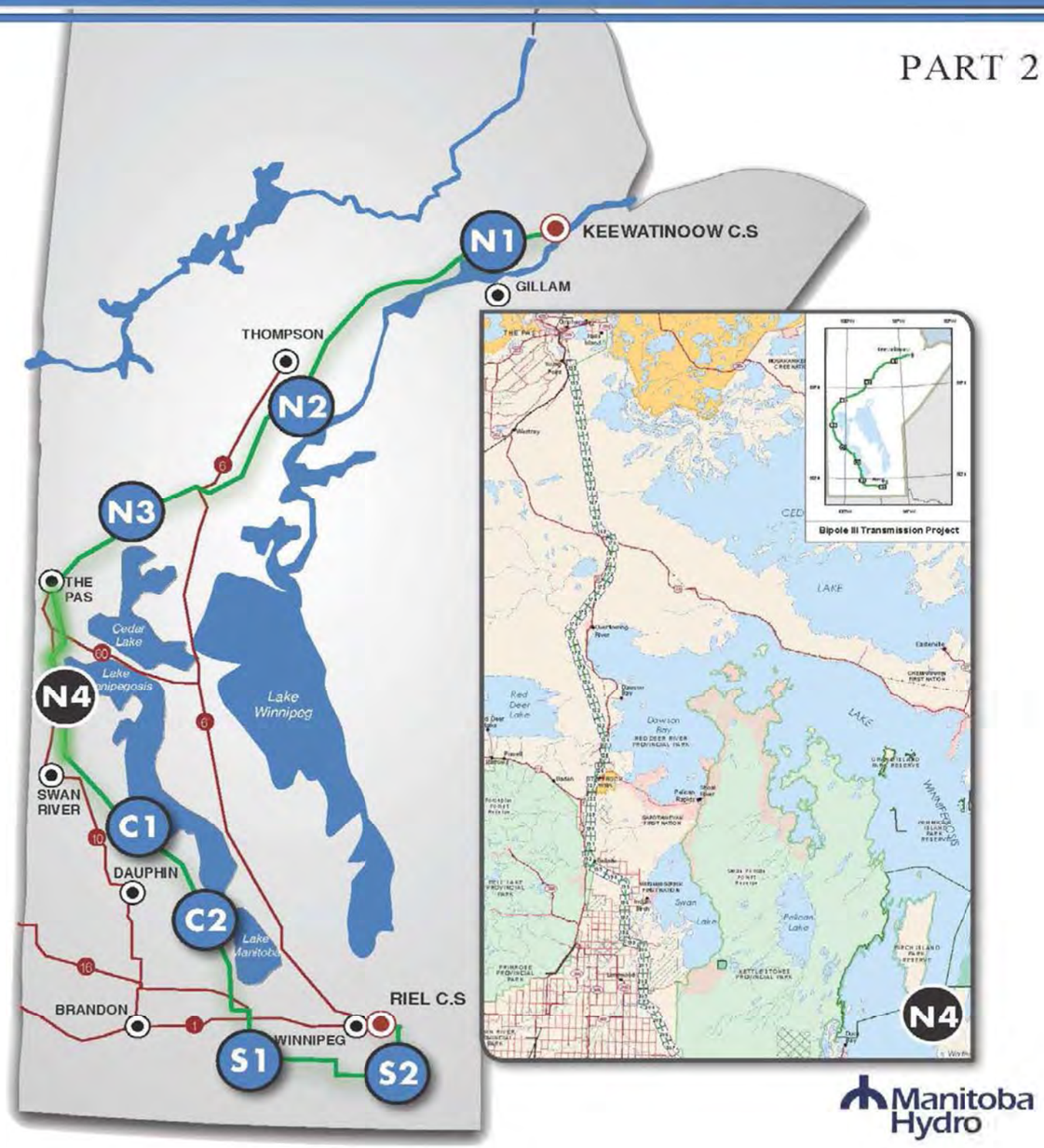
BIPOLE III TRANSMISSION PROJECT CONSTRUCTION ENVIRONMENTAL PROTECTION PLAN - SECTION N4

Mapbook

PART 2



Manitoba Hydro

Aboriginal Traditional Knowledge

Manitoba Hydro recognizes the unique relationship Aboriginal communities have with their areas of use and is appreciative to all the communities who took time to share information about their history and culture as well as their valued knowledge and perspectives with regards to the Bipole III study area and Project. The ATK that has been shared assisted Manitoba Hydro in: developing a greater understanding of the study area; identifying potential Project effects; planning and designing the Project; developing potential mitigation measures, some of which can be found throughout this document.

