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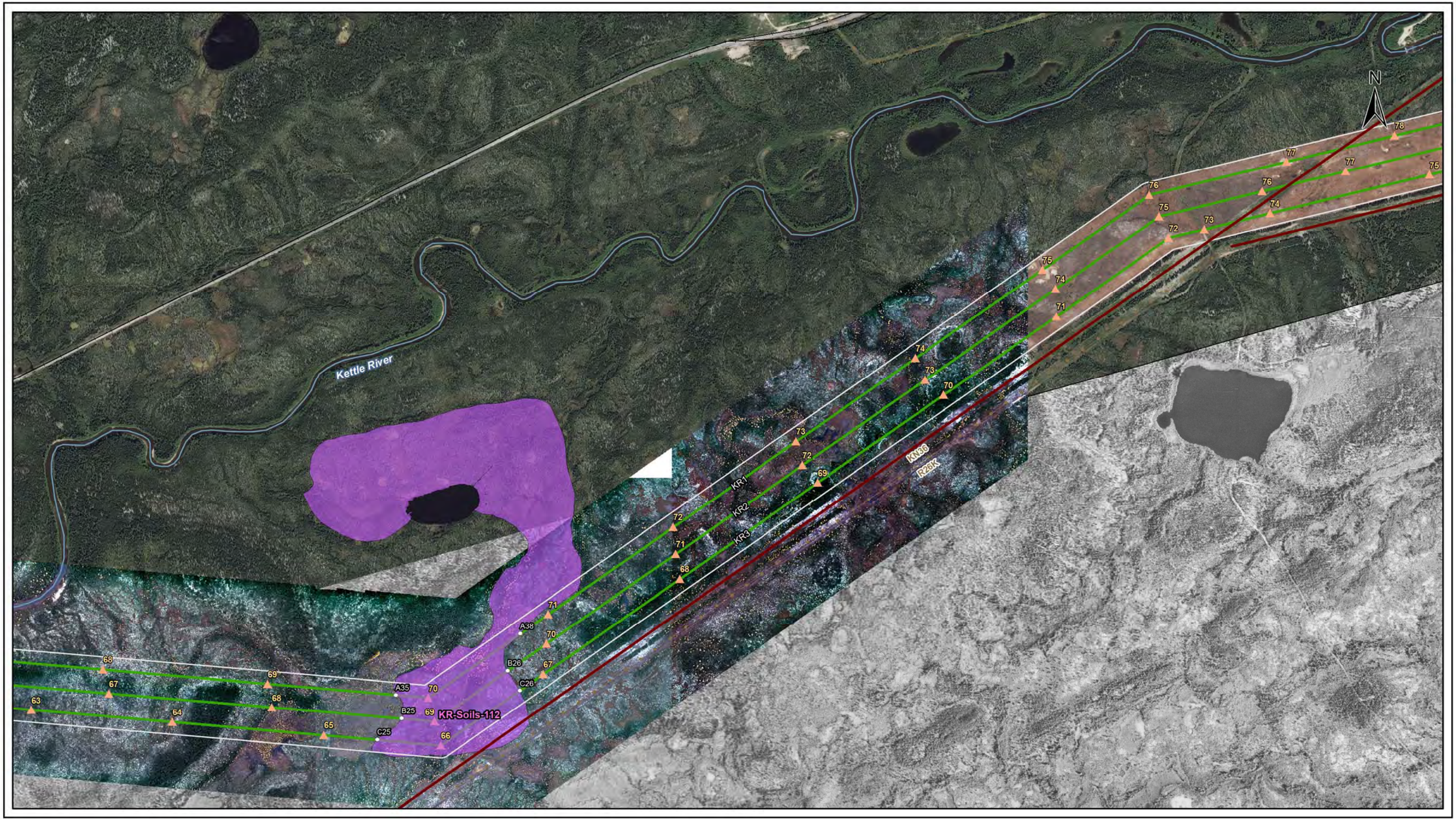

Manitoba Hydro

Coordinate System: UTM Zone 15N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: December 13, 2016
Version: Final 4.0

