Birtle Transmission Project

Construction Environmental Protection Plan

Part 2 - Mapbook

Draft

Manitoba Hydro

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Manitoba Hydro

Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: January 10, 2018
Version: Draft

0 50 100 200
Metres
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Land Base
- Land Parcel
- Major Road
- Local Road / Trail

Project Infrastructure
- Final Preferred Route
- Project Right Of Way

Sensitive Sites
- Sensitive Site (Point)

Water ESS
- Water Crossing

Wildlife ESS
- Birds and Habitat

Ecosystem ESS
- Habitat

Heritage ESS
- Archaeological

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 7

Sample Mitigation Table (see key below for additional information)

ESS Group: Archaeological [1]

**Features represented as polygons* [2]

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Hert-115	Area of heritage potential	29 to 30	E-343571 N-5583306	E-343572 N-5583379	72

Potential Effects: [4]
Impact to a potential heritage resource

Specific Mitigation (ID #321): [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 nonfrozen ground conditions
- Confine traffic to established trail
- Hand-clearing or other low disturbance clearing approved by Project Archaeologist within the area
- Project Archaeologist or designate will be present to monitor excavation/subsurface excavations (including geo-technical drilling) for heritage resources
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Should heritage resources be discovered during a pre-construction survey the project Archaeologist may prescribe construction matting to be used to protect the area from disturbance

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 site specific . 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-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-100-200
	Erosion (300)	Soils-300
	Terrain (400)	Soils-400
Water	Water Crossing (100)	Aqua-100
	Groundwater (200)	Aqua-200
	Wetlands (300)	Aqua-300
Wildlife	Birds and Habitat (100)	Wild-100
	Mammal and Habitat (200)	Wild-200
	Reptiles/Amphibians and Habitat (300)	Wild-300

6 Map Number: 7

Manitoba Hydro

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Land Base
- Land Parcel
- Transmission Line
- Highway
- Major Road
- Local Road / Trail

Project Infrastructure
- Final Preferred Route
- Project Right Of Way
- Birtle South Station

Sensitive Sites
- Sensitive Site (Point)
- Sensitive Site (Polygon)

Heritage ESS
- Archaeological

Wildlife ESS
- Birds and Habitat

Water ESS
- Wetland

Wildlife ESS
- Reptiles/Amphibians Habitat

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 1

ESS Group: Birds and Habitat

**Features represented as lines*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-100	Bird diverter installation area	L1 to L2	E-353293 N-5582189	E-353153 N-5582193	139

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

Specific Mitigation (ID #827):

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

ESS Group: Reptiles/Amphibians Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-300	Western tiger salamander site	5 to 6	E-354047 N-5582166	E-353984 N-5582168	62

Potential Effects:
Habitat loss and contamination from structure foundations & installations; wetland contamination and loss of breeding and summering habitat from loss/deterioration of riparian vegetation

Specific Mitigation (ID #831):

- 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 nonfrozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible
- If construction activity is required within this area between April 15 to June 1st all lifestages of amphibian will be captured and removed during a sweep survey
- If construction activity is required within this area between April 15 to June 1st exclusion fencing needs to be installed around the site after a sweep survey and prior to work taking place

ESS Group: Reptiles/Amphibians Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-301	Northern leopard frog site	7 to 8	E-353420 N-5582186	E-353398 N-5582186	22

Potential Effects:
Habitat loss and contamination from structure foundations & installations; wetland contamination and loss of breeding and summering habitat from loss/deterioration of riparian vegetation

Specific Mitigation (ID #832):

- 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 nonfrozen ground conditions
- Identify and flag buffer by follwing the edge of agricultural crop
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible
- If construction activity is required within this area between April 15 to June 1st all lifestages of amphibian will be captured and removed during a sweep survey
- If construction activity is required within this area between April 15 to June 1st exclusion fencing needs to be installed around the site after a sweep survey and prior to work taking place

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-300	Wetland	1 to 2	E-354615 N-5582067	E-354534 N-5582069	81
Aqua-301	Wetland	3 to 4	E-354434 N-5582072	E-354350 N-5582075	84