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

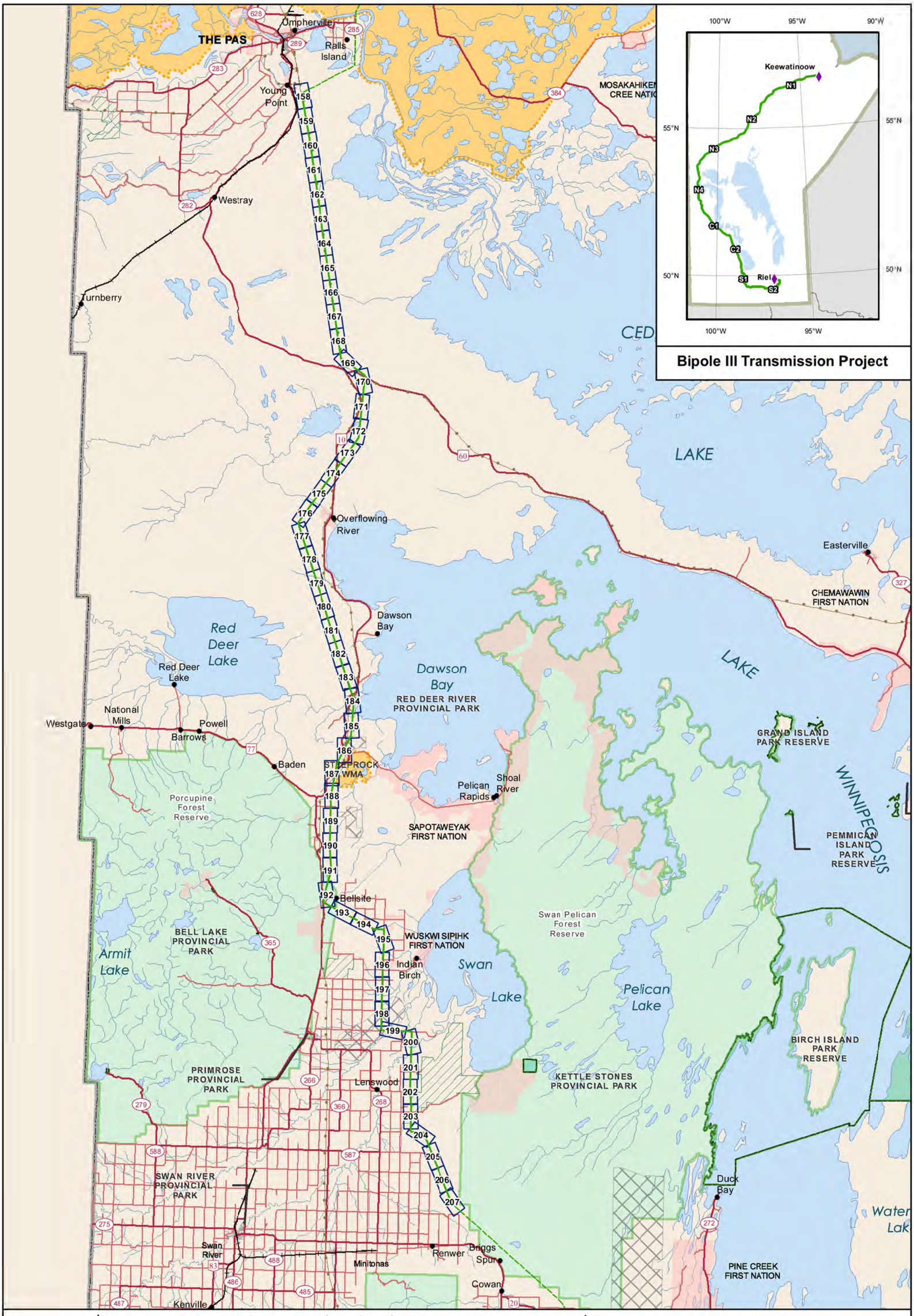
Final 4.0

List of Revisions- BPIII Environmental Protection Plan N4 Section

Number	Nature of Revision	Page/Map #	Revised By	Date
2.01	Due a computer scripting error when the mapbooks were initially produced, Stream Crossing Habitat Classification wasn't populated in the tables. That information has now been added into the mitigation tables where applicable The additional information presented here is considered an addendum to the mapbook, as each stream crossing requires the same mitigation measures regardless of its classification.	Any page that has a stream crossing and that info was available	Kris Watts	2014-12-10
2.02	Updated the tower numbers with information from a new staking table from Surveys Department on 2014-12-19	Entire book	Kris Watts	2015-01-12
2.03	N4-Ruse-300 Polygon was removed and replaced by a more accurate set of polygons agreed upon by MCWS these are N4-Wild-200-204	163-169, 172-174,176-178,	Kris Watts	2015-01-12
2.04	Highways layer was updated with the latest layer	Entire book	Kris Watts	2015-01-12
2.05	N4-Hert-107a and N4-Hert-107b Points were added by Lisa Bobbie as it has potential for Heritage resource given documented sites nearby	Page 192	Kris Watts	2015-01-12
2.06	Landfill Site added as an ESS Polygon for special clearing prescription	Page 192	Kris Watts	2015-01-12
2.07	Due to an Update in the Harvest Management Plan which addresses the distribution of fuel wood, the ESS mitigation measure that mentions this has been removed N4-Ruse-300 Polygon	Pages 180-183	Kris Watts	2015-01-12
2.08	Stream Crossing Habitat Classification information missing in previous version due to computer scripting error are now populated in this update	Any page that has a stream crossing and that info was available	Kris Watts	2015-03-05
3.00	Sensitive sites will now be symbolized in grey with white Halos for better visibility	All maps with SS	Stantec	2015-03-20
3.01	Removed Mitigation measure that referred to DFO operational statement as Fisheries and Oceans Canada no longer uses operational statements but rather "Measures to Avoid Causing Harm to Fish and Fish Habitat" These measures are reflected in the text of the CEnvPP	Any mitigation text for stream crossings or water bodies	Kris Watts	2015-03-27

