- When the crossing season is over and where it is safe to do so, a v-notch will be created in the centre of the ice bridge to allow it to melt from the centre and also to prevent blocking fish passage, channel erosion and flooding. Compacted snow and all crossing materials will be removed prior to the spring freshet
- No logs or woody debris will be left within the waterway or on the banks or shoreline where they can wash back into the waterway
- To minimize potential effects of boat use on mussel species and their habitats:
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- M602F Modification (New)

*Tower locations subject to final design

Sensitive Sites

- Point Features
- Linear Features
- Area Features

Points of Access

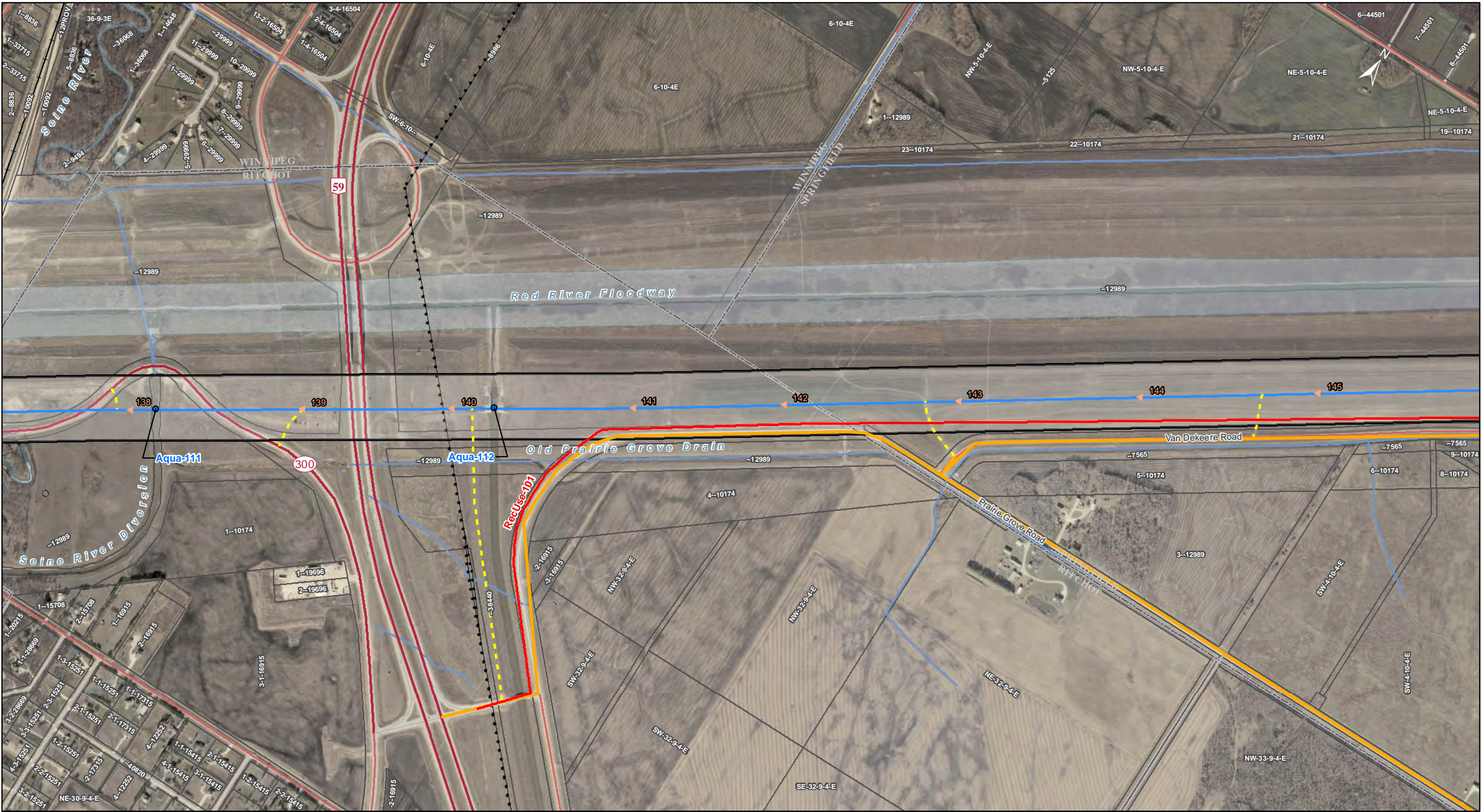
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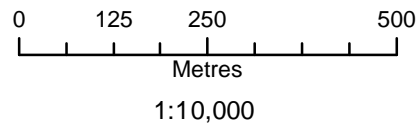
ESS Features

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

No specific mitigation measures for this map, page intentionally left blank



Coordinate System: UTM Zone 14N NAD83
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Land Base

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- Railway (Discontinued)
- First Nation
- Provincial Forest
- Parcel Fabric
- Rural Municipality

Project Infrastructure

- Tower Locations
- Angle Tower Locations
- MMTP Final Preferred Route
- Right of Way
- Station Expansion
- Converter Station Footprint
- M602F Modification (Salvage)
- M602F Modification (New)

*Tower locations subject to final design

Sensitive Sites

- Point Features
- Linear Features
- Area Features

Points of Access

- Existing Gravel Road
- Existing Gravel/Dirt Road
- Field Access
- New Trail
- Restricted Access
- Load Restriction

*Some road names have not been verified

ESS Features

- Water
- Water Crossing
- Rec Use
- Trail

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-111	Seine River Bypass Crossing	E-640893 N-5516973	22	18

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 711):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats
- Temporary signs stating "Construction Activity" will be:
 - placed and maintained 200m upstream and 200m downstream of the work
 - legible from a minimum distance of 100m downstream of the work
 - placed and maintained during all periods of conductor stringing during the open water season on all navigable waters
 - visible from all points of marine approach and when snowmobile traffic exists during frozen water conditions
- Ice bridges will be constructed of clean (ambient) water, ice and snow and snowfills will be constructed of clean snow. Materials such as gravel, rock and loose woody material will NOT be used. Crossings will not impede water flow at any time of the year
- Where logs are required for use in stabilizing shoreline approaches, they will be clean and securely bound together and they will be removed before the spring freshet
- When the crossing season is over and where it is safe to do so, a v-notch will be created in the centre of the ice bridge to allow it to melt from the centre and also to prevent blocking fish passage, channel erosion and flooding. Compacted snow and all crossing materials will be removed prior to the spring freshet
- No logs or woody debris will be left within the waterway or on the banks or shoreline where they can wash back into the waterway
- To minimize potential effects of boat use on mussel species and their habitats:
 - The use of boats will be limited to deep water areas at the transmission line crossings,
 - Boats will only approach shore at designated boat launches for stringing across

ESS Group: Water Crossing

**Features represented as points*

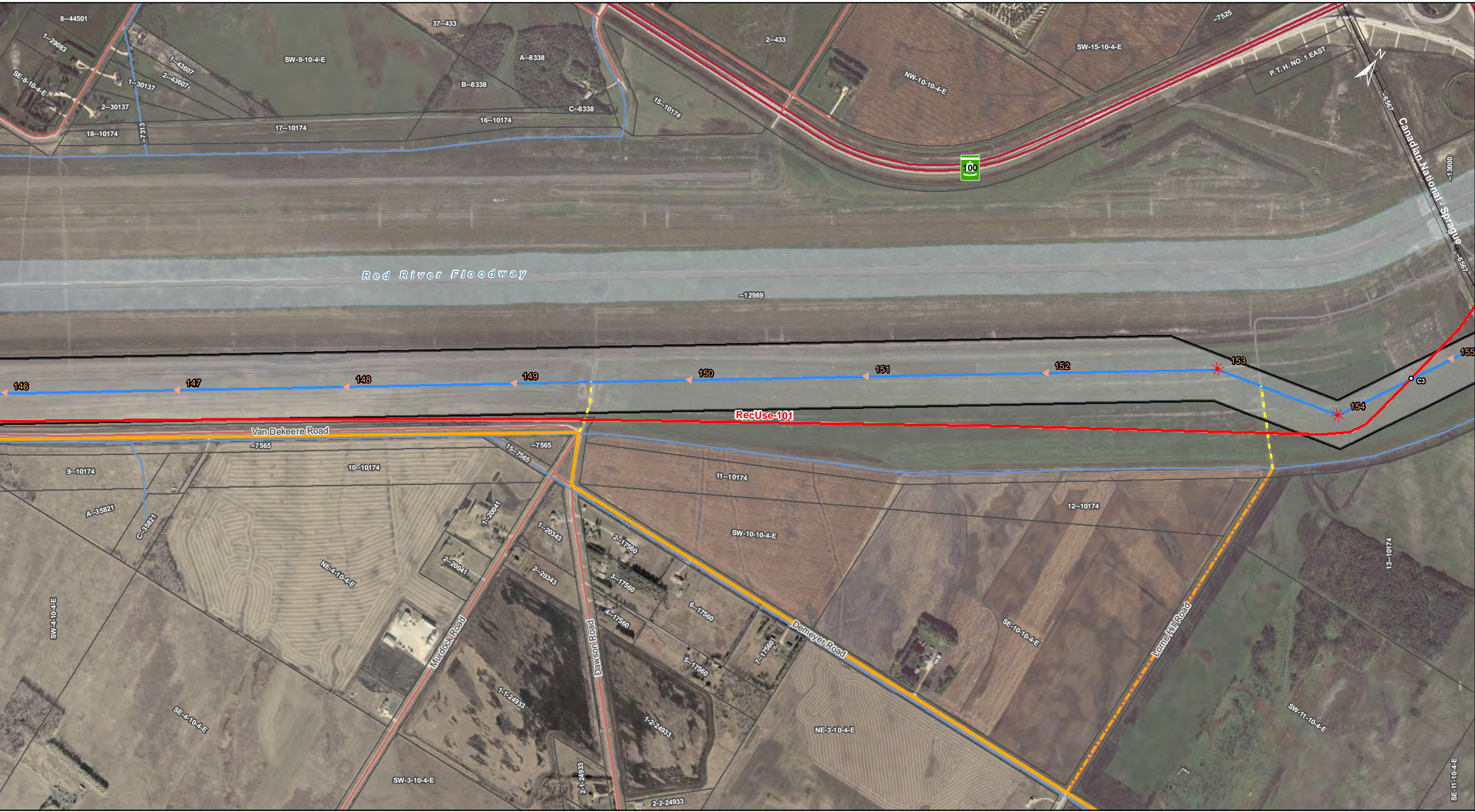
ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-112	Old Prairie Grove Drain Crossing	E-641655 N-5517486	11	4.5

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 715):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- If wet conditions exist, one time fording or the use construction matting for low water levels or temporary bridge for higher water levels must be authorized by MH Environmental Officer/Inspector
- Use existing trails, roads or cut lines whenever possible as access routes
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Limit machinery fording of the watercourse to a one-time event (over and back) only if no alternative crossing method is available (i.e. matting or temporary bridge)
- If repeated fording of the watercourse is necessary, prior approval from the MH Environmental Officer/Inspector is required
- Locate crossings perpendicular to the bank, whenever possible
- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site



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|---|--|---|---|
| Land Base <ul style="list-style-type: none">Transmission LineHighwayMajor RoadLocal RoadRailway (Operational)Railway (Discontinued)First NationProvincial ForestParcel FabricRural Municipality | Project Infrastructure <ul style="list-style-type: none">Tower LocationsAngle Tower LocationsMMP Final Preferred RouteRight of WayStation ExpansionConverter Station FootprintM602F Modification (Salvage)M602F Modification (New) <p>*Tower locations subject to final design</p> | Sensitive Sites <ul style="list-style-type: none">Point FeaturesLinear FeaturesArea Features Points of Access <ul style="list-style-type: none">Existing Gravel RoadExisting Gravel/Dirt RoadField AccessNew TrailRestricted AccessLoad Restriction <p>*Some road names have not been verified</p> | ESS Features <ul style="list-style-type: none">Rec UseTrail |
|---|--|---|---|

**Manitoba-Minnesota Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site Locations**

ESS Group: Trail

**Features represented as lines*

ESS ID	ESS Name	Site	Location
RecUse-101	Trail CT710	C3	E-647025 N-5521190

Potential Effects:

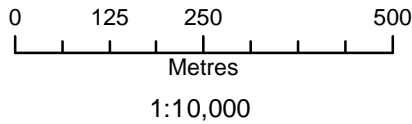
Potential interference with trail users; safety issues

Specific Mitigation (ID# 103):

- Identify and flag where trail intersects ROW
- Avoid surface damage to and obstruction of access route
- Post warning markers and signs at snowmobile trail location during construction
- MH to notify snowmobile club/users and local authorities regarding construction activities and schedule, and address concerns prior to construction



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Land Base

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Project Infrastructure

- Tower Locations
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- M602F Modification (New)

*Tower locations subject to final design

Sensitive Sites

- Point Features
- Linear Features
- Area Features

Points of Access

- Existing Gravel Road
- Existing Gravel/Dirt Road
- Field Access
- New Trail
- Restricted Access
- Load Restriction

*Some road names have not been verified

ESS Features

Water

- Water Crossing

Rec Use

- Trail

Wildlife

- Birds and Habitat

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-106	Deacon's Reservoir waterfowl sensitive area	L9 to L10	E-647508 N-5522860	E-649978 N-5524806	4402

Potential Effects:
Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

- Specific Mitigation** (ID# 827):
- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
 - Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Trail

*Features represented as lines

ESS ID	ESS Name	Site	Location
RecUse-101	Trail CT710	C3	E-647025 N-5521190
RecUse-101	Trail CT710	C4	E-647356 N-5521767

Potential Effects:
Potential interference with trail users; safety issues

- Specific Mitigation** (ID# 103):
- Identify and flag where trail intersects ROW
 - Avoid surface damage to and obstruction of access route
 - Post warning markers and signs at snowmobile trail location during construction
 - MH to notify snowmobile club/users and local authorities regarding construction activities and schedule, and address concerns prior to construction

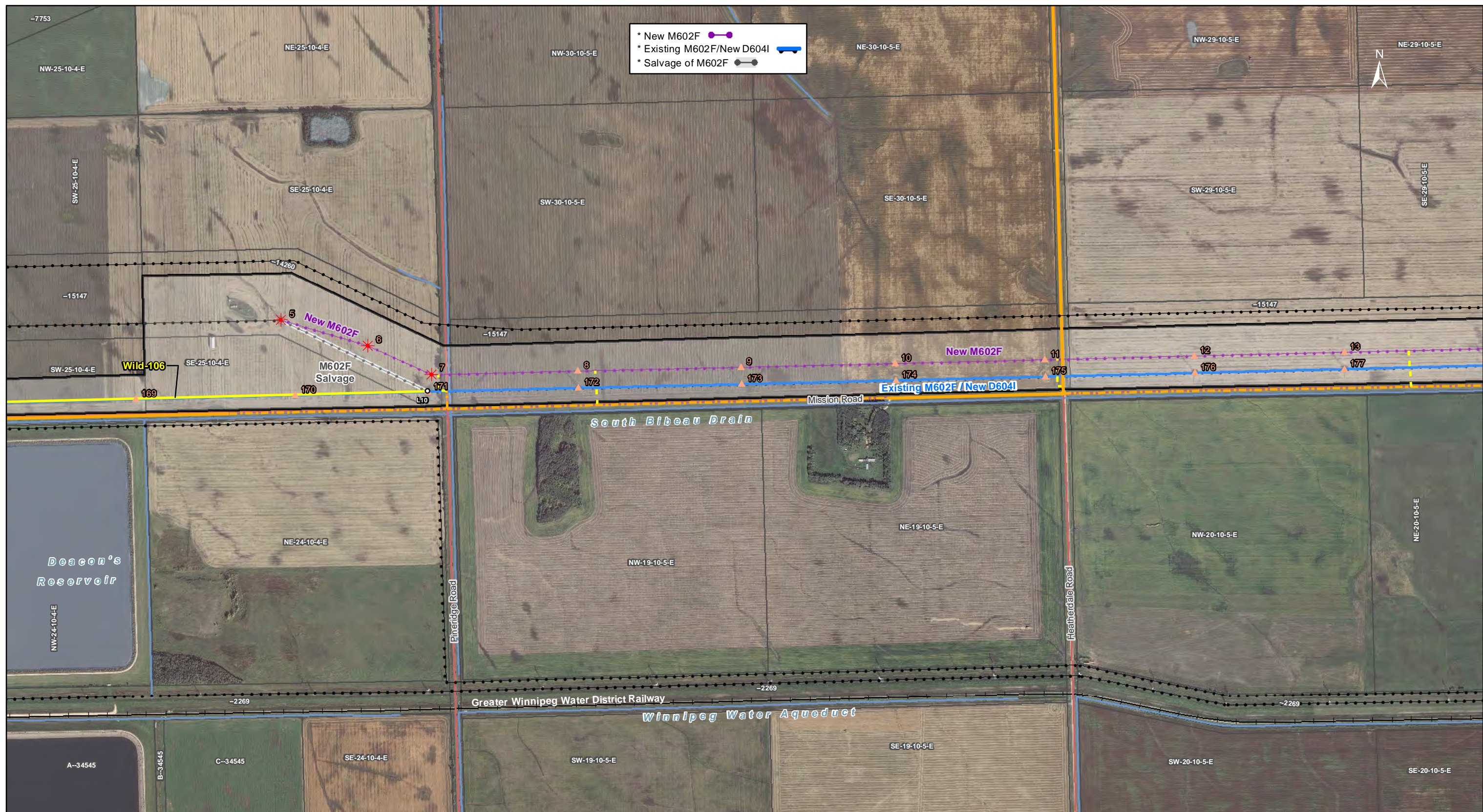
ESS Group: Water Crossing

*Features represented as points

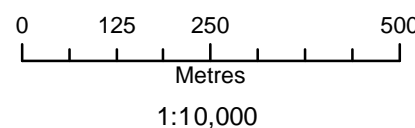
ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-113	Prairie Grove Drain Crossing	E-647503 N-5523042	N/A	N/A