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Metres

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Land Base
- Bipole I and II
- Transmission Line
- Proposed Roads
- Active Railway
- Abandoned Railway

Project Infrastructure
- Towers (Preliminary)*
- Generation Outlet Transmission Line
- Project Footprint (ROW)
- Access Route

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

ESS Features
- Archaeological Site
- Historical
- Water Crossing
- Birds and Habitat
- Mammals and Habitat
- Marsh Habitat
- Water and Wetland Habitat
- Permafrost

Keeyask Transmission Project
Construction Environmental Protection Plan

Environmentally Sensitive Site Locations

Unit (KR) Lines

Map 3

ESS Group: Permafrost

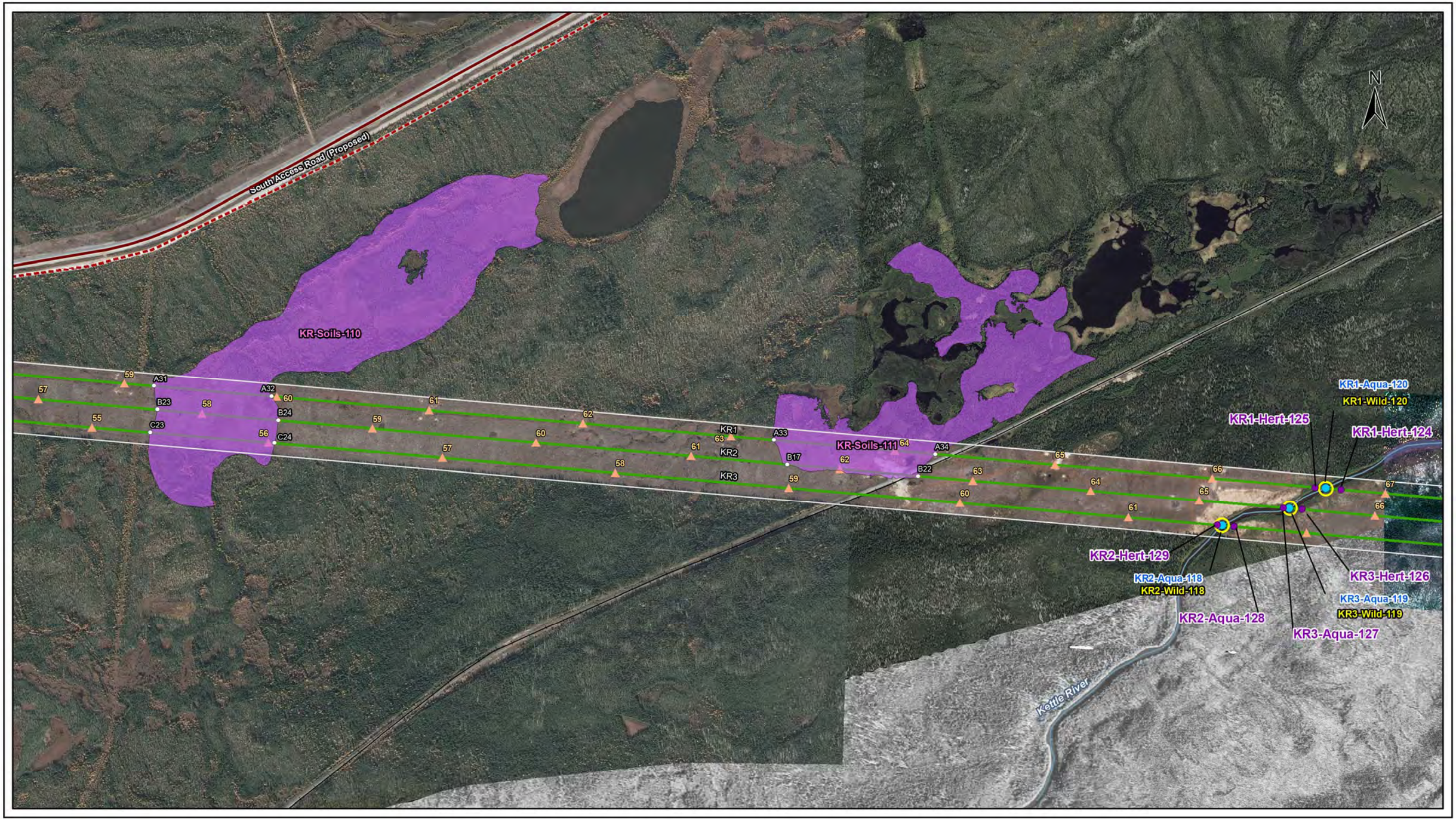
Sec-ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
KR1	KR-Soils-112	Permafrost-Extensive Discontinuous	Site: A35 to A38	E-392225 N-6243390	E-392575 N-6243562	15N	351m
KR3	KR-Soils-112	Permafrost-Extensive Discontinuous	Site: B25 to B26	E-392241 N-6243324	E-392539 N-6243458	15N	352m
KR2	KR-Soils-112	Permafrost-Extensive Discontinuous	Site: C25 to C26	E-392171 N-6243264	E-392573 N-6243402	15N	456m