3.02	To help prevent confusion with access trails, recreational trails will be renamed, for example ALL Accss features will now be called RecUse eg "N4-Accss-100" will now be "N4-RecUse-100"	Any associated map	Stantec	20151104
3.03	Removed the Bird Sensitive timing window mitigation measure statement that indicates a timing window as this is observed throughout the project not just at that specific ESS and indicated in the appendix of the text CEnvPP document	Any map with ESS Group: Birds and Habitat on it	Manitoba Hydro	Oct 6 2015
3.04	Removed Bird Sensitivity Area Line features that were used to indicate locations of intended bird diverter installations. This will be indicated to the contractor through engineer drawings	Removed from any associated map	Manitoba Hydro	Oct 6 2015
3.05	Updates to Access trails as well as the addition of Bypass utilized during construction	Any associated map	Stantec	20151104
3.06	The addition of Species of Concern Identified by field activities (N4-Eco-300 and N4-Eco-301)	Page 166	Manitoba Hydro	20151103
3.07	The Bog Woodland Caribou Range Sensitive Area has been retired due to a wildfire that had swept through and burnt the area of N4-Wild-200. Mitigation for Woodland Caribou has been updated to refer to a more comprehensive document.	Page 163 to 166 and associated maps	Manitoba Hydro	20151103
3.08	Addition of two water crossings (N4-Aqua-131 and N4-Aqua-132)	Page 196	Manitoba Hydro	20151103
3.09	Mapping errors had omitted N4-Hert-109 through N4-Hert-112 and N4-Hert-118 through N4-Hert-120 and N4-Hert-127 in Final Version 2.2 these have now been reinstated	Page 196 to 198, Page 200 and Page 203 consecutively	Manitoba Hydro	20151103
3.10	Removed labels from major stream crossings, rail crossing and transmission line crossings, and access route points. Labels for access routes remain.	Any associated Map	Manitoba Hydro	20151103
3.11	Incorporation of additional access routes from the 2014 construction season	Any associated Map	Stantec	20151112
3.12	Mitigation for Moose N4-Wild-204 has been updated to refer to a more comprehensive document. The "Moose and Caribou Sensitive Range Delineation and Mitigation Plans" document. The mitigation text pages will be Final 3.12 while the map pages will remain 3.11 until the next major update	Map 188-191	Manitoba Hydro	20160114
3.13	Mitigation measures for Aqua points have included a timing window statement that considered fall spawning fish "No instream works or fording from September to…" These fish are unlikely to occur in streams and therefore aren't a concern in stream crossings. This statement will be updated in subsequent versions to read "No instream works or fording from April 1 - July 15"	Map/Page 162,166,173-175,179,184-185,187-88,192,194-200,202-203	Manitoba Hydro	20160122
3.14	A mapping error didn't label heritage sites N4-Hert-118-120 (map 200) and N4 Hert 127 (on map 203), this amendment updates those map pages	Maps 200, 203	Stantec	20160126

4.0	New Numbering system for Access Roads as well as additions and deletions	All effected pages	Manitoba Hydro	20161115
4.0	Surveys of potential garter snake areas provided no evidence of garter snake presence or high quality habitats, subsequently the ESS were removed. (N4-Wild-300 and N4-Wild-301)	Map 172, Maps 183 to 188	Manitoba Hydro	20161115
4.0	Added a water crossing location, using a number previously retired (N4-Aqua-114)	Map 184	Manitoba Hydro	20161115



Manitoba Hydro

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Data Source: MB Hydro, Stantec, ProvMB, NRCAN
Date Created: April 10, 2014

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0 5 10 Miles
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Legend

- Final Preferred Route
- Section N4
- Map Index Grid (1:10,000)
- Transmission Line
- Mineral Rights
- First Nation
- Community Pasture
- Provincial Forest
- Provincial Park

Bipole III Transmission Line Project
Construction Environmental Protection Plan
N4 Construction Section
Key Map Index

