**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>N1-530</td>
<td>N1-Aqua-163</td>
<td>Unnamed tributary of Burntwood River</td>
<td>632120</td>
<td>6221625</td>
<td>14N</td>
<td>N/A</td>
<td>N/A</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 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

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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>N1-530</td>
<td>N1-RectUse-109</td>
<td>C14</td>
<td>Winter Trail</td>
<td>E-631102 N-6220930</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 (MITS)/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

---

**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>N1-530</td>
<td>N1-Soils-196</td>
<td>Permafrost</td>
<td>Site: 367 to 368</td>
<td>E-632609 N-6221868</td>
<td>E-632568 N-6221653</td>
<td>14N</td>
<td>48 m</td>
</tr>
<tr>
<td>N1-530</td>
<td>N1-Soils-196</td>
<td>Permafrost</td>
<td>Site: 369 to 370</td>
<td>E-632497 N-6221688</td>
<td>E-632478 N-6221853</td>
<td>14N</td>
<td>23 m</td>
</tr>
<tr>
<td>N1-530</td>
<td>N1-Soils-196</td>
<td>Permafrost</td>
<td>Site: 371 to 372</td>
<td>E-632363 N-6221764</td>
<td>E-632345 N-6221730</td>
<td>14N</td>
<td>21 m</td>
</tr>
<tr>
<td>N1-530</td>
<td>N1-Soils-196</td>
<td>Permafrost</td>
<td>Site: 373 to 374</td>
<td>E-632231 N-6221657</td>
<td>E-632074 N-6221595</td>
<td>14N</td>
<td>187 m</td>
</tr>
<tr>
<td>N1-530</td>
<td>N1-Soils-197</td>
<td>Permafrost</td>
<td>Site: 375 to 376</td>
<td>E-631085 N-6220560</td>
<td>E-630751 N-6220744</td>
<td>14N</td>
<td>397 m</td>
</tr>
<tr>
<td>N1-530</td>
<td>N1-Soils-197</td>
<td>Permafrost</td>
<td>Site: 377 to 378</td>
<td>E-630439 N-6220544</td>
<td>E-630335 N-6220477</td>
<td>14N</td>
<td>122 m</td>
</tr>
<tr>
<td>N1-530</td>
<td>N1-Soils-197</td>
<td>Permafrost</td>
<td>Site: 379 to 380</td>
<td>E-630086 N-6220317</td>
<td>E-630026 N-6220278</td>
<td>14N</td>
<td>71 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
- Confine vehicle traffic to established trails to the extent possible
- Implement erosion protection before commencing construction in accordance with Erosion/Sediment Control Plan

---

**MAP NUMBER: 55**
### 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-S30</td>
<td>N1-Aqua-165</td>
<td>URT CREEK</td>
<td>629266</td>
<td>621399</td>
<td>14N</td>
<td>14 m</td>
<td>3 m</td>
<td>Moderate</td>
<td>Important</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Aqua-166</td>
<td>Unnamed tributary of Orr Creek</td>
<td>626722</td>
<td>621941</td>
<td>14N</td>
<td>N/A</td>
<td>N/A</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; Dewatering to stream banks, loss of riparian vegetation, fish habitat disturbance and impacted fish movement; flooding or floodplain

**Specific Mitigation:**
- Carry out construction activities on frozen ground to minimize surface damage, rutting and erosion
- Use existing roads, paths or use new features parallel to existing 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

### 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-S30</td>
<td>N1-RecUse-110</td>
<td>C15</td>
<td>Winter Trail/Trapping</td>
<td>E-629269 N-6219792</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 (MNIT)/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