Potential Effects:
Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

- Specific Mitigation** (ID# 715):
- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
 - If wet conditions exist, one time fording or the use construction matting for low water levels or temporary bridge for higher water levels must be authorized by MH Environmental Officer/Inspector
 - Use existing trails, roads or cut lines whenever possible as access routes
 - A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
 - Limit machinery fording of the watercourse to a one-time event (over and back) only if no alternative crossing method is available (i.e. matting or temporary bridge)
 - If repeated fording of the watercourse is necessary, prior approval from the MH Environmental Officer/Inspector is required
 - Locate crossings perpendicular to the bank, whenever possible
 - Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site



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Project Infrastructure

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- Angle Tower Locations
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- Right of Way
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- Converter Station Footprint
- M602F Modification (Salvage)
- M602F Modification (New)

*Tower locations subject to final design

Sensitive Sites

- Point Features
- Linear Features
- Area Features

Points of Access

- Existing Gravel Road
- Existing Gravel/Dirt Road
- Field Access
- New Trail
- Restricted Access
- Load Restriction

*Some road names have not been verified

ESS Features

Wildlife

- Birds and Habitat

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

**Features represented as lines*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-106	Deacon's Reservoir waterfowl sensitive area	L9 to L10	E-649978 N-5524806	E-647508 N-5522860	4402

Potential Effects:

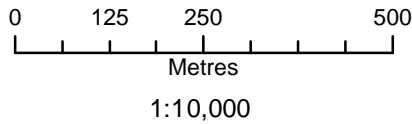
Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans



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*Tower locations subject to final design

Sensitive Sites

- Point Features
- Linear Features
- Area Features

Points of Access

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- Existing Gravel/Dirt Road
- Field Access
- New Trail
- Restricted Access
- Load Restriction

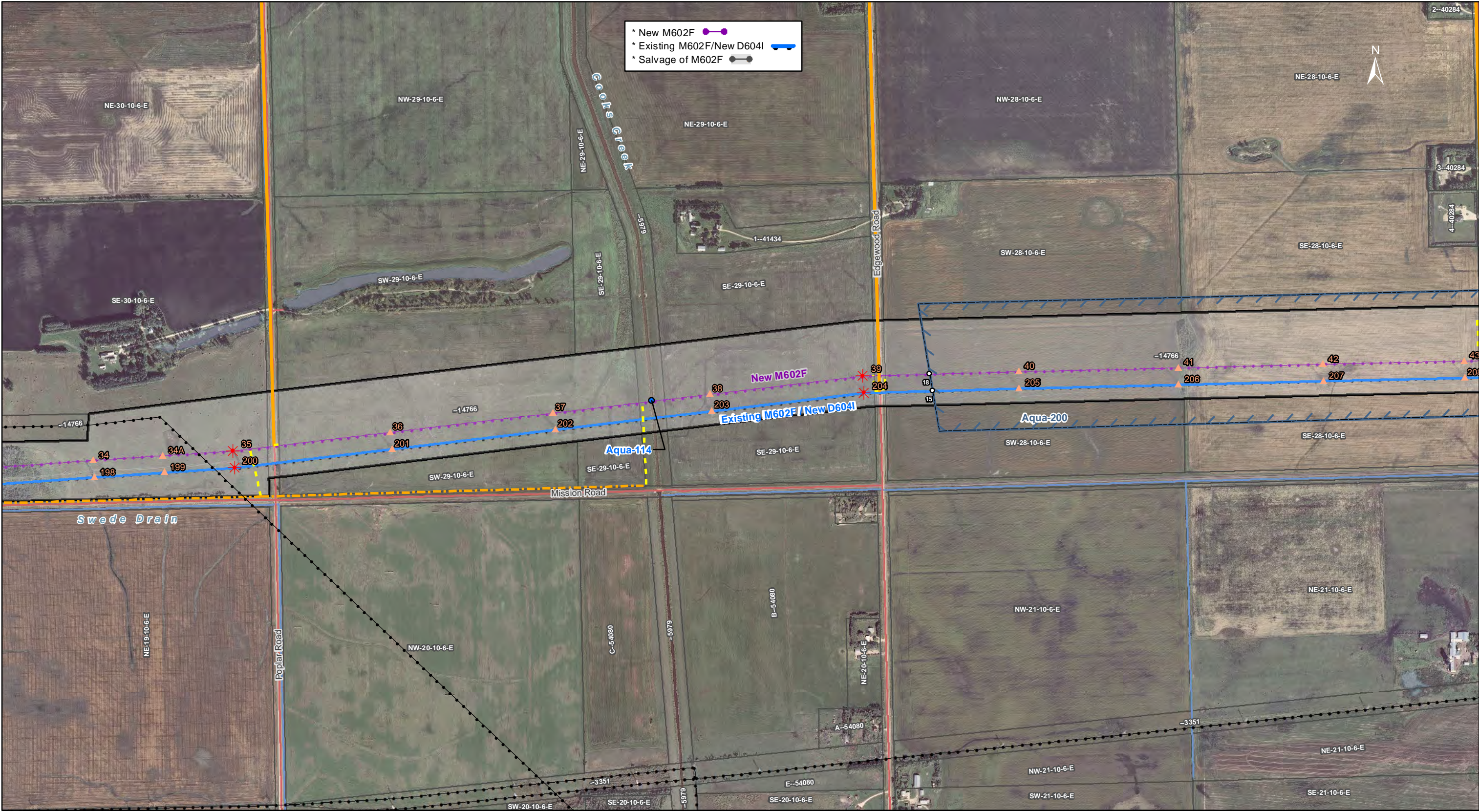
*Some road names have not been verified

ESS Features

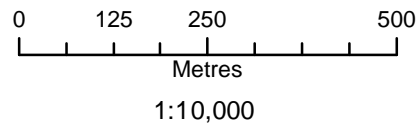
Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

No specific mitigation measures for this map, page intentionally left blank

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Land Base

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- M602F Modification (Salvage)
- M602F Modification (New)

*Tower locations subject to final design

Sensitive Sites

- Point Features
- Linear Features
- Area Features

Points of Access

- Existing Gravel Road
- Existing Gravel/Dirt Road
- Field Access
- New Trail
- Restricted Access
- Load Restriction

*Some road names have not been verified

ESS Features

Water

- Water Crossing

Water

- Groundwater

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Groundwater

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-200	Flowing Aquifer	15 to 16	E-663367 N-5525330	E-672285 N-5521842	12289
Aqua-200	Flowing Aquifer	17 to 18	E-672760 N-5525362	E-663359 N-5525376	9410

Potential Effects:

Potential to disturb groundwater quantity through the unintended discharge of aquifers in artesian areas of flowing wells and springs.

Specific Mitigation (ID# 705):

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions
- Emergency response plans for sealing/grouting and pumping will be implemented as required
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture

ESS Group: Water Crossing

*Features represented as points

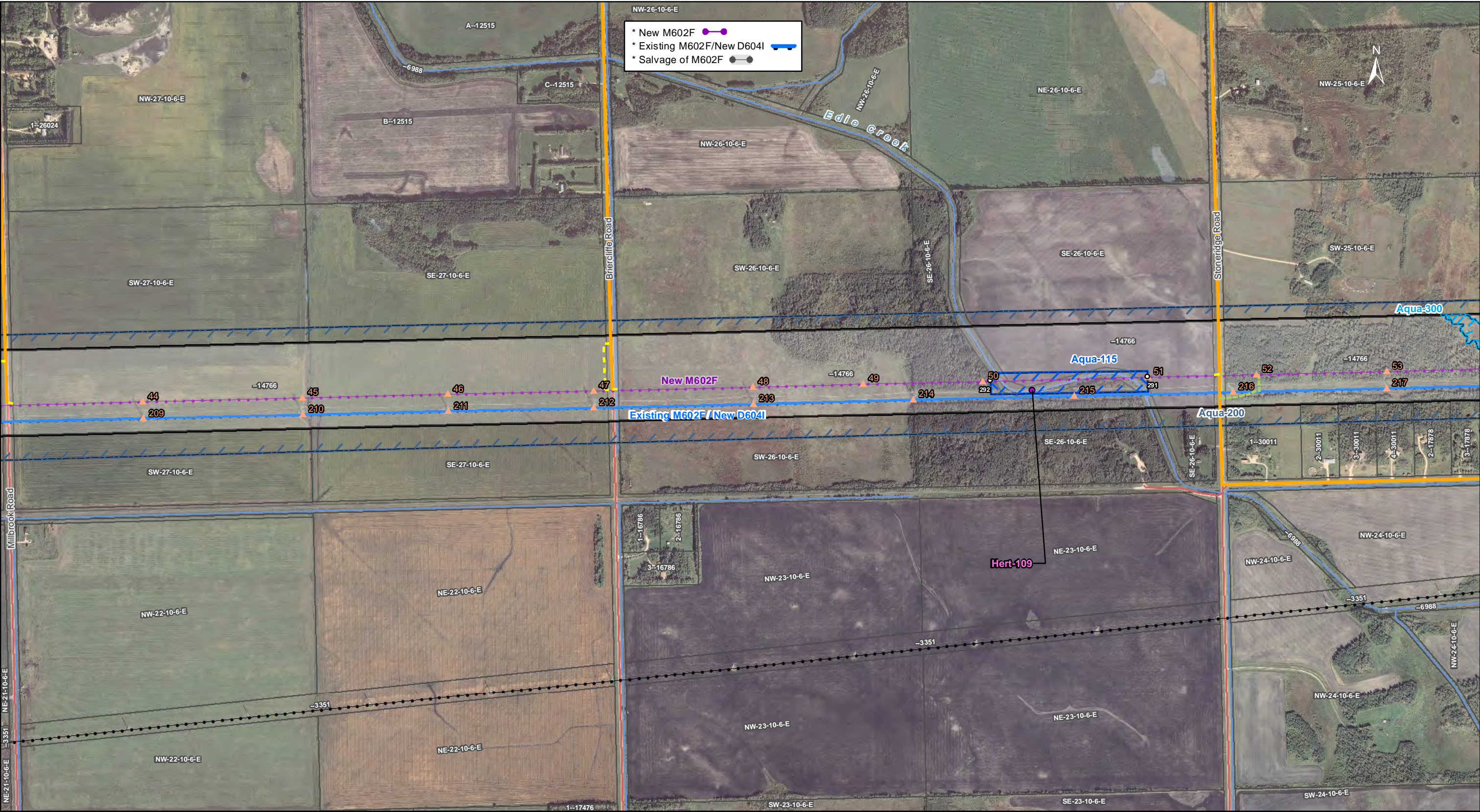
ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-114	Cooks Creek Crossing	E-662607 N-5525303	30	6

Potential Effects:

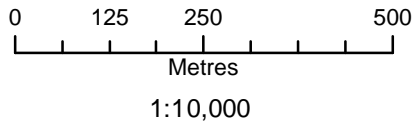
Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 711):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats
- Temporary signs stating "Construction Activity" will be:
 - placed and maintained 200m upstream and 200m downstream of the work
 - legible from a minimum distance of 100m downstream of the work
 - placed and maintained during all periods of conductor stringing during the open water season on all navigable waters
 - visible from all points of marine approach and when snowmobile traffic exists during frozen water conditions
- Ice bridges will be constructed of clean (ambient) water, ice and snow and snowfills will be constructed of clean snow. Materials such as gravel, rock and loose woody material will NOT be used. Crossings will not impede water flow at any time of the year
- Where logs are required for use in stabilizing shoreline approaches, they will be clean and securely bound together and they will be removed before the spring freshet
- When the crossing season is over and where it is safe to do so, a v-notch will be created in the centre of the ice bridge to allow it to melt from the centre and also to prevent blocking fish passage, channel erosion and flooding. Compacted snow and all crossing materials will be removed prior to the spring freshet
- No logs or woody debris will be left within the waterway or on the banks or shoreline where they can wash back into the waterway
- To minimize potential effects of boat use on mussel species and their habitats:
 - The use of boats will be limited to deep water areas at the transmission line crossings,
 - Boats will only approach shore at designated boat launches for stringing across



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- Land Base**
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- Project Infrastructure**
- Tower Locations
 - Angle Tower Locations
 - MMTP Final Preferred Route
 - Right of Way
 - Station Expansion
 - Converter Station Footprint
 - M602F Modification (Salvage)
 - M602F Modification (New)
- *Tower locations subject to final design

- Sensitive Sites**
- Point Features
 - Linear Features
 - Area Features
- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Heritage**
- Archaeological
- Water**
- Groundwater
 - Water Crossing
 - Wetland

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-109	Edie Creek Crossing	E-667637 - N-5525451

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 322):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the first tower West of Creek

ESS Group: Groundwater

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-200	Flowing Aquifer	15 to 16	E-663367 N-5525330	E-672285 N-5521842	12289

Potential Effects:

Potential to disturb groundwater quantity through the unintended discharge of aquifers in artesian areas of flowing wells and springs.

Specific Mitigation (ID# 705):

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions
- Emergency response plans for sealing/grouting and pumping will be implemented as required
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture

ESS Group: Water Crossing

*Features represented as polygons

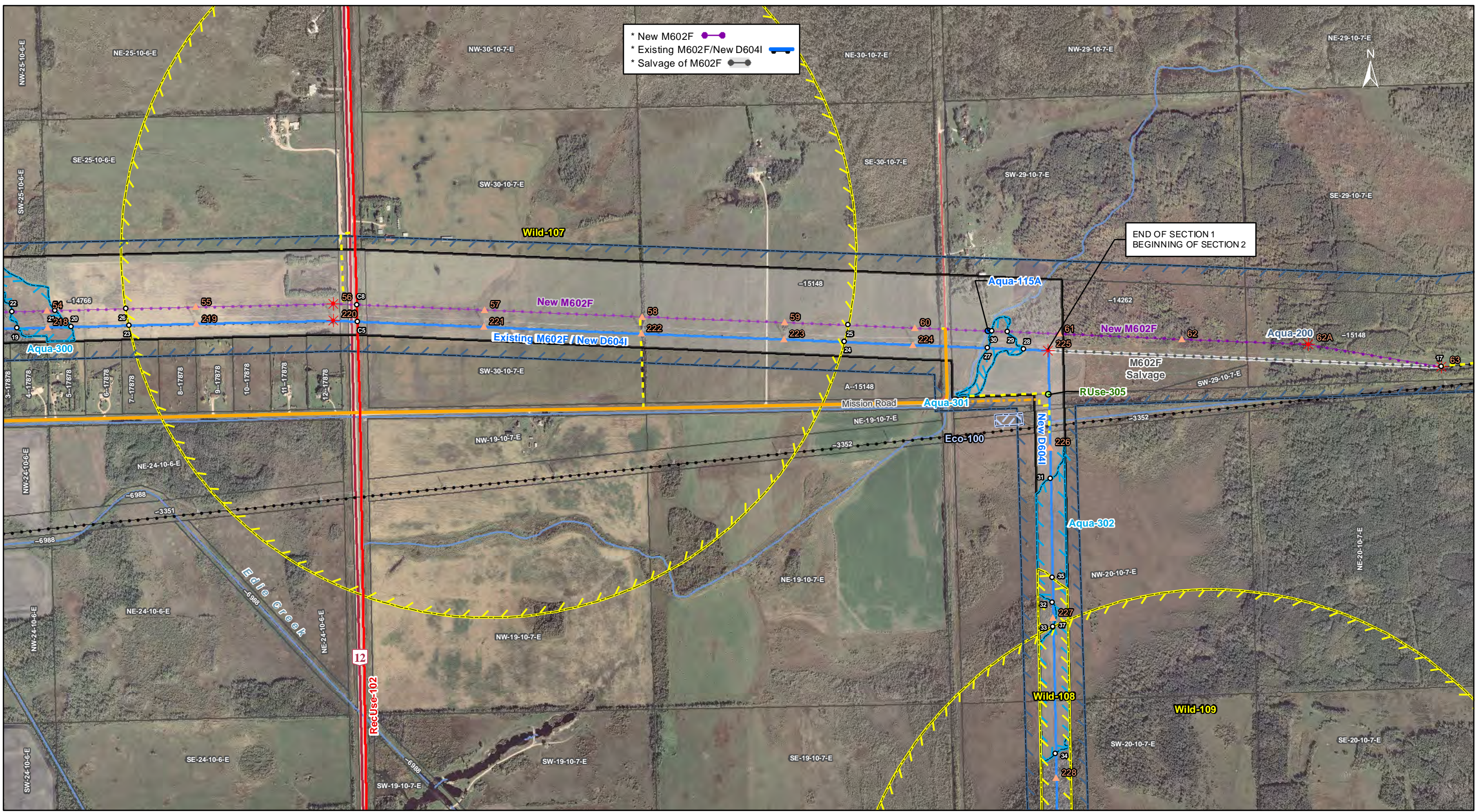
ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-115	Edie Creek Crossing	291 to 292	E-667948 N-5525488	E-667523 N-5525478	425

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats



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| Land Base <ul style="list-style-type: none">Transmission LineHighwayMajor RoadLocal RoadRailway (Operational)Railway (Discontinued)First NationProvincial ForestParcel FabricRural Municipality | Project Infrastructure <ul style="list-style-type: none">Tower LocationsAngle Tower LocationsMMTP Final Preferred RouteRight of WayStation ExpansionConverter Station FootprintM602F Modification (Salvage)M602F Modification (New)*Tower locations subject to final design | Sensitive Sites <ul style="list-style-type: none">Point FeaturesLinear FeaturesArea Features Points of Access <ul style="list-style-type: none">Existing Gravel RoadExisting Gravel/Dirt RoadField AccessNew TrailRestricted AccessLoad Restriction*Some road names have not been verified | ESS Features <ul style="list-style-type: none">Resource Use<ul style="list-style-type: none">ForestryWater<ul style="list-style-type: none">Water CrossingRec Use<ul style="list-style-type: none">TrailEcosystem<ul style="list-style-type: none">HabitatWater<ul style="list-style-type: none">GroundwaterWetland | Wildlife <ul style="list-style-type: none">Birds and Habitat |
|---|--|--|--|---|

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-108	GWW Habitat	35 to 36	E-671701 N-5524787	E-671720 N-5523774	1013

Potential Effects:

Potential loss of habitat for Golden-winged Warbler from clearing, construction, maintenance and decommissioning activities.