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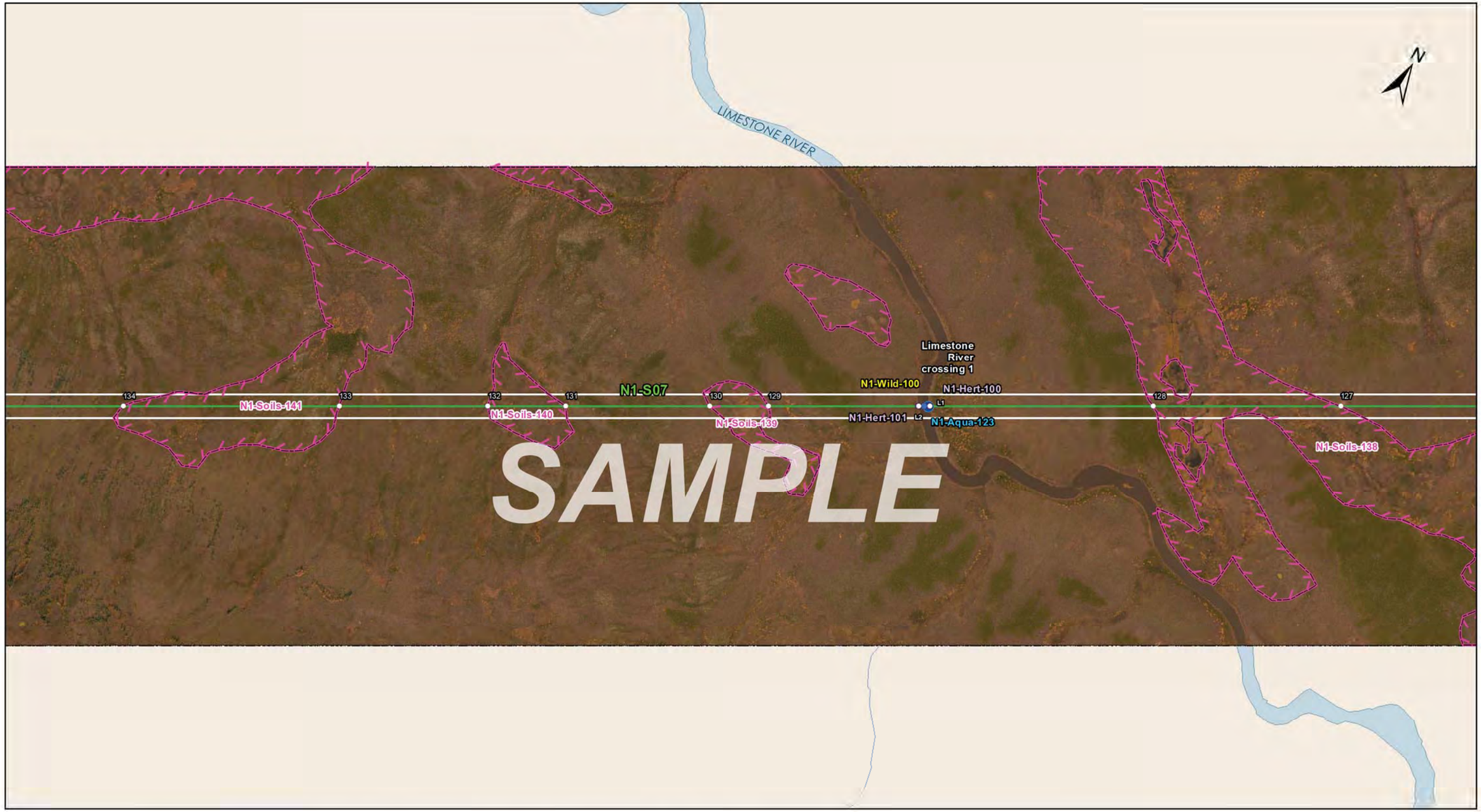

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Manitoba Hydro

Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: December 09, 2013

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Metres

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Land Base
- Transmission Line
- Highway
- Major Road
- Local Road
- Winter Road
- Railway (Operational)
- Railway (Discontinued)
- Mining

Project Infrastructure
- Angle Tower Locations
- BPIII Final Preferred Route
- 66 m Right of Way

Points of Access*
- Proposed Access Point
- Major Stream Crossing
- Abandoned Rail Crossing
- Rail Crossing
- Transmission Line Crossing
- Proposed Access Route

*Labels correspond to BPIII Access Management Database

ESS Features
Heritage
- Archaeological

Water
- Water Crossing

Wildlife
- Birds and Habitat

Soils and Terrain
- Permafrost

Bipole III Transmission Project
Construction Environmental Protection Plan
Construction Section N1
Environmentally Sensitive Site Locations

Map 17

SAMPLE MITIGATION TABLE (see adjacent KEY for additional information)

MAP NUMBER : 17 [1]

ESS Group : Water Crossing [2]

Sec-Seg ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
N1-S07	N1-Aqua-123	Limestone River	754280	6280471	14N	12m	12m	Low	Important

3

Potential Effects: [4]

Habitat loss & contamination from structure foundations & installations; increased erosion & sedimentation of streams; damage to stream banks; loss of riparian vegetation; fish habitat disturbance & impeded fish movement

Specific Mitigation: [5]

- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Use existing trails, roads or cut lines whenever possible as access routes

ESS Group : Birds and Habitat

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N1-S07	N1-Wild-100	Limestone River crossing; movement route for raptors and waterfowl	Site: L1 to L2	E- 754292 N- 6280478	E- 754267 N- 6280463	14N	29 m

3

Potential Effects: [4]

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

Specific Mitigation: [5]

- Adhere to reduced risk timing windows for protection of birds (August 1- April 30)
- Maintain setback during timing window

ESS Group : Permafrost

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N1-S07	N1-Soils-138	Permafrost	Site: 127 to 128	E-755259 N-6281038	E-754819 N-6280783	14N	509 m

3

Potential Effects: [4]

Melting or loss of permafrost due to disturbance of the active layer

Specific Mitigation: [5]

