ESS Group: Archaeological

### Sec-Seg ID  ESS ID  ESS Name  Easting  Northing  UTM Zone
N1-S20  N1-Hert-10B  Crying River  676592  6249671  14N

### Potential Effects:
Potential disturbance to 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: Water Crossing

### Sec-Seg ID  ESS ID  ESS Name  Easting  Northing  UTM Zone  Channel Width  Wet Width  Fish Habitat Class  Habitat Sensitivity
N1-S20  N1-Aqua-143  Unnamed Tributary of Assiniboine River  678980  6259132  14N  N/A  N/A  Moderate  Marginal
N1-S20  N1-Aqua-144  Crying River  676590  6249670  14N  10m  27m  Low  Important

### 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 understorey veg will be maintained along with trees that do not violate Mit 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 torting from April 1 - July 15

ESS Group: Intersection

### Sec-Seg ID  ESS ID  Location  ESS Name  Crossing Coordinates  UTM Zone
N1-S20  N1-ReUse-104A  C9  Snowmobile Trail  E-676531 N-6249744  14N

### Potential Effects:
Potential interference with snowmobiler/safety issues

### Specific Mitigation:
- Identify and flag prior to start of work
- Avoid surface damage to and obstruction of access route
- Post warning markers and signs at snowmobile trail location
- Notify snowmobile club/users and local authorities regarding construction activities and schedule, and address concerns prior to construction

ESS Group: Intersection

### Sec-Seg ID  ESS ID  Location  ESS Name  Crossing Coordinates  UTM Zone
N1-S20  N1-ReUse-105  C10  River Trail  E-676601 N-6249672  14N
N1-S20  N1-ReUse-106  C11  Trail  E-675942 N-6249545  14N

### Potential Effects:
Potential disturbance of access

### Specific Mitigation:
- Identify and flag prior to start of work
- Notify Manitoba Infrastructure and Transportation (MINITRAN) and local authorities regarding construction activities and schedule, and address concerns prior to construction
- Avoid surface damage to and obstruction of access route
- Ensure that access road/trail are visible from RoW
- Provide warning signage for vehicle traffic and public safety

MAP NUMBER: 40
**ESS Group: Permafrost**

<table>
<thead>
<tr>
<th>Sec-Seg ID</th>
<th>ESS ID</th>
<th>ESS Name</th>
<th>Location</th>
<th>Start</th>
<th>Stop</th>
<th>UTM Zone</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-S20</td>
<td>N1-Solls-174</td>
<td>Permafrost</td>
<td>Site: 295 to 296</td>
<td>E-679174 N-627041</td>
<td>E-678899 N-627041</td>
<td>14N</td>
<td>280 m</td>
</tr>
<tr>
<td>N1-S20</td>
<td>N1-Solls-174</td>
<td>Permafrost</td>
<td>Site: 297 to 298</td>
<td>E-678519 N-625004</td>
<td>E-678064 N-624995</td>
<td>14N</td>
<td>463 m</td>
</tr>
<tr>
<td>N1-S20</td>
<td>N1-Solls-175</td>
<td>Permafrost</td>
<td>Site: 299 to 300</td>
<td>E-677614 N-624992</td>
<td>E-677400 N-624992</td>
<td>14N</td>
<td>217 m</td>
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<tr>
<td>N1-S20</td>
<td>N1-Solls-175</td>
<td>Permafrost</td>
<td>Site: 301 to 302</td>
<td>E-676858 N-624972</td>
<td>E-676855 N-624972</td>
<td>14N</td>
<td>2 m</td>
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<tr>
<td>N1-S20</td>
<td>N1-Solls-175</td>
<td>Permafrost</td>
<td>Site: 303 to 304</td>
<td>E-676683 N-624972</td>
<td>E-676641 N-624966</td>
<td>14N</td>
<td>42 m</td>
</tr>
<tr>
<td>N1-S20</td>
<td>N1-Solls-176</td>
<td>Permafrost</td>
<td>Site: 305 to 306</td>
<td>E-676556 N-624966</td>
<td>E-676034 N-624956</td>
<td>14N</td>
<td>531 m</td>
</tr>
<tr>
<td>N1-S20</td>
<td>N1-Solls-176</td>
<td>Permafrost</td>
<td>Site: 307 to 308</td>
<td>E-675840 N-624952</td>
<td>E-675272 N-624941</td>
<td>14N</td>
<td>578 m</td>
</tr>
</tbody>
</table>

**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.
- Confining 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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### ESS Group: Intersection

<table>
<thead>
<tr>
<th>Sec-Seg ID</th>
<th>ESS ID</th>
<th>Location</th>
<th>ESS Name</th>
<th>Crossing Coordinates</th>
<th>UTM Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-S20</td>
<td>N1-RecUse-107</td>
<td>C12</td>
<td>Winter Trail</td>
<td>E-675107</td>
<td>14N</td>
</tr>
</tbody>
</table>

**Potential Effects:**

Potential disturbance of access.