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
- Avoid organic soils containing permafrost to the extent possible
- 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



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- Access Route

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ESS Features
- Archaeological Site
- Historical
- Water Crossing
- Birds and Habitat
- Mammals and Habitat
- Marsh Habitat
- Water and Wetland Habitat
- Permafrost

Keeyask Transmission Project
Construction Environmental Protection Plan

Environmentally Sensitive Site Locations

Unit (KR) Lines

Map 4

ESS Group: Water Crossing

Sec-ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
KR2	KR-Aqua-118	Kettle River	390548	6243406	15N	N/A	N/A	N/A	N/A
KR3	KR-Aqua-119	Kettle River	390739	6243454	15N	N/A	N/A	N/A	N/A
KR1	KR-Aqua-120	Kettle River	390838	6243511	15N	N/A	N/A	N/A	N/A

Potential Effects:

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:

- 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

ESS Group: Birds and Habitat

Sec-ID	ESS ID	ESS Name	Easting	Northing	UTM Zone
KR1	KR-Wild-118	Kettle River	390548	6243406	15N
KR3	KR-Wild-119	Kettle River	390739	6243454	15N
KR2	KR-Wild-120	Kettle River	390838	6243511	15N

Potential Effects:

Potential loss of SAR habitat; Higher risk of wire collision within the ROW

Specific Mitigation:

- Adhere to reduced risk timing windows for protection of birds (August 1- April 30)
- Maintain applicable setback during nesting and breeding timing window
- Conduct priority assessment for bird diverters and other measures prior to transmission line stringing
- Install bird diverters or other measures at high priority sites

ESS Group: Permafrost

Sec-ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
KR1	KR-Soils-110	Permafrost-Extensive Discontinuous	Site: A31 to A32	E-387547 N-6243797	E-387876 N-6243768	15N	330 m
KR3	KR-Soils-110	Permafrost-Extensive Discontinuous	Site: B23 to B24	E-387555 N-6243731	E-387895 N-6243701	15N	340m
KR2	KR-Soils-110	Permafrost-Extensive Discontinuous	Site: C23 to C24	E-387536 N-6243667	E-387884 N-6243637	15N	349m
KR1	KR-Soils-111	Permafrost-Extensive Discontinuous	Site: A33 to A34	E-389286 N-6243645	E-389731 N-6243607	15N	446 m
KR3	KR-Soils-111	Permafrost-Extensive Discontinuous	Site: B17 to B22	E-389324 N-6243577	E-389692 N-6243545	15N	379 m

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
- Avoid organic soils containing permafrost to the extent possible
- 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: Archaeological