- Carry out construction activities on frozen ground to minimize surface damage and rutting
- Use existing trails, roads or cut lines whenever possible as access routes
- Avoid organic soils containing permafrost to the extent possible
- Remove trees by low-disturbance methods

ESS and mitigation shown includes only a sample of actual mitigation for the ESS features listed; refer to the Construction Environmental Protection plan for all specific mitigation measures recommended

KEY to SAMPLE MITIGATION TABLE

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

2 ESS Group classification of ESS shown on the map

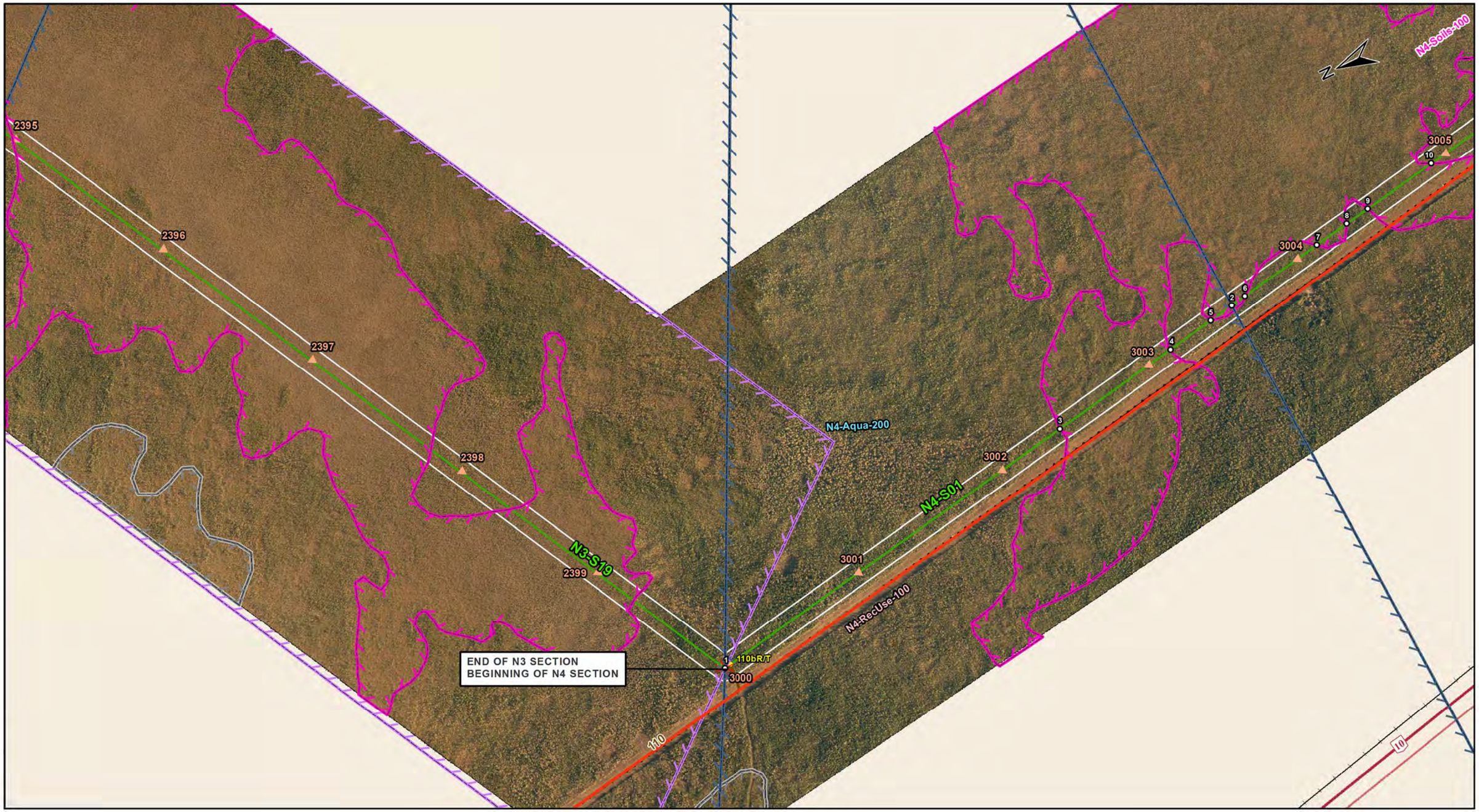
3 ESS location summary; includes the following fields:
- Sec-Seg - ID of the construction section (i.e. N1) and segment (i.e. S03) for ESS location
- ESS ID - Site specific ID assigned to each ESS according to **naming convention** listed below
- ESS Name - Brief name/description of ESS
- Easting/Northing - UTM coordinates of ESS location (for points only)
- Location - site identification numbers for the start and stop site points of ESS intersection with the ROW (lines and polygons only)
- Start/Stop - UTM coordinates of the start/stop identification numbers listed in the "Location" field (lines and polygons only)
- Characteristics of stream crossings identified in the ESS Location Summary tables (where applicable and as information is available)