Potential Effects:
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation

Specific Mitigation (ID #218):

- 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 nonfrozen ground conditions
- Identify and flag buffer by follwing the edge of agricultural crop
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited within buffer

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- Highway
- Major Road
- Local Road / Trail

Project Infrastructure
- Final Preferred Route
- Project Right Of Way

Sensitive Sites
- Sensitive Site (Point)
- Sensitive Site (Line)
- Sensitive Site (Polygon)

Heritage ESS
- Archaeological

Water ESS
- Water Crossing

Wildlife ESS
- Birds and Habitat

Water ESS
- Wetland

Wildlife ESS
- Reptiles/Amphibians Habitat
- Birds and Habitat

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 2

ESS Group: Archaeological

**Features represented as points*

ESS ID	ESS Name	Location
Hert-100	Area of Heritage Potential	E-353233 - N-5582191

Potential Effects:
Impact to a potential heritage resource

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 nonfrozen ground conditions
- Confine traffic to established trail
- Hand-clearing or other low disturbance clearing approved by the Project Archaeologist within the area
- Identify and flag a 30m buffer around site, if not within designated riparian buffer
- In the event of a discovery stop work in area and contact the Project Archaeologist immediately. Refer to Cultural and Heritage Resources Protection Plan for further guidance
- Should heritage resources be discovered during a pre-construction survey the project Archaeologist may prescribe additional mitigation measures

ESS Group: Birds and Habitat

**Features represented as lines*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-100	Bird diverter installation area	L1 to L2	E-353293 N-5582189	E-353153 N-5582193	139

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

Specific Mitigation (ID #827):

- As per industry standards, bird diverters will be installed in a manner to maximize visibility by alternating between reflective and spiral diverters along the two 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-109	Sharp-tailed grouse lek	11 to 12	E-352608 N-5582209	E-350610 N-5582265	1999

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: Reptiles/Amphibians Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-302	Northern leopard frog site	10 to 9	E-353200 N-5582192	E-353268 N-5582190	68
Wild-303	Northern leopard frog site	13 to 14	E-352453 N-5582233	E-352351 N-5582236	101

Potential Effects:
Habitat loss and contamination from structure foundations & installations; wetland contamination and loss of breeding and summering habitat from loss/deterioration of riparian vegetation

Specific Mitigation (ID #832):

- 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 nonfrozen ground conditions
- Identify and flag buffer by follwing the edge of agricultural crop
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible
- If construction activity is required within this area between April 15 to June 1st all lifestages of amphibian will be captured and removed during a sweep survey
- If construction activity is required within this area between April 15 to June 1st exclusion fencing needs to be installed around the site after a sweep survey and prior to work taking place

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)	Habitat Sensitivity
Aqua-100	Unnamed Tributary of Birdtail Creek	E-353217 N-5582191	N/A	N/A	L

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

Specific Mitigation (ID #710):

- 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 buffers and no machine zones prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway with shrub and herbaceous understory maintained along with trees that do not violate Manitoba Hydro's vegetation clearance requirements
- 7m no machine zone will prohibit equipment in close proximity to the waterbody except at the trail crossing

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-302	Wetland	15 to 16	E-351759 N-5582233	E-351749 N-5582233	10

Potential Effects:
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation

Specific Mitigation (ID #218):

- 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 nonfrozen ground conditions
- Identify and flag buffer by follwing the edge of agricultural crop
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited within buffer