Specific Mitigation (ID# 826):

- Refer to Clearing Management Plan for detailed clearing prescriptions
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Typically 5-10 perch site trees must be retained per span where feasible

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-107	Sharp-tailed grouse lek	23 to 24	E-669189 N-5525473	E-671136 N-5525429	1949
Wild-107	Sharp-tailed grouse lek	25 to 26	E-671147 N-5525474	E-669181 N-5525519	1968
Wild-109	Sharp-tailed grouse lek	37 to 38	E-671704 N-5524653	E-672299 N-5521282	3771

Potential Effects:

Potential disruption of mating success for sharp-tailed grouse

Specific Mitigation (ID# 830):

- Do not plan to carry out construction activities within this area between April 15 to June 1st
- If construction activity is required within this area between April 15 to June 1st. Contact Manitoba Hydro Environmental Officer to discuss potential mitigation options

ESS Group: Forestry

*Features represented as points

ESS ID	ESS Name	Location
RUse-305	Shelterbelt	E-671692 - N-5525286

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Groundwater

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-200	Flowing Aquifer	15 to 16	E-663367 N-5525330	E-672285 N-5521842	12289
Aqua-200	Flowing Aquifer	17 to 18	E-672760 N-5525362	E-663359 N-5525376	9410

Potential Effects:

Potential to disturb groundwater quantity through the unintended discharge of aquifers in artesian areas of flowing wells and springs.

Specific Mitigation (ID# 705):

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions
- Emergency response plans for sealing/grouting and pumping will be implemented as required
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture

ESS Group: Habitat

**Features represented as polygons*

ESS ID	ESS Name	Location
Eco-100	Prairie Grassland	*See Map

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Trail

**Features represented as lines*

ESS ID	ESS Name	Site	Location
RecUse-102	Trail PT50	C5	E-669811 N-5525484
RecUse-102	Trail PT50	C8	E-669809 N-5525530

Potential Effects:

Potential interference with trail users; safety issues

Specific Mitigation (ID# 103):

- Identify and flag where trail intersects ROW
- Avoid surface damage to and obstruction of access route
- Post warning markers and signs at snowmobile trail location during construction
- MH to notify snowmobile club/users and local authorities regarding construction activities and schedule, and address concerns prior to construction

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-115A	Unnamed Creek Crossing	E-671528 N-5525459	N/A	N/A

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 715):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- If wet conditions exist, one time fording or the use construction matting for low water levels or temporary bridge for higher water levels must be authorized by MH Environmental Officer/Inspector
- Use existing trails, roads or cut lines whenever possible as access routes
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Limit machinery fording of the watercourse to a one-time event (over and back) only if no alternative crossing method is available (i.e. matting or temporary bridge)
- If repeated fording of the watercourse is necessary, prior approval from the MH Environmental Officer/Inspector is required
- Locate crossings perpendicular to the bank, whenever possible
- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-300	Wetland	19 to 20	E-668884 N-5525466	E-669033 N-5525469	148
Aqua-300	Wetland	21 to 22	E-668988 N-5525514	E-668871 N-5525511	117
Aqua-301	Wetland	27 to 28	E-671526 N-5525413	E-671624 N-5525409	98
Aqua-301	Wetland	29 to 30	E-671581 N-5525456	E-671537 N-5525458	43
Aqua-302	Wetland	31 to 32	E-671696 N-5525056	E-671702 N-5524720	336
Aqua-302	Wetland	33 to 34	E-671704 N-5524652	E-671710 N-5524308	344

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible



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Version: Final 1.06

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|---|--|--|---|
| Land Base <ul style="list-style-type: none">Transmission LineHighwayMajor RoadLocal RoadRailway (Operational)Railway (Discontinued)First NationProvincial ForestParcel FabricRural Municipality | Project Infrastructure <ul style="list-style-type: none">Tower LocationsAngle Tower LocationsMMTP Final Preferred RouteRight of WayStation ExpansionConverter Station FootprintM602F Modification (Salvage)M602F Modification (New) <p><small>*Tower locations subject to final design</small></p> | Sensitive Sites <ul style="list-style-type: none">Point FeaturesLinear FeaturesArea Features Points of Access <ul style="list-style-type: none">Existing Gravel RoadExisting Gravel/Dirt RoadField AccessNew TrailRestricted AccessLoad Restriction <p><small>*Some road names have not been verified</small></p> | ESS Features <ul style="list-style-type: none">Water<ul style="list-style-type: none">Water CrossingGroundwaterWetland<ul style="list-style-type: none">GroundwaterWetlandWildlife<ul style="list-style-type: none">Birds and Habitat |
|---|--|--|---|

**Manitoba-Minnesota Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site Locations**

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-108	GWW Habitat	35 to 36	E-671701 N-5524787	E-671720 N-5523774	1013
Wild-110	GWW Habitat	45 to 46	E-671733 N-5523132	E-672312 N-5520779	2752

Potential Effects:

Potential loss of habitat for Golden-winged Warbler from clearing, construction, maintenance and decommissioning activities.

Specific Mitigation (ID# 826):

- Refer to Clearing Management Plan for detailed clearing prescriptions
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Typically 5-10 perch site trees must be retained per span where feasible

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-109	Sharp-tailed grouse lek	37 to 38	E-671704 N-5524653	E-672299 N-5521282	3771

Potential Effects:

Potential disruption of mating success for sharp-tailed grouse

Specific Mitigation (ID# 830):

- Do not plan to carry out construction activities within this area between April 15 to June 1st
- If construction activity is required within this area between April 15 to June 1st. Contact Manitoba Hydro Environmental Officer to discuss potential mitigation options

ESS Group: Groundwater

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-200	Flowing Aquifer	15 to 16	E-663367 N-5525330	E-672285 N-5521842	12289
Aqua-201	Flowing Aquifer	47 to 48	E-672326 N-5520215	E-672624 N-5518730	1536

Potential Effects:

Potential to disturb groundwater quantity through the unintended discharge of aquifers in artesian areas of flowing wells and springs.

Specific Mitigation (ID# 705):

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions
- Emergency response plans for sealing/grouting and pumping will be implemented as required
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture

ESS Group: Groundwater

*Features represented as points

ESS ID	ESS Name	Location
Aqua-204	Artesian Well	E-672322 - N-5521498

Potential Effects:

Potential damage to wellhead or potential groundwater contamination from a contingency even (e.g., spill)

Specific Mitigation (ID# 720):

- Locate and flag a 10m buffer around wellhead
- No fueling or servicing of vehicles within 100m of wellhead
- No fuel or hazardous materials storage within 100m of wellhead

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-116	Edie Creek Crossing	E-671723 N-5523620	N/A	N/A

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-303	Wetland	39 to 40	E-671718 N-5523877	E-671720 N-5523816	61
Aqua-304	Wetland	41 to 42	E-671726 N-5523490	E-671726 N-5523474	16
Aqua-304	Wetland	43 to 44	E-671729 N-5523304	E-672257 N-5522900	803

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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| Water <ul style="list-style-type: none">Water Crossing | Ecosystem <ul style="list-style-type: none">Habitat | | | | | | | | |
| Water <ul style="list-style-type: none">GroundwaterWetland | | | | | | | | | |

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-110	Cooks Creek Crossing	E-672774 - N-5518337

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 323):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Notify project Archaeologist after clearing has been completed so a post clearing assessment can be completed prior to foundation installation
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the first towers on each side of the creek

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-111	GWW Habitat	61 to 62	E-672670 N-5518609	E-675858 N-5513172	6430

Potential Effects:

Potential loss of habitat for Golden-winged Warbler from clearing, construction, maintenance and decommissioning activities.

Specific Mitigation (ID# 826):

- Refer to Clearing Management Plan for detailed clearing prescriptions
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Typically 5-10 perch site trees must be retained per span where feasible

ESS Group: Groundwater

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-201	Flowing Aquifer	47 to 48	E-672326 N-5520215	E-672624 N-5518730	1536

Potential Effects:

Potential to disturb groundwater quantity through the unintended discharge of aquifers in artesian areas of flowing wells and springs.

Specific Mitigation (ID# 705):

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions
- Emergency response plans for sealing/grouting and pumping will be implemented as required
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture

ESS Group: Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-101	Prairie Grassland	59 to 60	E-672568 N-5518878	E-672594 N-5518810	73

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-117	Cooks Creek Crossing	E-672775 N-5518336	N/A	N/A

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 711):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats
- Temporary signs stating "Construction Activity" will be:
 - placed and maintained 200m upstream and 200m downstream of the work
 - legible from a minimum distance of 100m downstream of the work
 - placed and maintained during all periods of conductor stringing during the open water season on all navigable waters
 - visible from all points of marine approach and when snowmobile traffic exists during frozen water conditions
- Ice bridges will be constructed of clean (ambient) water, ice and snow and snowfills will be constructed of clean snow. Materials such as gravel, rock and loose woody material will NOT be used. Crossings will not impede water flow at any time of the year
- Where logs are required for use in stabilizing shoreline approaches, they will be clean and securely bound together and they will be removed before the spring freshet
- When the crossing season is over and where it is safe to do so, a v-notch will be created in the centre of the ice bridge to allow it to melt from the centre and also to prevent blocking fish passage, channel erosion and flooding. Compacted snow and all crossing materials will be removed prior to the spring freshet
- No logs or woody debris will be left within the waterway or on the banks or shoreline where they can wash back into the waterway
- To minimize potential effects of boat use on mussel species and their habitats:
 - The use of boats will be limited to deep water areas at the transmission line crossings,
 - Boats will only approach shore at designated boat launches for stringing across

ESS Group: Wetland

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-305	Wetland	49 to 50	E-672335 N-5519905	E-672336 N-5519870	35
Aqua-306	Wetland	51 to 52	E-672338 N-5519783	E-672339 N-5519732	51
Aqua-307	Wetland	53 to 54	E-672340 N-5519695	E-672343 N-5519595	101
Aqua-308	Wetland	55 to 56	E-672388 N-5519350	E-672399 N-5519321	30
Aqua-308	Wetland	57 to 58	E-672432 N-5519234	E-672615 N-5518754	514

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

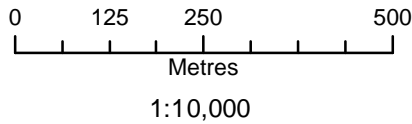
Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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- Land Base**
- Transmission Line
 - Highway
 - Major Road
 - Local Road
 - Railway (Operational)
 - Railway (Discontinued)
 - First Nation
 - Provincial Forest
 - Parcel Fabric
 - Rural Municipality

- Project Infrastructure**
- Tower Locations
 - Angle Tower Locations
 - MMTP Final Preferred Route
 - Right of Way
 - Station Expansion
 - Converter Station Footprint
 - M602F Modification (Salvage)
 - M602F Modification (New)
- *Tower locations subject to final design

- Sensitive Sites**
- Point Features
 - Linear Features
 - Area Features
- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Ecosystem**
- Species of Traditional Use
 - Species of Concern
- Resource Use**
- Forestry
- Water**
- Wetland
- Wildlife**
- Birds and Habitat
 - Line of Sight

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-111	GWW Habitat	61 to 62	E-672670 N-5518609	E-675858 N-5513172	6430

Potential Effects:

Potential loss of habitat for Golden-winged Warbler from clearing, construction, maintenance and decommissioning activities.

Specific Mitigation (ID# 826):

- Refer to Clearing Management Plan for detailed clearing prescriptions
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Typically 5-10 perch site trees must be retained per span where feasible

ESS Group: Forestry

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Line of Sight Buffer

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-400	Line of Sight Buffer	73 to 74	E-675325 N-5513870	E-675363 N-5513820	63

Potential Effects:

Potential for increased hunting and predation pressure on wildlife due to ROW vegetation clearing crossing the roadway

Specific Mitigation (ID# 833):

- Remove all trees
- Remove all shrubs >4m tall
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Develop an access trail that is 7m wide along a path to be determined onsite through consultation between MH and the Contractor

ESS Group: Species of Concern

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-301A	Plant Species of Concern	75 to 76	E-675325 N-5513870	E-675380 N-5513799	90

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Species of Traditional Use

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-500	Traditional Use Plant Species >30% Cover	67 to 68	E-673868 N-5515471	E-674980 N-5514213	1705
Eco-501	Traditional Use Plant Species >30% Cover	71 to 72	E-675325 N-5513870	E-675841 N-5513195	849

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-309	Wetland	63 to 64	E-673665 N-5516003	E-673683 N-5515956	50
Aqua-310	Wetland	69 to 70	E-674635 N-5514541	E-674742 N-5514439	148

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-112	GWW Habitat	77 to 78	E-676235 N-5512678	E-676526 N-5512297	480
Wild-113	GWW Habitat	81 to 82	E-676669 N-5512111	E-677157 N-5511471	805

Potential Effects:

Potential loss of habitat for Golden-winged Warbler from clearing, construction, maintenance and decommissioning activities.

Specific Mitigation (ID# 826):

- Refer to Clearing Management Plan for detailed clearing prescriptions
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Typically 5-10 perch site trees must be retained per span where feasible

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-102	Prairie Grassland	79 to 80	E-676547 N-5512270	E-676660 N-5512122	186

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-118	Fish Creek Crossing	E-676922 N-5511779	N/A	N/A

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-311	Wetland	83 to 84	E-677626 N-5510857	E-677765 N-5510674	230
Aqua-312	Wetland	85 to 86	E-677776 N-5510660	E-678614 N-5509562	1381

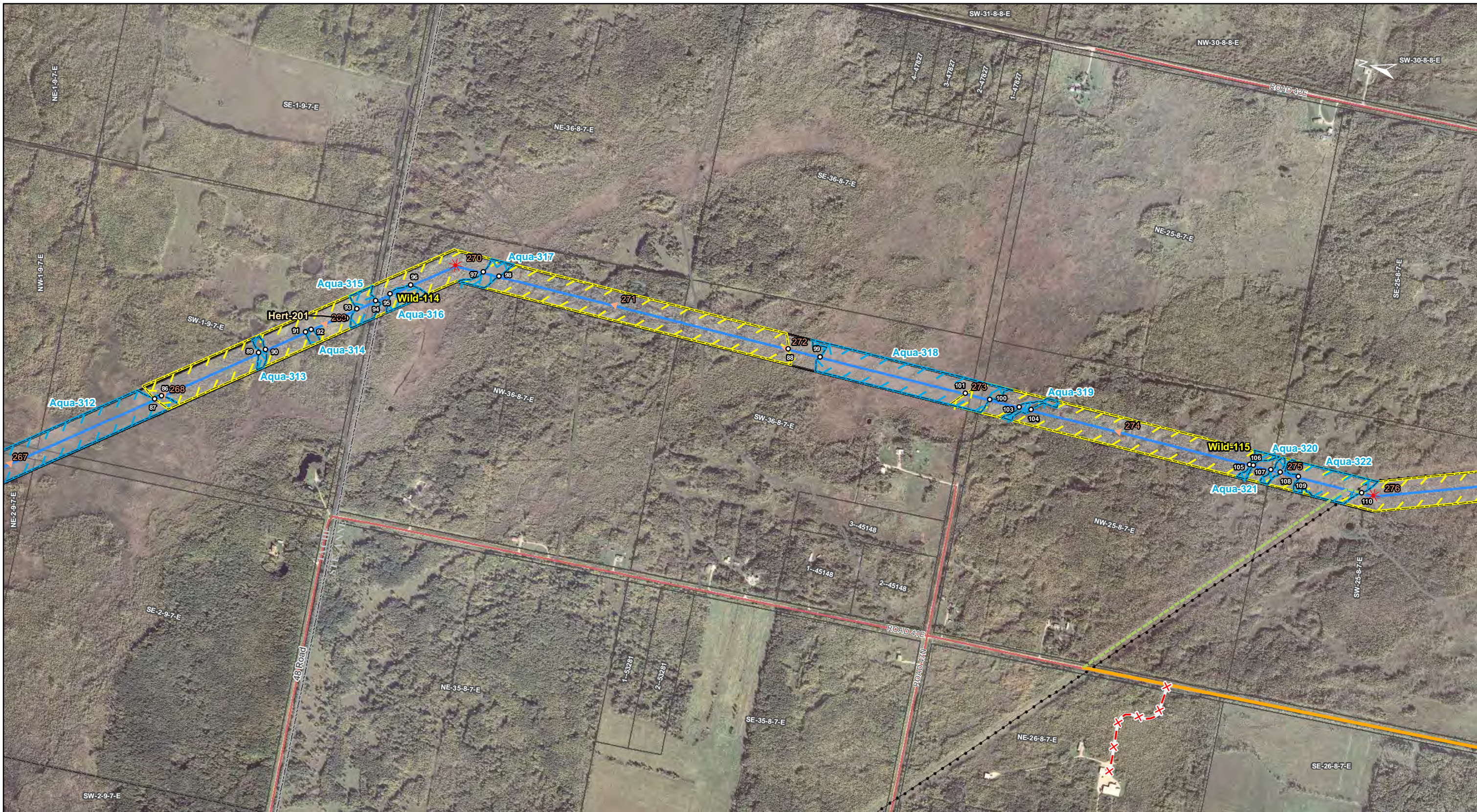
Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
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Land Base

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- Railway (Discontinued)
- First Nation
- Provincial Forest
- Parcel Fabric
- Rural Municipality

Project Infrastructure

- Tower Locations
- Angle Tower Locations
- MMTP Final Preferred Route
- Right of Way
- Station Expansion
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- M602F Modification (Salvage)
- M602F Modification (New)

*Tower locations subject to final design

Sensitive Sites

- Point Features
- Linear Features
- Area Features

Points of Access

- Existing Gravel Road
- Existing Gravel/Dirt Road
- Field Access
- New Trail
- Restricted Access
- Load Restriction

*Some road names have not been verified

ESS Features

Heritage

- Cultural or Historic

Water

- Wetland

Wildlife

- Birds and Habitat

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-115	GWW Habitat	101 to 102	E-679125 N-5507447	E-679344 N-5505623	1863
Wild-114	GWW Habitat	87 to 88	E-678602 N-5509578	E-679131 N-5507941	1819

Potential Effects:

Potential loss of habitat for Golden-winged Warbler from clearing, construction, maintenance and decommissioning activities.