4 Potential effects identified for ESS listed in the ESS Location Summary table

5 Mitigation measures identified for ESS listed in the ESS Location Summary table

ESS NAMING CONVENTION

CATEGORY	GROUP (Number Series Representing Group)	ESS ID (Section ID-Category-Group Number)
Access	Intersection (100)	N1-Acss-100
Ecosystem	Habitat (100)	N1-Eco-100
	Research (200)	N1-Eco-200
	Species of Concern (300)	N1-Eco-300
Heritage	Archaeological (100)	N1-Hert-100
	Cultural (200)	N1-Hert-200
	Historic (300)	N1-Hert-300
Land Use	Conservation (100)	N1-LUse-100
	Crown Land Encumbrance (200)	N1-LUse-200
	Recreation (300)	N1-LUse-300
	Residential (400)	N1-LUse-400
Resource Use	Agriculture (100)	N1-RUse-100
	Food/Medicinal (200)	N1-RUse-200
	Forestry (300)	N1-RUse-300
	Hunting/Fishing (400)	N1-RUse-400
	Trapping (500)	N1-RUse-500
Soils and Terrain	Permafrost (100-200)	N1-Soils-100
	Erosion (300)	N1-Soils-300
	Terrain (400)	N1-Soils-400
Water	Water Crossing (100)	N1-Aqua-100
	Groundwater (200)	N1-Aqua-200
	Wetlands (300)	N1-Aqua-300
Wildlife	Birds and Habitat (100)	N1-Wild-100
	Mammal and Habitat (200)	N1-Wild-200
	Reptiles/Amphibians and Habitat (300)	N1-Wild-300



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Manitoba Hydro

Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: November 10, 2016
Version: Final 4.0

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Metres
1:10,000

Land Base
- Transmission Line
- Highway
- Major Road
- Local Road
- Winter Road
- Railway (Operational)
- Railway (Discontinued)
- First Nation
- Mining
- Provincial Forest

Project Infrastructure
- Angle Tower Locations*
- Towers (Preliminary)*
- BPIII Final Preferred Route
- 66 m Right of Way

*Towers are subject to change, and are only used as a rough guide

Sensitive Sites*
- Point Features
- Linear Features
- Area Features

*Currently outside the Project footprint

Points of Access*
- Proposed Access Point
- Major Stream Crossing
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- Rail Crossing
- Transmission Line Crossing
- Bypass Trails
- Approved Access Route

ESS Features
RecUse
- Intersection
Heritage
- Cultural
Soils and Terrain
- Permafrost
Water
- Groundwater

Bipole III Transmission Project
Construction Environmental Protection Plan
Construction Section N4
Environmentally Sensitive Site Locations

Map 158

ESS Group: Permafrost

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N4-S01	N4-Soils-100	Permafrost	Site: 3 to 4	E-355111 N-5956815	E-355175 N-5956450	14N	371m
N4-S01	N4-Soils-100	Permafrost	Site: 5 to 6	E-355198 N-5956317	E-355217 N-5956206	14N	112m
N4-S01	N4-Soils-100	Permafrost	Site: 7 to 8	E-355259 N-5955968	E-355276 N-5955870	14N	99m
N4-S01	N4-Soils-100	Permafrost	Site: 9 to 10	E-355288 N-5955801	E-355324 N-5955592	14N	212m

Potential Effects:

Melting or loss of permafrost due to disturbance of the active layer

Specific Mitigation:

- Carry out construction activities on frozen ground to minimize surface damage and rutting.
- Use existing trails, roads or cut lines whenever possible as access routes
- Maintain shrub and herbaceous vegetation to the extent possible
- Remove trees by low-disturbance methods
- Confine vehicle traffic to established trails to the extent possible
- Implement erosion protection before commencing construction in accordance with Erosion/Sediment Control Plan