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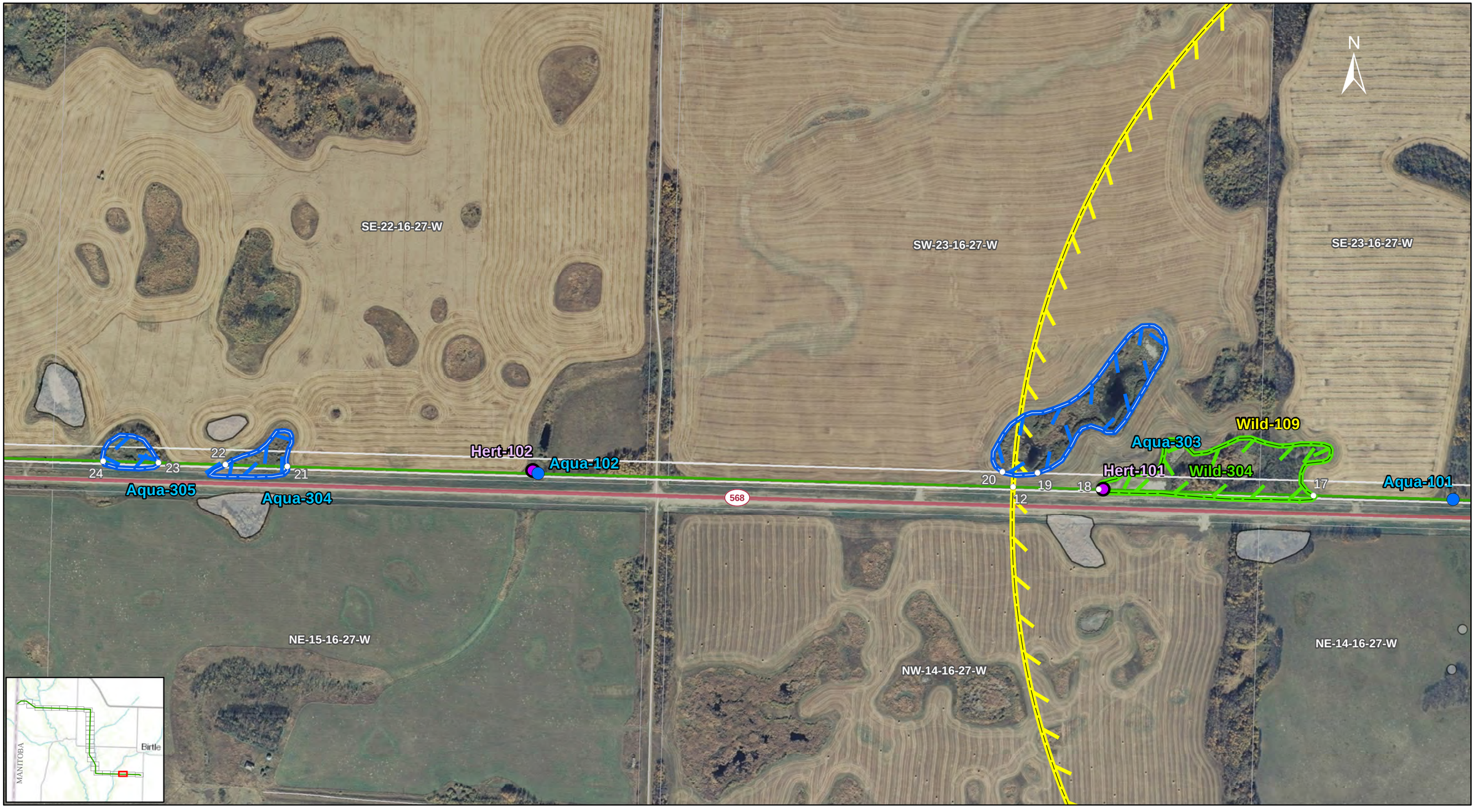

Manitoba Hydro

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Land Base
- Land Parcel
- Highway
- Local Road / Trail

Project Infrastructure
- Final Preferred Route
- Project Right Of Way

Sensitive Sites
- Sensitive Site (Point)
- Sensitive Site (Polygon)

Heritage ESS
- Archaeological

Water ESS
- Water Crossing
- Wetland

Wildlife ESS
- Reptiles/Amphibians Habitat
- Birds and Habitat

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 3

ESS Group: Archaeological

**Features represented as points*

ESS ID	ESS Name	Location
Hert-101	Area of Heritage Potential	E-350733 - N-5582262
Hert-102	Area of Heritage Potential	E-349955 - N-5582287