Specific Mitigation (ID# 826):

- Refer to Clearing Management Plan for detailed clearing prescriptions
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Typically 5-10 perch site trees must be retained per span where feasible

ESS Group: Cultural

**Features represented as points*

ESS ID	ESS Name	Location
Hert-201	Protected Tree	E-678935 - N-5509123

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 317):

- Identify and flag large diameter tree establish a buffer of 10m prior to start of work
- Minimize surface disturbance around the site to the extent possible
- Remove trees that aren't identified using a selective clearing method within buffer and fell them away from the identified tree
- Should minor trimming of the identified tree be required to facilitate construction, any activities must be approved by a Manitoba Hydro Environmental Officer

ESS Group: Forestry

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-318	Wetland	99 to 100	E-679124 N-5507379	E-679130 N-5507853	474
Aqua-319	Wetland	103 to 104	E-679123 N-5507297	E-679122 N-5507264	33
Aqua-320	Wetland	105 to 106	E-679115 N-5506655	E-679115 N-5506645	10
Aqua-321	Wetland	107 to 108	E-679114 N-5506595	E-679114 N-5506569	26
Aqua-322	Wetland	109 to 110	E-679113 N-5506519	E-679111 N-5506343	176
Aqua-312	Wetland	85 to 86	E-677776 N-5510660	E-678614 N-5509562	1381
Aqua-313	Wetland	89 to 90	E-678789 N-5509333	E-678801 N-5509318	19
Aqua-314	Wetland	91 to 92	E-678873 N-5509223	E-678883 N-5509210	17
Aqua-315	Wetland	93 to 94	E-678966 N-5509102	E-679000 N-5509057	56
Aqua-316	Wetland	95 to 96	E-679025 N-5509024	E-679062 N-5508975	61
Aqua-317	Wetland	97 to 98	E-679141 N-5508793	E-679141 N-5508749	44

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

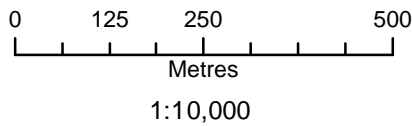
Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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- Land Base**
- Transmission Line
 - Highway
 - Major Road
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 - Railway (Discontinued)
 - First Nation
 - Provincial Forest
 - Parcel Fabric
 - Rural Municipality

- Project Infrastructure**
- Tower Locations
 - Angle Tower Locations
 - MMTP Final Preferred Route
 - Right of Way
 - Station Expansion
 - Converter Station Footprint
 - M602F Modification (Salvage)
 - M602F Modification (New)
- *Tower locations subject to final design

- Sensitive Sites**
- Point Features
 - Linear Features
 - Area Features
- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Rec Use**
- Trail
- Ecosystem**
- Species of Concern
- Land Use**
- Recreation
- Water**
- Wetland
- Wildlife**
- Birds and Habitat

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-115	GWW Habitat	101 to 102	E-679125 N-5507447	E-679344 N-5505623	1863
Wild-116	GWW Habitat	117 to 118	E-679906 N-5504116	E-680593 N-5503200	1145

Potential Effects:

Potential loss of habitat for Golden-winged Warbler from clearing, construction, maintenance and decommissioning activities.

Specific Mitigation (ID# 826):

- Refer to Clearing Management Plan for detailed clearing prescriptions
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Typically 5-10 perch site trees must be retained per span where feasible

ESS Group: Food/Medicinal

**Features represented as points*

ESS ID	ESS Name	Location
RUse-311	Plant Harvest	E-709116 - N-5440525

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Recreation

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
LUse-302	Cottonwood Golf Course	111 to 112	E-679286 N-5505796	E-679339 N-5505638	167

Potential Effects:

Potential disruption to recreational use activities

Specific Mitigation (ID# 408):

- Carry out construction activities following any applicable noise bylaws
- MH to notify golf course manager of major noise-generating activities
- Where the golf course borders the ROW limit all equipment to the project footprint only, where possible
- Where the golf course borders the ROW No damage to vegetation on the edge of the Right of Way or pushing debris onto adjacent property
- No trees will be removed from outside of the ROW edge, except the removal of danger trees on the ROW edge as identified by Manitoba Hydro

ESS Group: Species of Concern

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-302A	Plant Species of Concern	113 to 114	E-679652 N-5504715	E-679820 N-5504231	514
Eco-302B	Plant Species of Concern	115 to 116	E-679903 N-5504120	E-680696 N-5503061	1323

Potential Effects:

Potential loss of plants of conservation concern from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 215):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan and for mitigation measures
- Pre-construction survey may be conducted to confrim presence of Species of Concern

ESS Group: Trail

**Features represented as lines*

ESS ID	ESS Name	Site	Location
RecUse-103	Trail PT21	C6	E-679839 N-5504205

Potential Effects:

Potential interference with trail users; safety issues

Specific Mitigation (ID# 103):

- Identify and flag where trail intersects ROW
- Avoid surface damage to and obstruction of access route
- Post warning markers and signs at snowmobile trail location during construction
- MH to notify snowmobile club/users and local authorities regarding construction activities and schedule, and address concerns prior to construction

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-322A	Wetland	119 to 120	E-680234 N-5503678	E-680463 N-5503372	382

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

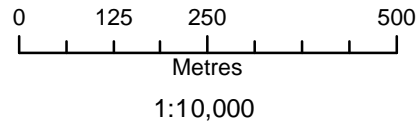
Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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Project Infrastructure

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- Angle Tower Locations
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- M602F Modification (Salvage)
- M602F Modification (New)

*Tower locations subject to final design

Sensitive Sites

- Point Features
- Linear Features
- Area Features

Points of Access

- Existing Gravel Road
- Existing Gravel/Dirt Road
- Field Access
- New Trail
- Restricted Access
- Load Restriction

*Some road names have not been verified

ESS Features

Ecosystem

- Species of Concern

Water

- Water Crossing

Wildlife

- Birds and Habitat

Ecosystem

- Species of Concern

Water

- Wetland

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-117	GWW Habitat	121 to 122	E-681321 N-5502229	E-682169 N-5501100	1412
Wild-119	GWW Habitat	131 to 132	E-682607 N-5500516	E-682997 N-5498510	2255

Potential Effects:

Potential loss of habitat for Golden-winged Warbler from clearing, construction, maintenance and decommissioning activities.

Specific Mitigation (ID# 826):

- Refer to Clearing Management Plan for detailed clearing prescriptions
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Typically 5-10 perch site trees must be retained per span where feasible

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-118	Waterfowl sensitivity area near reservoir	L11 to L12	E-682183 N-5501081	E-683070 N-5498824	2639

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Species of Concern

*Features represented as points

ESS ID	ESS Name	Location
Eco-303	Plant Species of Concern	E-683222 - N-5499546

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Species of Concern

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-302C	Plant Species of Concern	123 to 124	E-681327 N-5502221	E-682160 N-5501111	1389
Eco-302D	Plant Species of Concern	129 to 130	E-682533 N-5500614	E-683229 N-5499501	1360

Potential Effects:

Potential loss of plants of conservation concern from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 215):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan and for mitigation measures
- Pre-construction survey may be conducted to confrim presence of Species of Concern

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-119	Unnamed Creek Crossing	E-682237 N-5501008	N/A	N/A

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-323	Wetland	125 to 126	E-681539 N-5501939	E-681557 N-5501914	31
Aqua-324	Wetland	127 to 128	E-682161 N-5501110	E-682839 N-5500207	1129

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

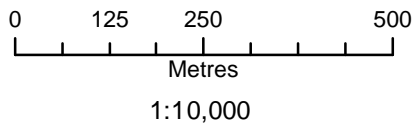
Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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Land Base

- Transmission Line
- Highway
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- Local Road
- Railway (Operational)
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- Rural Municipality

Project Infrastructure

- Tower Locations
- Angle Tower Locations
- MMTP Final Preferred Route
- Right of Way
- Station Expansion
- Converter Station Footprint
- M602F Modification (Salvage)
- M602F Modification (New)

*Tower locations subject to final design

Sensitive Sites

- Point Features
- Linear Features
- Area Features

Points of Access

- Existing Gravel Road
- Existing Gravel/Dirt Road
- Field Access
- New Trail
- Restricted Access
- Load Restriction

*Some road names have not been verified

ESS Features

Water

- Water Crossing
- Groundwater

Wildlife

- Birds and Habitat
- Birds and Habitat

Land Use

- Conservation
- Wetland

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

*Features represented as points

ESS ID	ESS Name	Location
Wild-121	Stick Nest	E-682495 - N-5496311

Potential Effects:

Potential disruption of stick nest

Specific Mitigation (ID# 824):

- Nest tree will be located by Environmental Inspector, georeferenced and marked with Flagging tape
- A 200 m setback will be applied during the breeding season (April 30 to July 31) to minimize sensory disturbance during the breeding season
- If nest removal is required, Manitoba Hydro will consult with Sustainable Development to develop mitigation measures for the relocation of the nest

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-119	GWW Habitat	131 to 132	E-682607 N-5500516	E-682997 N-5498510	2255
Wild-120	GWW Habitat	139 to 140	E-682850 N-5497881	E-682644 N-5497001	903
Wild-122	GWW Habitat	143 to 144	E-682466 N-5496241	E-682140 N-5494851	1427

Potential Effects:

Potential loss of habitat for Golden-winged Warbler from clearing, construction, maintenance and decommissioning activities.

Specific Mitigation (ID# 826):

- Refer to Clearing Management Plan for detailed clearing prescriptions
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Typically 5-10 perch site trees must be retained per span where feasible

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-118	Waterfowl sensitivity area near reservoir	L11 to L12	E-682183 N-5501081	E-683070 N-5498824	2639

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Conservation

*Features represented as polygons

ESS ID	ESS Name	Location
LUse-100	Balsam Willows Proposed Ecological Reserve	*See Map

Potential Effects:

Potential disruption to protected area

Specific Mitigation (ID# 407):

- Absolutely no activities are to extend into the boundaries of this area

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Groundwater

*Features represented as points

ESS ID	ESS Name	Location
Aqua-205	Groundwater Well	E-682294 - N-5495679

Potential Effects:

Potential damage to wellhead or potential groundwater contamination from a contingency even (e.g., spill)

Specific Mitigation (ID# 720):

- Locate and flag a 10m buffer around wellhead
- No fueling or servicing of vehicles within 100m of wellhead
- No fuel or hazardous materials storage within 100m of wellhead

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-120	Unnamed Creek Crossing	E-682919 N-5498179	2.5	2.5

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats

ESS Group: Wetland

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-325	Wetland	133 to 134	E-683104 N-5498969	E-683091 N-5498911	59
Aqua-325	Wetland	135 to 136	E-683080 N-5498868	E-683042 N-5498703	169
Aqua-325	Wetland	137 to 138	E-683015 N-5498589	E-682846 N-5497866	742
Aqua-326	Wetland	141 to 142	E-682795 N-5497649	E-682707 N-5497273	386

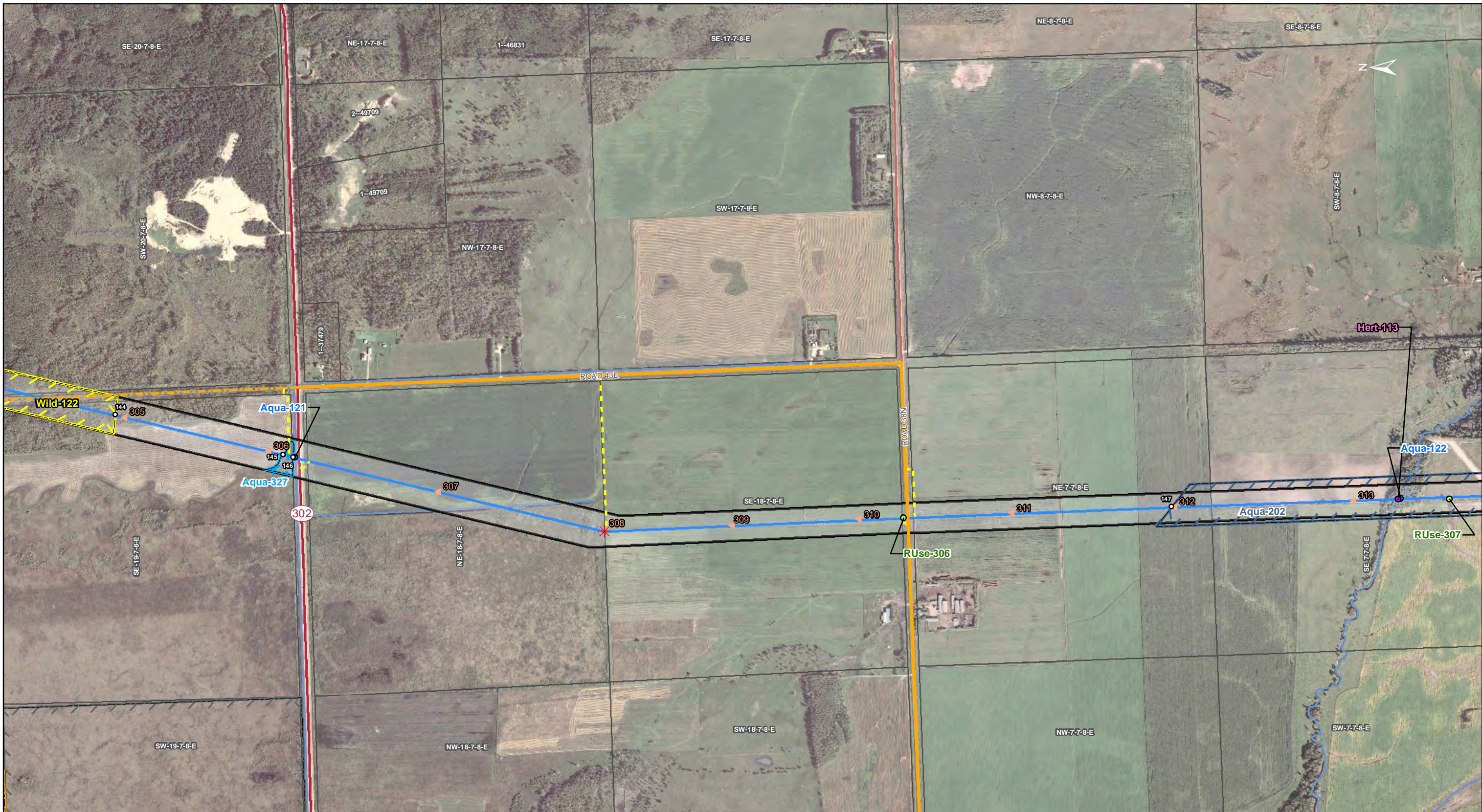
Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

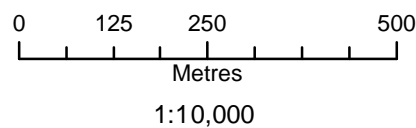
Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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Sensitive Sites

- Point Features
- Linear Features
- Area Features

Points of Access

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- Existing Gravel/Dirt Road
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- New Trail
- Restricted Access
- Load Restriction

*Some road names have not been verified

ESS Features

Heritage

- Archaeological

Resource Use

- Forestry

Water

- Water Crossing

Land Use

- Conservation

Water

- Groundwater

Wetland

- Wetland

Wildlife

- Birds and Habitat

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-113	Unnamed Creek Crossing	E-681912 - N-5491380

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 324):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the first tower to the North of the creek

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-122	GWW Habitat	143 to 144	E-682466 N-5496241	E-682140 N-5494851	1427

Potential Effects:

Potential loss of habitat for Golden-winged Warbler from clearing, construction, maintenance and decommissioning activities.