ESS Group: Groundwater

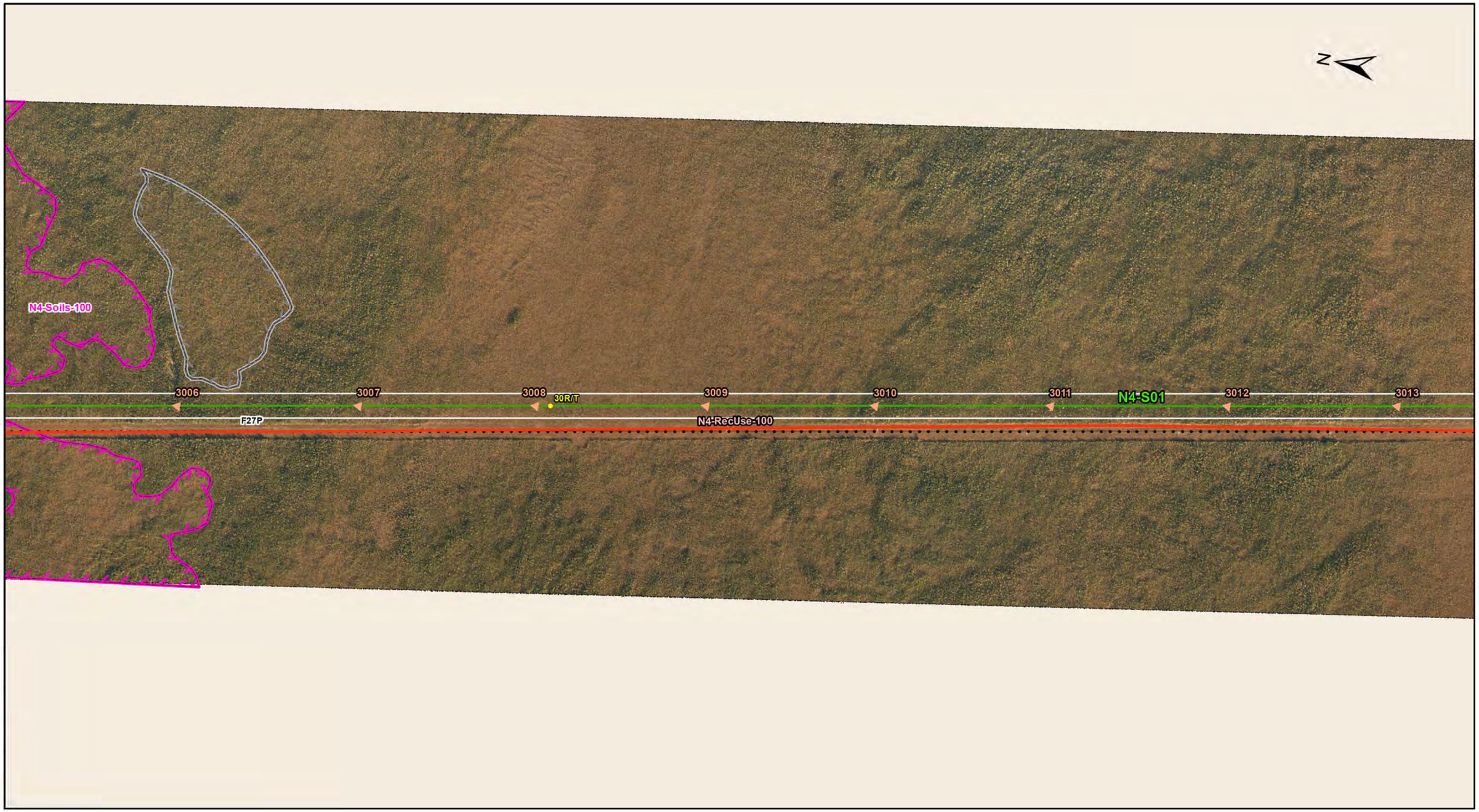
Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N4-S01	N4-Aqua-200	Aquifers Vulnerable to contamination	Site: 1 to 2	E-354918 N-5957920	E-355210 N-5956248	14N	1697 m

Potential Effects:

Potential groundwater contamination from a contingency event (e.g., spill)

Specific Mitigation:

- Marshalling yards will be located on upland sites where possible.
- An Emergency Preparedness and Spill Response Plan will be developed and an emergency response spill kit will be kept on-site at all times in case of fluid leaks or spills from machinery.
- 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.



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ESS Features
RecUse
- Intersection

Soils and Terrain
- Permafrost

Bipole III Transmission Project
Construction Environmental Protection Plan
Construction Section N4
Environmentally Sensitive Site Locations

Map 159

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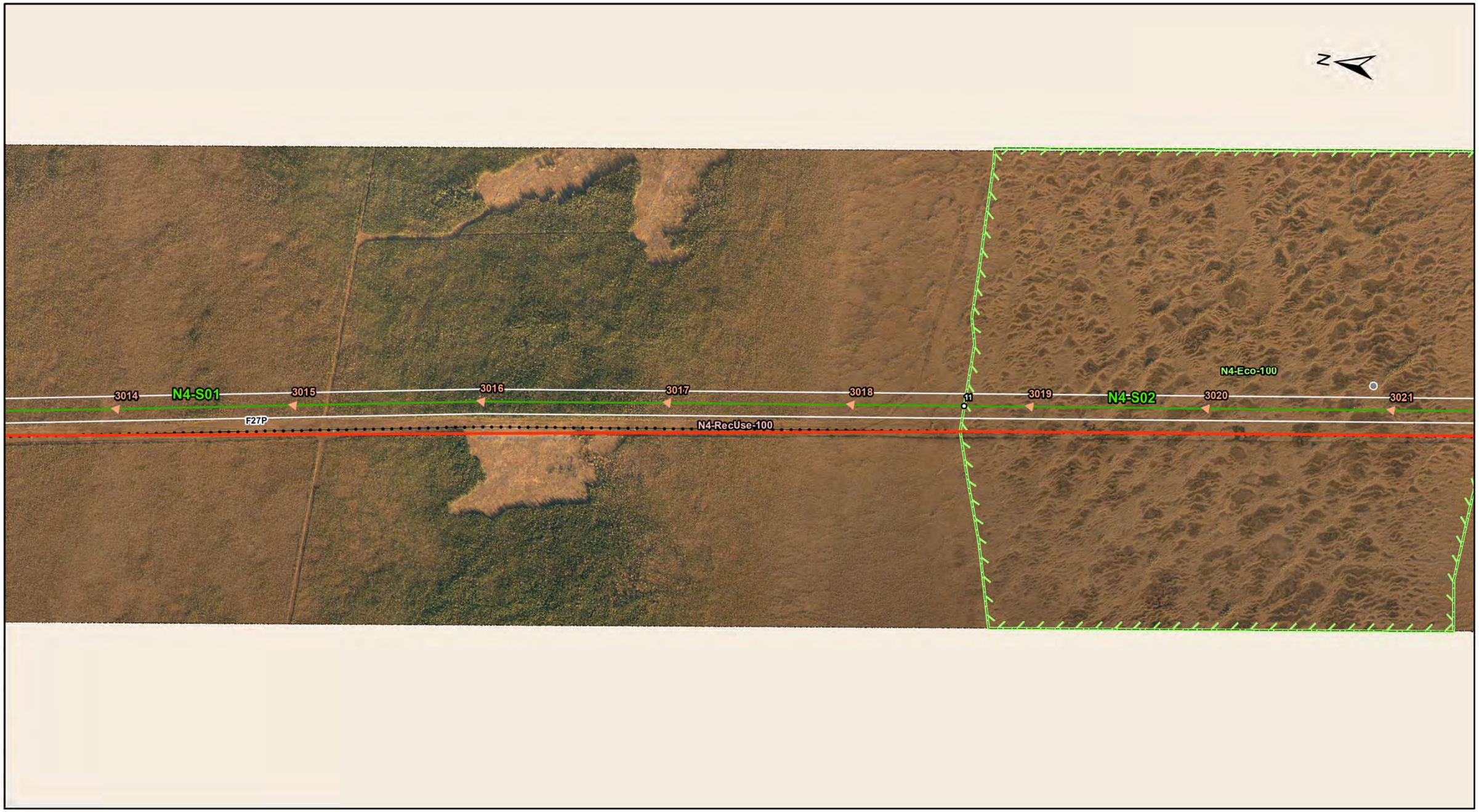
No specific mitigation measures for this map, page intentionally left blank