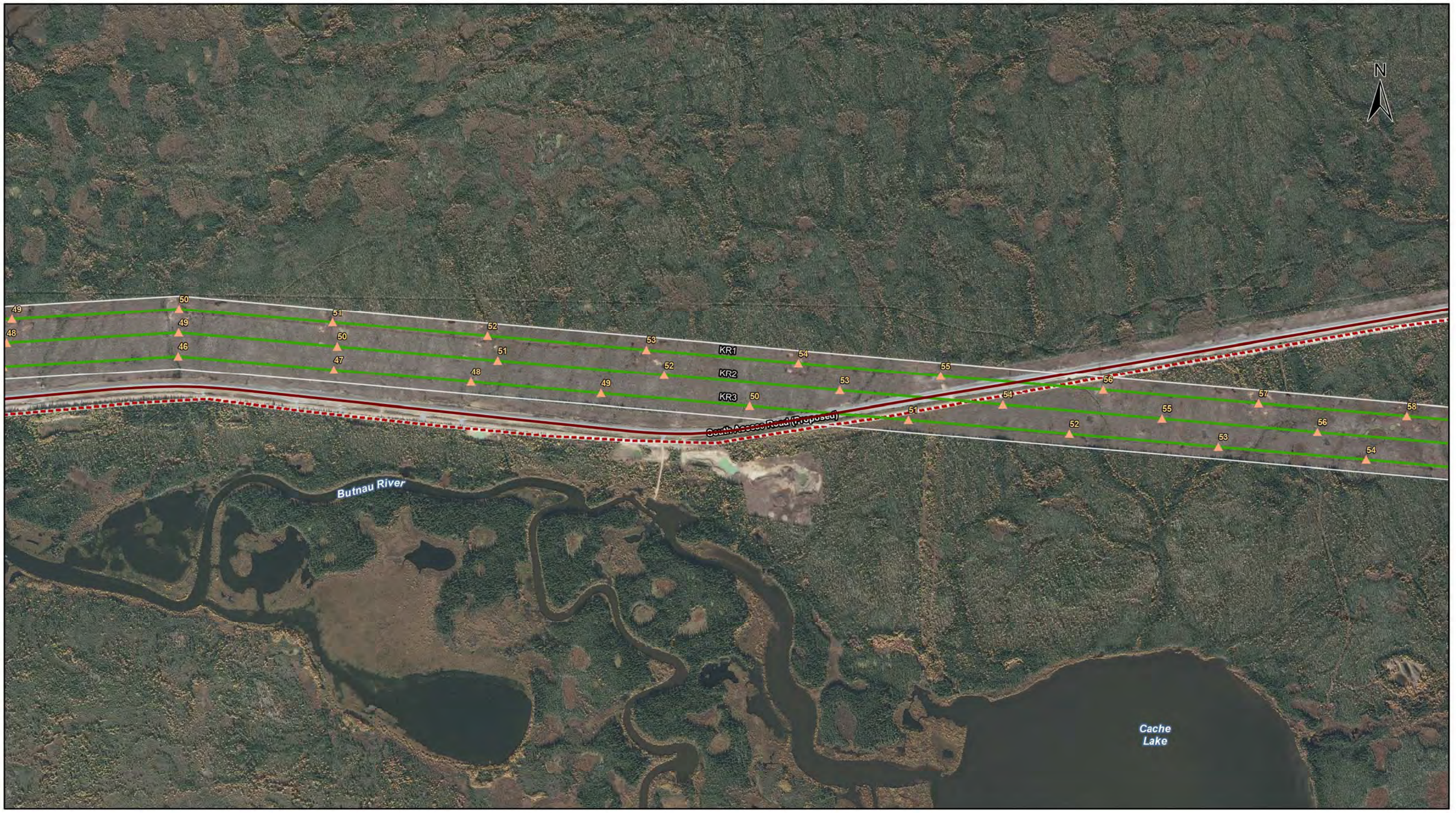
Sec-ID	ESS ID	ESS Name	Easting	Northing	UTM Zone
KR1	KR-Hert-124	Potential Archaeological Site	390876	6243507	15N
KR1	KR-Hert-125	Potential Archaeological Site	390806	6243515	15N
KR3	KR-Hert-126	Potential Archaeological Site	390767	6243453	15N
KR3	KR-Hert-127	Potential Archaeological Site	390719	6243457	15N
KR2	KR-Hert-128	Potential Archaeological Site	390579	6243404	15N
KR2	KR-Hert-129	Potential Archaeological Site	390534	6243405	15N