Potential Effects:
Impact to a potential heritage resource

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 nonfrozen ground conditions
- Confine traffic to established trail
- Hand-clearing or other low disturbance clearing approved by the Project Archaeologist within the area
- Identify and flag a 30m buffer around site, if not within designated riparian buffer
- In the event of a discovery stop work in area and contact the Project Archaeologist immediately. Refer to Cultural and Heritage Resources Protection Plan for further guidance
- Should heritage resources be discovered during a pre-construction survey the project Archaeologist may prescribe additional mitigation measures

ESS Group: Birds and Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-109	Sharp-tailed grouse lek	11 to 12	E-352608 N-5582209	E-350610 N-5582265	1999

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: Reptiles/Amphibians Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-304	Northern leopard frog site	17 to 18	E-351020 N-5582254	E-350727 N-5582262	293

Potential Effects:
Habitat loss and contamination from structure foundations & installations; wetland contamination and loss of breeding and summering habitat from loss/deterioration of riparian vegetation

Specific Mitigation (ID #832):

- 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 nonfrozen ground conditions
- Identify and flag buffer by follwing the edge of agricultural crop
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible
- If construction activity is required within this area between April 15 to June 1st all lifestages of amphibian will be captured and removed during a sweep survey
- If construction activity is required within this area between April 15 to June 1st exclusion fencing needs to be installed around the site after a sweep survey and prior to work taking place

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)	Habitat Sensitivity
Aqua-101	Unnamed Tributary of Birdtail Creek (Ephemeral)	E-351210 N-5582248	N/A	N/A	L
Aqua-102	Unnamed Tributary of Birdtail Creek	E-349962 N-5582284	N/A	N/A	L

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

Specific Mitigation (ID #710):

- 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 buffers and no machine zones prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway with shrub and herbaceous understory maintained along with trees that do not violate Manitoba Hydro's vegetation clearance requirements
- 7m no machine zone will prohibit equipment in close proximity to the waterbody except at the trail crossing

ESS Group: Wetland

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Aqua-303	Wetland	19 to 20	E-350643 N-5582284	E-350596 N-5582286	47
Aqua-304	Wetland	21 to 22	E-349620 N-5582293	E-349536 N-5582296	84
Aqua-305	Wetland	23 to 24	E-349444 N-5582298	E-349369 N-5582301	75

Potential Effects:
Increased erosion and sedimentation; rutting of floodplains; loss of riparian vegetation

Specific Mitigation (ID #218):

- 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 nonfrozen ground conditions
- Identify and flag buffer by follwing the edge of agricultural crop
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited within buffer

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Land Base
- Land Parcel
- Highway
- Local Road / Trail

Project Infrastructure
- Final Preferred Route
- Project Right Of Way
- Sensitive Site (Polygon)

Heritage ESS
- Archaeological

Water ESS
- Water Crossing

Wildlife ESS
- Birds and Habitat

Wildlife ESS
- Reptiles/Amphibians Habitat

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 4

ESS Group: Archaeological

**Features represented as points*

ESS ID	ESS Name	Location
Hert-103	Area of Heritage Potential	E-348303 - N-5582331
Hert-114	Area of Heritage Potential	E-348857 - N-5582319

Potential Effects:
Impact to a potential heritage resource

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 nonfrozen ground conditions
- Confine traffic to established trail
- Hand-clearing or other low disturbance clearing approved by the Project Archaeologist within the area
- Identify and flag a 30m buffer around site, if not within designated riparian buffer
- In the event of a discovery stop work in area and contact the Project Archaeologist immediately. Refer to Cultural and Heritage Resources Protection Plan for further guidance
- Should heritage resources be discovered during a pre-construction survey the project Archaeologist may prescribe additional mitigation measures

ESS Group: Birds and Habitat

**Features represented as lines*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-101	Bird diverter installation area	L3 to L4	E-348905 N-5582314	E-347792 N-5582345	1113

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

Specific Mitigation (ID #827):

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

ESS Group: Reptiles/Amphibians Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-305	Northern leopard frog site	25 to 26	E-348310 N-5582331	E-348294 N-5582331	16

Potential Effects:
Habitat loss and contamination from structure foundations & installations; wetland contamination and loss of breeding and summering habitat from loss/deterioration of riparian vegetation