Specific Mitigation (ID# 826):

- Refer to Clearing Management Plan for detailed clearing prescriptions
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Typically 5-10 perch site trees must be retained per span where feasible

ESS Group: Food/Medicinal

*Features represented as points

ESS ID	ESS Name	Location
RUse-311	Plant Harvest	E-709116 - N-5440525

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Forestry

*Features represented as points

ESS ID	ESS Name	Location
RUse-306	Shelterbelt	E-681861 - N-5492719
RUse-307	Shelterbelt	E-681912 - N-5491242

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Groundwater

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-202	Flowing Aquifer	147 to 148	E-681891 N-5491992	E-682785 N-5483579	8768

Potential Effects:

Potential to disturb groundwater quantity through the unintended discharge of aquifers in artesian areas of flowing wells and springs.

Specific Mitigation (ID# 705):

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions
- Emergency response plans for sealing/grouting and pumping will be implemented as required
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-122	Unnamed Creek Crossing	E-681913 N-5491373	6.5	5

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-121	Unnamed Drain Crossing	E-682024 N-5494365	N/A	N/A

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 715):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- If wet conditions exist, one time fording or the use construction matting for low water levels or temporary bridge for higher water levels must be authorized by MH Environmental Officer/Inspector
- Use existing trails, roads or cut lines whenever possible as access routes
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Limit machinery fording of the watercourse to a one-time event (over and back) only if no alternative crossing method is available (i.e. matting or temporary bridge)
- If repeated fording of the watercourse is necessary, prior approval from the MH Environmental Officer/Inspector is required
- Locate crossings perpendicular to the bank, whenever possible
- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site

ESS Group: Wetland

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-327	Wetland	145 to 146	E-682032 N-5494396	E-682025 N-5494370	27

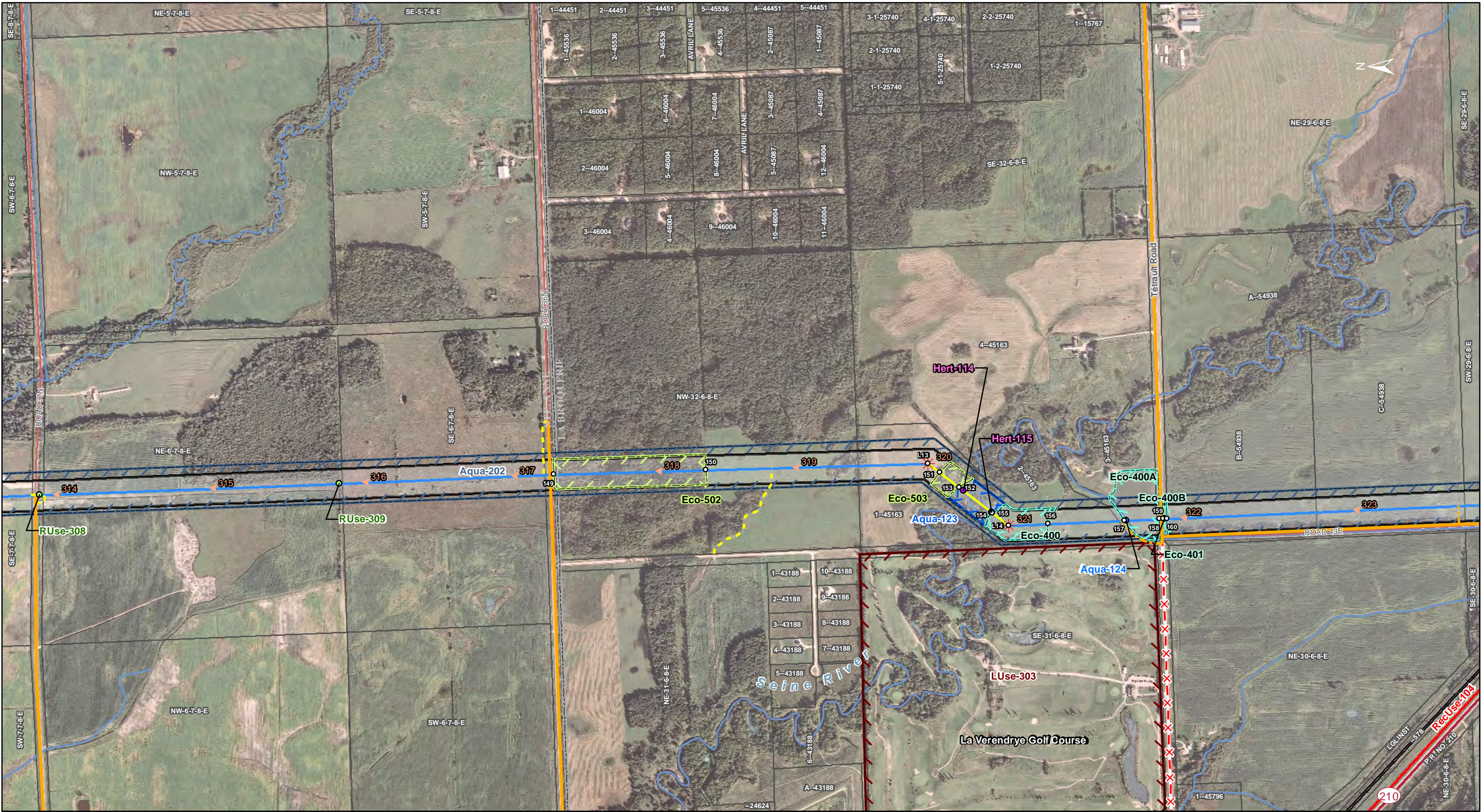
Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

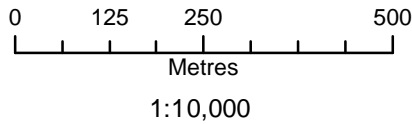
Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: September 27, 2019
Version: Final 1.06



- Land Base**
- Transmission Line
 - Highway
 - Major Road
 - Local Road
 - Railway (Operational)
 - Railway (Discontinued)
 - First Nation
 - Provincial Forest
 - Parcel Fabric
 - Rural Municipality

- Project Infrastructure**
- Tower Locations
 - Angle Tower Locations
 - MMTP Final Preferred Route
 - Right of Way
 - Station Expansion
 - Converter Station Footprint
 - M602F Modification (Salvage)
 - M602F Modification (New)
- *Tower locations subject to final design

- Sensitive Sites**
- Point Features
 - Linear Features
 - Area Features
- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Ecosystem**
- Invasive Species
- Heritage**
- Archaeological
- Resource Use**
- Forestry
- Water**
- Water Crossing
- Rec Use**
- Trail
- Wildlife**
- Birds and Habitat
- Ecosystem**
- Invasive Species
- Land Use**
- Recreation
- Water**
- Groundwater
 - Water Crossing

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-114	Seine River Crossing	E-681936 - N-5488555

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 323):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Notify project Archaeologist after clearing has been completed so a post clearing assessment can be completed prior to foundation installation
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the first towers on each side of the creek

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-115	Seine River Crossing	E-681877 - N-5488478

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 329):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the first tower to the South of the creek

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-123	Seine River crossing	L13 to L14	E-682010 N-5488651	E-681842 N-5488433	275

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Forestry

*Features represented as points

ESS ID	ESS Name	Location
RUse-308	Shelterbelt	E-681925 - N-5491056
RUse-309	Shelterbelt	E-681956 - N-5490246

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Groundwater

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-202	Flowing Aquifer	147 to 148	E-681891 N-5491992	E-682785 N-5483579	8768

Potential Effects:

Potential to disturb groundwater quantity through the unintended discharge of aquifers in artesian areas of flowing wells and springs.

Specific Mitigation (ID# 705):

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions
- Emergency response plans for sealing/grouting and pumping will be implemented as required
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture

ESS Group: Invasive Species

*Features represented as points

ESS ID	ESS Name	Location
Eco-401	Tier 1 Noxious Weed	E-681860 - N-5488012

Potential Effects:

Increased risk of spreading invasive weeds

Specific Mitigation (ID# 213):

- Implement Biosecurity cleaning measures as per the Biosecurity Management Plan (Refer to Table 5, Biosecurity risk classification matrix for Tier 1 Noxious Weeds)
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Invasive Species

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-400	Tier 1 Noxious Weed	155 to 156	E-681876 N-5488477	E-681847 N-5488327	162
Eco-400A	Tier 1 Noxious Weed	157 to 158	E-681855 N-5488121	E-681860 N-5488026	95
Eco-400B	Tier 1 Noxious Weed	159 to 160	E-681860 N-5488016	E-681861 N-5488005	11

Potential Effects:

Increased risk of spreading invasive weeds

Specific Mitigation (ID# 213):

- Implement Biosecurity cleaning measures as per the Biosecurity Management Plan (Refer to Table 5, Biosecurity risk classification matrix for Tier 1 Noxious Weeds)
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Recreation

**Features represented as polygons*

ESS ID	ESS Name	Location
LUse-303	La Verendrye Golf Course	*See Map

Potential Effects:

Potential disruption to recreational use activities

Specific Mitigation (ID# 408):

- Carry out construction activities following any applicable noise bylaws
- MH to notify golf course manager of major noise-generating activities
- Where the golf course borders the ROW limit all equipment to the project footprint only, where possible
- Where the golf course borders the ROW No damage to vegetation on the edge of the Right of Way or pushing debris onto adjacent property
- No trees will be removed from outside of the ROW edge, except the removal of danger trees on the ROW edge as identified by Manitoba Hydro

ESS Group: Species of Traditional Use

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-502	Traditional Use Plant Species >30% Cover	149 to 150	E-681980 N-5489664	E-681992 N-5489252	412
Eco-503	Traditional Use Plant Species >30% Cover	151 to 152	E-681985 N-5488619	E-681945 N-5488567	65

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Water Crossing

**Features represented as polygons*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-124	Unnamed Creek Crossing	E-681856 N-5488115	8	0.3

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats

ESS Group: Water Crossing

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-123	Seine River Crossing	153 to 154	E-681945 N-5488567	E-681876 N-5488477	114

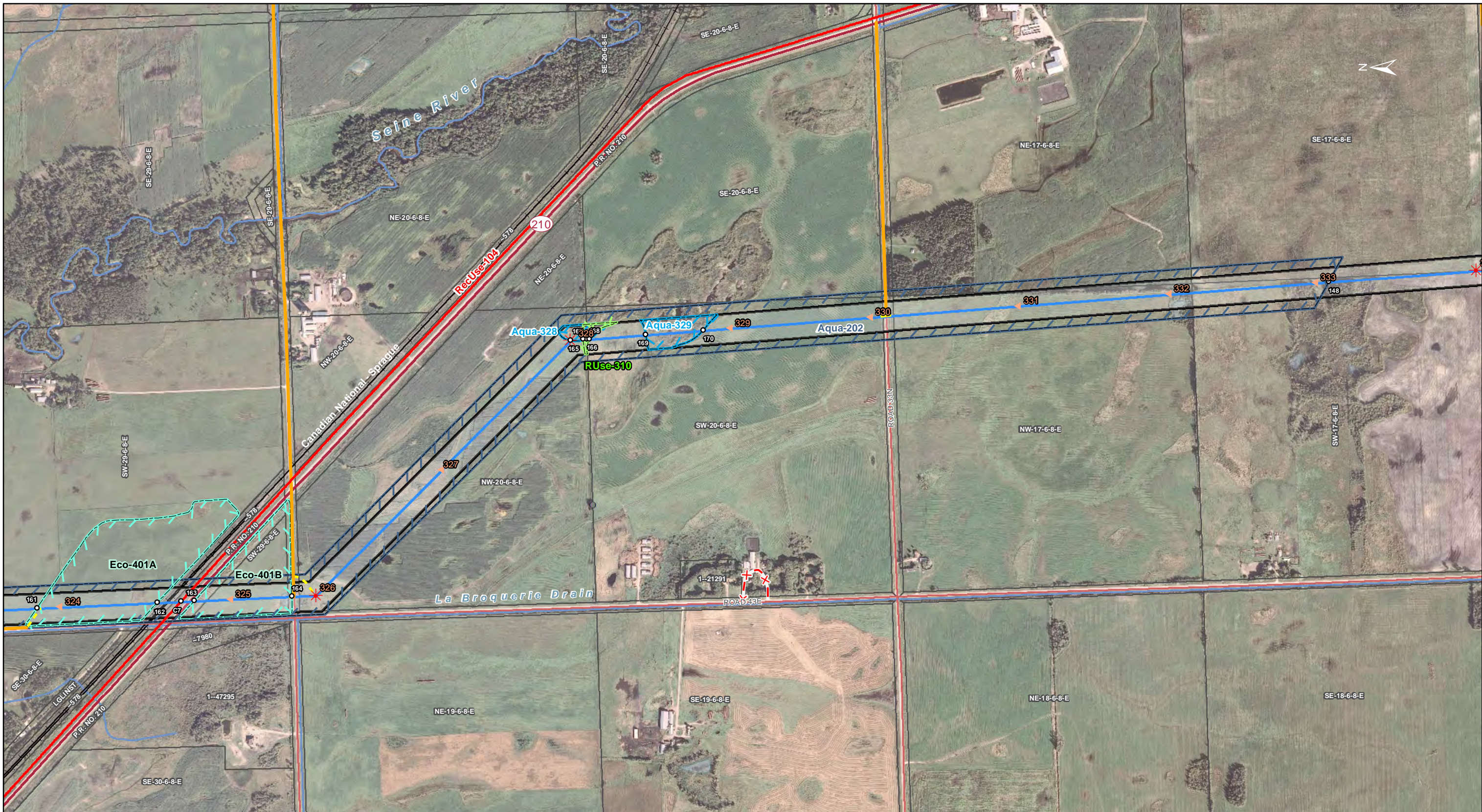
Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 711):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats
- Temporary signs stating "Construction Activity" will be:
 - placed and maintained 200m upstream and 200m downstream of the work
 - legible from a minimum distance of 100m downstream of the work
 - placed and maintained during all periods of conductor stringing during the open water season on all navigable waters
 - visible from all points of marine approach and when snowmobile traffic exists during frozen water conditions
- Ice bridges will be constructed of clean (ambient) water, ice and snow and snowfills will be constructed of clean snow. Materials such as gravel, rock and loose woody material will NOT be used. Crossings will not impede water flow at any time of the year
- Where logs are required for use in stabilizing shoreline approaches, they will be clean and securely bound together and they will be removed before the spring freshet
- When the crossing season is over and where it is safe to do so, a v-notch will be created in the centre of the ice bridge to allow it to melt from the centre and also to prevent blocking fish passage, channel erosion and flooding. Compacted snow and all crossing materials will be removed prior to the spring freshet
- No logs or woody debris will be left within the waterway or on the banks or shoreline where they can wash back into the waterway
- To minimize potential effects of boat use on mussel species and their habitats:
 - The use of boats will be limited to deep water areas at the transmission line crossings,
 - Boats will only approach shore at designated boat launches for stringing across

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Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: September 27, 2019
Version: Final 1.06

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|---|--|--|--|
| Land Base <ul style="list-style-type: none">Transmission LineHighwayMajor RoadLocal RoadRailway (Operational)Railway (Discontinued)First NationProvincial ForestParcel FabricRural Municipality | Project Infrastructure <ul style="list-style-type: none">Tower LocationsAngle Tower LocationsMMTP Final Preferred RouteRight of WayStation ExpansionConverter Station FootprintM602F Modification (Salvage)M602F Modification (New)*Tower locations subject to final design | Sensitive Sites <ul style="list-style-type: none">Point FeaturesLinear FeaturesArea Features Points of Access <ul style="list-style-type: none">Existing Gravel RoadExisting Gravel/Dirt RoadField AccessNew TrailRestricted AccessLoad Restriction*Some road names have not been verified | ESS Features <ul style="list-style-type: none">Rec Use<ul style="list-style-type: none">TrailEcosystem<ul style="list-style-type: none">Invasive SpeciesResource Use<ul style="list-style-type: none">ForestryWater<ul style="list-style-type: none">GroundwaterWetland |
|---|--|--|--|

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Forestry

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Forestry

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-310	Shelterbelt	167 to 168	E-682629 N-5485596	E-682631 N-5485580	16

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Groundwater

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-202	Flowing Aquifer	147 to 148	E-681891 N-5491992	E-682785 N-5483579	8768

Potential Effects:

Potential to disturb groundwater quantity through the unintended discharge of aquifers in artesian areas of flowing wells and springs.