**Specific Mitigation:**

- Identify and flag prior to start of work
- Notify Manitoba Infrastructure and Transportation (MIT) winter road operator and local authorities regarding construction activities and schedule, and address concerns prior to construction
- Avoid surface damage to and obstruction of access route
- Ensure that access road/trail are visible from ROW
- Provide warning signage for vehicular traffic and public safety

### ESS Group: Permafrost

<table>
<thead>
<tr>
<th>Sec-Seg ID</th>
<th>ESS ID</th>
<th>ESS Name</th>
<th>Location</th>
<th>Start</th>
<th>End</th>
<th>UTM Zone</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-S20</td>
<td>N1-Soils-176</td>
<td>Permafrost</td>
<td>Site: 307 to 388</td>
<td>E-675840</td>
<td>N-6249525</td>
<td>14N</td>
<td>576 m</td>
</tr>
<tr>
<td>N1-S21</td>
<td>N1-Soils-177</td>
<td>Permafrost</td>
<td>Site: 109 to 109</td>
<td>E-674689</td>
<td>N-6249603</td>
<td>14N</td>
<td>61 m</td>
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<tr>
<td>N1-S21</td>
<td>N1-Soils-177</td>
<td>Permafrost</td>
<td>Site: 311 to 312</td>
<td>E-674599</td>
<td>N-6249286</td>
<td>14N</td>
<td>127 m</td>
</tr>
<tr>
<td>N1-S21</td>
<td>N1-Soils-178</td>
<td>Permafrost</td>
<td>Site: 312 to 314</td>
<td>E-673737</td>
<td>N-6248945</td>
<td>14N</td>
<td>51 m</td>
</tr>
</tbody>
</table>

**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
- Confining 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

<table>
<thead>
<tr>
<th>Sec-Seg ID</th>
<th>ESS ID</th>
<th>ESS Name</th>
<th>Easting</th>
<th>Northing</th>
<th>UTM Zone</th>
<th>Channel Width</th>
<th>Wet Width</th>
<th>Fish Habitat Class</th>
<th>Habitat Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-SZ2</td>
<td>N1-Aqua-145</td>
<td>Unnamed Tributary of Hunting River</td>
<td>671135</td>
<td>6246510</td>
<td>14N</td>
<td>N/A</td>
<td>N/A</td>
<td>Low</td>
<td>Marginal</td>
</tr>
<tr>
<td>N1-628</td>
<td>N1-Aqua-146</td>
<td>Hunting River</td>
<td>670000</td>
<td>6210570</td>
<td>14N</td>
<td>1.5m</td>
<td>1.5m</td>
<td>Low</td>
<td>Important</td>
</tr>
</tbody>
</table>

Potential Effects:
Habitat loss and degradation; upstream foundations & installations; increased erosion & sedimentation; stream; damage to stream banks; loss of riparian vegetation; fish habitat disturbances and impeded fish movement; rutting of road/haul.

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 wide and increase in size based on the slope of land entering waterway. Within these buffer shrub and herbaceous underbrush will be maintained along with trees that do not violate Wet Veg Clearance Requirements.
- 7m no machine zone will restrict equipment in a close proximity to the waterbody except at the trail crossing.
- No instream works or forking from April 1 - July 15.

ESS Group: Permafrost

<table>
<thead>
<tr>
<th>Sec-Seg ID</th>
<th>ESS ID</th>
<th>ESS Name</th>
<th>Location</th>
<th>Start</th>
<th>Stop</th>
<th>UTM Zone</th>
<th>Distance</th>
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</thead>
<tbody>
<tr>
<td>N1-S22</td>
<td>N1-Sols-179</td>
<td>Permafrost</td>
<td>Site: 316 to 319</td>
<td>E-669728 N-6248590</td>
<td>E-670030 N-6248582</td>
<td>14N</td>
<td>302m</td>
</tr>
</tbody>
</table>

Potential Effects:
Melting or loss of permafrost due to disturbances 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.
- Confining 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

<table>
<thead>
<tr>
<th>Section ID</th>
<th>ESS ID</th>
<th>ESS Name</th>
<th>Easting</th>
<th>Northing</th>
<th>UTM Zone</th>
<th>Channel Width</th>
<th>Wet Width</th>
<th>Fish Habitat Class</th>
<th>Habitat Sensitivity</th>
</tr>
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<tbody>
<tr>
<td>NJ-3-264</td>
<td>A1-3A4-148</td>
<td>Swampy Creek</td>
<td>6000051</td>
<td>4964997</td>
<td>34N</td>
<td>1.5m</td>
<td>4.5m</td>
<td>Moderate</td>
<td>Marginal</td>
</tr>
</tbody>
</table>