Specific Mitigation (ID #831):

- 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 nonfrozen ground conditions
- Identify and flag a 30 m vegetated (shrub and herbaceous) buffer around site
- Remove trees by low ground disturbance methods within buffer
- The application of herbicides is prohibited
- Maintain shrub and herbaceous vegetation to the extent possible
- If construction activity is required within this area between April 15 to June 1st all lifestages of amphibian will be captured and removed during a sweep survey
- If construction activity is required within this area between April 15 to June 1st exclusion fencing needs to be installed around the site after a sweep survey and prior to work taking place

ESS Group: Water Crossing

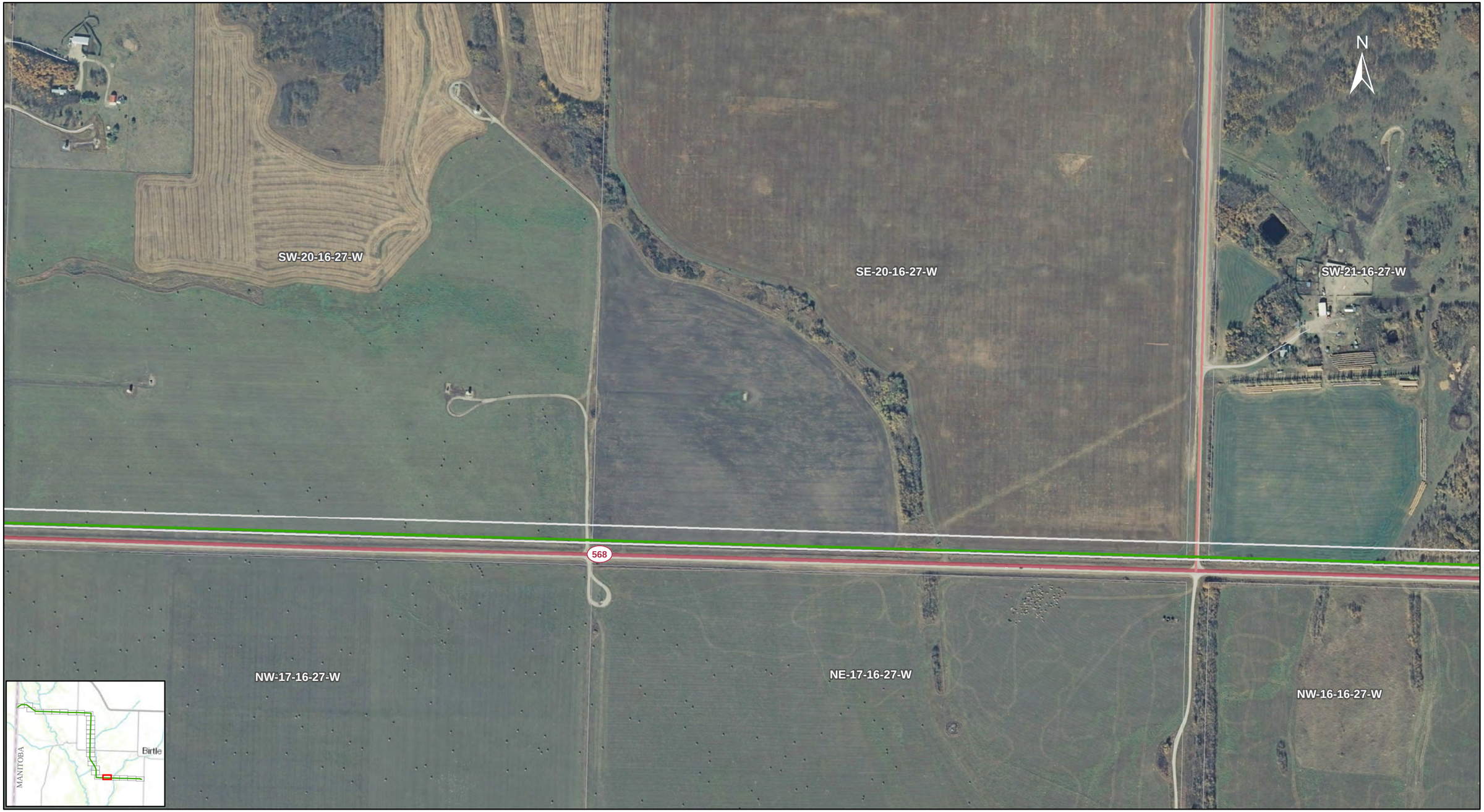
**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)	Habitat Sensitivity
Aqua-103	Birdtail Creek	E-348303 N-5582331	13.72	11.89	H