Specific Mitigation (ID# 705):

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions
- Emergency response plans for sealing/grouting and pumping will be implemented as required
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture

ESS Group: Invasive Species

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-401A	Tier 1 Noxious Weed	161 to 162	E-681902 N-5487074	E-681917 N-5486748	326
Eco-401B	Tier 1 Noxious Weed	163 to 164	E-681921 N-5486648	E-681933 N-5486384	264

Potential Effects:

Increased risk of spreading invasive weeds

Specific Mitigation (ID# 213):

- Implement Biosecurity cleaning measures as per the Biosecurity Management Plan (Refer to Table 5, Biosecurity risk classification matrix for Tier 1 Noxious Weeds)
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Trail

**Features represented as lines*

ESS ID	ESS Name	Site	Location
RecUse-104	Trail PT29	C7	E-681920 N-5486684

Potential Effects:

Potential interference with trail users; safety issues

Specific Mitigation (ID# 103):

- Identify and flag where trail intersects ROW
- Avoid surface damage to and obstruction of access route
- Post warning markers and signs at snowmobile trail location during construction
- MH to notify snowmobile club/users and local authorities regarding construction activities and schedule, and address concerns prior to construction

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-328	Wetland	165 to 166	E-682627 N-5485629	E-682630 N-5485586	43
Aqua-329	Wetland	169 to 170	E-682643 N-5485426	E-682655 N-5485270	156

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-118	Area of Potential Use	E-682973 - N-5479217

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 325):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Notify project Archaeologist after clearing has been completed so a post clearing assessment can be completed prior to foundation installation
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the first tower south of the drain

ESS Group: Birds and Habitat

*Features represented as points

ESS ID	ESS Name	Location
Wild-124	Stick Nest	E-682922 - N-5479948

Potential Effects:

Potential disruption of stick nest

Specific Mitigation (ID# 824):

- Nest tree will be located by Environmental Inspector, georeferenced and marked with Flagging tape
- A 200 m setback will be applied during the breeding season (April 30 to July 31) to minimize sensory disturbance during the breeding season
- If nest removal is required, Manitoba Hydro will consult with Sustainable Development to develop mitigation measures for the relocation of the nest

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-126	Breeding habitat sensitive area	L15 to L16	E-682938 N-5479543	E-683032 N-5476671	2874

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-125	Sharp-tailed grouse lek	173 to 174	E-682927 N-5479862	E-683021 N-5476992	2871

Potential Effects:

Potential disruption of mating success for sharp-tailed grouse

Specific Mitigation (ID# 830):

- Do not plan to carry out construction activities within this area between April 15 to June 1st
- If construction activity is required within this area between April 15 to June 1st. Contact Manitoba Hydro Environmental Officer to discuss potential mitigation options

ESS Group: Food/Medicinal

*Features represented as points

ESS ID	ESS Name	Location
RUse-311	Plant Harvest	E-709116 - N-5440525

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Forestry

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-310	Shelterbelt	167 to 168	E-682629 N-5485596	E-682631 N-5485580	16

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Invasive Species

**Features represented as points*

ESS ID	ESS Name	Location
Eco-402	Tier 1 Noxious Weed	E-682803 - N-5483133
Eco-403	Tier 1 Noxious Weed	E-682945 - N-5479875

Potential Effects:

Increased risk of spreading invasive weeds

Specific Mitigation (ID# 213):

- Implement Biosecurity cleaning measures as per the Biosecurity Management Plan (Refer to Table 5, Biosecurity risk classification matrix for Tier 1 Noxious Weeds)
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Species of Traditional Use

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-504	Traditional Use Plant Species >30% Cover	171 to 172	E-682817 N-5483135	E-682830 N-5482713	422

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-125	Unnamed Drain Crossing	E-682942 N-5479404	N/A	N/A

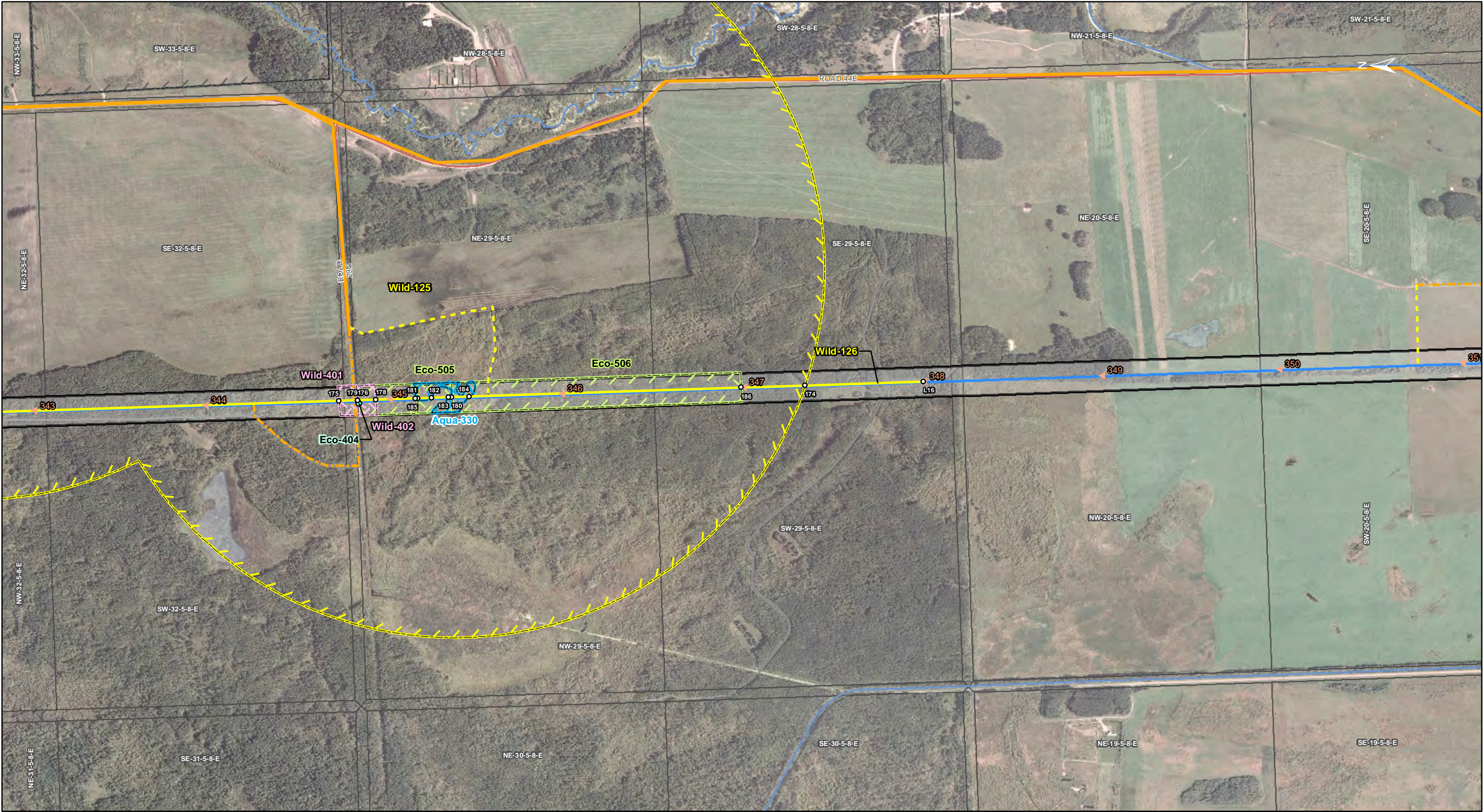
Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

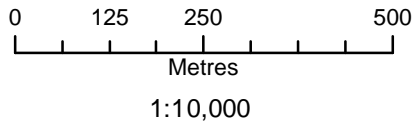
Specific Mitigation (ID# 715):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- If wet conditions exist, one time fording or the use construction matting for low water levels or temporary bridge for higher water levels must be authorized by MH Environmental Officer/Inspector
- Use existing trails, roads or cut lines whenever possible as access routes
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Limit machinery fording of the watercourse to a one-time event (over and back) only if no alternative crossing method is available (i.e. matting or temporary bridge)
- If repeated fording of the watercourse is necessary, prior approval from the MH Environmental Officer/Inspector is required
- Locate crossings perpendicular to the bank, whenever possible
- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site

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Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: September 27, 2019
Version: Final 1.06



Land Base

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- Railway (Discontinued)
- First Nation
- Provincial Forest
- Parcel Fabric
- Rural Municipality

Project Infrastructure

- Tower Locations
 - Angle Tower Locations
 - MMTP Final Preferred Route
 - Right of Way
 - Station Expansion
 - Converter Station Footprint
 - M602F Modification (Salvage)
 - M602F Modification (New)
- *Tower locations subject to final design

Sensitive Sites

- Point Features
 - Linear Features
 - Area Features
 - Points of Access
 - Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

ESS Features

- Ecosystem
 - Invasive Species
- Wildlife
 - Birds and Habitat
- Ecosystem
 - Species of Traditional Use
- Water
 - Wetland
- Wildlife
 - Birds and Habitat
 - Line of Sight

**Manitoba-Minnesota Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site Locations**

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-126	Breeding habitat sensitive area	L15 to L16	E-682938 N-5479543	E-683032 N-5476671	2874

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-125	Sharp-tailed grouse lek	173 to 174	E-682927 N-5479862	E-683021 N-5476992	2871

Potential Effects:

Potential disruption of mating success for sharp-tailed grouse

Specific Mitigation (ID# 830):

- Do not plan to carry out construction activities within this area between April 15 to June 1st
- If construction activity is required within this area between April 15 to June 1st. Contact Manitoba Hydro Environmental Officer to discuss potential mitigation options

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-310	Shelterbelt	167 to 168	E-682629 N-5485596	E-682631 N-5485580	16

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Invasive Species

*Features represented as points

ESS ID	ESS Name	Location
Eco-404	Tier 1 Noxious Weed	E-682972 - N-5478199

Potential Effects:

Increased risk of spreading invasive weeds

Specific Mitigation (ID# 213):

- Implement Biosecurity cleaning measures as per the Biosecurity Management Plan (Refer to Table 5, Biosecurity risk classification matrix for Tier 1 Noxious Weeds)
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Line of Sight Buffer

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-401	Line of Sight Buffer	175 to 176	E-682979 N-5478252	E-682980 N-5478202	50
Wild-402	Line of Sight Buffer	177 to 178	E-682980 N-5478202	E-682982 N-5478152	50

Potential Effects:

Potential for increased hunting and predation pressure on wildlife due to ROW vegetation clearing crossing the roadway

Specific Mitigation (ID# 833):

- Remove all trees
- Remove all shrubs >4m tall
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Develop an access trail that is 7m wide along a path to be determined onsite through consultation between MH and the Contractor

ESS Group: Species of Traditional Use

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-505	Traditional Use Plant Species >30% Cover	179 to 180	E-682980 N-5478202	E-682989 N-5477947	255
Eco-506	Traditional Use Plant Species >30% Cover	185 to 186	E-682986 N-5478039	E-683015 N-5477165	874

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Wetland

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-330	Wetland	181 to 182	E-682986 N-5478047	E-682987 N-5478002	45
Aqua-330	Wetland	183 to 184	E-682989 N-5477957	E-682991 N-5477900	57

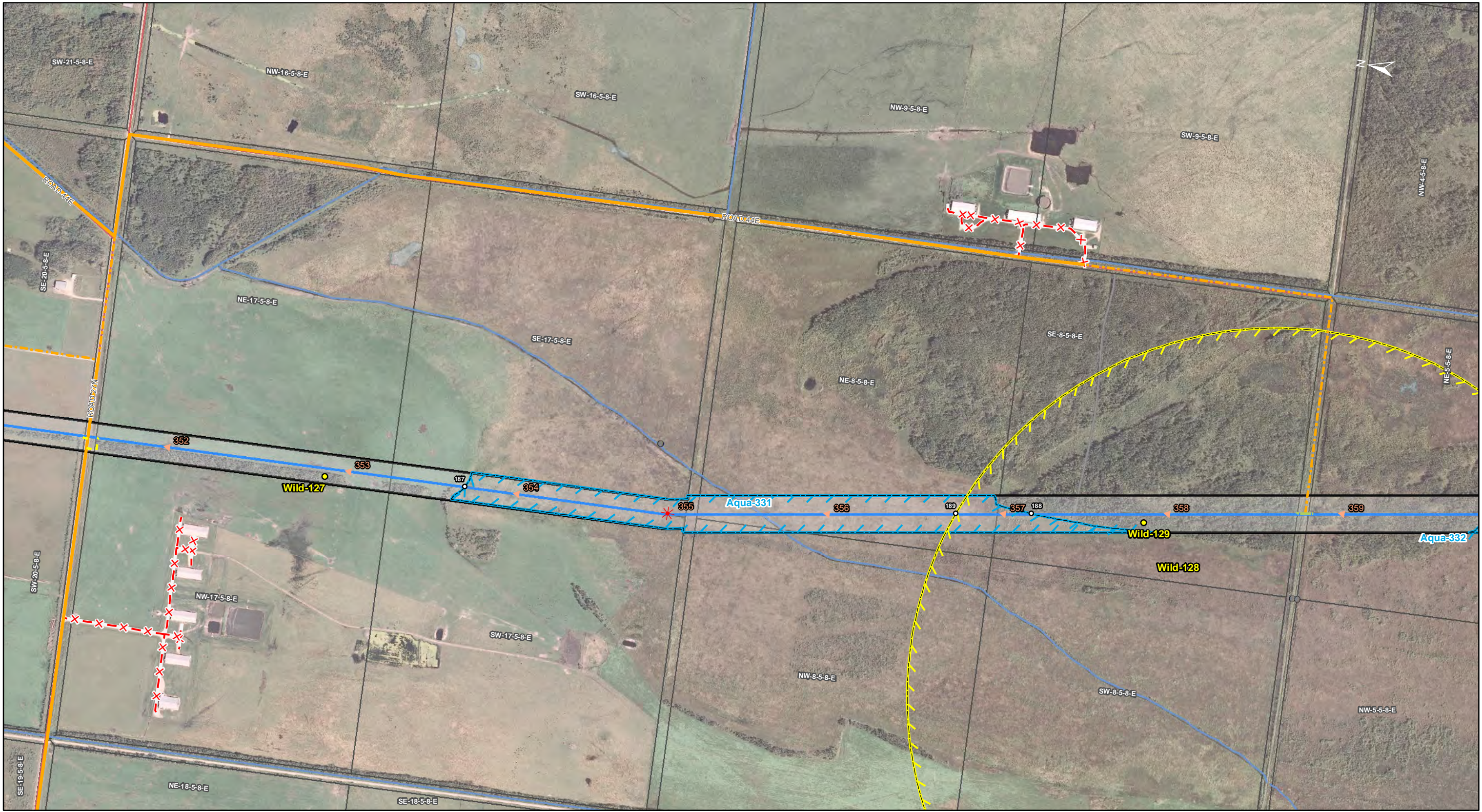
Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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|---|---|---|---|
| Land Base <ul style="list-style-type: none">Transmission LineHighwayMajor RoadLocal RoadRailway (Operational)Railway (Discontinued)First NationProvincial ForestParcel FabricRural Municipality | Project Infrastructure <ul style="list-style-type: none">Tower LocationsAngle Tower LocationsMMTP Final Preferred RouteRight of WayStation ExpansionConverter Station FootprintM602F Modification (Salvage)M602F Modification (New) <p>*Tower locations subject to final design</p> | Sensitive Sites <ul style="list-style-type: none">Point FeaturesLinear FeaturesArea Features Points of Access <ul style="list-style-type: none">Existing Gravel RoadExisting Gravel/Dirt RoadField AccessNew TrailRestricted AccessLoad Restriction <p>*Some road names have not been verified</p> | ESS Features <ul style="list-style-type: none">Wildlife<ul style="list-style-type: none">Birds and HabitatWater<ul style="list-style-type: none">WetlandWildlife<ul style="list-style-type: none">Birds and Habitat |
|---|---|---|---|

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

*Features represented as points

ESS ID	ESS Name	Location
Wild-127	Stick Nest	E-683091 - N-5474296
Wild-129	Stick Nest	E-683342 - N-5472086

Potential Effects:

Potential disruption of stick nest

Specific Mitigation (ID# 824):

- Nest tree will be located by Environmental Inspector, georeferenced and marked with Flagging tape
- A 200 m setback will be applied during the breeding season (April 30 to July 31) to minimize sensory disturbance during the breeding season
- If nest removal is required, Manitoba Hydro will consult with Sustainable Development to develop mitigation measures for the relocation of the nest

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-128	Sharp-tailed grouse lek	189 to 190	E-683280 N-5472593	E-683570 N-5470897	1721

Potential Effects:

Potential disruption of mating success for sharp-tailed grouse

Specific Mitigation (ID# 830):

- Do not plan to carry out construction activities within this area between April 15 to June 1st
- If construction activity is required within this area between April 15 to June 1st. Contact Manitoba Hydro Environmental Officer to discuss potential mitigation options

ESS Group: Food/Medicinal

*Features represented as points

ESS ID	ESS Name	Location
RUse-310	Plant Harvest	E-705112 - N-5442058

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-331	Wetland	187 to 188	E-683128 N-5473917	E-683315 N-5472391	1541

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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|---|--|--|--|
| Land Base <ul style="list-style-type: none">Transmission LineHighwayMajor RoadLocal RoadRailway (Operational)Railway (Discontinued)First NationProvincial ForestParcel FabricRural Municipality | Project Infrastructure <ul style="list-style-type: none">Tower LocationsAngle Tower LocationsMMTP Final Preferred RouteRight of WayStation ExpansionConverter Station FootprintM602F Modification (Salvage)M602F Modification (New) <p><small>*Tower locations subject to final design</small></p> | Sensitive Sites <ul style="list-style-type: none">Point FeaturesLinear FeaturesArea Features Points of Access <ul style="list-style-type: none">Existing Gravel RoadExisting Gravel/Dirt RoadField AccessNew TrailRestricted AccessLoad Restriction <p><small>*Some road names have not been verified</small></p> | ESS Features <ul style="list-style-type: none">Water<ul style="list-style-type: none">WetlandWildlife<ul style="list-style-type: none">Birds and Habitat |
|---|--|--|--|