### 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-S30</td>
<td>N1-Solls-197</td>
<td>Permafrost</td>
<td>Site: 379 to 380</td>
<td>E-630086 N-630917</td>
<td>E-630926 N-630917</td>
<td>14N</td>
<td>71 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-197</td>
<td>Permafrost</td>
<td>Site: 381 to 382</td>
<td>E-629988 N-629909</td>
<td>E-629990 N-629909</td>
<td>14N</td>
<td>94 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-197</td>
<td>Permafrost</td>
<td>Site: 383 to 384</td>
<td>E-628663 N-629014</td>
<td>E-628564 N-629014</td>
<td>14N</td>
<td>10 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-197</td>
<td>Permafrost</td>
<td>Site: 385 to 386</td>
<td>E-629649 N-622016</td>
<td>E-629648 N-622016</td>
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<tr>
<td>N1-S30</td>
<td>N1-Solls-197</td>
<td>Permafrost</td>
<td>Site: 389 to 390</td>
<td>E-629707 N-621911</td>
<td>E-629707 N-621911</td>
<td>14N</td>
<td>39 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-190</td>
<td>Permafrost</td>
<td>Site: 307 to 308</td>
<td>E-629640 N-621985</td>
<td>E-629640 N-621985</td>
<td>14N</td>
<td>4 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-190</td>
<td>Permafrost</td>
<td>Site: 307 to 308</td>
<td>E-629640 N-621985</td>
<td>E-629640 N-621985</td>
<td>14N</td>
<td>4 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-190</td>
<td>Permafrost</td>
<td>Site: 400 to 391</td>
<td>E-629623 N-621911</td>
<td>E-629623 N-621911</td>
<td>14N</td>
<td>127 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-190</td>
<td>Permafrost</td>
<td>Site: 394 to 395</td>
<td>E-628747 N-621945</td>
<td>E-628747 N-621945</td>
<td>14N</td>
<td>85 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-190</td>
<td>Permafrost</td>
<td>Site: 394 to 395</td>
<td>E-628747 N-621945</td>
<td>E-628747 N-621945</td>
<td>14N</td>
<td>85 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-190</td>
<td>Permafrost</td>
<td>Site: 394 to 395</td>
<td>E-628747 N-621945</td>
<td>E-628747 N-621945</td>
<td>14N</td>
<td>85 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-200</td>
<td>Permafrost</td>
<td>Site: 401 to 402</td>
<td>E-627931 N-621879</td>
<td>E-627931 N-621879</td>
<td>14N</td>
<td>266 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-200</td>
<td>Permafrost</td>
<td>Site: 403 to 404</td>
<td>E-627474 N-621867</td>
<td>E-627474 N-621867</td>
<td>14N</td>
<td>41 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Solls-200</td>
<td>Permafrost</td>
<td>Site: 405 to 406</td>
<td>E-626981 N-621892</td>
<td>E-626981 N-621892</td>
<td>14N</td>
<td>375 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.
- Confinve vehicle traffic to established trails to the extent possible.
- Implement erosion protection before commencing construction in accordance with Erosion/Sediment Control Plan.

**MAP NUMBER:** 56
### 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-S30</td>
<td>N1-Soils-201</td>
<td>Permafrost</td>
<td>Site: 405 to 486</td>
<td>E-626891</td>
<td>E-626576</td>
<td>14N</td>
<td>375 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Soils-201</td>
<td>Permafrost</td>
<td>Site: 407 to 488</td>
<td>E-626554</td>
<td>E-626291</td>
<td>14N</td>
<td>312 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Soils-201</td>
<td>Permafrost</td>
<td>Site: 409 to 440</td>
<td>E-626187</td>
<td>E-625094</td>
<td>14N</td>
<td>110 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Soils-201</td>
<td>Permafrost</td>
<td>Site: 411 to 442</td>
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<td>E-625856</td>
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</tr>
<tr>
<td>N1-S30</td>
<td>N1-Soils-201</td>
<td>Permafrost</td>
<td>Site: 413 to 444</td>
<td>E-625826</td>
<td>E-625677</td>
<td>14N</td>
<td>177 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Soils-201</td>
<td>Permafrost</td>
<td>Site: 415 to 446</td>
<td>E-625644</td>
<td>E-625337</td>
<td>14N</td>
<td>364 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Soils-202</td>
<td>Permafrost</td>
<td>Site: 417 to 448</td>
<td>E-625258</td>
<td>E-625133</td>
<td>14N</td>
<td>147 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Soils-203</td>
<td>Permafrost</td>
<td>Site: 427 to 449</td>
<td>E-623964</td>
<td>E-6216317</td>
<td>14N</td>
<td>43 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Soils-202</td>
<td>Permafrost</td>
<td>Site: 425 to 426</td>
<td>E-623791</td>
<td>E-623393</td>
<td>14N</td>
<td>485 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Soils-203</td>
<td>Permafrost</td>
<td>Site: 419 to 420</td>
<td>E-624702</td>
<td>E-624666</td>
<td>14N</td>
<td>42 m</td>
</tr>
<tr>
<td>N1-S30</td>
<td>N1-Soils-203</td>
<td>Permafrost</td>
<td>Site: 421 to 423</td>
<td>E-624632</td>
<td>E-624571</td>
<td>14N</td>
<td>71 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

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.
- No machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing
- No instream works or fending from April 1 - July 15

ESS Group: Intersection

Potential Effects:

Potential disturbance of access

Specific Mitigation:

- Identify and flag prior to start of work
- Notify Manitoba Infrastructure and Transportation (MNR)/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

ESS Group: Permafrost

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: Research

Potential Effects:

Permafrost monitoring site, buried thermistor is exposed 5-10cm at the surface and is susceptible to damage

Specific Mitigation:

- Identify and flag sensor’s location to protect it damage
- Notify construction crews of sensor location

MAP NUMBER: 58
**ESS Group: Archaeological**

<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>Potential Effects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-S31</td>
<td>N1-Henti-111</td>
<td>Odei River</td>
<td>620453</td>
<td>621114</td>
<td>14N</td>
<td>Potential disturbance to heritage resources.</td>
</tr>
<tr>
<td>N1-S31</td>
<td>N1-Henti-125</td>
<td>Sunny River</td>
<td>620453</td>
<td>621114</td>
<td>14N</td>
<td></td>
</tr>
</tbody>
</table>

**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 Archaeological and cultural staff 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 monitoring from site investigation.

**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-S31</td>
<td>N1-Aqua-168</td>
<td>Odei River</td>
<td>620364</td>
<td>621297</td>
<td>14N</td>
<td>19.01m</td>
<td>19.01m</td>
<td>Low</td>
<td>Important</td>
</tr>
<tr>
<td>N1-S31</td>
<td>N1-Aqua-169</td>
<td>Unnamed Tributary of Odei River</td>
<td>619430</td>
<td>621533</td>
<td>14N</td>
<td>19.01m</td>
<td>19.01m</td>
<td>Low</td>
<td>Marginal</td>
</tr>
</tbody>
</table>

**Potential Effects:**

Habitat loss and contamination from structure foundations; increased erosion or sedimentation or 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 Min Veg Clearance Requirements.
- 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing.
- No stream works or felling from April 1 - July 15

**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>
<th>Potential Effects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1-S31</td>
<td>N1-Reduse-112</td>
<td>Cl7</td>
<td>Portage</td>
<td>E-619118 N-423110703</td>
<td>14N</td>
<td>Potential disturbance of access.</td>
</tr>
</tbody>
</table>

**Specific Mitigation:**

- Identify and flag prior to start of work.
- Notify Manitoba Infrastructure and Transportation (M/IT)/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.

**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-S31</td>
<td>N1-Solls-205</td>
<td>Permafrost</td>
<td>Site: 442 to 437</td>
<td>E-617263 N-6208312</td>
<td>E-618416 N-6209963</td>
<td>14N</td>
<td>312m</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.

MAP NUMBER: 59
**ESS Group: Archaeological**

<table>
<thead>
<tr>
<th>Sec-Seq ID</th>
<th>ESS ID</th>
<th>ESS Name</th>
<th>Easting</th>
<th>Northing</th>
<th>UTM Zone</th>
<th>N1-S31</th>
<th>N1-113</th>
<th>Burntwood River</th>
<th>616252</th>
<th>6206823</th>
<th>14N</th>
</tr>
</thead>
</table>

**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

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**ESS Group: Water Crossing**

<table>
<thead>
<tr>
<th>Sec-Seq ID</th>
<th>ESS ID</th>
<th>ESS Name</th>
<th>Easting</th>
<th>Northing</th>
<th>UTM Zone</th>
<th>N1-S31</th>
<th>N1-172</th>
<th>Unnamed Tributary of Burntwood River</th>
<th>617340</th>
<th>6208378</th>
<th>14N</th>
</tr>
</thead>
</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 impacted 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 Hi Veg Clearance Requirements.
- 7m no machine zone will restrict equipment in close proximity to the waterbody except at the trail crossing

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**ESS Group: Permafrost**

<table>
<thead>
<tr>
<th>Sec-Seq 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-S31</td>
<td>N1-Solls-205</td>
<td>Permafrost</td>
<td>Site: 442 to 437</td>
<td>E-617263</td>
<td>N-6208322</td>
<td>14N</td>
<td>82</td>
</tr>
<tr>
<td>N1-172</td>
<td>N1-Solls-205</td>
<td>Permafrost</td>
<td>Site: 431 to 437</td>
<td>E-618446</td>
<td>N-6208367</td>
<td>14N</td>
<td>82</td>
</tr>
<tr>
<td>N1-172</td>
<td>N1-Solls-205</td>
<td>Permafrost</td>
<td>Site: 431 to 437</td>
<td>E-618208</td>
<td>N-6208369</td>
<td>14N</td>
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<tr>
<td>N1-172</td>
<td>N1-Solls-205</td>
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<td>Site: 431 to 437</td>
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</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 of vehicles to established trails to the extent possible
- Implement erosion protection before commencing construction in accordance with Erosion/Sediment Control Plan

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**MAP NUMBER:** 60