**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 firm 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 sinuus and herbaceous understory veg will be maintained along with trees that do not violate PM vegetation 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
ESS Group: Permafrost

<table>
<thead>
<tr>
<th>Sec-Seg ID</th>
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<th>ESS Name</th>
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<th>Stop</th>
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<th>Distance</th>
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</thead>
<tbody>
<tr>
<td>N1-S23</td>
<td>N1-Solls-180</td>
<td>Permafrost</td>
<td>Site: 317 to 318</td>
<td>E-663878</td>
<td>E-662539</td>
<td>14N</td>
<td>1467m</td>
</tr>
<tr>
<td></td>
<td>N1-S23</td>
<td>N1-Solls-180</td>
<td>Permafrost</td>
<td>Site: 319 to 320</td>
<td>E-662361</td>
<td>E-662339</td>
<td>14N</td>
</tr>
</tbody>
</table>

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 vehicular 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

<table>
<thead>
<tr>
<th>Sec-Seg ID</th>
<th>ESS ID</th>
<th>ESS Name</th>
<th>Easting</th>
<th>Northing</th>
<th>UTM Zone</th>
<th>Channel Width</th>
<th>Wet Width</th>
<th>Fish Habitat Class</th>
<th>Habitat Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-S23</td>
<td>N1-225A9</td>
<td>Unnamed Tributary of Hunting River</td>
<td>657544</td>
<td>6245710</td>
<td>14N</td>
<td>25.4m</td>
<td>N/A</td>
<td>Low</td>
<td>Marginal</td>
</tr>
</tbody>
</table>

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 in-stream works or fording from April 1 - July 15

ESS Group: Permafrost

<table>
<thead>
<tr>
<th>Sec-Seg ID</th>
<th>ESS ID</th>
<th>ESS Name</th>
<th>Location</th>
<th>Start</th>
<th>Stop</th>
<th>UTM Zone</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-S23</td>
<td>N1-S23-181</td>
<td>Permafrost</td>
<td>Site: 321 to 322</td>
<td>E-659346</td>
<td>E-659257</td>
<td>14N</td>
<td>97m</td>
</tr>
<tr>
<td>N1-S23</td>
<td>N1-S23-181</td>
<td>Permafrost</td>
<td>Site: 323 to 324</td>
<td>E-659216</td>
<td>E-658790</td>
<td>14N</td>
<td>466m</td>
</tr>
</tbody>
</table>

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 vehicular traffic to established trails to the extent possible
- Implement erosion protection before commencing construction in accordance with Erosion/Sediment Control Plan

ESS Group: Intersection

<table>
<thead>
<tr>
<th>Sec-Seg ID</th>
<th>ESS ID</th>
<th>Location</th>
<th>ESS Name</th>
<th>Crossing Coordinates</th>
<th>UTM Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-S23</td>
<td>N1-RectUse-108</td>
<td>C13</td>
<td>Winter Trail</td>
<td>E-659564, N-62443201</td>
<td>14N</td>
</tr>
</tbody>
</table>

Potential Effects:

- Potential disturbance of access

Specific Mitigation:

- Identify and flag prior to start of work
- Notify Manitoba Infrastructure and Transportation (MIT) winter road operator and local authorities regarding construction activities and schedule, and address concerns prior to construction
- Avoid surface damage to and obstruction of access route
- Ensure that access road/trail are visible from ROW
- Provide warning signage for vehicle traffic and public safety

MAP NUMBER: 45
**ESS Group: Water Crossing**

<table>
<thead>
<tr>
<th>Sec-Seg ID</th>
<th>ESS ID</th>
<th>ESS Name</th>
<th>Easting</th>
<th>Northing</th>
<th>UTM Zone</th>
<th>Channel Width</th>
<th>Wet Width</th>
<th>Fish Habitat Class</th>
<th>Habitat Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-S24</td>
<td>N1-Aqua150</td>
<td>Tributary of Hunting River</td>
<td>656412</td>
<td>6243250</td>
<td>14N</td>
<td>60.9m</td>
<td>14.3m</td>
<td>Moderate</td>
<td>Marginal</td>
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</tbody>
</table>

**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 5m or sum and increase in size based on slope and angle entering waterway, within these buffers shrub and herbaceous understory veg will be maintained along with trees that do not violate NH Veg Clearance Requirements.
- 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- No in stream works or filling from April 1 - July 15

**ESS Group: Permafrost**

<table>
<thead>
<tr>
<th>Sec-Seg ID</th>
<th>ESS ID</th>
<th>ESS Name</th>
<th>Location</th>
<th>Start</th>
<th>Stop</th>
<th>UTM Zone</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-S24</td>
<td>N1-Skice-182</td>
<td>Permafrost</td>
<td>Site: 325 to 326</td>
<td>E-656373 N-6243239</td>
<td>E-655980 N-6243083</td>
<td>14N</td>
<td>421m</td>
</tr>
</tbody>
</table>

**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