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ESS Features
RecUse
- Intersection

Ecosystem
- Habitat

Bipole III Transmission Project
Construction Environmental Protection Plan
Construction Section N4
Environmentally Sensitive Site Locations

Map 160

DOCUMENT PATH: G:_GIS_PROJECT_FOLDER\00_HYDRO\11142004\5\ARCMAP\SOIL PRODUCTIVITY\BPIII_CENVPP_N4SECTION_MAPBOOK_20161110.MXD

ESS Group: Habitat

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N4-S02	N4-Eco-100	Patterned Fen	Site: 11 to 12	E-356426 N-5949046	E-356634 N-5947594	14N	1466m

Potential Effects:

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

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing access roads and trails to the extent possible
- Provide 30 m vegetated (shrub and herbaceous) buffer around site
- Remove trees by low-disturbance methods
- Confine vehicle traffic to established trails to the extent possible
- Install erosion protection and sediment control measures in accordance with Erosion/Sediment Control Plan

Manitoba Hydro

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ESS Features
RecUse
- Intersection

Ecosystem
- Habitat

Bipole III Transmission Project
Construction Environmental Protection Plan
Construction Section N4
Environmentally Sensitive Site Locations

Map 161

DOCUMENT PATH: G:_GIS_PROJECT_FOLDER\00_HYDRO\11142004\5\ARCMAP\SOIL PRODUCTIVITY\BPIII_CENVPP_N4SECTION_MAPBOOK_20161110.MXD

ESS Group: Habitat

Sec-Seg ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
N4-S02	N4-Eco-100	Patterned Fen	Site: 11 to 12	E-356426 N-5949046	E-356634 N-5947594	14N	1466m

Potential Effects:

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

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Use existing access roads and trails to the extent possible
- Provide 30 m vegetated (shrub and herbaceous) buffer around site
- Remove trees by low-disturbance methods
- Confine vehicle traffic to established trails to the extent possible
- Install erosion protection and sediment control measures in accordance with Erosion/Sediment Control Plan

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Manitoba Hydro

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Metres
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ESS Features
Water
- Water Crossing
RecUse
- Intersection

Bipole III Transmission Project
Construction Environmental Protection Plan
Construction Section N4
Environmentally Sensitive Site Locations

Map 162

ESS Group: Water Crossing

Sec-Seg ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
N4-S02	N4-Aqua-100	Iskwayanikakespeetik Creek	357307	5942911	14N	N/A	2m	Moderate	Marginal
N4-S02	N4-Aqua-101	Iskwayanikakespeetik Creek	357321	5942818	14N	N/A	2m	Moderate	Marginal
N4-S02	N4-Aqua-102	Iskwayanikakespeetik Creek	357342	5942672	14N	N/A	3m	Moderate	Marginal
N4-S02	N4-Aqua-103	Iskwayanikakespeetik Creek	357351	5942609	14N	N/A	3m	Moderate	Marginal
N4-S02	N4-Aqua-104	Iskwayanikakespeetik Creek	357434	5942024	14N	N/A	1m	Moderate	Marginal
N4-S02	N4-Aqua-105	Iskwayanikakespeetik Creek	357450	5941918	14N	N/A	1m	Moderate	Marginal

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:

- Carry out construction activities on frozen 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.
- 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing.
- No instream works or fording from April 1 - July 15