Potential Effects:

Potential discovery for unknown heritage resources

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Identify and flag prior to start of work
- Conduct site investigation with Archaeologist post clearing and prior to construction
- Minimize surface disturbance around the site to the extent possible
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation



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ESS Features
- Archaeological Site
- Historical
- Water Crossing
- Birds and Habitat
- Mammals and Habitat
- Marsh Habitat
- Water and Wetland Habitat
- Permafrost

Keeyask Transmission Project
Construction Environmental Protection Plan

Environmentally Sensitive Site Locations

Unit (KR) Lines

Map 5

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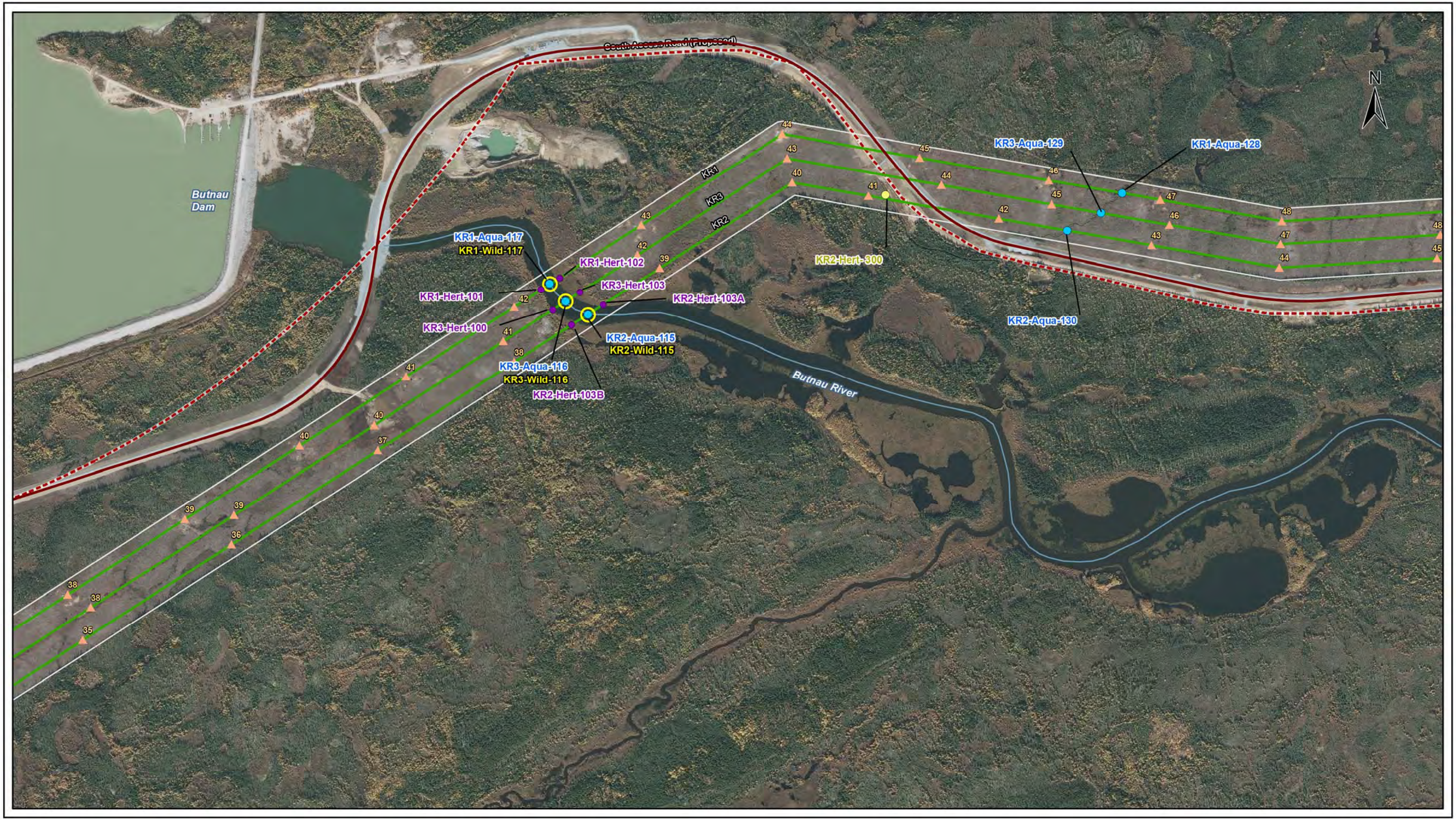

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- Historical
- Water Crossing
- Birds and Habitat
- Mammals and Habitat
- Marsh Habitat
- Water and Wetland Habitat
- Permafrost

Keeyask Transmission Project
Construction Environmental Protection Plan

Environmentally Sensitive Site Locations

Unit (KR) Lines

Map 6

ESS Group: Water Crossing

Sec-ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
KR2	KR-Aqua-115	Butnau River	380765	6243820	15N	N/A	N/A	N/A	N/A
KR3	KR-Aqua-116	Butnau River	380702	6243857	15N	N/A	N/A	N/A	N/A
KR1	KR-Aqua-117	Butnau River	380658	6243907	15N	N/A	N/A	N/A	N/A
KR1	KR-Aqua-128	Unnamed Tributary	382265	6244162	15N	N/A	N/A	N/A	N/A
KR3	KR-Aqua-129	Unnamed Tributary	382204	6244108	15N	N/A	N/A	N/A	N/A
KR2	KR-Aqua-130	Unnamed Tributary	382111	6244056	15N	N/A	N/A	N/A	N/A

Potential Effects:

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; 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

ESS Group: Birds and Habitat

Sec-ID	ESS ID	ESS Name	Easting	Northing	UTM Zone
KR1	KR-Wild-115	Butnau River	380765	6243820	15N
KR3	KR-Wild-116	Butnau River	380702	6243857	15N
KR2	KR-Wild-117	Butnau River	380658	6243907	15N

Potential Effects:

Potential loss of SAR habitat; Higher risk of wire collision within the ROW

Specific Mitigation:

- Adhere to reduced risk timing windows for protection of birds (August 1- April 30)
- Maintain applicable setback during nesting and breeding timing window
- Conduct priority assessment for bird diverters and other measures prior to transmission line stringing
- Install bird diverters or other measures at high priority sites

ESS Group: Archaeological

Sec-ID	ESS ID	ESS Name	Easting	Northing	UTM Zone
KR2	KR-Hert-100	Potential Archaeological Site	380666	6243834	15N
KR3	KR-Hert-101	Potential Archaeological Site	380633	6243891	15N
KR3	KR-Hert-102	Potential Archaeological Site	380687	6243924	15N
KR2	KR-Hert-103	Potential Archaeological Site	380742	6243884	15N
KR2	KR-Hert-103A	Potential Archaeological Site	380806	6243849	15N
KR2	KR-Hert-103B	Potential Archaeological Site	380719	6243793	15N

Potential Effects:

Potential discovery for unknown heritage resources

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Identify and flag prior to start of work
- Conduct site investigation with Archaeologist post clearing and prior to construction
- Minimize surface disturbance around the site to the extent possible
- Inspect excavated materials or surface disturbance for heritage resources and report any finds to Environmental Inspector
- Implement additional mitigation from site investigation

ESS Group: Historic

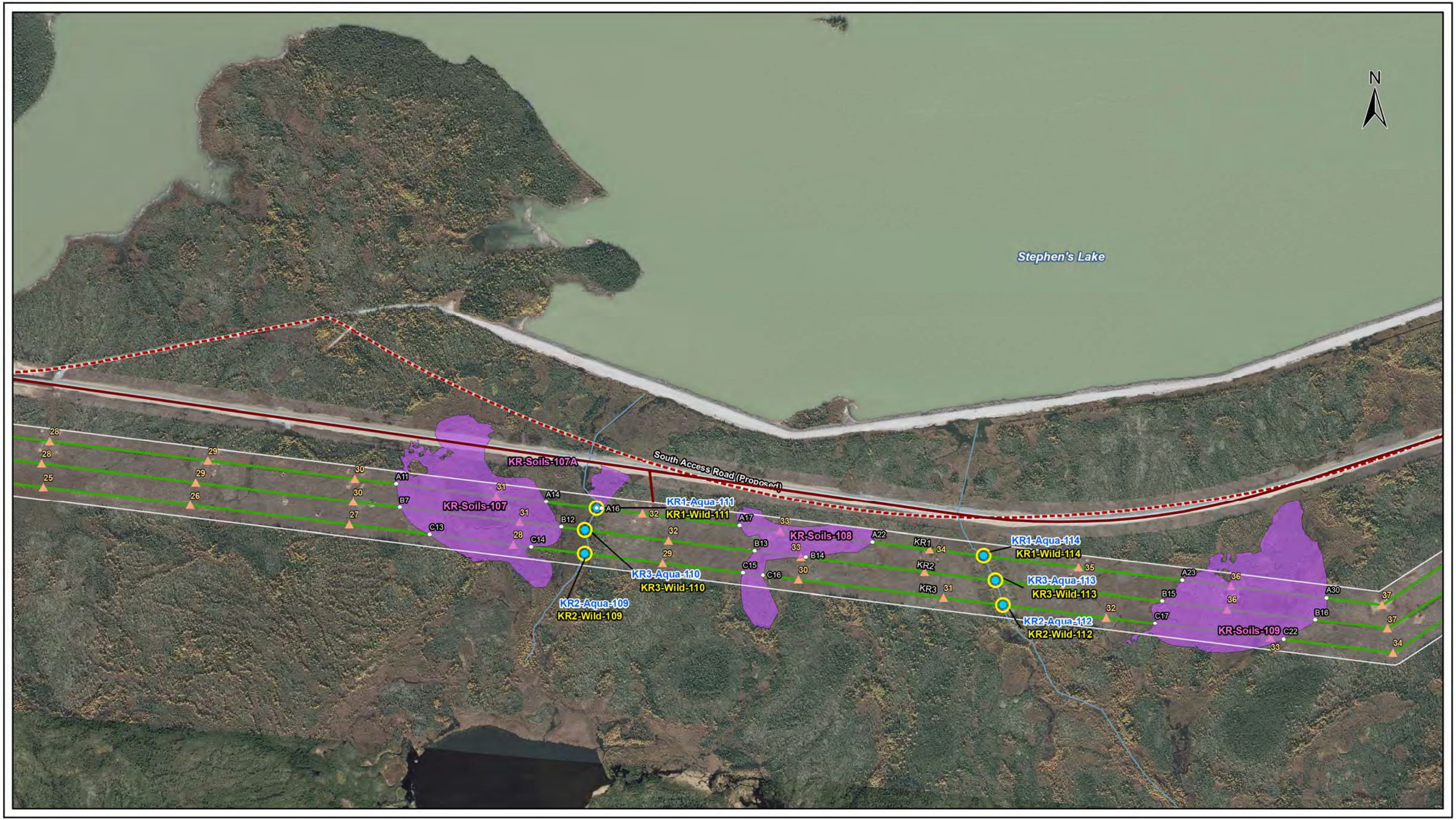
Sec-ID	ESS ID	ESS Name	Easting	Northing	UTM Zone
KR2	KR-Hert-300	Memorial Cross	381601	6244156	15N

Potential Effects:

Potential disturbance of site

Specific Mitigation:

- Carry out construction activities on frozen or dry ground to minimize surface damage, rutting and erosion
- Identify and flag prior to start of work
- Minimize surface disturbance around the site to the extent possible



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- Access Route

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ESS Features
- Archaeological Site
- Historical
- Water Crossing
- Birds and Habitat
- Mammals and Habitat
- Marsh Habitat
- Water and Wetland Habitat
- Permafrost