**Manitoba-Minnesota Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site Locations**

ESS Group: Birds and Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-128	Sharp-tailed grouse lek	189 to 190	E-683280 N-5472593	E-683570 N-5470897	1721

Potential Effects:

Potential disruption of mating success for sharp-tailed grouse

Specific Mitigation (ID# 830):

- Do not plan to carry out construction activities within this area between April 15 to June 1st
- If construction activity is required within this area between April 15 to June 1st. Contact Manitoba Hydro Environmental Officer to discuss potential mitigation options

ESS Group: Food/Medicinal

**Features represented as points*

ESS ID	ESS Name	Location
RUse-311	Plant Harvest	E-709116 - N-5440525

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Forestry

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-310	Shelterbelt	167 to 168	E-682629 N-5485596	E-682631 N-5485580	16

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-332	Wetland	191 to 192	E-683527 N-5471154	E-683577 N-5470860	298
Aqua-333	Wetland	193 to 194	E-683895 N-5469000	E-683918 N-5468867	135

Potential Effects:

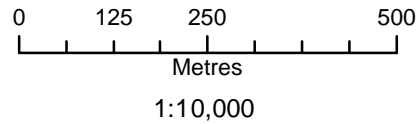
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible



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Land Base

- Transmission Line
- Highway
- Major Road
- Local Road
- Railway (Operational)
- Railway (Discontinued)
- First Nation
- Provincial Forest
- Parcel Fabric
- Rural Municipality

Project Infrastructure

- Tower Locations
- Angle Tower Locations
- MMP Final Preferred Route
- Right of Way
- Station Expansion
- Converter Station Footprint
- M602F Modification (Salvage)
- M602F Modification (New)

*Tower locations subject to final design

Sensitive Sites

- Point Features
- Linear Features
- Area Features

Points of Access

- Existing Gravel Road
- Existing Gravel/Dirt Road
- Field Access
- New Trail
- Restricted Access
- Load Restriction

*Some road names have not been verified

ESS Features

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Forestry

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Forestry

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-310	Shelterbelt	167 to 168	E-682629 N-5485596	E-682631 N-5485580	16

Potential Effects:

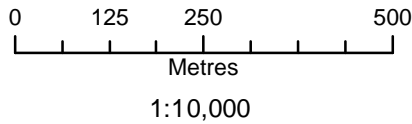
Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber



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- Land Base**
- Transmission Line
 - Highway
 - Major Road
 - Local Road
 - Railway (Operational)
 - Railway (Discontinued)
 - First Nation
 - Provincial Forest
 - Parcel Fabric
 - Rural Municipality

- Project Infrastructure**
- Tower Locations
 - Angle Tower Locations
 - MMTP Final Preferred Route
 - Right of Way
 - Station Expansion
 - Converter Station Footprint
 - M602F Modification (Salvage)
 - M602F Modification (New)
- *Tower locations subject to final design

- Sensitive Sites**
- Point Features
 - Linear Features
 - Area Features
- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Ecosystem**
- Species of Traditional Use
- Wildlife**
- Line of Sight

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Food/Medicinal

**Features represented as points*

ESS ID	ESS Name	Location
RUse-310	Plant Harvest	E-705112 - N-5442058

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Forestry

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Line of Sight Buffer

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-403	Line of Sight Buffer	197 to 198	E-685959 N-5462069	E-686012 N-5462012	78

Potential Effects:

Potential for increased hunting and predation pressure on wildlife due to ROW vegetation clearing crossing the roadway

Specific Mitigation (ID# 833):

- Remove all trees
- Remove all shrubs >4m tall
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Develop an access trail that is 7m wide along a path to be determined onsite through consultation between MH and the Contractor

ESS Group: Species of Traditional Use

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-507	Traditional Use Plant Species >30% Cover	195 to 196	E-685430 N-5462643	E-686012 N-5462012	858

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Conservation

**Features represented as points*

ESS ID	ESS Name	Location
LUse-101	Watson P. Davidson WMA	E-687712 - N-5460336

Potential Effects:

Potential disruption to protected area

Specific Mitigation (ID# 407):

- Absolutely no activities are to extend into the boundaries of this area

ESS Group: Food/Medicinal

**Features represented as points*

ESS ID	ESS Name	Location
RUse-311	Plant Harvest	E-709116 - N-5440525

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Forestry

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-310	Shelterbelt	167 to 168	E-682629 N-5485596	E-682631 N-5485580	16

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-333A	Wetland	199 to 200	E-687747 N-5460237	E-688036 N-5459960	400
Aqua-334	Wetland	201 to 202	E-689988 N-5458083	E-690088 N-5457987	138
Aqua-335	Wetland	203 to 204	E-690160 N-5457917	E-690373 N-5457713	295
Aqua-336	Wetland	205 to 206	E-690438 N-5457650	E-690632 N-5457464	268

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

ESS Group: Birds and Habitat

*Features represented as points

ESS ID	ESS Name	Location
Wild-130	Stick Nest	E-692822 - N-5455347

Potential Effects:

Potential disruption of stick nest

Specific Mitigation (ID# 824):

- Nest tree will be located by Environmental Inspector, georeferenced and marked with Flagging tape
- A 200 m setback will be applied during the breeding season (April 30 to July 31) to minimize sensory disturbance during the breeding season
- If nest removal is required, Manitoba Hydro will consult with Sustainable Development to develop mitigation measures for the relocation of the nest

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-310	Shelterbelt	167 to 168	E-682629 N-5485596	E-682631 N-5485580	16

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Line of Sight Buffer

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-404	Line of Sight Buffer	211 to 212	E-692794 N-5455385	E-692854 N-5455328	83

Potential Effects:

Potential for increased hunting and predation pressure on wildlife due to ROW vegetation clearing crossing the roadway

Specific Mitigation (ID# 833):

- Remove all trees
- Remove all shrubs >4m tall
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Develop an access trail that is 7m wide along a path to be determined onsite through consultation between MH and the Contractor

ESS Group: Species of Concern

**Features represented as points*

ESS ID	ESS Name	Location
Eco-304A	Plant Species of Concern	E-692674 - N-5455480

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Species of Traditional Use

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-508	Traditional Use Plant Species >30% Cover	209 to 210	E-692293 N-5455867	E-692854 N-5455328	779

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-336	Wetland	205 to 206	E-690438 N-5457650	E-690632 N-5457464	268
Aqua-336	Wetland	207 to 208	E-690706 N-5457393	E-690791 N-5457311	117
Aqua-337	Wetland	213 to 214	E-692904 N-5455280	E-692972 N-5455215	94

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

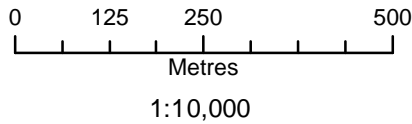
Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
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Version: Final 1.06



- Land Base**
- Transmission Line
 - Highway
 - Major Road
 - Local Road
 - Railway (Operational)
 - Railway (Discontinued)
 - First Nation
 - Provincial Forest
 - Parcel Fabric
 - Rural Municipality

- Project Infrastructure**
- Tower Locations
 - Angle Tower Locations
 - MMTP Final Preferred Route
 - Right of Way
 - Station Expansion
 - Converter Station Footprint
 - M602F Modification (Salvage)
 - M602F Modification (New)
- *Tower locations subject to final design

- Sensitive Sites**
- Point Features
 - Linear Features
 - Area Features
- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Ecosystem**
- Species of Concern
- Water**
- Water Crossing
- Wildlife**
- Birds and Habitat
- Ecosystem**
- Species of Traditional Use
 - Species of Concern
- Water**
- Wetland

- Wildlife**
- Line of Sight

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-131	Rat River crossing	L17 to L18	E-695775 N-5452520	E-696365 N-5451953	818

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Food/Medicinal

*Features represented as points

ESS ID	ESS Name	Location
RUse-310	Plant Harvest	E-705112 - N-5442058

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Line of Sight Buffer

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-405	Line of Sight Buffer	215 to 216	E-694187 N-5454046	E-694226 N-5454009	53
Wild-406	Line of Sight Buffer	219 to 220	E-694239 N-5453996	E-694277 N-5453960	52

Potential Effects:

Potential for increased hunting and predation pressure on wildlife due to ROW vegetation clearing crossing the roadway

Specific Mitigation (ID# 833):

- Remove all trees
- Remove all shrubs >4m tall
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Develop an access trail that is 7m wide along a path to be determined onsite through consultation between MH and the Contractor

ESS Group: Species of Concern

*Features represented as points

ESS ID	ESS Name	Location
Eco-304B	Plant Species of Concern	E-694270 - N-5453930
Eco-305	Plant Species of Concern	E-694292 - N-5453924

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Species of Concern

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-304	Plant Species of Concern	221 to 222	E-694328 N-5453911	E-694368 N-5453872	56

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Species of Traditional Use

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-509	Traditional Use Plant Species >30% Cover	217 to 218	E-694239 N-5453996	E-694963 N-5453301	1004

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-126	Rat River Crossing	E-696180 N-5452131	14	10

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 711):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats
- Temporary signs stating "Construction Activity" will be:
 - placed and maintained 200m upstream and 200m downstream of the work
 - legible from a minimum distance of 100m downstream of the work
 - placed and maintained during all periods of conductor stringing during the open water season on all navigable waters
 - visible from all points of marine approach and when snowmobile traffic exists during frozen water conditions
- Ice bridges will be constructed of clean (ambient) water, ice and snow and snowfills will be constructed of clean snow. Materials such as gravel, rock and loose woody material will NOT be used. Crossings will not impede water flow at any time of the year
- Where logs are required for use in stabilizing shoreline approaches, they will be clean and securely bound together and they will be removed before the spring freshet
- When the crossing season is over and where it is safe to do so, a v-notch will be created in the centre of the ice bridge to allow it to melt from the centre and also to prevent blocking fish passage, channel erosion and flooding. Compacted snow and all crossing materials will be removed prior to the spring freshet
- No logs or woody debris will be left within the waterway or on the banks or shoreline where they can wash back into the waterway
- To minimize potential effects of boat use on mussel species and their habitats:
 - The use of boats will be limited to deep water areas at the transmission line crossings,
 - Boats will only approach shore at designated boat launches for stringing across

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-338	Wetland - Caliento Bog	223 to 224	E-695558 N-5452729	E-695598 N-5452691	55
Aqua-339	Wetland - Caliento Bog	225 to 226	E-695679 N-5452612	E-695825 N-5452472	202
Aqua-340	Wetland - Caliento Bog	227 to 228	E-695850 N-5452448	E-695905 N-5452395	76

Potential Effects:

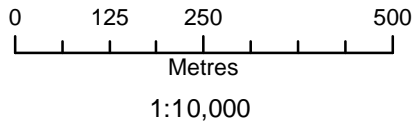
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 206):

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible



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- *Tower locations subject to final design

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- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
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 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Heritage**
- Archaeological
- Wildlife**
- Birds and Habitat
- Ecosystem**
- Habitat
 - Species of Traditional Use
- Water**
- Wetland
- Wildlife**
- Line of Sight

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Archaeological

*Features represented as points

ESS ID	ESS Name	Location
Hert-121	Area of Potential Use	E-696651 - N-5451678

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 326):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the tower currently 60 meters South East from this point

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-131	Rat River crossing	L17 to L18	E-695775 N-5452520	E-696365 N-5451953	818
Wild-132	Waterfowl sensitivity area	L19 to L20	E-698929 N-5449488	E-699635 N-5448809	979

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Food/Medicinal

*Features represented as points

ESS ID	ESS Name	Location
RUse-311	Plant Harvest	E-709116 - N-5440525

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-310	Shelterbelt	167 to 168	E-682629 N-5485596	E-682631 N-5485580	16

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-103	Prairie Grassland	239 to 240	E-699070 N-5449353	E-699119 N-5449305	69

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Line of Sight Buffer

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-407	Line of Sight Buffer	237 to 238	E-699002 N-5449418	E-699042 N-5449380	55
Wild-408	Line of Sight Buffer	243 to 244	E-699071 N-5449352	E-699111 N-5449313	56

Potential Effects:

Potential for increased hunting and predation pressure on wildlife due to ROW vegetation clearing crossing the roadway

Specific Mitigation (ID# 833):

- Remove all trees
- Remove all shrubs >4m tall
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Develop an access trail that is 7m wide along a path to be determined onsite through consultation between MH and the Contractor

ESS Group: Species of Traditional Use

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-510	Traditional Use Plant Species >30% Cover	235 to 236	E-698836 N-5449577	E-699042 N-5449380	285
Eco-511	Traditional Use Plant Species >30% Cover	241 to 242	E-699070 N-5449352	E-699508 N-5448931	608

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-341	Wetland - Caliento Bog	229 to 230	E-696418 N-5451901	E-696462 N-5451860	60
Aqua-342	Wetland - Caliento Bog	231 to 232	E-696866 N-5451471	E-697316 N-5451039	624
Aqua-343	Wetland - Caliento Bog	233 to 234	E-698710 N-5449699	E-698836 N-5449577	176

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 206):

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-132	Waterfowl sensitivity area	L19 to L20	E-698929 N-5449488	E-699635 N-5448809	979

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Cultural

*Features represented as points

ESS ID	ESS Name	Location
Hert-202	Cemetery	E-699074 - N-5449196

Potential Effects:

Potential disturbance to Heritage Resources

Specific Mitigation (ID# 312):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Avoid the area around the cemetery observe a 75 meter buffer around it
- MH to contact RM prior to conducting work in the area and adjust timing of construction and maintenance to avoid any religious ceremonies/practices or interments at the cemetery
- Project Archaeologist will monitor tower foundation installation for the tower East of the Sundown Road and ROW intersection

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-310	Shelterbelt	167 to 168	E-682629 N-5485596	E-682631 N-5485580	16

Potential Effects:

Removal in area of ROW intersect pending species composition confirmation and lidar analysis of vegetation height complete or partial removal may be required

Specific Mitigation (ID# 505):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Identify and flag prior to start of work
- Use existing access trails, roads or cut lines whenever possible as access routes
- Limit all equipment to project footprint only, where possible
- No pushing debris into adjacent timber

ESS Group: Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-103	Prairie Grassland	239 to 240	E-699070 N-5449353	E-699119 N-5449305	69

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Line of Sight Buffer

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-408	Line of Sight Buffer	243 to 244	E-699071 N-5449352	E-699111 N-5449313	56

Potential Effects:

Potential for increased hunting and predation pressure on wildlife due to ROW vegetation clearing crossing the roadway

Specific Mitigation (ID# 833):

- Remove all trees
- Remove all shrubs >4m tall
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Develop an access trail that is 7m wide along a path to be determined onsite through consultation between MH and the Contractor

ESS Group: Species of Traditional Use

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-511	Traditional Use Plant Species >30% Cover	241 to 242	E-699070 N-5449352	E-699508 N-5448931	608

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Wetland

**Features represented as polygons*

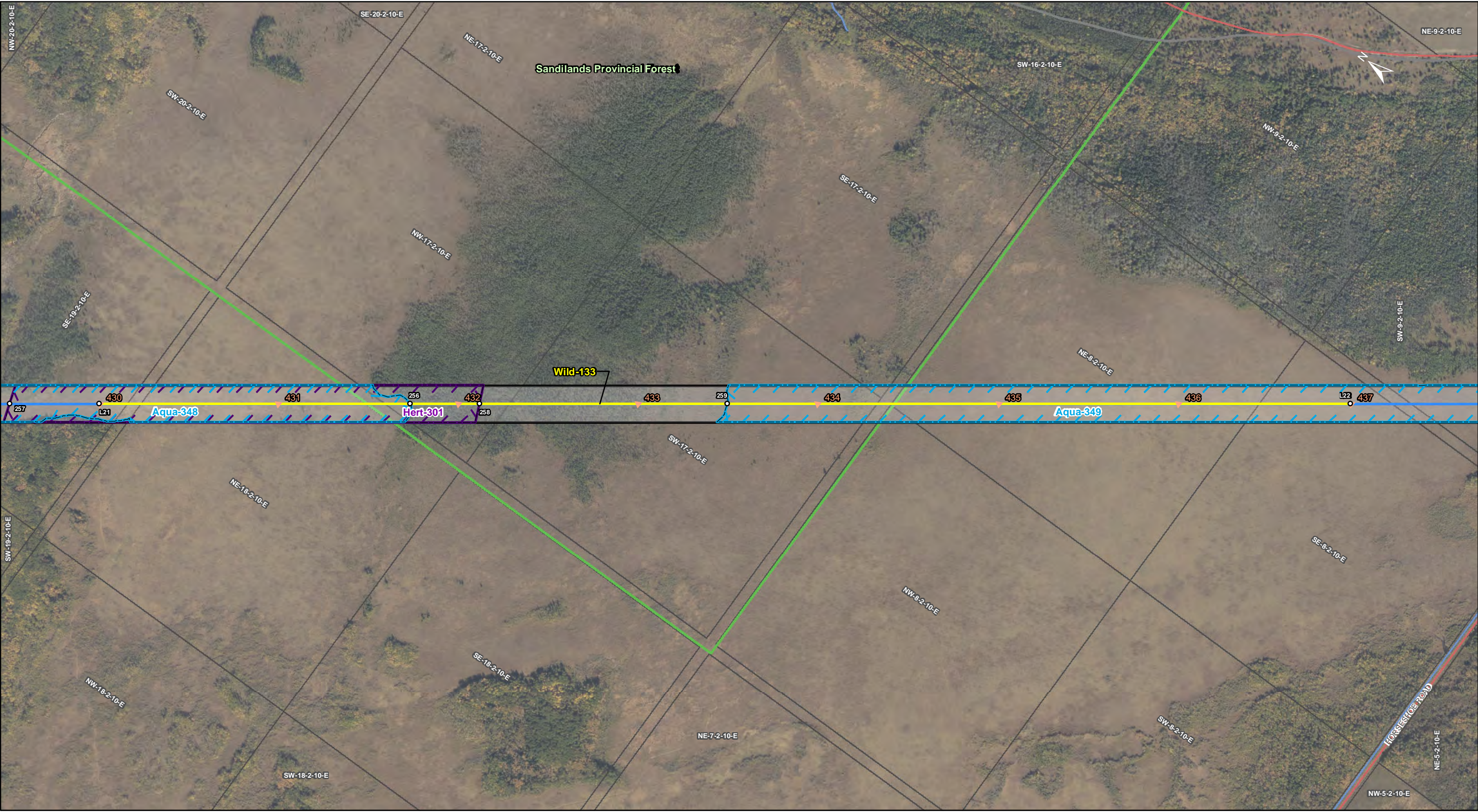
ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-344	Wetland - Sundown Bog	245 to 246	E-699525 N-5448915	E-700049 N-5448411	728
Aqua-345	Wetland - Sundown Bog	247 to 248	E-700614 N-5447775	E-700671 N-5447703	93
Aqua-346	Wetland - Sundown Bog	249 to 250	E-700700 N-5447665	E-700719 N-5447641	31
Aqua-347	Wetland - Sundown Bog	251 to 252	E-700772 N-5447574	E-700914 N-5447395	228
Aqua-347	Wetland - Sundown Bog	253 to 254	E-700976 N-5447316	E-701619 N-5446501	1038
Aqua-348	Wetland - Sundown Bog	255 to 256	E-701732 N-5446358	E-702450 N-5445448	1159