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

Specific Mitigation (ID #710):

- 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 buffers and no machine zones prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway with shrub and herbaceous understory maintained along with trees that do not violate Manitoba Hydro's vegetation clearance requirements
- 7m no machine zone will prohibit equipment in close proximity to the waterbody except at the trail crossing



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Land Base
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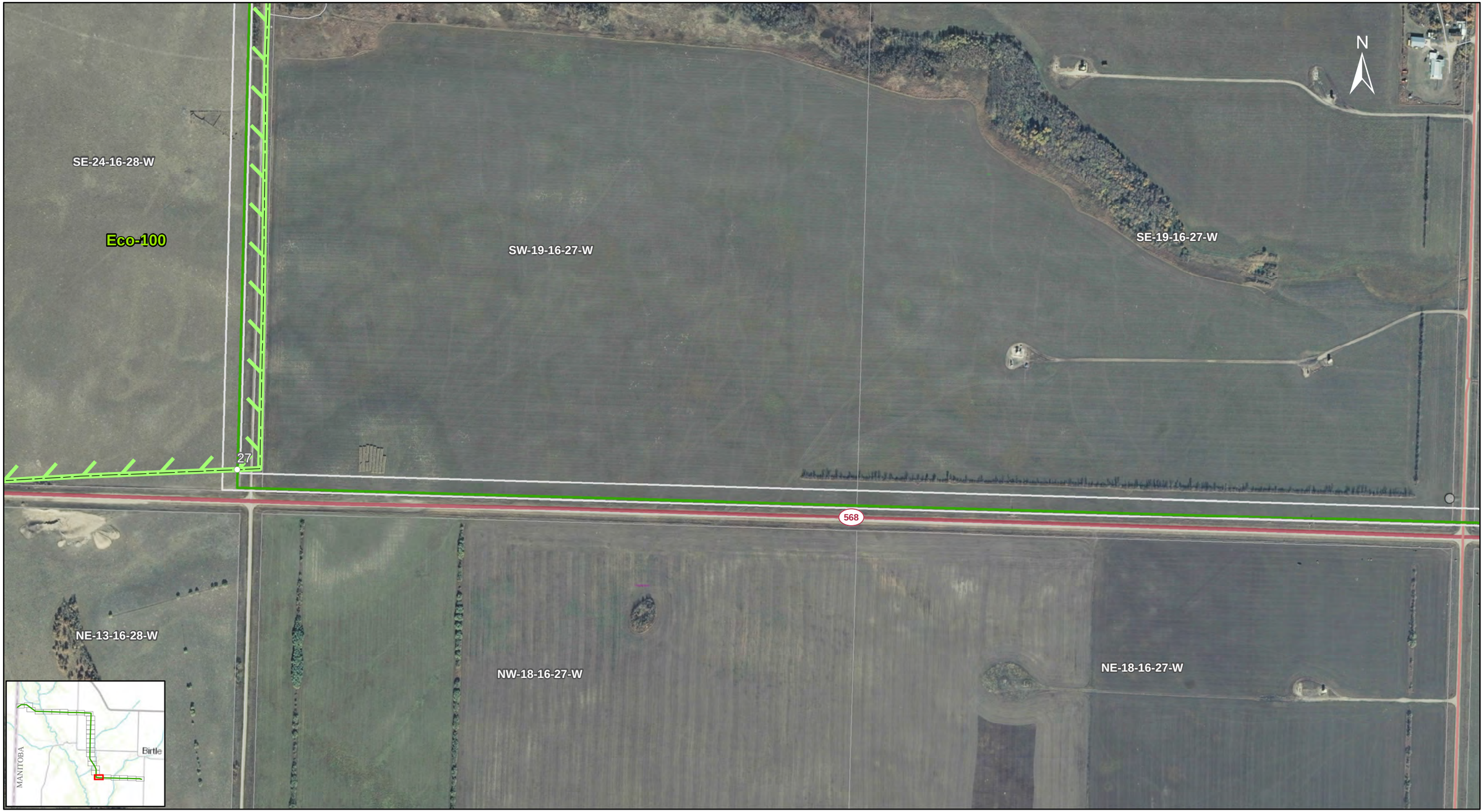
Project Infrastructure
- Final Preferred Route
- Project Right Of Way

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 5

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



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Land Base
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Project Infrastructure
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- Project Right Of Way

Sensitive Sites
- Sensitive Site (Point)

Ecosystem ESS
- Habitat

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 6

ESS Group: Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-100	Grassland habitat	27 to 28	E-343550 N-5582484	E-343570 N-5583285	801

Potential Effects:
Potential impact and disruption to rare plant habitat

Specific Mitigation (ID #217):

- Marshalling yards, borrow sites and worker accommodations will not be developed within the grassland habitat areas
- Conduct site investigation with vegetation specialist prior to construction to verify the existence of natural grassland habitat

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Land Base
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- Local Road / Trail

Project Infrastructure
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- Project Right Of Way

Sensitive Sites
- Sensitive Site (Point)

Water ESS
- Water Crossing

Wildlife ESS
- Birds and Habitat

Ecosystem ESS
- Habitat

Heritage ESS
- Archaeological

ESS Start Stop
- Start/Stop Point

Birtle Transmission Project
Construction Environmental Protection Plan
Environmentally Sensitive Site (ESS) Locations

Map 7

ESS Group: Archaeological

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Hert-115	Area of heritage potential	29 to 30	E-343571 N-5583306	E-343572 N-5583379	72

Potential Effects:
Impact to a potential heritgage resource

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 nonfrozen ground conditions
- Confine traffic to established trail
- Hand-clearing or other low disturbance clearing approved by Project Archaeologist within the area
- Project Archaeologist or designate will be present to monitor excavation/subsurface excavations (including geo-technical drilling) for heritage resources
- Cultural and Heritage Resources Protection Plan will be followed when a suspected cultural or heritage resource is discovered
- Should heritage resources be discovered during a pre-construction survey the project Archaeologist may prescribe construction matting to be used to protect the area from disturbance

ESS Group: Birds and Habitat

**Features represented as lines*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Wild-102	Bird diverter installation area	L5 to L6	E-343570 N-5583269	E-343572 N-5583372	102

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

Specific Mitigation (ID #827):

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

ESS Group: Habitat

**Features represented as polygons*

ESS ID	ESS Name	Site	Start	Stop	Distance (m)
Eco-100	Grassland habitat	27 to 28	E-343550 N-5582484	E-343570 N-5583285	801
Eco-101	Grassland habitat	31 to 32	E-343572 N-5583376	E-343457 N-5584779	1432

Potential Effects:
Potential impact and disruption to rare plant habitat

Specific Mitigation (ID #217):

- Marshalling yards, borrow sites and worker accommodations will not be developed within the grassland habitat areas
- Conduct site investigation with vegetation specialist prior to construction to verify the existence of natural grassland habitat

ESS Group: Water Crossing

**Features represented as points*

ESS ID	ESS Name	Location	Channel Width (m)	Wet Width (m)	Habitat Sensitivity
Aqua-104	Unnamed Tributary of Snake Creek	E-343571 N-5583311	N/A	N/A	L

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

Specific Mitigation (ID #710):

- 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 buffers and no machine zones prior to start of work
- Riparian Buffers shall be a minimum of 30m and increase in size based on slope of land entering waterway with shrub and herbaceous understory maintained along with trees that do not violate Manitoba Hydro's vegetation clearance requirements
- 7m no machine zone will prohibit equipment in close proximity to the waterbody except at the trail crossing

Available in accessible formats upon request