Keeyask Transmission Project
Construction Environmental Protection Plan

Environmentally Sensitive Site Locations

Unit (KR) Lines

Map 7

ESS Group: Permafrost

Sec-ID	ESS ID	ESS Name	Location	Start	Stop	UTM Zone	Distance
KR1	KR-Soils-107	Permafrost-Extensive Discontinuous	Site: A11 to A14	E-376227 N-6243172	E-376648 N-6243122	15N	429 m
KR3	KR-Soils-107	Permafrost-Extensive Discontinuous	Site: B7 to B12	E-376237 N-6243106	E-376689 N-6243050	15N	451 m
KR2	KR-Soils-107	Permafrost-Extensive Discontinuous	Site: C13 to C14	E-376382 N-6243022	E-376605 N-6242995	15N	224 m
KR1	KR-Soils-107A	Permafrost-Extensive Discontinuous	Site: A15 to A16	E-376789 N-6243103	E-376802 N-6243102	15N	13 m
KR1	KR-Soils-108	Permafrost-Extensive Discontinuous	Site: A17 to A22	E-377189 N-6243054	E-377564 N-6243008	15N	376 m
KR3	KR-Soils-108	Permafrost-Extensive Discontinuous	Site: B13 to B14	E-377232 N-6242983	E-377377 N-6242966	15N	146 m
KR2	KR-Soils-108	Permafrost-Extensive Discontinuous	Site: C15 to C16	E-377198 N-6242922	E-377254 N-6242915	15N	56 m
KR1	KR-Soils-109	Permafrost-Extensive Discontinuous	Site: A23 to A30	E-378433 N-6242902	E-378814 N-6242997	15N	411 m
KR3	KR-Soils-109	Permafrost-Extensive Discontinuous	Site: B15 to B16	E-378377 N-6242843	E-378834 N-6242934	15N	492 m
KR2	KR-Soils-109	Permafrost-Extensive Discontinuous	Site: C17 to C22	E-378357 N-6242780	E-378836 N-6242860	15N	508 m

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
- Avoid organic soils containing permafrost to the extent possible
- 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: Water Crossing

Sec-ID	ESS ID	ESS Name	Easting	Northing	UTM Zone	Channel Width	Wet Width	Fish Habitat Class	Habitat Sensitivity
KR2	KR-Aqua-109	Unnamed Tributary	376756	6242977	15N	N/A	N/A	N/A	N/A
KR3	KR-Aqua-1010	Unnamed Tributary	376757	6243042	15N	N/A	N/A	N/A	N/A
KR1	KR-Aqua-111	Unnamed Tributary	376789	6243104	15N	N/A	N/A	N/A	N/A
KR2	KR-Aqua-112	Unnamed Tributary	377931	6242833	15N	N/A	N/A	N/A	N/A
KR3	KR-Aqua-113	Unnamed Tributary	377909	6242901	15N	N/A	N/A	N/A	N/A
KR1	KR-Aqua-114	Unnamed Tributary	377877	6242970	15N	N/A	N/A	N/A	N/A

Potential Effects:

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; Rutting of floodplain

Specific Mitigation:

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- 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing

ESS Group: Birds and Habitat

Sec-ID	ESS ID	ESS Name	Easting	Northing	UTM Zone
KR1	KR-Wild-109	Unnamed Tributary	376756	6242977	15N
KR3	KR-Wild-110	Unnamed Tributary	376757	6243042	15N
KR2	KR-Wild-111	Unnamed Tributary	376789	6243104	15N
KR1	KR-Wild-112	Unnamed Tributary	377931	6242833	15N
KR3	KR-Wild-113	Unnamed Tributary	377909	6242901	15N
KR2	KR-Wild-114	Unnamed Tributary	377877	6242970	15N

ESS Group: Birds and Habitat continued

Potential Effects:

Potential loss of SAR habitat; Higher risk of wire collision within the ROW

Specific Mitigation:

- Adhere to reduced risk timing windows for protection of birds (August 1- April 30)
- Maintain applicable setback during nesting and breeding timing window
- Conduct priority assessment for bird diverters and other measures prior to transmission line stringing
- Install bird diverters or other measures at high priority sites