Potential Effects:

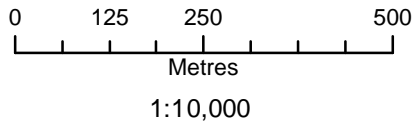
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 206):

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible



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 - M602F Modification (New)
- *Tower locations subject to final design

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- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
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 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Wildlife**
 - Birds and Habitat
 - Heritage**
 - Historic
 - Water**
 - Wetland

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

*Features represented as lines

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-133	Sundown Lake and wetland sensitive area	L21 to L22	E-701928 N-5446109	E-704027 N-5443450	3388

Potential Effects:

Higher risk of wire collision, Risk of wire collision is localized to the right-of-way

Specific Mitigation (ID# 827):

- Bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the skywires
- Install bird diverter with spacing as per Transmission Line Design specifications for these spans

ESS Group: Food/Medicinal

*Features represented as points

ESS ID	ESS Name	Location
RUse-310	Plant Harvest	E-705112 - N-5442058

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Forestry

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
RUse-311	Large Berry Picking Area	65 to 66	E-673702 N-5515906	E-673854 N-5515507	427

Potential Effects:

Unnecessary damage to fruit and berry trees

Specific Mitigation (ID# 504):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Minimize surface disturbance around the site to the extent possible
- No Herbicide to be applied during construction
- Confine vehicle traffic to established trails to the extent possible
- Refer to Clearing Management Plan for clearing prescriptions

ESS Group: Historic

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Hert-301	Historic Trail	257 to 258	E-701778 N-5446299	E-702566 N-5445301	1272

Potential Effects:

Potential disturbance to heritage or historic trail

Specific Mitigation (ID# 327):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to mineral soil during wet ground conditions
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Project Archaeologist will monitor tower foundation installation for the three towers that are within this polygon

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-348	Wetland - Sundown Bog	255 to 256	E-701732 N-5446358	E-702450 N-5445448	1159
Aqua-349	Wetland - Sundown Bog	259 to 260	E-702982 N-5444774	E-704329 N-5443067	2175

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 206):

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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ESS Group: Food/Medicinal

*Features represented as points

ESS ID	ESS Name	Location
RUse-310	Plant Harvest	E-705112 - N-5442058
RUse-311	Plant Harvest	E-709116 - N-5440525

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Line of Sight Buffer

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-409	Line of Sight Buffer	261 to 262	E-704921 N-5442317	E-704957 N-5442271	58

Potential Effects:

Potential for increased hunting and predation pressure on wildlife due to ROW vegetation clearing crossing the roadway

Specific Mitigation (ID# 833):

- Remove all trees
- Remove all shrubs >4m tall
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Develop an access trail that is 7m wide along a path to be determined onsite through consultation between MH and the Contractor

ESS Group: Species of Concern

*Features represented as points

ESS ID	ESS Name	Location
Eco-305A	Plant Species of Concern	E-704915 - N-5442331
Eco-306	Plant Species of Concern	E-704951 - N-5442249
Eco-307	Plant Species of Concern	E-704966 - N-5442236
Eco-307A	Plant Species of Concern	E-704965 - N-5442210
Eco-307D	Plant Species of Concern	E-705344 - N-5441723

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Species of Traditional Use

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-512	Traditional Use Plant Species >30% Cover	263 to 264	E-704921 N-5442317	E-705541 N-5441531	1001

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-127	Unnamed Drain Crossing	E-704495 N-5442856	N/A	N/A

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 715):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- If wet conditions exist, one time fording or the use construction matting for low water levels or temporary bridge for higher water levels must be authorized by MH Environmental Officer/Inspector
- Use existing trails, roads or cut lines whenever possible as access routes
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Limit machinery fording of the watercourse to a one-time event (over and back) only if no alternative crossing method is available (i.e. matting or temporary bridge)
- If repeated fording of the watercourse is necessary, prior approval from the MH Environmental Officer/Inspector is required
- Locate crossings perpendicular to the bank, whenever possible
- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-349	Wetland - Sundown Bog	259 to 260	E-702982 N-5444774	E-704329 N-5443067	2175

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

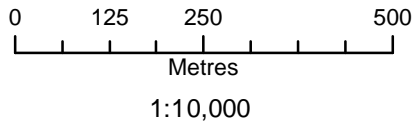
Specific Mitigation (ID# 206):

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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Coordinate System: UTM Zone 14N NAD83
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- Land Base**
- Transmission Line
 - Highway
 - Major Road
 - Local Road
 - Railway (Operational)
 - Railway (Discontinued)
 - First Nation
 - Provincial Forest
 - Parcel Fabric
 - Rural Municipality

- Project Infrastructure**
- Tower Locations
 - Angle Tower Locations
 - MMTP Final Preferred Route
 - Right of Way
 - Station Expansion
 - Converter Station Footprint
 - M602F Modification (Salvage)
 - M602F Modification (New)
- *Tower locations subject to final design

- Sensitive Sites**
- Point Features
 - Linear Features
 - Area Features
- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Ecosystem**
- Species of Concern
- Resource Use**
- Food/Medicinal
- Water**
- Wetland
- Wildlife**
- Line of Sight

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Food/Medicinal

*Features represented as points

ESS ID	ESS Name	Location
RUse-311	Plant Harvest	E-709116 - N-5440525

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Line of Sight Buffer

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-410	Line of Sight Buffer	265 to 266	E-709113 N-5439569	E-709164 N-5439561	51
Wild-411	Line of Sight Buffer	267 to 268	E-709164 N-5439561	E-709225 N-5439550	62

Potential Effects:

Potential for increased hunting and predation pressure on wildlife due to ROW vegetation clearing crossing the roadway

Specific Mitigation (ID# 833):

- Remove all trees
- Remove all shrubs >4m tall
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Develop an access trail that is 7m wide along a path to be determined onsite through consultation between MH and the Contractor

ESS Group: Species of Concern

*Features represented as points

ESS ID	ESS Name	Location
Eco-310	Plant Species of Concern	E-709132 - N-5440347
Eco-311	Plant Species of Concern	E-709132 - N-5440434
Eco-312	Plant Species of Concern	E-709128 - N-5440456
Eco-313	Plant Species of Concern	E-709132 - N-5440475
Eco-314	Plant Species of Concern	E-709123 - N-5440487

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 201):

- Identify and flag prior to start of work
- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Provide 10m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible

ESS Group: Wetland

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-350	Wetland - Sundown Bog	269 to 270	E-709334 N-5439532	E-709384 N-5439523	51

Potential Effects:

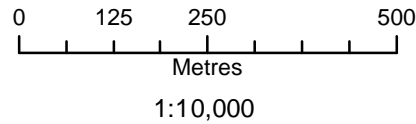
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 206):

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible



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Land Base

- Transmission Line
- Highway
- Major Road
- Local Road
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- Railway (Discontinued)
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- Parcel Fabric
- Rural Municipality

Project Infrastructure

- Tower Locations
 - Angle Tower Locations
 - MMTP Final Preferred Route
 - Right of Way
 - Station Expansion
 - Converter Station Footprint
 - M602F Modification (Salvage)
 - M602F Modification (New)
- *Tower locations subject to final design

Sensitive Sites

- Point Features
 - Linear Features
 - Area Features
- Points of Access**
- Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

ESS Features

- Water**
- Water Crossing
- Water**
- Wetland

**Manitoba-Minnesota Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site Locations**

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-128	Unnamed Creek Crossing	E-714471 N-5438663	N/A	N/A

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-351	Wetland - Sundown Bog	271 to 272	E-710726 N-5439297	E-711740 N-5439125	1028

Potential Effects:

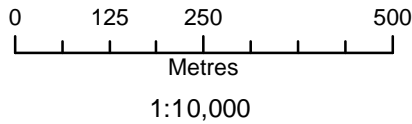
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 206):

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible



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- Land Base**
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- Sensitive Sites**
- Point Features
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- Existing Gravel Road
 - Existing Gravel/Dirt Road
 - Field Access
 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Ecosystem**
- Species of Traditional Use
- Water**
- Groundwater
 - Wetland
- Wildlife**
- Birds and Habitat

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-134	Sharp-tailed grouse lek	277 to 278	E-717982 N-5438069	E-719885 N-5437842	1924

Potential Effects:

Potential disruption of mating success for sharp-tailed grouse

Specific Mitigation (ID# 830):

- Do not plan to carry out construction activities within this area between April 15 to June 1st
- If construction activity is required within this area between April 15 to June 1st. Contact Manitoba Hydro Environmental Officer to discuss potential mitigation options

ESS Group: Groundwater

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-203	Flowing Aquifer	275 to 276	E-716324 N-5438350	E-723883 N-5434129	9636

Potential Effects:

Potential to disturb groundwater quantity through the unintended discharge of aquifers in artesian areas of flowing wells and springs.

Specific Mitigation (ID# 705):

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions
- Emergency response plans for sealing/grouting and pumping will be implemented as required
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture

ESS Group: Species of Traditional Use

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-513	Traditional Use Plant Species >30% Cover	279 to 280	E-718080 N-5438053	E-719071 N-5437885	1005

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-352	Wetland - Piney Bog	273 to 274	E-715915 N-5438419	E-719052 N-5437888	3182

Potential Effects:

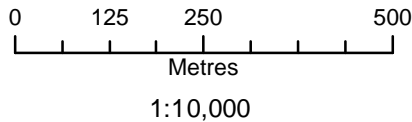
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 206):

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible



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- Land Base**
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 - Area Features
- Points of Access**
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 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Ecosystem**
- Species of Traditional Use
- Water**
- Groundwater
 - Wetland
- Wildlife**
- Birds and Habitat
 - Line of Sight

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-134	Sharp-tailed grouse lek	277 to 278	E-717982 N-5438069	E-719885 N-5437842	1924
Wild-135	Sharp-tailed grouse lek	285 to 286	E-721732 N-5437236	E-722224 N-5436401	970

Potential Effects:

Potential disruption of mating success for sharp-tailed grouse

Specific Mitigation (ID# 830):

- Do not plan to carry out construction activities within this area between April 15 to June 1st
- If construction activity is required within this area between April 15 to June 1st. Contact Manitoba Hydro Environmental Officer to discuss potential mitigation options

ESS Group: Groundwater

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-203	Flowing Aquifer	275 to 276	E-716324 N-5438350	E-723883 N-5434129	9636

Potential Effects:

Potential to disturb groundwater quantity through the unintended discharge of aquifers in artesian areas of flowing wells and springs.

Specific Mitigation (ID# 705):

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions
- Emergency response plans for sealing/grouting and pumping will be implemented as required
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture

ESS Group: Line of Sight Buffer

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-412	Line of Sight Buffer	281 to 282	E-719004 N-5437897	E-719071 N-5437885	68

Potential Effects:

Potential for increased hunting and predation pressure on wildlife due to ROW vegetation clearing crossing the roadway

Specific Mitigation (ID# 833):

- Remove all trees
- Remove all shrubs >4m tall
- Retain shrubs and herbaceous vegetation <4m tall to the extent possible
- Develop an access trail that is 7m wide along a path to be determined onsite through consultation between MH and the Contractor

ESS Group: Species of Traditional Use

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-513	Traditional Use Plant Species >30% Cover	279 to 280	E-718080 N-5438053	E-719071 N-5437885	1005

Potential Effects:

Potential loss of species of conservation concern or traditional use from clearing, construction, maintenance and decommissioning activities

Specific Mitigation (ID# 204):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing access roads and trails to the extent possible
- Refer to Clearing Management Plan for clearing prescription
- Confine vehicle traffic to established trails to the extent possible
- In the event of ground disturbance refer to Rehabilitation and Invasive Species Management Plan for mitigation measures

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-352A	Wetland	283 to 284	E-720756 N-5437879	E-721084 N-5437893	328

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-352	Wetland - Piney Bog	273 to 274	E-715915 N-5438419	E-719052 N-5437888	3182

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

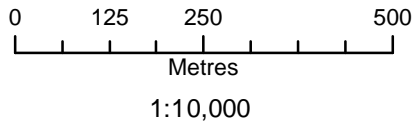
Specific Mitigation (ID# 206):

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible

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- Land Base**
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 - Rural Municipality

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- Sensitive Sites**
- Point Features
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 - Area Features
- Points of Access**
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 - Existing Gravel/Dirt Road
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 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Water**
- Water Crossing
 - Groundwater
- Wildlife**
- Birds and Habitat

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Birds and Habitat

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-135	Sharp-tailed grouse lek	285 to 286	E-721732 N-5437236	E-722224 N-5436401	970

Potential Effects:

Potential disruption of mating success for sharp-tailed grouse

Specific Mitigation (ID# 830):

- Do not plan to carry out construction activities within this area between April 15 to June 1st
- If construction activity is required within this area between April 15 to June 1st. Contact Manitoba Hydro Environmental Officer to discuss potential mitigation options

ESS Group: Groundwater

*Features represented as polygons

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-203	Flowing Aquifer	275 to 276	E-716324 N-5438350	E-723883 N-5434129	9636

Potential Effects:

Potential to disturb groundwater quantity through the unintended discharge of aquifers in artesian areas of flowing wells and springs.

Specific Mitigation (ID# 705):

- Qualified driller with appropriate experience will be contracted to work in areas affected by artesian conditions
- Emergency response plans for sealing/grouting and pumping will be implemented as required
- Follow up inspections of installed foundations will be undertaken to monitor for excess moisture

ESS Group: Water Crossing

*Features represented as points

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-129	Pine Creek Diversion Crossing	E-722728 N-5435667	N/A	N/A

Potential Effects:

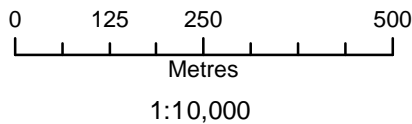
Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 715):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- If wet conditions exist, one time fording or the use construction matting for low water levels or temporary bridge for higher water levels must be authorized by MH Environmental Officer/Inspector
- Use existing trails, roads or cut lines whenever possible as access routes
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Limit machinery fording of the watercourse to a one-time event (over and back) only if no alternative crossing method is available (i.e. matting or temporary bridge)
- If repeated fording of the watercourse is necessary, prior approval from the MH Environmental Officer/Inspector is required
- Locate crossings perpendicular to the bank, whenever possible
- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site



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 - Existing Gravel/Dirt Road
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 - New Trail
 - Restricted Access
 - Load Restriction
- *Some road names have not been verified

- ESS Features**
- Water**
- Water Crossing
- Water**
- Wetland

Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan Environmentally Sensitive Site Locations

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)
Aqua-130	Pine Creek Crossing	E-724843 N-5432435	9	3.5
Aqua-131	Pine Creek Crossing	E-724877 N-5432375	9	3.5

Potential Effects:

Habitat loss and contamination from structure foundations & installations; increased erosion & sedimentation of streams; Damage to stream banks; Loss of riparian vegetation; Fish habitat disturbances and impeded fish movement; Rutting of floodplain

Specific Mitigation (ID# 710):

- Construction matting will be used along access trail to protect the area from rutting and exposure of soil during saturated soil conditions
- Use existing trails, roads or cut lines whenever possible as access routes
- Identify and flag buffer areas prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway. Within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate MH Veg Clearance Requirements
- A minimum 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- Construction contractor will have flag persons during stringing activities to direct safe passage of boats

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-353	Wetland	287 to 288	E-724876 N-5432377	E-724883 N-5432365	14
Aqua-353	Wetland	289 to 290	E-724886 N-5432359	E-725424 N-5432111	619

Potential Effects:

Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation; potential impact to reptile and amphibian habitat

Specific Mitigation (ID# 205):

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion. Construction matting will be used to protect the area from rutting and exposure to soil during Non-frozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Refer to Clearing Management Plan for clearing prescription
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible