

## Review Comment Table

<b>Board:</b>	MVEIRB
<b>Review Item:</b>	EA1617-01 Tlicho All-Season Road: Information Requests
<b>Proponent:</b>	GNWT - INF
<b>Document(s):</b>	<a href="#">Project Description Report hypderlinked index</a> (.1) <a href="#">Adequacy Statement Response</a> (34)
<b>Item For Review Distributed On:</b>	May 2 at 09:01 <a href="#">Distribution List</a>
<b>Reviewer Comments Due By:</b>	May 29, 2017
<b>Proponent Responses Due By:</b>	June 29, 2017
<b>Item Description:</b>	<p>The Government of the Norwest Territories – Department of Infrastructure (formerly the department of Transportation) submitted its Adequacy Statement Response on April 13, 2017 (PR#110). The Review Board determined that this document along with the developers Project Description Report (PR#7) provides sufficient information to proceed to the information request stage.</p> <p>Parties and the developer are asked to prepare information requests using the Online Review System.</p>
<b>General Reviewer Information:</b>	<p>In preparation for submitting information requests parties are encouraged to review the developer’s Project Description Report and supporting information, the developer’s Adequacy Statement response, and any other additional information on the public registry for this EA. The main documents for review are linked in this ORS review. Additional information can be found on the Review Boards public registry linked here, <a href="#">Public Registry for the Tlicho-All Season Road</a>.</p> <p>The purpose of information requests is to give parties and the Review Board the opportunity to request additional information or seek clarification about existing information in order to better understand the project and its potential significant adverse effects. Additional information about the information request stage can be found on the Review Board’s website here, <a href="#">Information Request Stage</a>.</p> <p>The Review Board is using the Online Review System which requires the use of Excel spreadsheets. Please note that the template Excel sheet contains the following columns:</p> <ul style="list-style-type: none"> <li>the "topic" column is where you will place the public registry reference number for the document that your information request is based</li> <li>the "comment" column is where you will place the preamble and rationale for the information request</li> <li>the "recomendation" column is where you will place your information request</li> </ul>
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## Comment Summary

ID	Topic	Reviewer Comment/Recommendation	Proponent Response
Government of Canada: Sarah Robertson			
1	GoC - NPMO - Cover Letter and Contact Sheet	<b>Comment</b> ( <a href="#">doc</a> ) Federal cover letter and contact sheet. <b>Recommendation</b> Attachment.	
2	GoC - ECCC - Cover Letter	<b>Comment</b> ( <a href="#">doc</a> ) Environment and Climate Change Canada cover letter. <b>Recommendation</b> Attachment.	

ID	Topic	Reviewer Comment/Recommendation	Proponent Response
3	GoC - ECCC-IR-#1 Erosion and Sediment Control Plan - Preliminary Screening - WLWB ORS Review Summary Table and Attachments (PR#24) - Project Description Report (PR#7), Appendix W: DOT Erosion and Sediment Control Manual	<p><b>Comment</b> An Erosion and Sediment Control (ESC) Plan has not yet been provided for the Tlichon All Season Road (the Project). This type of plan is essential to guide the Project-specific application/implementation of the Government of the Northwest Territories - Department of Transportation (the Proponent) ESC Manual (Appendix W, Project Description Report). ECCC requires this plan to assess whether Project-specific sediment and erosion controls will adequately protect the aquatic receiving environment. In the July 6, 2016 response to ECCC#6 on the Wek'eezhii Land and Water Board Online Review System (WLWB ORS), the Proponent stated that it will be using the ESC Manual as guidance in the development of an ESC Plan, including monitoring, reporting and adaptive management. The ESC Plan will be finalized by the contractor ensuring the contractor is fully aware and capable of the requirements in that plan, while the Proponent provides oversight and remains accountable. It is not clear when an ESC Plan will be drafted by the Proponent and finalized by the contractor. As a draft ESC plan has not yet been provided, Environment and Climate Change Canada (ECCC) is currently unable to assess this aspect of the Project.</p> <p><b>Recommendation</b> ECCC requests that the Proponent provide a draft ESC Plan for review by parties during the environmental assessment (EA).</p>	<p><b>July 12:</b> An Erosion and Sediment Control (ESC) Plan is site specific; therefore, this Plan cannot be developed or finalized until the overall procurement process for the project has been completed. Procurement is not expected to be completed until after the results of the Environmental Assessment have been determined. Project Co (contractor responsible for construction) will be responsible for developing the ESC Plan. This Plan will be developed by following the Best Management Practices outlined in the 2013 DOT ESC Manual and will be reviewed by the GNWT to ensure that the Plan meets the GNWT standards. The ESC Plan is something that is typically reviewed during the permitting phase and once final road designs are available. The ESC Plan will be available for review through the standard review process via WLWB's Online Review System. Regulators will have an opportunity to comment on the ESC Plan at that time. ECCC is encouraged to review the Project Co Erosion and Sediment Control Plan, reflecting the 2013 DOT Erosion and Sediment Control Manual, during the regulatory phase of the environmental review process. The GNWT is committed to adequately protecting the aquatic receiving environment.</p>
4	GoC - ECCC-IR-#2 Monitoring Plan - Preliminary Screening - WLWB ORS Review Summary Table and Attachments (PR#24) - Project Description Report (PR#7), Appendix AA: Draft In-Field Water Analysis Plan	<p><b>Comment</b> As stated in the Proponent's July 6, 2016 response on the WLWB ORS to ECCC#1, the In-Field Water Analysis Plan will provide a monitoring plan for erosion and sediment controls as well as water quality. It will be updated to include grab samples to measure Total Suspended Solids (TSS) at select sites/time periods over the course of construction. ECCC notes that the In-Field Water Analysis Plan is a field sampling protocol, rather than a plan. Additionally, proposed TSS monitoring (as per the Proponent's response to ECCC#1) does not incorporate ECCC's recommended approach. TSS should be measured prior to, during, and following in-stream construction, using a site-specific TSS/turbidity regression curve. It is ECCC's understanding that the In-Field Water Analysis Plan will be updated to provide a comprehensive monitoring plan for erosion, sedimentation and water quality. However, it is not clear who is responsible for updating and finalizing the In-Field Water Analysis Plan and whether or not a draft version will be provided during the EA for review. ECCC requires an updated draft comprehensive monitoring plan to evaluate whether Project monitoring will be effective in detecting Project-related changes to the aquatic environment.</p> <p><b>Recommendation</b> ECCC requests that the Proponent provide a draft comprehensive monitoring plan for erosion, sedimentation and water quality for review by parties during the EA.</p>	<p><b>July 12:</b> As mentioned in the ECCC IR#1 response, it is not possible to provide an ESC Plan during the Environmental Assessment. The ESC Plan is an adaptive management tool that will verify that sediment controls are working to control erosion and sediment. It is also not possible to provide a finalized In-Field Water Analysis Plan as this will only be available for review during the regulatory phase prior to construction. It is expected that Project Co will update the In-Field Water Analysis Plan and it will be reviewed by the GNWT to check for completeness prior to posting for review to the WLWB's Online Review System (ORS). ECCC is encouraged to review the Project Co In-Field Water Analysis Plan during the regulatory phase of the environmental review process. The GNWT is committed to adequately protecting the aquatic receiving environment. The Proponent has already provided rationale indicating that the Project is not expected to cause significant changes to the aquatic environment (see ASR Chapter 3 [PR#110] for assessment of effects to fish habitat and PDR [PR#7] for aquatic environment); therefore, the Proponent is not committing to any long term monitoring.</p>
5	GoC - ECCC-IR-#3 Baseline Monitoring - Preliminary Screening - WLWB ORS Review Summary Table and Attachments (PR#24)	<p><b>Comment</b> It is not clear whether a baseline monitoring dataset for water quality and sediment quality is available for this Project. This information is required to evaluate whether the existing baseline monitoring dataset, in combination with the proposed In-Field Water Analysis Plan, will be sufficient to permit detection of Project-related effects on water quality and sediment quality. Currently, insufficient information has been provided with respect to baseline monitoring for water quality and sediment quality.</p> <p><b>Recommendation</b> ECCC requests that the Proponent clarify if water quality and sediment quality baseline data is currently available for this Project and if so, provide the information for review by parties.</p>	<p><b>July 12:</b> Water quality and sediment quality baseline data is not available for this Project. As indicated in PR#24 and PR#76, the GNWT believes that any potential impacts to water quality at the watercourse crossings can be monitored, detected and mitigated without conducting years of advanced baseline data collection; this would also apply to sediment quality. Geochemical testing of granular source material will ensure material used to construct the road will not be susceptible to acid rock drainage/metal leaching. A Spill Contingency Plan will be in place to prevent and contain any spills of deleterious substances such as fuel. Should a fuel spill occur and enter the water, baseline data would not provide any useful information as it is already expected that fuel parameters would not be identified in background samples. The GNWT's monitoring program will include collecting concurrent upstream and downstream samples from watercourse crossing locations and comparing the results. The GNWT is of the opinion that this monitoring program will more effectively detect project related effects than comparing downstream samples to baseline. The final In-Field Water Analysis Plan will be available for review and comment on the WLWB's ORS during the permitting phase.</p>
6	GoC - ECCC-IR-#4 Adaptive Management	<p><b>Comment</b> ECCC notes that the Proponent has provided insufficient information regarding adaptive management with respect to water quality, erosion and sedimentation. Adaptive management planning should be conducted in advance of construction and details provided in the relevant management plan(s). Additional adaptive management information is required to evaluate whether appropriate triggers and management responses will be in place to flag and address potential water quality issues, and potential impacts of erosion and/or sedimentation.</p> <p><b>Recommendation</b> ECCC requests that the Proponent describe how adaptive management planning will be used to anticipate and address water quality issues and potential excursions from EA predictions with respect to water quality, erosion and sedimentation.</p>	<p><b>July 12:</b> Reporting procedures to address potential excursions from predictions will be incorporated into the In-Field Water Analysis Plan and Erosion and Sediment Control Plan, which will be available for review during the regulatory phase prior to construction. These reporting procedures would be an example of how adaptive management planning will be used to anticipate and address water quality, erosion and sedimentation issues. It is anticipated that there will be regular inspections of the mitigations by either Project Co or the GNWT and learnings will be documented and applied; these details will be further described in the approved plans. As an example, step 23 of the current draft In-Field Water Analysis Plan indicates that if the downstream samples are more than 8 Nephelometric Turbidity Units higher than the upstream samples, then the INF-Environmental Affairs group will be immediately contacted for discussion and direction on further action. Adaptive management planning would entail clarifying what types of further action would be required should excessive levels of turbidity be encountered downstream. Both management plans require the input of Project Co; therefore, these final plans will only be available for review as a part of the WLWB's standard document review process for permits (i.e., posting to ORS). The GNWT commits to working with ECCC and other stakeholders during the water licensing process to ensure that water quality and erosion and sedimentation plans include adaptive management components. Once these plans are approved, the GNWT expects that</p>

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			reporting on the use of adaptive management will be required as part of the water licence for the Project.
7	<p>GoC - ECCC-IR-#5 Boreal Caribou - Undisturbed Habitat Estimates Within NT1 - Developer's Adequacy Statement Response (PR#110), Sections 4.2.3.1, 4.4.2.1 and 4.4.3.1 - Preliminary Screening - WLWB ORS Review Summary Table and Attachments (PR#24), ECCC GNWT Meeting Minutes May 24-25, 2016 - Technical</p>	<p><b>Comment</b> Disturbance estimates for Boreal Caribou critical habitat have been provided by the Proponent in the Adequacy Statement Response (Base and Application cases: 66.8%; Reasonable Foreseeable Developments: 66.6%). These disturbance estimates differ from recent estimates within NT1 range provided during other reviews (e.g. preliminary screening for the Project [65.76%] and Government of the Northwest Territories Technical Report for CanZinc Prairie Creek All Season Road EA1415-01 [66%]). Disturbance estimates are expected to vary over time; however, ECCC is unable to account for these discrepancies among recent projects. All estimates appear to account for the same reasonable foreseeable developments in their calculations, so it is unclear why there is a difference in estimates.</p> <p><b>Recommendation</b> ECCC requests that the Proponent provide clarification on the differences among the undisturbed habitat estimates for Boreal Caribou critical habitat within NT1 provided during the Project Screening (May 2016), CanZinc Prairie Creek All Season Road Technical Report (March 2017) and the Project Adequacy Statement Response (April 2017).</p>	<p><b>July 12:</b> The slight differences in future cumulative development disturbance estimates (i.e., 66.6% versus 65.76%) noted for boreal caribou critical habitat relative to the various reports are the result of differences in the spatial data files and coordinate system projections applied in a Geographic Information System (GIS) platform. For example, the Project Description Report (PDR) used Canada Albers Equal Area Conic projection with Landsat imagery that has a 30 metre resolution. The Adequacy Statement Response (ASR, PR#110) used the SPOT 4/5 land cover data with a 20 metre resolution for all wildlife Valued Component habitat mapping, which required LCC E008 (Lambert Conformal Conic) projection. Projection of the ASR's disturbance data using Canada Albers Equal Area Conic results in 3,924,820 ha of disturbance in the NT1 range. Projection of the same disturbance data using LCC E008 projection results in 3,697,667 ha of disturbance in the NT1 range. The development disturbance data used in the Base Case also included the entire length of the existing old airport winter road, whereas the PDR only included parts that were visible on Landsat imagery in ECCC disturbance data. Reconnaissance information (PR#7; PR#54) on the existing route shows that the entire route is disturbed even though some disturbance is not visible in Landsat imagery. Additionally, the Reasonably Foreseeable Development (RFD) Case in the ASR included the NICO and Mackenzie Valley Highway projects, which were not included in the PDR or preliminary screening calculations. The contribution of these data to the observed differences are expected to be small because they intersect existing development and fire disturbance already present in the Base Case. The RFD Case in the ASR reduced undisturbed habitat in the NT1 range by 0.2%, so these two future projects would represent only a fraction of this amount. Even if these two RFDs had been included in the PDR and preliminary screening calculations, the results would still indicate greater than 65% undisturbed habitat for the NT1 range. The small difference of 0.84% between the reported undisturbed habitat values through future cumulative effects does not change the overall status of boreal caribou critical habitat condition in the NT1, which exceeds the 65% minimum threshold for undisturbed habitat identified by ECCC as necessary to support a self-sustaining boreal caribou population with a low to moderate risk (EC 2012). The methods used to calculate disturbance estimates were appropriate for the Terms of Reference (PR#69), and the degree of difference between calculations does not change how the assessment for boreal caribou was completed, nor does it influence the results or alter the conclusions of the assessment. Using any of the different calculations for disturbance in the NT1 range, existing disturbance levels are close to the 65% minimum threshold for undisturbed habitat identified by ECCC as necessary to support self-sustaining boreal caribou population with a low to moderate risk (EC 2012). Disturbance in the NT1 range is primarily from fire (e.g., calculations presented in the Adequacy Statement Response indicate 73% of disturbance is due to fire and 27% is due to buffered development). The addition of the Project increases the amount of disturbance in the NT1 range by &lt;0.1%. The addition of the Project and reasonably foreseeable developments increases the amount of disturbance in the NT1 range by about 0.2%. Using any of the different calculations, disturbance in the NT1 range remains above the 65% minimum threshold in both assessment cases. Consequently, as concluded in the ASR, habitat disturbance for boreal caribou is approaching the limits identified by ECCC for maintaining self-sustaining caribou population, but the limits have not been exceeded. References Environment Canada. 2012. Recovery strategy for the woodland caribou (<i>Rangifer tarandus caribou</i>), boreal population, in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. xi + 138 pp.</p>
8	<p>GoC - ECCC-IR-#6 Boreal Caribou - Habitat Connectivity - Recovery Strategy for the Woodland Caribou, Boreal Population, in Canada (PR#38) - Developer's Adequacy Statement Response (PR#110), Sections 4.2.3.1, 4.4.2.1 and 4.4.3.1</p>	<p><b>Comment</b> The federal Recovery Strategy states that "connectivity of habitat both within a range and between ranges is essential for Boreal Caribou persistence on the landscape." The federal Recovery Strategy adds that any activity resulting in the fragmentation of habitat by human-made linear features is likely to result in the destruction of critical habitat. The likelihood of the destruction of critical habitat is increased if there is reduced connectivity within a range. The Proponent provides qualitative descriptions of the distribution of available Boreal Caribou habitat within NT1 at base case, application case and reasonable foreseeable development case. However, no quantitative measurement of Boreal Caribou habitat connectivity is provided to support conclusions for each of these cases.</p> <p><b>Recommendation</b> ECCC requests that the Proponent provide quantitative assessments of Boreal Caribou habitat connectivity within NT1 for each of the assessed cases (base case, application case and reasonable foreseeable development case) using recognized metrics and methods.</p>	<p><b>July 17:</b> Please see the attached document for the developer's response.</p>
9	<p>GoC - ECCC-IR-#7 Boreal Caribou - Baseline Information - Boreal Caribou meeting summary (PR#107) -GNWT meeting minutes and post-meeting response: Boreal</p>	<p><b>Comment</b> ECCC previously expressed concerns related to the lack of Boreal Caribou related baseline information to inform the EA during the Boreal Caribou meeting with Wek'eezhii Renewable Resources Board and the Proponent (November 2016, PR#99). Consistent with ECCC's Species at Risk Act S. 79(1) receipt letter to the Mackenzie Valley Environmental Impact Review Board (MVEIRB), ECCC maintains that the best available information should be used while assessing impacts to species at risk. The Proponent has recognized information gaps related to Boreal Caribou abundance, distribution and habitat use in the North Slave Region during meetings with ECCC (November 2016, PR#99). The Proponent advised that aerial surveys in the North Slave Region were conducted for bison (Winter 2016) and moose (November 2016); these</p>	<p><b>July 12:</b> The attached file has the developer's complete response.</p>

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	caribou population health (PR#99) - Developer's Adequacy Statement Response (PR#110), Section 4.7 - SARA receipt letter to MVEIRB (PR#34)	<p>surveys could include observations of Boreal Caribou. Also, a Boreal Caribou collaring program was initiated in March 2017 in response to filling information gaps within the North Slave Region. None of the results of aerial surveys nor any preliminary results of the collaring program were presented in the Adequacy Statement Response.</p> <p><b>Recommendation</b> ECCC requests that the Proponent provide: a) a map of Boreal Caribou observations during the bison surveys conducted in Winter of 2016 and a map of Boreal Caribou observations during the moose surveys conducted in November 2016. Each map should include the area surveyed (transects and study area), the proposed Project footprint, the Project zone of influence and disturbed habitat (natural and anthropogenic); b) a map of the preliminary results of the Boreal Caribou collaring program in the North Slave Region. This map should include observations, deployment locations and movements of caribou in relation to the proposed Project footprint, the Project zone of influence and disturbed habitat (natural and anthropogenic). The temporal scale of the movements should be appropriate for the species and grouped by key periods in the species' life cycle (e.g. calving, post-calving, rutting and winter); and c) regular updates of b) to be added to the MVEIRB registry to inform this EA as it progresses.</p>	
10	GoC - ECCC-IR-#8 Boreal Caribou Habitat Offsetting - Project Description Report (PR#7), Appendix M: Wildlife Management and Monitoring Plan, Table 2	<p><b>Comment</b> The Proponent repeats throughout Table 2 of the Wildlife Management and Monitoring Plan (WMMP) that reclamation of the terrestrial portions of the current Tli'cho winter road (KM 0-60) will eventually offset some of the new habitat loss.</p> <p><b>Recommendation</b> ECCC requests that the Proponent provide clarification regarding: a) what reclamation activities are being proposed for kilometers 0 to 60 of the current Tli'cho winter road; and b) how the Proponent will ensure and monitor the effectiveness of reclamation activities so that the habitat can be used for offsetting.</p>	<p><b>July 17:</b> As per section 19.8.1 of the Tli'cho Agreement, the Government of the Northwest Territories only has a right of free access to the Tli'cho winter road's right of way in order to establish, build, manage, control, vary and close up the Tli'cho winter road. Any reclamation activities planned for the terrestrial portions of the Tli'cho winter road (KM 0-60) will be managed and addressed jointly by the Tli'cho Government and the GNWT by way of a bilateral agreement. The draft Wildlife Management and Monitoring Plan that was submitted with the water licence and land use permit applications is being updated to reflect these changes. <b>References</b> Tli'cho Government. 2003. Land Claims and Self-Government Agreement among the Tli'cho and the Government of the Northwest Territories and the Government of Canada. <a href="http://www.tlicho.ca/sites/default/files/documents/government/T%20C5%82%C4%B1%CC%A8cho%CC%A8%20Agreement%20-%20English.pdf">http://www.tlicho.ca/sites/default/files/documents/government/T%20C5%82%C4%B1%CC%A8cho%CC%A8%20Agreement%20-%20English.pdf</a></p>
11	GoC - ECCC-IR-#9 Avian Species at Risk - Suitable Habitat Developer's Adequacy Statement Response (PR#110), Sections 4.2.2.7, 4.2.2.9, 4.2.2.10 and 4.2.2.12 - Comment and response table for draft Terms of Reference and draft Adequacy Statement (PR#76)	<p><b>Comment</b> The Proponent used Landsat SPOT 4/5 imagery data to estimate habitat availability and distribution for wildlife Valued Components (VCs). Based on habitat descriptions obtained from scientific literature for VCs, each of land cover class was assigned into one of two categories: moderate to high suitability or low to nil suitability. This approach is commonly used in impact assessments when baseline data is not collected or information is not available from other sources at an appropriate spatial and temporal scale. However, it does present challenges and have limitations for species such as birds. Migratory birds, including avian species at risk, are mobile and select breeding habitat based on the assemblage or mosaic of habitats near a nesting site in addition to particular habitat associations and preferences. This is difficult to account for and was not thoroughly captured in the provided estimates of habitat availability and distribution for avian species at risk VCs. For example, Bank and Barn Swallow breeding habitat should also include land cover codes 6 (Young Forest), 11 (Bryoid) and 12 (Barren) when near waterbodies, wetlands and streams. Common Nighthawk breeding habitat should also include land cover codes 3 (Evergreen conifer, low density), 6 (Young forest), 13 (Sparse conifer lichen) and 16 (Water). Most land cover classes constitute breeding habitat for Olive-sided Flycatcher in adjacency to mature coniferous stands, with the exception of 4 (Mixed forest), 5 (Deciduous forest) and 15 (Ice). The most important habitat feature for this species is the strong edge effect created between contrasting habitat types. Similarly, Rusty Blackbird breeding habitat includes most land cover classes adjacent to waterbodies, wetlands and slow moving streams, with a few exceptions (land cover codes 4, 5, 12 and 15). In ECCC's comments on the draft Terms of Reference and draft Adequacy Statement (ECCC#7), ECCC suggested the use of existing monitoring datasets to inform and refine the impact assessment. ECCC believes the impact assessment would have benefited, at a minimum, from the inclusion of available migratory bird monitoring datasets. The Proponent may wish to consider data from ECCC monitoring along HWY 3 between Behchoko and Fort Providence and, if available, data collected related to the NICO mine project. Bird monitoring data would provide estimates of species' relative abundance, densities and use by habitat type, allowing a more thorough and confident assessment of effects related to habitat loss and alteration, as well as habitat use influencing avian species at risk abundance and distribution.</p> <p><b>Recommendation</b> ECCC requests that the Proponent provide clarification on why they did not incorporate available migratory bird monitoring data in the effects assessment related to avian</p>	<p><b>July 17:</b> As committed to during the June 9, 2017 meeting between the GNWT and ECCC (PR#132), analysis of the migratory bird data collected on Highway 3 will be considered upon receipt of the data from ECCC. These data were not available to the GNWT prior to the release of the Adequacy Statement Response (ASR) but were provided by ECCC on June 30, 2017 so that the GNWT can review the avian monitoring conducted by ECCC along Highway 3. The GNWT will assess the data provided by ECCC and update the effects assessment related to avian species at risk with the data incorporated, or provide an explanation as to why the data will not be included. Data from the NICO Project are not especially relevant for the ASR (PR#110). The NICO Project is located in the Taiga Shield Ecozone whereas the Project occurs in the Taiga Plains Ecozone. Baseline studies for the NICO project included surveys of over 550 upland bird point-count surveys between 2005 and 2009 (Golder 2010). Migratory bird communities and abundances in these Ecozones are not expected to be the same (although 44 point counts were completed in 2007 on Taiga Plains habitat near the NICO Project and Taiga Shield boundary). Of the upland bird species included as valued components in the ASR, only common nighthawk (one individual), olive-sided flycatcher (eight individuals) and rusty blackbird (four individuals) are represented in the NICO data, and none of these species were detected on the Taiga Plains Ecozone point counts. The habitat occurrences of these species documented in Golder (2010) used a different land cover classification to the ASR, but the results indicated preference for the same habitats as were used in the ASR to describe suitable habitat. The single common nighthawk was observed in bedrock-open conifer habitat, corresponding to the barren or herb-shrub land cover in the ASR (Table 4.2-9). Olive-sided flycatcher were observed in burn, coniferous spruce, mixedwood and treed fen habitats, corresponding to the burns, evergreen conifer and mixed forest land covers in the ASR (Table 4.2-10). Rusty blackbird were observed in shrubland, corresponding to the herbaceous wetland land cover in the ASR (Table 4.2-12). While the sample size is low and the observations are from a different ecozone, the results of the upland bird baseline studies for the NICO Project support the habitat preferences defined in the ASR for these three valued component species. <b>References</b></p> <p>Golder Associates Ltd. 2010. Baseline Wildlife and Wildlife Habitat for the Proposed NICO Project. Prepared for Fortune Minerals Ltd. <a href="http://www.reviewboard.ca/upload/project_document/EA0809-004_Annex_D_NICO_WILDLIFE_Baseline.PDF">http://www.reviewboard.ca/upload/project_document/EA0809-004_Annex_D_NICO_WILDLIFE_Baseline.PDF</a></p>

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		species at risk VCs, or consider re-doing the effects assessment with available monitoring data.	
12	GoC - ECCC-IR-#10 Assessment Methods: Primary Pathways & Strength of Interactions - Developer's Adequacy Statement Response (PR#110), Section 4.3.2.3	<p><b>Comment</b> The Proponent uses the expected strength of the interactions between primary pathways and each VC. This is determined from the Base Case results, potential to be influenced by reasonably foreseeable developments and literature on the responses of each VC to the effects from the road construction and operations. A formal classification of residual effects and determination of significance was completed only for those VCs that are expected to have “strong” interactions with Project pathways. Avian species at risk, as well as Little Brown Myotis and Bumble Bees, were expected to have “weak” interactions with Project primary pathways. The rationale for the exclusion of VCs with “weak” interactions was not provided. All interactions between the Project and listed wildlife species are important to understand and mitigate as these species are already at risk.</p> <p><b>Recommendation</b> ECCC requests a formal classification of residual effects and determination of significance of all species at risk.</p>	<p><b>July 12:</b> The attached document contains the developer's complete response.</p>
13	GoC - ECCC-IR-#11 Avian Species at Risk - Mitigation and Monitoring at Quarries and Borrow Pits - Developer's Adequacy Statement Response (PR#110), Sections 4.2.2.7 and 4.2.2.9 - Project Description Report (PR#7), Appendix M: Wildlife Management and Monitoring Plan, Table 4	<p><b>Comment</b> The Proponent recognizes the use of anthropogenic structures and habitats by some avian species at risk. However, the WMMP does not provide specific mitigation or monitoring measures to minimize disturbance and avoid the destruction of their nest and eggs at quarries and borrow pits. Disturbance at these sites presents higher risks for Bank Swallow and Common Nighthawk (both avian species at risk VCs) related to potential nest abandonment and destruction of nests/eggs. The general bird mitigation measures in the WMMP focus primarily on land clearing activities during the construction phase. Additional mitigation measures should be developed for quarries and borrow pits.</p> <p><b>Recommendation</b> ECCC requests that the Proponent provide specific measures that will be used to minimize disturbance to and avoid the destruction of the nests and eggs of migratory birds, in particular Bank Swallow and Common Nighthawk, at quarries and borrow pits created by the proposed Project.</p>	<p><b>July 12:</b> As a general note, the WMMP will be finalized and available for review during permitting. It will also involve a refinement of the details that were provided in the first draft based on the results of the environmental assessment. It is expected that environmental monitors will be hired during construction and will be conducting regular inspections. Effectively managing pits and quarries to ensure there is minimal disturbance of Bank Swallow and Common Nighthawk nests and eggs is a current and ongoing mitigation for all the GNWT highway operations. These same mitigations will be applied to the TASR's construction and operations phases. The monitoring of pit run borrow sources and stockpile locations occurs on a regular basis as part of highway inspections. INF will undertake the same mitigation measures, such as maintaining a bank slope of less than 70% on all quarry stockpiles, overburden or exposed soil banks in an effort to prevent creating a nesting attractant for Bank Swallow. INF currently applies the mitigation and advice provided by the attached ECCC brochure Bank Swallow (<i>Riparia riparia</i>) in sandpits and quarries. (No de cat.: CW66-522/2015F-PDF; ISBN 978-0-660-23303-1) to all INF pits and quarries. INF will continue to engage with ECCC with respect to migratory birds that are listed under SARA and protected under the Migratory Birds Convention Act.</p>
14	GoC - ECCC-IR-#12 Wildlife Management and Monitoring Plan - Project Description Report (PR#7), Appendix M: Wildlife Management and Monitoring Plan	<p><b>Comment</b> The current version of the WMMP was provided during the WLWB preliminary screening. This plan summarizes the Proponent's proposed wildlife mitigation and monitoring measures. ECCC notes that some sections of this document are incomplete and that some sections will likely be updated to reflect reviewer comments and Proponent's commitments during the screening and EA. It is unclear when a revised WMMP will be provided during this process.</p> <p><b>Recommendation</b> ECCC requests that the Proponent provide information on when a revised version of the WMMP will be provided during this EA.</p>	<p><b>July 12:</b> The Government of the Northwest Territories (GNWT) is working on drafting a Wildlife Effects Monitoring Program (WEMP) and updating the draft Wildlife and Wildlife Habitat Protection Plan (WWHPP) (Appendix M of the Project Description Report). Together, the WEMP and WWHPP constitute a Wildlife Management and Monitoring Plan (WMMP). A draft WEMP will be provided prior to the technical sessions and a revised draft WWHPP will be provided to reviewers prior to the public hearing.</p>
15	GoC - NRCan IR #1 - Explosive storage	<p><b>Comment</b> Additional information is required on explosive storage.</p> <p><b>Recommendation</b> 1) Is a factory (permanent or temporary) to make explosives required at or near the site? Please explain. 2) Is a magazine(s) to store explosives required at or near the site? Please describe location (quantity-distance), footprint, type of storage structure, site access, and other ancillary works. 3) There is mention of a need for an explosives permit under the Explosives Act. Will you be applying for a Factory Licence? Will you be applying for a Magazine Licence?</p>	<p><b>July 12:</b> At this time, it is not possible to provide the requested details as the procurement process for the project has not been completed. Project Co will be responsible for all details associated with potential explosives use for the project. Project Co will be responsible for obtaining all necessary permits in order to use, transport and store explosives where required. Project Co will also be responsible for determining where explosives are needed. Project Co will follow all applicable water licence/land use permit conditions in addition to any permits or licences issued by regulators for explosives use.</p>
16	GoC - NRCan IR #2 - Permafrost Embankment design options - PDR (PR#7) - 4.4.1 Design Embankment - Permafrost ToR for Preparation of Environmental Impact Statement Environmental Impact	<p><b>Comment</b> Information on road embankment design options that accommodate the range of anticipated soil, bedrock, permafrost and hydrological conditions along the road corridor is required to ensure that the impacts of the environment as well as the impact of the environment on the project are minimized. The proponent has provided one typical cross section (Fig. 4.6), which will vary along the stretch of highway as per terrain and thermal analyses, and noting that the final embankment thickness can only be specified at a future date. There are, however, no design options shown that indicate how the typical cross section could vary under a range of typical conditions within discontinuous permafrost terrain with soil and bedrock substrate. In particular, conditions where permafrost is not present or terrain is underlain by thaw stable soil or bedrock, in contrast to permafrost soils that may be thaw unstable. In addition, no options are shown in embankment design under dry, well drained conditions, in contrast to embankments adjacent to</p>	<p><b>July 12:</b> Different design options for the final embankment design of the roadway will only be available once Project Co has completed their design. This process can only be completed after procurement; however, Project Co's designs will consider and accommodate for the range of typical conditions encountered within discontinuous permafrost terrain. For example, the depth of the embankment layer is expected to be thinner on bedrock/gravel and thicker on clay/silty substrate; geotextile is expected to be avoided on bedrock substrate; and generally, coarser embankment material is expected to be used near swamps/wetland terrain in conjunction with proper drainage (e.g., culverts). For permafrost soils or thaw unstable soils, some techniques have already been considered in the PDR (Section 4.4, PR#7); for example, there will be no cutting in these locations (so the natural insulative layer of organics is not disturbed), the embankment cross-section will be thicker, and may have a layer of geotextile between native ground and embankment material. On stable soils/bedrock, roadway embankment can be thinner. In addition to these considerations, the drainage system will be designed to standards that avoid ponding water and avoid permafrost thawing. Project Co may perform thermal analyses in select locations if they require additional information in order to complete their final road design. Embankments adjacent to waterbodies or wetland terrain are</p>

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	Statement for (EIS) Tli?cho All-Season Road - Proposed Tli?cho All-season Road Project Description Report (PDR) PR#7	water bodies or wetland terrain. Such information is required to ensure that typical conditions within discontinuous permafrost terrain along the route potential impacts can be adequately accommodated for through engineering design of the embankment. It is not clear whether the Proponent has considered a range of design options suited to discontinuous permafrost terrain. <b>Recommendation</b> Please clarify whether design options accommodating the typical range of conditions encountered within discontinuous permafrost terrain have been developed. Please provide these if available.	typically designed to use coarser embankment material with proper drainage; whereas embankments within dry, well-drained terrain can typically be thinner. As stated in Section 4.4.2 of the PDR, the typical highway cross section (which includes geotextile between the existing ground and the embankment; Figure 4.6) will most likely be included along the entire alignment (PR#7). This method will increase the stability of the embankment.
17	GoC - NRCan IR #3 - Permafrost - Purpose & properties of geotextile beneath embankment - PDR (PR#7) - 4.4.2 Geometric Design - TOR for Preparation of EIS - TASR EIS - PDR (PR#7) Adequacy Statement Response - TASR Project Report No 1665943 & appendices	<b>Comment</b> Details on embankment construction materials are required to ensure adequate design of the roadway to accommodate existing and future anticipated conditions. They are also required to evaluate the impacts of the project on the environment, and to ensure they are minimized. The proponent has indicated, in Figure 4.6, that the road embankment will be constructed of a 200 mm coarse granular base; with an embankment height minimum of 1.5 m, and a geotextile that will be placed between the existing ground and the embankment, which will most likely be included along the entire alignment. There is, however, no information given on the material specifications for the embankment fill, no information on the material specifications of the geotextile or the specific purpose that the geotextile is meant to serve. In particular, given that coarse embankment base material can have a high hydraulic conductivity, and that subsidence beneath the embankment is possible over the medium to long term, details on the material properties and purpose of the geotextile are warranted. <b>Recommendation</b> Please clarify the purpose of the non-woven geotextile between the existing ground and the embankment, and how this will be utilized in the context of engineering design of the roadway. Please provide the material specifications for the geotextile, if known, that will fulfill the requirements of the required purpose.	<b>July 12:</b> The purpose of placing geotextile over the ground is to provide extra strength to the embankment and to stop penetration of the embankment material into the ground especially when the area is wet or marshy. The actual brand and material specifications for the geotextile that will be utilized depends on various properties, such as ultimate tensile strength, permeability, UV resistance, etc. Project Co will determine the required specifications of geotextile during the detailed design phase, which follows the procurement process. The material specifications for the embankment fill will also be finalized in the future by Project Co. Placing coarse material on the base is a way to avoid water rising due to the capillary action.
18	GoC - NRCan IR #4 - Pre-existing permafrost conditions on - off disturbed terrain - PDR (PR#7) - TOR for Preparation of EIS - TASR EIS - PDR (PR#7) Adequacy Statement Response - TASR Project Report No 1665943 & appendices	<b>Comment</b> Permafrost, active layer, and ground ice conditions vary naturally, and also vary with time following disturbance. The proposed TASR follows a former military winter road constructed in the 1950s and used until the 1980s, and subsequently used intermittently in summer and winter by a variety of vehicles (ATVs, snowmobiles and trucks) for access. Permafrost and terrain conditions along this right-of-way can be expected to be much different than within adjacent undisturbed terrain, where no previous impact has occurred. Similarly, the response to recent fires, and to temperature conditions caused by historically warming temperatures, are also likely to differ on and off this existing right of way due to differences in vegetation cover and soil disturbance. In other areas, the proposed TASR will cross undisturbed terrain. The contrasts between these disturbed and undisturbed areas will result in terrain conditions that need to be factored into design considerations. <b>Recommendation</b> Please clarify how terrain conditions on and off the existing disturbed terrain will be factored in the context of design criteria.	<b>July 12:</b> Terrain conditions off the existing disturbed terrain will likely be accommodated by following the same procedure that will be utilized in areas suspected to contain permafrost (i.e., use of geotextile and no cutting); therefore, there is already a plan in place to address the contrast between the disturbed and undisturbed areas. Project Co will address these concerns in their final design of the roadway. Based on the findings of the terrain analysis, most of the roadway alignment follows the existing cutline or winter/summer trail. In designing the embankment of the roadway, the aim is not to cut the existing ground, which means vegetation cover will not be disturbed and soil disturbance will be minimal. In addition, movement of heavy machines will be restricted to the roadway right of way area.
19	GoC - NRCan - IR #5 Removal of permafrost - PDR (PR#7) - 8.5.3 Mitigation - TOR for Preparation of EIS - TASR EIS - PDR (PR#7) Adequacy Statement Response - TASR Project Report No 1665943 & appendices	<b>Comment</b> Permafrost is ground that remains below 0°C for two or more consecutive years. Owing to the particular properties during phase change between ice and water, considerable heat is required to melt ice within permafrost. Thus, permafrost at temperatures near and below the melting point of ice can remain in that state for a considerable period of time. The proponent has indicated that, as a potential mitigation measure, isolated patches of permafrost can also be cleared and allowed to melt prior to construction. However, without adequate knowledge of the extent, temperature, and ground ice characteristics of the permafrost, such an approach may be unfeasible. In particular, given the time frame for construction of the TASR, the concern for disturbance of organic surfaces, and potential for construction during the winter season, it is unclear how isolated patches of permafrost can also be cleared and allowed to melt prior to construction. <b>Recommendation</b> Please clarify if clearing and melting of permafrost prior to construction is considered as a suitable option prior to construction.	<b>July 12:</b> The GNWT would like to clarify that it does not intend to melt isolated patches of permafrost. Under certain circumstances where it is identified that it would be better for the long term success of the road to remove isolated patches of permafrost and/or significant ice lens (because these specific patches have been identified as expecting to melt within the next 20 years and this melting will cause the road to shift in the future), Project Co will remove all insitu material associated with the isolated patches of permafrost and will replace them with clean, compacted embankment material.
20	GoC - NRCan - IR #6 Geotechnical conditions - PDR (PR#7) Mitigation 8.5.3 TOR for	<b>Comment</b> Information on baseline terrain conditions and sensitivity, geotechnical and permafrost conditions, ground thermal conditions are required for adequate design of the highway and granular resources, impact assessment, effects of climate change on the project, and the implementation of mitigation techniques. Information on baseline terrain conditions and sensitivity along the proposed route is required to determine design parameters for the highway and for	<b>July 12:</b> The draft geotechnical reports for major structures have been attached for your reference. These reports include the borehole locations, depths drilled and drilling results. The draft geotechnical report for the roadway alignment will only be available after July 3, 2017 and so will only be submitted to the public registry once it is available.

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	Preparation of EIS - TASR EIS - PDR (PR#7) Adequacy Statement Response - TASR Project Report No 1665943 & appendices	<p>impact assessment, and to ensure impacts of the project on the environment as well as the impact of the environment on the project are minimized. Baseline information on geotechnical and permafrost conditions is required for adequate design of the highway and for characterizing potential borrow sites. This information is also required for assessment of potential impacts and implementation of mitigation techniques. Information on ground thermal conditions is required for adequate design of the highway, assessment of impacts associated with the highway and granular resource extraction and also for determining the effects of climate change on the project. The Proponent has indicated that results from geotechnical drilling will be incorporated into the final road design. At present, however, no information is available in regards to terrain sensitivity, overburden thickness, geotechnical and permafrost conditions, or ground thermal regimes.</p> <p><b>Recommendation</b> Please provide any additional information on the geotechnical conditions presently known along the proposed roadway corridor, now that geotechnical drilling has been completed. If reports are incomplete, please provide borehole locations, depths drilled, and initial drilling results, if known.</p>	
21	GoC - NRCan - IR #7 - Borrow materials - PDR (PR#7) - 4.4.1 Design Embankment TOR for Preparation of EIS - TASR EIS - PDR (PR#7) Adequacy Statement Response - TASR Project Report No 1665943 & appendices	<p><b>Comment</b> An adequate supply of locally available granular and quarry bedrock materials is required for the construction and maintenance of the TASR embankment. The Proponent has indicated that total embankment volume is currently estimated at 3,100,000 m<sup>3</sup> for a 1.5 m thick (average) embankment, and that estimated volumes are currently adequate. Ongoing maintenance, following initial construction will be an essential component of providing a safe driving surface, and for ensuring that no significant impacts on the environment occur during the life of the road. In addition, in evaluating the impacts on proposed granular and bedrock quarry sources, future requirements of materials for maintenance of the roadway should be considered.</p> <p><b>Recommendation</b> Please clarify if estimated borrow materials from quarry and bedrock sources includes material sufficient for future maintenance of the proposed road. If material amounts include those for future maintenance, please indicate estimated amounts as part of the total resource requirements.</p>	<p><b>July 12:</b> There is enough gravel available within the preferred prospects for future maintenance to keep the roadway safe for drivers. The table located in Appendix J of the TASR PDR (PR#7) provides INF's initial estimate of available granular and bedrock prospects near the TASR. The estimated volume of these prospects exceeds INF's initial total embankment volume of 3,100,000 m<sup>3</sup>, which INF estimated as being necessary to construct the TASR. These prospects will also contain a sufficient amount of material to support future road maintenance. INF is currently conducting geotechnical investigations at 13 preferred prospects. Once the geotechnical investigations are complete and the final reports have been produced, actual quality and quantity of granular materials available at each source will be known in addition to whether the sources are suitable from a geochemical perspective.</p>
<b>Mackenzie Valley Environmental Impact Review Board: Simon Toogood</b>			
1	To: the Developer Re: Barren Ground Caribou, assessment endpoint clarification	<p><b>Comment</b> The developer's conclusions regarding effects of the project on barren ground caribou assumed a scenario where populations meet the assessment endpoint; self-sustaining and ecologically effective populations. However, the developer observed that current populations do not meet the assessment endpoint; populations are not self-sustaining and ecologically effective. The developer states that "due to the current low abundance and harvest restriction on Bathurst Caribou and BNE [Bluenose East], barren ground caribou are considered unlikely to be self-sustaining and ecologically effective at Base Case" (PR#110 p4-53). The developer also states that "overall, the weight of evidence from the analysis of the primary pathways predicts that incremental and cumulative changes to measurement indicators from the Project and other developments should have no significant adverse effect on self-sustaining and ecologically effective barren-ground caribou populations" (p4-217, PR#110). Based on the above and the information in the Adequacy Statement Response it appears that: at base case barren ground caribou do not meet the assessment endpoint (PR#110 p45) the project will have negative effects on barren ground caribou (PR#110 p56), and the developer concluded that the project will have "no significant adverse effect on self-sustaining and ecologically effective barren-ground caribou populations" (PR#110 p4-217)</p> <p><b>Recommendation</b> The Review Board seeks clarification regarding the apparent contradiction (see above) in the developer's conclusions of effects to barren ground caribou, which are provided on page 4-217 of the Adequacy Statement Response. Can the developer please clarify what the predicted effects of the project, in combination with cumulative effects, would be on caribou populations described in the base case, which are barren ground caribou populations that are not self-sustaining and ecologically effective?</p>	<p><b>July 12:</b> The Bathurst herd has been declining from a high of over 350,000 animals in the mid-1990s. Although it was considered stable at low numbers from 2009-2012 at around 32,000 to 35,000, the photographic survey of the Bathurst calving grounds conducted in June 2015 suggests that the Bathurst herd has further declined to between 16,000 to 22,000 since 2012 (GNWT-ENR 2016a). Similarly, the GNWT-ENR calving ground photo survey results showed that the Bluenose-East herd declined from more than 100,000 in 2010 to around 38,600 animals in 2014 (GNWT-ENR 2016b). Harvest restrictions have been imposed on both Bathurst and Bluenose-East barren-ground caribou as a result of recent population declines. Barren-ground caribou are considered unlikely to be self-sustaining and ecologically effective at Base Case due to low abundance and ongoing population decline. Collar locations from the Bathurst caribou herd indicated that the Project is outside of core winter ranges and completely outside of the annual range of the Bluenose-East caribou herd (PR#110, Appendix G). There is low potential for regular interaction between barren-ground caribou and the Project at the population (herd) scale, especially when herd numbers are low (Appendix G). This is supported by the results presented in the Traditional Knowledge Study Report (PR#28) that indicates barren-ground caribou were harvested in the vicinity of the Project during the mid-1990's when barren-ground caribou herds were more abundant, but also indicate that barren-ground caribou have been absent from the Project area during the recent decline phase for these herds. Based on this information, no interaction between the Project and barren-ground caribou is predicted during periods of low population abundance. The self-sustaining and ecologically effective status of barren-ground caribou will be determined by factors that affect calving grounds and core ranges, not peripheral habitats. The Project will not contribute to the lack of self-sustaining and ecologically effective barren-ground caribou. Potential interactions between the Project and barren-ground caribou were identified in the Adequacy Statement Response (e.g., habitat loss, reduced overall carrying capacity of the Regional Study Area, and changes in harvest). However, these interactions are only predicted during periods of higher herd abundance when barren-ground caribou use the RSA (defined for barren-ground caribou as a 35 km buffer around the Project Footprint). If herd size recovers to a size where the RSA is used (e.g., 350,000 animals in the Bathurst herd), barren-ground caribou populations will have regained their self-sustaining and ecologically effective status. Interaction with the Project after recovery would result in small adverse effects on barren-ground caribou, but these effects would be within the adaptability limits of larger herds. Because barren-ground caribou use of the Project area has tended to be when populations are high and because the potential effects of the Project in the RSA are small, the Project is not predicted to influence the ability of the barren-ground caribou to be self-sustaining and ecologically effective. References GNWT-ENR (Government of the Northwest Territories-Environment and Natural Resources). 2016a. Overview: Monitoring of Bathurst and Bluenose-east Caribou Herds, October 2014. Department of Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, NWT. GNWT-ENR. 2016b. An Estimate of Breeding Females and Analyses of</p>

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			Demographics for the Bluenose-east Herd of Barren-ground Caribou: 2015 Calving Ground Photographic Survey. Department of Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, NWT.
2	To: the Developer Re: Barren Ground Caribou, Cumulative Effects	<p><b>Comment</b> The developer used a Regional Study Area of a 35 km buffer around the TASR to assess project and cumulative effects to barren ground caribou (PR#110 p4-5). The developer states that barren ground caribou are a wide ranging species and, that "the RSAs for wildlife VCs [valued components] were identified to capture and assess the significance of incremental and cumulative effects from the Project and other previous, existing and RFDs [reasonably foreseeable developments]" (4-5, PR#110). Further, that "the VC-specific RSA is the scale at which cumulative effects can be appropriately assessed for each VC" (4-5, PR#110).</p> <p><b>Recommendation</b> Can the developer clarify if the proposed Regional Study Area is sufficient to identify all other past, present and reasonable foreseeable human activities that could affect the same barren ground caribou as the project? If not, please conduct a cumulative effects assessment following Appendix H of the Review Board's Environmental Impact Assessment Guidelines.</p>	<p><b>July 12:</b> The proposed Regional Study Area is sufficient to identify all other past, present and reasonably foreseeable human activities that could interact with the Project to affect barren-ground caribou in the peripheral habitats used by barren-ground caribou when population density is high. Barren-ground caribou are only expected to interact with the Project when population densities are similar to those observed in the mid-1990s. Previous, existing, and reasonably foreseeable developments that may result in loss of self-sustaining and ecologically effective barren-ground caribou populations are those that occur in calving grounds and core ranges, not in peripheral habitats (see response to MVEIRB IR#1). Section 4.3 on Cumulative Impacts of the Mackenzie Valley Environmental Impact Review Board's Adequacy Statement (PR#70) indicated that that the approach of the Project Description Report (PR#7) to determine previous, existing and reasonably foreseeable developments (RFDs) was satisfactory. The study area for barren-ground caribou in the Adequacy Statement Response (PR#110) considers the same RFDs identified in the Project Description Report.</p>
3	To: The Developer Re: Boreal Woodland Caribou, update the effects assessment and the application of the Boreal Caribou Recovery Strategy	<p><b>Comment</b> Parties have expressed concerns about how to assess project related effects to boreal woodland caribou, at both a territorial wide range and in the North Slave region due to:</p> <ul style="list-style-type: none"> <li>• a lack of baseline data;</li> <li>• uncertainty regarding identifying local populations and their trends; and</li> <li>• how to apply Boreal Caribou Recovery Strategy (PR#38) including the applicability of the NT1 range</li> </ul> <p>The developer's position on the issues is stated in the following quote, "What the GNWT was trying to convey to the Board in our recommendation that stated "Please recognize that boreal caribou population trends cannot be specific to the North Slave region and that the trends can only be applied to the entire NT boreal caribou range" was that the habitat disturbance-population self-sustainability model developed by ECCC for the national recovery strategy for boreal caribou cannot necessarily be used to infer population trend in the North Slave region, and thus GNWT can only report on population trend at the scale of the whole NT1 range based on that model (PR#99 p2)." Within the NT1 range there may be unidentified local populations of boreal caribou that could be affected by the proposed all-season road. Further, the potential effects of the all season road may be insignificant at the NT1 scale, but significant to these local populations. ECCC, WRRB and developer have met on several occasions to discuss this topic (PR#12, PR#94, PR#100, PR#99, and PR#107).The latest information on the record indicates there remain outstanding concerns. The developer states "the concerns that ECCC spoke to in their December 21, 2016 letter to GNWT and the concerns that the WRRB spoke to in their December 16, 2016 response to the GNWT still stand" (PR#107).</p> <p><b>Recommendation</b> Please provide an update on the assessment of boreal caribou for this EA. \This should include:</p> <ul style="list-style-type: none"> <li>• any additional meetings with ECCC and/or WRRB, including results,</li> <li>• any plans for additional meetings, and</li> <li>• the status of commitments made in the above referenced documents, such as a proposed North Slave Region monitoring program including a collaring program for boreal caribou (PR#107)</li> </ul>	<p><b>July 17: Past Meetings with ECCC and WRRB</b> Meeting summaries for all meetings between the GNWT and Environment and Climate Change Canada (ECCC) and/or the Wek'èezhii Renewable Resource Board (WRRB) to discuss boreal caribou with respect to the Tli'cho? All-season Road (TASR) have been posted to the Review Board's registry, as noted below. The GNWT met with ECCC and the WRRB on November 10, 2016 (PR#94; 99; 100) and January 20, 2017 (PR#107) to discuss boreal caribou with respect to the proposed TASR. The GNWT has also met with the WRRB on May 25, 2017 to discuss the Adequacy Statement Response for the TASR (PR#121). Caribou monitoring, habitat and range were discussed at the May 25, 2017 meeting but the meeting was not solely focused on caribou. <b>Future Meetings with ECCC and WRRB</b> There are no meetings planned between GNWT, ECCC and WRRB to discuss boreal caribou and the TASR at this time. The GNWT is open to meeting with either party should they wish to discuss any issue related to the TASR. <b>Status of Commitments Made in the Documents Referenced in WRRB's Information Request</b></p> <ol style="list-style-type: none"> <li>1. Commitment: GNWT to provide a written rationale on why boreal caribou population trends can only be applied to the entire NT1 range. <ul style="list-style-type: none"> <li>• Status: A rationale was provided and is posted on the Review Board's registry (PR#99).</li> </ul> </li> <li>2. Commitment: Caribou collaring <ul style="list-style-type: none"> <li>• Status: In March of 2017, ENR deployed 20 GPS/Iridium collars on female boreal caribou in the Wek'èezhii region, within a study area centered around the proposed TASR Alignment. Please see the GNWT's <a href="#">response to ECCC IR#7</a> (ID9) for maps of the preliminary results of the GNWT's Boreal Caribou collaring program in the Wek'èezhii Region.</li> </ul> </li> <li>3. Commitment: Habitat suitability modeling <ul style="list-style-type: none"> <li>• Status: GNWT explored the possibility of developing a habitat suitability model and maps based on the biophysical attributes for boreal caribou critical habitat described in Appendix H, Table H-1 of the national recovery strategy (ECCC 2012). Reviewing the biophysical attributes described for boreal caribou during different seasons suggested that boreal caribou use almost all habitat types at some point during the year, including habitat that would meet the definition of "disturbed habitat" used in the national recovery strategy. Further work on a habitat suitability model was therefore not pursued, and the impact assessment focused instead on how much new habitat disturbance the project would contribute relative to baseline conditions and to the 65% undisturbed habitat threshold applied at the scale of the NT1 range. For the ASR, it was assumed that all undisturbed habitat is suitable habitat for boreal caribou, and disturbed habitat is unsuitable.</li> <li>• GNWT did not quantitatively evaluate the relative impact of alternative routes on caribou habitat, as a qualitative review of Figure 4-2 from the Project Description Report confirmed that Alternate Routes B, B', and C would all traverse larger amounts of undisturbed habitat relative to the proposed TASR alignment which follows an existing linear feature and overlaps with large areas of recent fires.</li> </ul> </li> <li>4. Commitment: Establishment of a Wildlife Effects Monitoring Program <ul style="list-style-type: none"> <li>• Status: The GNWT is working on drafting a Wildlife Effects Monitoring Program (WEMP) and updating the draft Wildlife and Wildlife Habitat Protection Plan (WWHPP). A draft WEMP will be provided prior to the technical sessions and a revised draft</li> </ul> </li> </ol>

ID	Topic	Reviewer Comment/Recommendation	Proponent Response
			<p>WWHPP will be provided to reviewers prior to the public hearing.</p> <p>5. Commitment: Consider opportunities to restore other linear disturbances to offset the TASR</p> <ul style="list-style-type: none"> <li>Status: The TASR Project Description Report mentioned the possibility of reclaiming the first 60 km of the Tli?cho? Winter Road System to offset some of the loss of boreal caribou habitat. The GNWT has determined that is not applicable for two reasons. Firstly, as per Section 19.8.1 of the Tli?cho Government, the GNWT only has a right of free access to the Tli?cho winter road's right of way in order to establish, build, manage, control, vary and close up the Tli?cho winter road and therefore the GNWT cannot commit to reclamation of the terrestrial portions of the winter road (KM 0-60) at this time. Any reclamation activities planned for the terrestrial portions of the Tli?cho? winter road (KM 0-60) will be managed and addressed jointly by the Tli?cho Government and the GNWT by way of a bilateral agreement. In addition, the Tli?cho? Winter Road is outside of the boreal caribou range so restoration of that land will not offset new habitat disturbance in the boreal caribou range. Please see the GNWT's response to ECCC IR#8 on habitat offsetting for boreal caribou for additional information.</li> </ul> <p><b>References</b> ECCC. 2012. Recovery Strategy for the Woodland Caribou (<i>Rangifer tarandus caribou</i>), Boreal population, in Canada. <a href="http://www.registrelep-sararegistry.gc.ca/default.asp?lang=En&amp;n=33FF100B-1#_Toc337193703">http://www.registrelep-sararegistry.gc.ca/default.asp?lang=En&amp;n=33FF100B-1#_Toc337193703</a></p>
4	To: the DeveloperMoose, clarification of existing and predicted hunting and harvesting pressures	<p><b>Comment</b> The developer's description of the base case includes effects from hunting along the existing unmaintained historic access trail. The developer proposes to use this route for the TASR. The developer predicts that the change from the existing trail to an all-season road will have a negligible effect on hunting pressures on moose. The developer states "changes to moose survival and reproduction as a result of improved access is predicted to be negligible given that the TASR ROW follows an existing linear feature that is currently used by hunters to harvest moose and access the WRMA [Wek'eezhii Resource Management Area] at Base case" (P4-187, PR#110).</p> <p><b>Recommendation</b> It is reasonable to assume that an all-season road will allow for faster and easier access and, as a result, that hunting and harvesting pressures on moose may increase. In order to understand the potential change in hunting and harvesting pressures, can the developer please quantify:</p> <ol style="list-style-type: none"> <li>hunting and harvesting of moose along the existing trail (the base case) from traditional harvesting and non-aboriginal hunters?</li> <li>the predicted change in hunting and harvesting pressures from the all season road?</li> </ol>	<p><b>July 12:</b> The attached document contains the developer's complete response.</p>
5	To: Department of Fisheries and Oceans CanadaRe: Fish estimate, baseline information and harvest pressures	<p><b>Comment</b> In response to an Oct 28, 2016 Review Board IR#1 (PR#74), the Department of Fisheries and Oceans Canada (DFO) stated that "there may or may not be concerns about potential overharvesting of certain fish stocks in the area but it is difficult to assess this further until there is a full inventory of fish presence and their season migration/occupancy/habitat use in these rivers" (PR#92 p1). However, DFO also stated that other parties may provide additional information, in response to the same Review Board IR, that would allow for further discussions regarding potential effects to fish.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>Is DFO aware of any information on the public registry for this EA that would allow DFO to assess fish stocks affected by the all-season road?</li> <li>Further, can DFO clarify if the identified information topics (full inventory of fish presence and their season migration/occupancy/habitat) are required for DFO to provide its assessment?</li> <li>What information is a priority?</li> <li>Which water bodies are priorities to assess?</li> </ol>	<p><b>July 5: GOC response:</b> 1. DFO is not currently aware of any information other than the Stewart (1997) 'A Review of the Status and Harvests of Fish Stocks in the North Slave Area, Northwest Territories' report on the public registry specific to the TASR file. DFO will continue to work with the proponent to acquire current, relevant, and up-to-date fish stock information for the watercourses potentially affected by the all-season road, as required for DFO to make a preliminary determination on <i>serious harm to fish</i> as defined by the <i>Fisheries Act</i>. 2. DFO Fisheries Management has identified the potential for overharvesting of certain fish stocks resulting from increased access from the all season road; should the project be approved. As such further assessment regarding the linkage between overharvesting from increased access will require a detailed inventory of:</p> <ol style="list-style-type: none"> <li>fish presence/species composition by waterbody;</li> <li>any seasonal migration needs for fish;</li> <li>occupancy and habitat use within all fish bearing watercourses.</li> </ol> <p>3. DFO notes that all fish bearing waters potentially affected by the TASR should be assessed for fish species composition and available habitat. This includes, but is not limited to a review of all available scientific and traditional knowledge on fish presence and habitat utilization/delineation. DFO will work with the proponent throughout the EA process to ensure the Wek'eezhii Renewable Resources Board and Tli?cho? communities are engaged to acquire relevant fisheries information and to identify priority Aboriginal subsistence fisheries/waterbodies that may be at increased risk from any harvesting pressure resulting from the proposed all season road. 4. There</p>

ID	Topic	Reviewer Comment/Recommendation	Proponent Response
			are currently no identified priority areas or Integrated Fisheries Management Plans (IFMP's) for the waterbodies in the vicinity of the TASR project at this time. DFO will work with the proponent throughout the EA process to ensure the Wek'eezhii Renewable Resources Board and Tli'cho? communities are engaged to acquire relevant fisheries information and to identify priority Aboriginal subsistence fisheries/waterbodies where harvesting pressure may change as a result of increased access through the development of an all season road.
6	To: the DeveloperRe: fish monitoring	<p><b>Comment</b> In the effects assessment for fish the developer stated that monitoring for project related effects to water quality will occur for two open water seasons (PR#110 p3-64). The developer also states, in regards to mitigation of effects to fish, that "regional cumulative effects monitoring will be considered through the Marian River Watershed Monitoring Program, managed by the Tli'cho Government" (PR#110 p3-64). The developer goes on to state that "using monitoring and adaptive management, mitigation may be modified or additional mitigation may be implemented to reduce unexpected impacts to fish and fish habitat" (PR#110 p3-64). It is not clear to the Review Board whether the developer is proposing specific monitoring for fish, including monitoring of new fishing pressure during the proposed two years of monitoring. Further, it is not clear if two years of data is sufficient to detect project related effects to fish. The developer also states that it is 'considering' monitoring through the Marian River Watershed Monitoring Program. However, it is not clear if the developer is committing to this monitoring, or whether this monitoring is appropriate to monitor for project related effects to fish.</p> <p><b>Recommendation</b> Part 1 - Can the developer please provide further details on monitoring program(s) for fish and fish habitat including:</p> <ol style="list-style-type: none"> <li>1. how it will detect effects to fish and fish populations over the course of the project (construction and operations);</li> <li>2. the locations of monitoring sites;</li> <li>3. how long monitoring is proposed for;</li> <li>4. if monitoring will include fishing pressures at these sites; and</li> <li>5. how data will inform mitigations.</li> </ol> <p>Part 2 - The developer states that it is considering the Marian River Watershed Monitoring Program as a way to monitor for project related effects to fish.</p> <ol style="list-style-type: none"> <li>1. Can the developer clarify whether it is proposing specific monitoring for the all-season road that will integrate with this program?</li> <li>2. Does the developer intend to provide specific support to this program for monitoring activities related to the all-season road?</li> <li>3. If the developer uses this program how will the developer use information from the program to identify project related effects to fish?</li> <li>4. How will the developer use this information to inform future mitigations?</li> </ol>	<p><b>July 12:</b> Part 1 Monitoring for fish and fish habitat is described in Section 3.6 of the Adequacy Statement Response (ASR, PR#110). Environmental monitoring will be conducted at proposed watercourse crossing sites during the period of instream construction (i.e., during installation of culverts and bridges) at each location. The crossing sites include 15 watercourses/drainages, including four crossings of larger, permanent watercourses, the Duport River, an unnamed watercourse at km 45.2 (crossing #9), James River, and La Martre River. Environmental monitoring during instream construction will allow for the Environmental Monitor to confirm that mitigation measures listed in Table 3.2-1 of the ASR for activities related to the Construction of Stream Crossings are implemented to minimize effects to fish and fish habitat, and to provide input into adaptive management as required. Turbidity monitoring will be conducted at watercourses flowing at the time of construction as per the In-Field Water Analysis Plan and according to permit requirements. The Environmental Monitor will provide results of the turbidity monitoring to the GNWT, and construction activities may be adjusted based on the turbidity monitoring results to remain protective of fish and fish habitat. Post construction monitoring will be conducted at the watercourse crossing sites following construction to provide feedback on the effectiveness of design features and mitigation and to allow for adaptive management as required. Post construction monitoring will be conducted to verify that erosion and sediment control measures have been successful (e.g., bank restoration and revegetation), or if additional measures are required. The integrity of the crossing structures (i.e., culverts and bridges) will be inspected regularly and during periods of high run-off, such as the spring freshet. Any changes to the morphology of the water body channel will be identified and addressed, as needed. At culverts, regular monitoring will be conducted to identify and remove blockages (e.g., ice, woody debris), as needed, that would otherwise lead to scouring and effects to channel morphology and fish habitat, and potentially interfere with fish passage. Post construction monitoring will be conducted in the two open-water seasons following construction. This time period will allow for the understanding as to whether the sediment and erosion control measures have been successful and whether there are any concerns related EA1617-01 Tli'cho All-Season Road Information Request Responses from GNWT July 7, 2017 Submission Page 3 of 4 to fish movement at fish-bearing watercourses, and allow for the implementation of additional mitigation or adaptive management measures where required. The GNWT does not plan to conduct any monitoring associated with fisheries harvest in the Project area. The results of the effects analysis for the Tli'cho All-season Road (TASR) concluded that the magnitude of effects on fish abundance from harvest pressure was considered to be negligible to low, and likely non-measurable. The watercourses and lakes likely to attract the greatest number of fishers due to the TASR (i.e., Lac La Martre, La Martre River, and Boyer Lake) are large water bodies with abundant valued component populations that can support an increase in fishing pressure. The GNWT will ensure DFO and the Tli'cho Government are aware of the changing access and that a review of how fisheries will be managed in the area, including monitoring, may be required. Please see the GNWT's response to MVEIRB IR#8 and NSMA IR#3 for information regarding enforcement of fishing regulations. Part 2 The Marian Watershed Monitoring Program is a community-based Aquatic Effects Monitoring Program (AEMP) administered by the Tli'cho Government. The parameters of the monitoring program are determined, and set by, the Tli'cho Government. This is a community-led and community-defined monitoring program that is essential for the Tli'cho Government, and Tli'cho citizens, to track change and stay informed about what is occurring in the Wek'eezhii area. Furthermore, the current program is designed with specific consideration of the future impacts of the licensed NICO Project and other possible, future developments in the region. Results from the program are currently contributing to the characterization of background conditions and the range of natural variability in water and sediment chemistry in the Marian River watershed (Tli'cho Research and Training Institute 2017). While the program is not designed to examine for potential effects of increased access of the TASR on fish populations, future results collected under the program may assist with monitoring cumulative effects of developments, including the TASR, to confirm for communities that the fish are safe to eat and the water is safe to drink, as per objectives of the Tli'cho Research and Training Institute (2017). Future monitoring of fish, water, and sediment downstream of the TASR would only be initiated in response to community concerns, and the scope and details of any such monitoring would be updated by the Tli'cho Government at that time as needed. However, it is important to note that the mitigation measures listed in the ASR are expected to be effective in minimizing effects to fish and fish habitat, and therefore, additional monitoring is not anticipated for the TASR. References Tli'cho Research and Training Institute. 2017. Monitoring Activities. Website <a href="http://www.research.Tli'cho.ca/lands-protection/monitoring-activities">http://www.research.Tli'cho.ca/lands-protection/monitoring-activities</a> accessed June 2017.</p>
7	To: the Department of Fisheries and Oceans Re: Inspection and enforcement	<p><b>Comment</b> The developer's proposed mitigation for the protection of fish stocks potentially affected by the all-season road is inspection and enforcement by DFO under the Fisheries Act and regulations (PR #110 p3-59), as well as any inspection and enforcement by GNWT of the Sport Fishing Regulations . The proposed road is predicted to cause an increase in fishing pressures and will require inspection and enforcement. The developer has not provided evidence that existing inspection and enforcement agencies have planned for, or have the capacity to manage, the</p>	<p><b>July 5: GOC response:</b> In the Northwest Territories, DFO is responsible for setting and managing sport fishing limits (DFO Fisheries Management). Within the Wek'eezhii (Tli'cho?) Management Area, the Wek'eezhii Renewable Resources Board is a co-management body that provides advice and recommendations to DFO regarding fisheries in the area and in the development of IFMPs and establishing fishery quotas/catch limits. For enforcement of any set limits, DFO has an agreement with the Government of Northwest Territories (GNWT) - Environment and Natural Resources (ENR) such that ENR is responsible for issuing License's and they are the lead agency on sport fishing enforcement. Since the TASR project is still under the EA review, DFO has not developed an enforcement</p>

ID	Topic	Reviewer Comment/Recommendation	Proponent Response				
		<p>predicted increase in fishing activities in the area of the TASR.</p> <p><b>Recommendation</b> Has DFO planned for additional inspection and enforcement capacity should this project proceed? If so, what are the details (timing, frequency, inspection activities, staff resources, etc.) for this monitoring and enforcement?</p>	<p>plan to deal with new access into the area. Should the project be approved to proceed to regulatory phases, and a timeline for completion has been determined, DFO will work closely with the Wek'eezhii Renewable Resources Board and Tli'cho? communities to develop an appropriate plan to address new and increased fishing access that occurs at that time. This will include sport, domestic and Aboriginal fisheries enforcement plans.</p>				
8	To: the Developer Re: Inspection and enforcement	<p><b>Comment</b> The developer's proposed mitigation for the protection of fish stocks potentially affected by the all-season road is inspection and enforcement by DFO under the Fisheries Act and regulations (PR #110 p3-59), as well as any inspection and enforcement by GNWT of the Sport Fishing Regulations . The proposed road is predicted to cause an increase in fishing pressures and will require inspection and enforcement. The developer has not provided evidence that existing inspection and enforcement agencies have planned for, or have the capacity to manage, the predicted increase in fishing activities in the area of the TASR.</p> <p><b>Recommendation</b> Has the GNWT planned for additional inspection and enforcement capacity should this project proceed? If so, what are the details (timing, frequency, inspection activities, staff resources, etc.) for this monitoring and enforcement?</p>	<p><b>July 12:</b> Should this project proceed, the Government of the Northwest Territories (GNWT) will continue to enforce sport fishing regulations in the NWT in the same manner as it is currently doing. The GNWT has not planned for additional inspections and enforcement capacity with respect to enforcement of the Fisheries Act or its regulations in response to the potential construction of the road because the GNWT is not the management authority for fish and fish habitat in the Northwest Territories. The Department of Fisheries and Oceans Canada (DFO) is the management authority for fish in the NWT. Page 3-59 of the Adequacy Statement Response provides the following information regarding fisheries management: It is anticipated that DFO will continue to be able to manage regional fisheries resources and support sustainable fish populations in the NWT. DFO is the management authority for fish and fish habitat in the NWT. DFO is responsible for enacting all regulations under the federal Fisheries Act, and is responsible for the biological management of fishery resources, including the sport, commercial and domestic fisheries in the NWT. DFO is responsible for enforcing the Fisheries Act, although GNWT officers, under a Memorandum of Understanding with DFO, have been EA1617-01 Tli'cho All-Season Road Information Request Responses from GNWT June 29, 2017 Submission Page 2 of 2 cross appointed to enforce the sport fishing regulations. The GNWT-ENR administers sport fishing licences in the NWT. Fishing is managed as a public resource through territorial licensing requirements, and the establishment of season length, catch limits, and catch-and-release rules. It is also anticipated that the Tli'cho Government will further manage the fisheries on Tli'cho lands, including future fishing based tourism opportunities such as fishing lodges and guided fishing tours, where needed to ensure sustainable subsistence fishing is available for Tli'cho people. To provide clarity around the GNWT's role with regard to fisheries management, the GNWT has included federal Order in Council P.C. 1976-535 as an attachment to this information request response. DFO was called the Department of the Environment at the time the Order in Council was written.</p>				
9	To: TG and/or CGWRe: Equitable distribution of employment benefits	<p><b>Comment</b> The Tli'cho Government and Community Government of Whati have proposed mitigation #4 (mobilization of the Career Development and Economic Development Officers) to prepare the local workforce for project related job opportunities (PR#96 p9). While the exact number and types of jobs required for the construction and operations phases for the project is unknown, many of the positions will revolve around historically male-dominated trades and occupations. Table 1-3 from PR#96 outlines the current labour supply numbers for the anticipated equipment requirements.</p> <p><b>Recommendation</b> What specific strategies does the TG or CGW have in place to ensure active and equitable participation for women in the employment opportunities related to the project?</p>	<p><b>July 5:</b> TG response <b>IR 9 Response:</b> The Tli'cho? Government is committed to ensuring women's equitable participation in, and benefit from, projects that are operating in the traditional territory. To do so, the Tli'cho? Government is working on several strategies to ensure that Tli'cho? women have the opportunity to grow in both existing economic sectors, and new ones that may arise from the TASR project. The Tli'cho? Government commits to develop employment opportunities for women and youth. This includes employment opportunities that have been historically male-dominated, such as Heavy Equipment Operators (HEOs). The Tli'cho? Government is expanding on the types of training currently offered to women, particularly in trades. The priority of planned training initiatives is to employ women in non-traditional trades and support their skill-growth in the local economy, which includes the TASR project. Last year, four women successfully completed the HEO training that was offered by the Community Government of Whati (CGW) last year. The CGW plans to continue this training program for women this year as well. Presently, there is one HEO project underway in Whati and two HEO projects underway in Behchoko`. One notable measure the CGW has undertaken is the promotion of women's safety in employment. The community recently hired 20 women and men for garbage disposal positions. Women's safety in this environment was top of mind for administration, and the CGW ensured there were gender-balanced teams (i.e., two women and two men), women-only teams, and that no women were working alone (i.e., with or without a male team member). Taking proactive steps to ensure women's safety in the workplace is part of the broader approach that the Tli'cho? Government takes to ensure that women feel safe at work, and so that women feel encouraged and empowered to seek employment opportunities in typically male-dominated jobs. Employment interventions such as these have proven to work successfully in Whati for employing and maintaining women employees, and this thinking will be applied to future job opportunities with the TASR project. In June 2017, the Chiefs Executive Council of the Tli'cho? Government approved the Tli'cho? Regional Economic Development Economic Development Strategy, which includes future opportunities for employment and training. Part of this strategy involves each of the four Tli'cho? communities developing its own Five-year Action Plan to reflect community priorities for economic development. A core part of these action plans will be employment and training for Tli'cho? women, which take into consideration some of the common barriers faced by women accessing employment (i.e., safety and childcare). Economic growth in the Tli'cho? region must be supported by training and capacity building for Tli'cho? citizens. Opportunities that the Tli'cho? Government recognizes for future economic development are listed in Table 9-1 below. Table 9-1: Economic development opportunities<a href="#">[1]</a></p> <table border="1" data-bbox="1510 1649 2902 1893"> <thead> <tr> <th data-bbox="1510 1649 1821 1709">Opportunities</th> <th data-bbox="1821 1649 2902 1709">Definition</th> </tr> </thead> <tbody> <tr> <td data-bbox="1510 1709 1821 1893">Trades</td> <td data-bbox="1821 1709 2902 1893"> <p>Includes the manual work by qualified skilled workers in areas, including, but not limited to:</p> <ul style="list-style-type: none"> <li>• Carpentry</li> <li>• Electrical</li> <li>• Plumbing</li> <li>• Heavy equipment operator</li> <li>• Auto mechanics</li> </ul> </td> </tr> </tbody> </table>	Opportunities	Definition	Trades	<p>Includes the manual work by qualified skilled workers in areas, including, but not limited to:</p> <ul style="list-style-type: none"> <li>• Carpentry</li> <li>• Electrical</li> <li>• Plumbing</li> <li>• Heavy equipment operator</li> <li>• Auto mechanics</li> </ul>
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			<ul style="list-style-type: none"> <li>• Home painting</li> <li>• Welding</li> <li>• Furnace and woodstove installation</li> </ul>
			<p>Natural Resources and renewable energy</p> <p>Includes the harvesting and/or processing of natural products and renewable energies, including, but not limited to:</p> <ul style="list-style-type: none"> <li>• Timber</li> <li>• Plants</li> <li>• Animals</li> <li>• Mushrooms</li> <li>• Fish</li> <li>• Biomass</li> <li>• Solar</li> <li>• Hydro-electricity</li> <li>• Environmental monitoring and on-the-land programs</li> </ul>
			<p>Traditional Economy</p> <p>Includes the harvesting of traditional foods and products that could be sold for profit or shares in the community to off-set the cost of living. This includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>• Animal hides</li> <li>• Fur</li> <li>• Plants and berries</li> </ul>
			<p>Arts and Crafts</p> <p>Includes arts and crafts items that can be sold for profit supplied to community members to off-set the cost of store-bought items. This includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>• Slippers</li> <li>• Gloves</li> <li>• Vests</li> <li>• Hats</li> <li>• Traditional drums</li> <li>• Painting</li> <li>• Carvings</li> <li>• Other items of clothing</li> </ul>
			<p>Tourism</p> <p>Includes local destination attractions and activities, and the support services for tourists coming to visit the community. This could include, but is not limited to:</p> <ul style="list-style-type: none"> <li>• Fishing trips</li> <li>• Cultural tours</li> <li>• Wilderness excursions</li> <li>• Canoe trips</li> </ul>
			<p>Services</p> <p>Includes opportunities that would service the current residents. This could include:</p> <ul style="list-style-type: none"> <li>• Home daycare services</li> <li>• Motor vehicle office</li> <li>• Small support businesses (e-services, accounting, hairdressing)</li> <li>• Business licence process</li> <li>• Catering and restaurant services</li> <li>• Teachers</li> <li>• Social workers</li> <li>• Nurses</li> <li>• Bylaw officers</li> </ul>
			<p>Business</p> <p>Includes local for-profit business opportunities at a community level that could provide retail and service options for residents:</p> <ul style="list-style-type: none"> <li>• Restaurant</li> <li>• Hardware store</li> <li>• Bulk staging areas</li> <li>• Social establishments</li> <li>• Highway gas station and rest stops</li> <li>• Retail stores</li> <li>• Automotive partnerships with dealers in Yellowknife</li> </ul>
			<p>Infrastructure Proposed and/or Realized</p> <p>Includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>• Tli?cho? all-season road</li> </ul>

ID	Topic	Reviewer Comment/Recommendation	Proponent Response																																																			
			<div data-bbox="1827 149 2902 243" style="border: 1px solid black; padding: 5px;"> <ul style="list-style-type: none"> <li>Housing</li> <li>Hotels and cafes</li> <li>Behchoko` Sportsplex</li> </ul> </div> <p data-bbox="1504 249 3033 469">The Tli?cho? Government has very high female Indigenous participation in its staff. The Tli?cho? Government's data from 2016 shows that Tli?cho? women comprise 86% of the workforce (see Table 9-2; Presentation made to City Hall, 2016). The Tli?cho? Government has many proactive policies and approaches that ensure women and men are promoted and prepared for employment. For example, many of the challenges typically associated with accessing training and education for women are distance to education facilities, online education challenges, and family obligations. These have been addressed by proactive policies that ensure employees can access continuing education, take education leave, find financial support (through the One Student Program), and access affordable childcare in each community. Table 9-2: Tli?cho? Government staff by gender (2016)</p> <table border="1" data-bbox="1504 475 3033 691"> <thead> <tr> <th>Position</th> <th>Tlicho</th> <th>Non-Tlicho</th> <th>Women</th> <th>Men</th> <th>Vacancies</th> </tr> </thead> <tbody> <tr> <td>Senior Management</td> <td>60%</td> <td>40%</td> <td>60%</td> <td>40%</td> <td>0</td> </tr> <tr> <td>Management</td> <td>81%</td> <td>18%</td> <td>81%</td> <td>18%</td> <td>0</td> </tr> <tr> <td>Employee / Staff</td> <td>80%</td> <td>9%</td> <td>86%</td> <td>13%</td> <td>10%</td> </tr> </tbody> </table> <p data-bbox="1504 697 3033 822">There is strong connectivity between the Tli?cho? Government and the proponents of the TASR. The Tli?cho? Government's lessons learned and understanding of what promotes male and female recruitment and retention strategies will be shared through the partnership of the Tli?cho? Government, the GNWT and road constructor. The high level of female employment and participation in planning activities ensures that the gender perspective is understood and applied in every aspect of planning.</p> <p data-bbox="1504 854 1650 883"><b>References:</b></p> <p data-bbox="1597 889 3002 949">Tli?cho? Government. 2016. Gender and Public Sector Leadership in the Northwest Territories. Presentation to City Hall on January 21, 2016 in Yellowknife, NT.</p> <p data-bbox="1597 955 3002 1016">Tli?cho? Government. 2017. Tli?cho? Final Draft Training and Economic Development Strategy. Opportunities for economic development. February, 2017. Available online at <a href="http://www.Tli?cho?.ca">www.Tli?cho?.ca</a></p> <p data-bbox="1597 1084 3033 1145"><a href="#">[1]</a> Source: Tli?cho? Government. 2017. Tli?cho? Final Draft Training and Economic Development Strategy. Opportunities for economic development. February, 2017.</p>	Position	Tlicho	Non-Tlicho	Women	Men	Vacancies	Senior Management	60%	40%	60%	40%	0	Management	81%	18%	81%	18%	0	Employee / Staff	80%	9%	86%	13%	10%																											
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10	To: DeveloperRe: Equitable distribution of employment benefits	<p data-bbox="385 1157 1494 1382"><b>Comment</b> The Tlicho Government and Community Government of Whatì have proposed mitigation #4 (mobilization of the Career Development and Economic Development Officers) to prepare the local workforce for project related job opportunities (PR#96 p9). While the exact number and types of jobs required for the construction and operations phases for the project is unknown, many of the positions will revolve around historically male-dominated trades and occupations. Table 1-3 from PR#96 outlines the current labour supply numbers for the anticipated equipment requirements.</p> <p data-bbox="385 1389 602 1417"><b>Recommendation</b></p> <ol data-bbox="428 1453 1479 1578" style="list-style-type: none"> <li>Please provide a breakdown by gender of the current labour supply numbers in Table 1-3 of PR#96.</li> <li>What specific strategies does the GNWT have in place to ensure active and equitable participation for women in the employment opportunities related to the project?</li> </ol>	<p data-bbox="1504 1157 3033 1348"><b>July 21: Part 1</b> Below is a breakdown of gender supply based on PR#96 table 1-3. We note that men hold the majority of the positions, which reflects the general characteristics of tradespeople in construction jobs. That being said, the Tli?cho Government is committed to ensuring women's equitable participation in, and benefit from, projects that are operating in their territory. It should be noted that the Community Government of Whatì (CGW) trained four women as Heavy Equipment Operators (HEO) last year. The CGW plans to continue this training program for women this year as well, contingent on secured funding. <b>Table 1: Equipment Needs and Labour Supply by Gender</b></p> <table border="1" data-bbox="1504 1354 3033 1888"> <thead> <tr> <th rowspan="2">Anticipated equipment list for construction of proposed TASR Equipment</th> <th rowspan="2">Size</th> <th colspan="4">Community Labour Supply Numbers</th> </tr> <tr> <th>Behchoko`</th> <th>Whatì</th> <th>Gamètì</th> <th>Wekweètì*</th> </tr> </thead> <tbody> <tr> <td>Tracked Dozers</td> <td>D3 through to D9</td> <td rowspan="2">107 men 9 women</td> <td>7 men 0 women</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>Hydraulic Excavators (wheeled &amp; Tracked)</td> <td>E70 through to 2458</td> <td>2 men 0 women</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>Motor Graders</td> <td>Various</td> <td>48 men 5 women</td> <td>13 men 0 women</td> <td>8 people total (Mostly men, some women with HEO experience)</td> <td>n/a</td> </tr> <tr> <td>Loaders (wheeled and tracked)</td> <td>Various</td> <td>26 men 0 women</td> <td>17 men 0 women</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>Compaction Equipment</td> <td></td> <td>16 men 10 women</td> <td>5 men 0 women</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>Rotary Drills</td> <td>Various</td> <td>92 men 14 women</td> <td>1 man 0 women</td> <td>n/a</td> <td>n/a</td> </tr> <tr> <td>Gravel Crushing Plants (Cone and Jaw)</td> <td>Various</td> <td>6 men 0 women</td> <td>Not applicable</td> <td></td> <td></td> </tr> </tbody> </table>	Anticipated equipment list for construction of proposed TASR Equipment	Size	Community Labour Supply Numbers				Behchoko`	Whatì	Gamètì	Wekweètì*	Tracked Dozers	D3 through to D9	107 men 9 women	7 men 0 women	n/a	n/a	Hydraulic Excavators (wheeled & Tracked)	E70 through to 2458	2 men 0 women	n/a	n/a	Motor Graders	Various	48 men 5 women	13 men 0 women	8 people total (Mostly men, some women with HEO experience)	n/a	Loaders (wheeled and tracked)	Various	26 men 0 women	17 men 0 women	n/a	n/a	Compaction Equipment		16 men 10 women	5 men 0 women	n/a	n/a	Rotary Drills	Various	92 men 14 women	1 man 0 women	n/a	n/a	Gravel Crushing Plants (Cone and Jaw)	Various	6 men 0 women	Not applicable		
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			Single axle, Tandem axle and Tri axle Haul Trucks	Various-water tankers, sewage tanks, rock, gravel, sanding trucks and plow trucks	47 men 1 woman	18 men 2 women	10 men 2 women	n/a
			Tractor Trailers	Various	15 men 4 women	4 men 0 women	n/a	n/a
			Rock Trucks	Various	26 men 1 woman	8 men 0 women	n/a	n/a
			Tractor Mowing Machines	Various	Na	Na	n/a	n/a
			Water Trucks	Various	Single axle vehicle, see above			
			Fuel Tankers	Various to 40,000 litres				
			Pile Drivers	Various	na	1 man 0 women	n/a	n/a
			Service Vehicles	Various-pickup trucks, utility service trucks, flat decks, snowmobiles, quads, etc.	33 men 5 women	Lots of individuals could fill these positions – people with Class 5 and recreational vehicle licenses. Count not available but could fill positions		
			Tree Harvesters/Mulchers	Various	42 men 4 women	45 men 5 women	13 men 2 women	Approx. 10 total
			Cranes	Various	Information not available for the region			
			Various small equipment (rock pickers, soil cultivators, post hole drills, post drivers, water pumps, rig maps, tampers, compressors, jack hammers, etc.	Various	63 men 11 women	14 men 0 women	12 men 2 women	0 men 0 women
			Temporary Construction/Work Camp Facilities	150 person camps	157 men 11 women	55 men 0 women	n/a	7 total
			Generators	Various	Not applicable			
			<p>*For Wekweètì, available labour supply by gender is tracked differently than the other three communities. A summary of the community labour supply for employment related to the construction of the TASR, according to gender, is described below in Table 2: <b>Table 2: Wekweètì Equipment Needs and Labour Supply by Gender</b></p>					
			<b>Employment type relevant to the construction of the TASR (Wekweètì residents only; count includes persons currently in training)</b>		<b>Total Labour Supply</b>		<b>Currently Employed</b>	
			HEO		38 (32 men, 6 women)		21 (16 men, 5 women)	
			General Labour		38 (34 men, 4 women)		19 (17 men, 2 women)	
			Water delivery		25 (24 men, 1 woman)		13 (13 men, 0 women)	
			Sewage / waste services		25 (24 men, 1 woman)		13 (13 men, 0 women)	
			Drill Blasting		4 (4 men, 0 women)		4 (4 men, 0 women)	
			Bridge construction		4 (0 men, 4 women)		2 (0 men, 2 women)	
			Transportation (long haul trucking)		21 (21 men, 0 women)		13 (13 men, 0 women)	
			Light equipment		11 (11 men, 0 women)		8 (8 men, 0 women)	
			Wildlife monitoring		24 (23 men, 1 woman)		8 (8 men, 0 women)	
			Additional demographic statistics of the available labour force supply in the community of Wekweètì includes:					
			<ul style="list-style-type: none"> <li>• Nine women over the age of 50 are in the workforce, 7 of whom are currently employed;</li> <li>• One woman who works in the mines and is currently employed;</li> <li>• Eighteen women with young children are in the workforce, 14 of whom are currently employed; and</li> <li>• Four women under age 50 (without children) who are in the workforce, two of whom are currently employed.</li> </ul>					
			<p><b>Part 2</b> The following is a summary of specific strategies that the GNWT has in place to ensure active and equitable participation for women regarding employment opportunities. These strategies include preferential hiring, training programs and workplace safety. Local/Northern employment and training are high priorities with the GNWT. Regarding specific strategies to ensure active and equitable participation of women, the GNWT's affirmative action policy states that resident women have priority status on competitions for management and non-traditional jobs. A variety of training opportunities are available for northerners, including women:</p>					
			<ul style="list-style-type: none"> <li>• Small community employment support: <ul style="list-style-type: none"> <li>○ Provides wage subsidies to employers in small NWT communities who offer training in the workplace to unemployed individuals for 12 – 52 weeks, and applies to the community of Whatì.</li> </ul> </li> <li>• Apprenticeship Training-on-the-Job program: <ul style="list-style-type: none"> <li>○ Helps northerners take part in apprenticeship training by providing wage subsidies to employers who train them towards</li> </ul> </li> </ul>					

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			<p>journeyperson certification.</p> <ul style="list-style-type: none"> <li>• Training-on-the-Job program: <ul style="list-style-type: none"> <li>○ This program helps employment insurance participants take part in skills development opportunities by providing wage subsidies to employers who offer them training in the workplace.</li> </ul> </li> </ul> <p>In regards to the TASR, employment statistics will be collected by Project Co. as specified in the TASR project agreement and submitted to the GNWT. The number of women employed can be included in statistics collected and submitted, in order for the GNWT to track the number of northern, local and women employed with the project. Women’s safety in the workplace is an issue the GNWT takes seriously. The GNWT’s Harassment Free and a Respectful Workplace Policy to address safety in the workplace.</p>									
11	To: the DeveloperRe: Vulnerable groups, young women	<p><b>Comment</b> The Tlicho Government stated that “young women could be much more vulnerable with an on land road, and that there could be more abuse of women...there could be more hitchhiking and then women going missing, or increases in teen pregnancy...higher STIs [sexually transmitted infections]” (PR#96 p 59). The developer acknowledges that the project would introduce several risks to women (PR#110 p 5-41) and that negative residual effects are likely to occur (PR#110 p 5-55 and 5-59). The developer’s position is that “potential effects to vulnerable groups ...are not appropriately assessed through the assignment of residual effects criteria” due to the complexities of individuals’ responses to the project (PR#110 p 5-55). Given that position, uncertainty remains regarding the magnitude, extent and duration of residual effects to women from a community perspective, including those effects that may be outside of any one individual’s control. Even with this uncertainty, strategies at the community scale have been proposed to address effects to women, including:</p> <ul style="list-style-type: none"> <li>• increasing focus on STIs, sexual health and on the land programming at nursing stations , and continued education (PR#96 p 59)</li> <li>• annual coordination between Whatì and Behchoko` to address emerging impacts (Mitigation 13, PR#96 p59, PR#110 p 5-20)</li> <li>• continuation of the Whatì inter-agency committee (PR#110 p 5-20)</li> <li>• continuing education provided by the Community Government of Whatì to ensure travellers report their travel plans (PR#110 p5-20)</li> <li>• investigating the establishment of a Community Bylaw Officer (PR#110 p5-20)</li> <li>• aims to increase cell coverage along the Tlicho All-season Road (PR#110 p5-20)</li> </ul> <p><b>Recommendation</b> The Review Board requires additional information on the risks to the health and safety of women, residual effects to women, and mitigations. Please explain specifically how the proposed mitigations (including those listed above) address adverse residual effects to the health and safety of women (including those referenced above) during the following periods: a) construction b) the predicted pulse of adverse social effects during the first year or two the road is in operation c) remaining operations d) if the NICO mine opens</p>	<p><b>July 21: IR Preamble</b> Upon review of this IR, the GNWT and Tli?cho Government recognized that it would be of greater benefit to work together in developing a response as the Tli?cho Government and its citizens have greater authority in responding to community driven programming and mitigations. A focus group was held on June 8, 2017, with all the senior leaders of the Tli?cho Government, Tli?cho Community Services Agency (TCSA) and Senior Administrative Officers from Behchoko? and Whatì. This focus group provided guidance, allowed for an in-depth response, and provided greater clarity with respect to which authority holds responsibility over the community level strategies identified in the IR. Please note, if further questions emerge on any of these issues at hearings or technical sessions, the GNWT may turn to the Tli?cho Government for comment because of their authority in this area. <i>IR Response</i> At the outset, we would like to make note that the Tli?cho? Government will not be responding to the portion of the question that asks to address potential impacts from the NICO mine. The NICO mine had its own EA conducted in 2012, and its construction commencement date remains unknown. As such, additional impact assessments from the NICO mine will not be carried out by the Tli?cho? Government, or included in the TASR project IR responses. The Review Board has asked for additional information on the risks to the health and safety of women, including the residual effects and mitigations. We would like to refer the Review Board to the Tli?cho? Government’s initial responses in <a href="#">PR#96</a>, IR1, Table 1-1 (p. 7), Table 1-2 (p. 16) and IR2, Table 2-1 (p. 37). A great deal of research and resources were invested into developing these responses from a number of Tli?cho? Government agencies, leadership and staff. The Tli?cho Government and the GNWT are confident that the work done to investigate these risks and potential residual effects to women has identified what can reasonably be known in this area. That being said, we can provide the Review Board with several examples of programs and strategies that the Tli?cho? Government is undertaking to proactively address issues pertaining to women’s health and safety in the community (see Table 1 below). These are initiatives in addition to those already discussed in <a href="#">PR#96</a> IR1, Table 1-1. No further negative residual impacts have been identified, and therefore are not included. <b>Table 1: Potential impacts and programming identified by the Tli?cho? Government, CGB and CGW</b></p> <table border="1" data-bbox="1501 1088 3033 1641"> <thead> <tr> <th data-bbox="1501 1088 1752 1128">TASR Project Phase</th> <th data-bbox="1759 1088 2045 1128">Potential impact(s)</th> <th data-bbox="2051 1088 3033 1128">Programming and strategies*</th> </tr> </thead> <tbody> <tr> <td data-bbox="1501 1132 1752 1209">Construction; continuous operations</td> <td data-bbox="1759 1132 2045 1209"><b>Increase in family violence</b></td> <td data-bbox="2051 1132 3033 1209"><b>Interagency family violence and youth protocol.</b> The Community Government of Behchoko? has recently reactivated this interagency program, which will be meeting on a monthly basis to discuss community approaches to family violence, as well as youth participation in problem identification and resolution. This is a proactive approach to dealing with violence within community households. If successful, a similar program could be implemented in Whatì. The interagency working group, which includes the CGB and CGW, continues to address the needs of vulnerable groups on an ongoing basis. In addition to the programs being developed by the Tli?cho Government, the GNWT continues to actively address community responses in the NWT to sexual violence against women and girls. For example, the GNWT supports ongoing research by academics and NGOs in the NWT on family violence. The GNWT “Policy and Guidelines for Health Professionals providing Care to Survivors of Sexual Assault” is expected to be completed in 2017, which will provide additional support to nurses who provide care to survivors of sexual assault. <b>Partnership between Tli?cho? Communities and the RCMP.</b> Presently, a formal partnership is being established between the CGW, TG, TCSA, Aurora College and the RCMP to develop a plan that reduces harm in the community. 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			Continuous operations	<b>Youth (especially) accessing drugs and alcohol</b>	<p>positive, lasting change in the community. The parties are working towards developing and implementing a plan that provides proactive education courses to community members on sexual violence, family violence, parenting, and alcohol addictions. The intention of this partnership is to offer courses to any member of the community, with the intention of addressing the root causes of addictions and general violence within the community. The courses in Whati are considered to be a Pilot Project, which will aim to expand to the wider Tli'cho' region a year after implementation. <b>Resiliency plan.</b> The Community Government of Whati Disaster Resilience Plan (2013) outlines the community's ability to anticipate, prevent, and minimize the potential of a disaster. While this plan focuses primarily on emergency response and preparedness, a central piece of the plan involves supporting families, new mothers and their children in the community. This involves providing essential services for women in the community, such as:</p> <ul style="list-style-type: none"> <li>• Proactive prenatal care;</li> <li>• Positive parenting skills;</li> <li>• Day care support;</li> <li>• Fostering &amp; custom adoption;</li> <li>• Child safety &amp; nurturing; and</li> <li>• Addictions counselling.</li> </ul> <p>These services require the Council's engagement with elders, official leaders, and informal leaders to ensure the work and support services are meeting the needs of families and new mothers in the community. It is anticipated that these programs, which take a proactive approach to supporting families and new mother's well-being, will continue to benefit the Aboriginal women in Whati and other Tli'cho' communities. <b>Working Conditions.</b> One notable measure the Community Government of Whati has undertaken is the promotion of women's safety in employment. The community recently hired 20 women and men for garbage disposal positions. Measures taken to ensure women's safety in this environment include working in gender-balanced teams (i.e., two women and two men), women-only teams, and not working alone (i.e., with or without a male team member). Employment interventions such as these have proven to work successfully in Whati for employing and maintaining women employees, which will be applied to future job opportunities with the TASR. See <i>MVEIRB IR#9</i> for further detail on safe and equitable employment for Aboriginal women. The GNWT is not aware of research or evidence to support the claim in <a href="#">PR#96</a>, 59 that higher STIs are a likely negative impact of TASR. Information collected by the GNWT did not show a link between STI rates and increased community access during the periods of the winter road over a three year intervals tracked from 2005-2016. The TCSA provide STI programs that provide testing and treatment for STIs throughout the region, as well as client education. The TCSA often spends time educating people that are tested and treated for STIs, including contact people with whom an infected individual had sexual contact with and provide the opportunity for these individuals to ask questions and receive further education on STI. Community Health Representatives (CHRs) conduct school visits in the fall of each year to discuss STIs and condom use with youth. Further education specifically for women is</p>
Continuous operations	<b>Children left at home alone or without proper parental supervision</b>				
Continuous operations	<b>Increased stress-load on caregivers due to safety concerns</b>				
Continuous operations	<b>Increased public drunkenness, fights, abuse</b>				

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12	To: the DeveloperRe: Substance abuse,	<p data-bbox="382 1310 1494 1824"><b>Comment</b> In response to a Review Board information request, the Tlicho Government provided evidence that substance abuse issues are currently at a level that is causing significant concerns in Whatì and Behchoko` (PR#96 p7, 17, 37). The Tlicho Government anticipates the all-season road will increase adverse effects such as crime and other social issues for a short period of time (the “spike”) during the first year of operations (PR#96 p7). The Tlicho Government stated that mitigations are required for this spike in effects and provided a suite of mitigations that, if implemented, would reduce the negative effects associated with substance abuse. In response to an October 28, 2016 Review Board IR the Tlicho Government identified that it is confident in the existing data collection systems for monitoring change in socio-economic indicators as a result of the project (PR#96 p54). However, it also stated that “there could be better coordination, sharing and mobilization of data” (PR#96 p53). The document further states that the Department of Industry, Tourism and Investment took the lead in coordinating a meeting that took place at end of January 2017 among the Department of Education, Culture and Employment, the Department of Industry Tourism and Investment, the Department of Health and Social Services, the Tlicho Government and community governments regarding monitoring data, and that this monitoring data will be used to inform how mitigations are applied through adaptive management.</p> <p data-bbox="382 1824 1494 1884"><b>Recommendation</b> Please describe adverse socio-economic effects to communities from substance abuse using cases where communities get new access via all season roads, including Wrigley or</p>	<p data-bbox="1501 1310 3033 1884"><b>July 21:</b> <i>IR Preamble</i> Upon review of this IR, the GNWT and Tli?cho Government recognized that it would be of greater benefit to work together in developing a response as the Tli?cho Government and its citizens have greater authority in responding to community driven programming and mitigations. A focus group was held on June 8, 2017, with all the senior leaders of the Tli?cho Government, Tli?cho Community Services Agency, and Senior Administrative Officers from Behchoko?` and Whatì. This focus group provided guidance, allowed for an in-depth response, and provided greater clarity with respect to which authority holds responsibility. Please note, if further questions emerge on any of these issues at hearings or technical sessions, the GNWT may turn to the Tli?cho Government for comment. <i>IR Response</i> The Tli?cho Government has considered this question, and focused specifically on the opening of Behchoko?`, which is our most recent experience of a road coming into a community. In Helm (2000), a full chapter was devoted to the experience of the road coming into the region. For this reason, rather than focus on Wrigley, we are focusing on the experience in Behchoko?`, then known as Rae-Edzo. What the Tli?cho? Government can draw upon is their experience with the road opening to Rae in 1967, a comparative scenario wherein a Tli?cho? community was faced with similar social pressures as a result of all-season road access. While we acknowledge that the social and economic contexts between 1967 and present-day differ, the potential for social impacts to occur as a result of the TASR will happen under similar conditions as they did in 1967. As such, it is more appropriate for the Tli?cho? Government to draw on its previous experience with road openings in a Tli?cho? community to predict and better understand the social impacts of an all-season road. The physical connection of the road increases the risk during the spring, summer and fall of alcohol and drugs coming into the community. The Tli?cho? Government does acknowledge that there was an increase in the bootlegging industry, access to alcohol and drugs, and negative activity associated with the road opening back in 1967. The literature that was examined is less instructive about lessons learned because it was more focused on the experience of the community than on the</p>			

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		<p>other applicable examples from Northern Canada. Explain key areas of comparison and contrast between those examples and this project. Highlight key strategies, based on lessons learned, that would mitigate likely significant adverse effects from this project.</p>	<p>governance response. The Tli?cho? Government and Whatì Community Government are taking a very active role in addressing the issue through collaboration. Specifically, a recently signed MOU will lead to new programming to address addictions in Whatì. This MOU is described at length below. As stated in Table 3B-1 of <a href="#">PR# 96</a>, Whatì is exposed to drug and alcohol trafficking and usage in the community, and there is potential for TASR to increase access to these substances. The RCMP note that bootlegging seizures spike during the winter road season, and when snow mobile trails open. We expect the TASR to reduce the spike that occurs with the winter road over the long term. The novelty of an all-season road may decline over time and the spikes in adverse community cohesion and well-being effects may flatten out (and reduce the pressures on policing). After reviewing this referenced in this IR, the Tli?cho? Government and the GNWT have come to the conclusion that no further work is required on Wrigley to inform our understanding of impacts. The direct experience and knowledge of the 1967 road changes (Helm, 2000) is sufficient. Besides the examples outlined in this information request, the GNWT is not aware of any further data, case studies, or information describing the relationship between substance abuse and all season roads.</p> <p><b>Table 1: Comparison of positive socio-economic impacts of the highway to Rae (1967) and the proposed all-season road</b><a href="#">[1]</a></p> <table border="1"> <thead> <tr> <th data-bbox="1507 566 1811 626">Beneficial Impacts</th> <th data-bbox="1811 566 2520 626">Highway to Rae* (<i>*All terms and categories are those of Nancy O. 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Noteworthy is the fact the despite massive technological acculturation and pressure to assimilate, Indian Identity, values, and attitudes among the Indians of southern Canada and the United States endure, and the long-expected ‘disappearance’ of the Indians seem less likely than ever to occur at any predictable future time. Herein lies the major implication of the parallels between Rae from 1962 to 1967 and the western Great Lakes from 1820 to 1920 (Lurie 1968, p. 100).</i></li> </ul> <p data-bbox="1501 667 3039 989">In addition, MacDonald (2014, page 16) found that when reviewing the environmental assessment for the road to Tuktoyuktuk, the GNWT concluded that “existing departmental monitoring and management programs would be adequate to deal with any likely changes to the social environment.” In addition, further mitigations were not issues because Tuktoyuktuk was a high capacity community with the appropriate resources to deal with change in the community. However, these findings from the GNWT are not representative of what may happen for the proposed all-season road. “Given differences in climate, geography, culture and socioeconomic conditions between the Arctic Coast and the Tli?cho? Region, it should not be assumed that the effects outcomes of an all-weather road to Whatì would exactly mirror the ones reported here” (MacDonald 2014, p. 16). The Tli?cho? Government has identified a number of relevant mitigations to effectively manage potential socio-economic impacts, which have been specifically crafted in response to the TASR project. These mitigations were outlined in detail in <a href="#">PR#96</a>, Table 1-1 and have also been addressed in the current round of IRs in response to the Review Board-issued IR#13. Community Government of Whatì Mitigations (<a href="#">PR# 96</a>, Appendix D) <i>Community Safety</i></p> <ol data-bbox="1547 1024 3033 1382" style="list-style-type: none"> <li>1. The Community Government of Whatì` is considering the option of hiring a Community Bylaw Officer. This is an issue that needs to be addressed jointly by the Tli?cho? Government and the Community Government of Whatì`, as well as other supportive agencies.</li> <li>2. There is a need to provide on-the-land treatment for substance abusers, using the healing-power of the elders and the land. This is a social issue that needs to be addressed collectively, and one recommendation is to introduce the Nishi Program by accessing a variety of funding sources. In most cases, social issues are “community issues” that at the very least require community input into the solution. TCSA should be viewed for a tool or an organization that has resources to help communities.</li> <li>3. There is currently an alcohol prohibition in place in Whatì`. Alcohol enforcement requires significant resources, and there continues to be challenges with effectively enforcing the alcohol prohibition. The Community Government of Whatì` would like to review the possibility of revisiting the prohibition ban, in favour of more proactive resilience strategies for managing alcohol and drug consumption in the community.</li> </ol> <p data-bbox="1501 1413 3039 1735"><i>Community Preparedness</i> 6) The Community Government of Whatì` is an active supporter of a local Inter-Agency Committee which includes the RCMP, various TCSA agencies, and the Tli?cho? Government. Whatì` Inter-Agency responds to issues related to community preparedness. Issues such as emergency response, social programs, and the community &amp; lands concerns are all brought to this monthly forum. Reasonable discussions about costs, liabilities and insurance will need to be addressed at this forum. Both parties commit to continuing this community forum in order to coordinate among agencies. TCSA 12) The Tli?cho? Community Services Agency commits to providing more information for local health nurses on a range of health issues, such as sexually transmitted infections, among other issues. <i>Municipal Collaboration</i> 13) There will be annual coordination between the Councils of Whatì` and Behchoko?` to ensure that any changes and impacts are being collectively considered, addressed, and managed. <b>References:</b> Helm, June. 2000. <i>The People of Denendeh: Ethnohistory of the Indians of Canada’s Northwest Territories</i>. McGill-Queen’s University Press: Montréal, QC.</p> <p data-bbox="1588 1766 2949 1836">Lurie, Nancy O. 1968. “Effects of the Highway, Rae, 1967.” In <i>The People of Denendeh: Ethnohistory of the Indians of Canada’s Northwest Territories</i>, 2000. Ed. June Helm, pages 95–100. 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			<p>Weather Road to Whatì, Tli?cho? Region, Northwest Territories.” Submitted to Sjoerd van der Wielen, Lands Manager, Tli?cho? Culture and Lands Protection Department, on June 10, 2014. Available online at <a href="http://reviewboard.ca/upload/project_document/EA-1617-01_Appendix_B_-_A_Socio-Economic_Issues_Scoping_Study_for_a_Potential_All-Weather_Road_to_Whatì__Tli?cho?_Region.PDF">http://reviewboard.ca/upload/project_document/EA-1617-01_Appendix_B_-_A_Socio-Economic_Issues_Scoping_Study_for_a_Potential_All-Weather_Road_to_Whatì__Tli?cho?_Region.PDF</a></p> <p><a href="#">[1]</a> Information regarding the Rae highway taken from:</p> <p>Lurie, Nancy O. 1968. “Effects of the Highway, Rae, 1967.” In <i>The People of Denendeh: Ethnohistory of the Indians of Canada’s Northwest Territories</i>, eds. Helm, Lurie and Carterette, 2000, pages 95–100. McGill-Queen’s University Press: Montréal, QC.</p>
13	To: TGR: Substance abuse	<p><b>Comment</b> In response to a Review Board information request, the Tlicho Government provided evidence that substance abuse issues are currently at a level that is causing significant concerns in Whatì and Behchoko` (PR#96 p7, 17, 37). The Tlicho Government anticipates the all-season road will increase adverse effects such as crime and other social issues for a short period of time (the “spike”) during the first year of operations (PR#96 p7). The Tlicho Government stated that mitigations are required for this spike in effects and provided a suite of mitigations that, if implemented, would reduce the negative effects associated with substance abuse. In response to an October 28, 2016 Review Board IR the Tlicho Government identified that it is confident in the existing data collection systems for monitoring change in socio-economic indicators as a result of the project (PR#96 p54). However, it also stated that “there could be better coordination, sharing and mobilization of data” (PR#96 p53). The document further states that the Department of Industry, Tourism and Investment took the lead in coordinating a meeting that took place at end of January 2017 among the Department of Education, Culture and Employment, the Department of Industry Tourism and Investment, the Department of Health and Social Services, the Tlicho Government and community governments regarding monitoring data, and that this monitoring data will be used to inform how mitigations are applied through adaptive management.</p> <p><b>Recommendation</b> Part 1 - Can the Tlicho Government please provide evidence to support the position that issues related to substance abuse will spike in the short term but decrease, or remain at the base case levels, in the long term? Part 2 - The Tlicho Government proposed a suite of mitigations to manage substance abuse issues. Some are existing programs that will be used to manage issues associated with the predicted spike, while others are proposed. Can the Tlicho Government please:</p> <ol style="list-style-type: none"> <li>1. Identify which mitigations must be in place to manage the predicted spike (that is, prioritization of mitigations).</li> <li>2. Clarify how these prioritized mitigations will reduce these adverse effects.</li> <li>3. Clarify if additional capacity (such as staff, resources, infrastructure) would be required to apply existing mitigations to effectively manage the spike of adverse effects.</li> <li>4. Clarify when existing and proposed new mitigations will be implemented related to the construction and operational phases of the project.</li> </ol> <p>Part 3 - The Review Board understands that the Tlicho Government has a high degree of confidence that monitoring data can be collected and used in a timely fashion to effectively inform adaptive management responses. The Tlicho Government has indicated that currently, the timely sharing of data between agencies and governments is a concern. Can the Tlicho Government please provide an update on how it is improving data sharing including:</p> <ol style="list-style-type: none"> <li>1. an update on the outcomes of the meeting with the Department of Industry, Tourism and Investment held in January 2017 (PR#96 p53);</li> <li>2. strategies or plans that will be used to improve the collection, coordination, sharing and mobilization of data necessary to monitor socioeconomic effects of the project;</li> <li>3. considering its available resources, a description of Tlicho Government’s level of confidence that improved coordination, sharing and mobilization of data to monitor</li> </ol>	<p><b>July 11: TG response. Part 1</b> As stated in the cover letter for IR responses from December 2016 (PR#95), research, planning and analysis was—and continues to be—invested in by the Tli?cho? Government, as well as the community governments. We felt this necessary in order to provide the Review Board with accurate and thorough responses. A number of Tli?cho? staff, personnel, and agencies were consulted in order to provide comprehensive answers—as well as make highly informed predictions—to the nature of potential impacts from the Tli?cho? all-season road. There is no academic or secondary literature on this point – the observation is made based on historic experience and deep experience and knowledge of a multitude of service providers in Whatì. Absent some published academic work on road impacts, the Tli?cho? Government, the Whatì Community Government and the Behchoko? Community Government have made this prediction and are seeking to verify it through a parallel case. Prohibition of alcohol consumption was lifted in Behchoko? on April 1, and we predicted a spike and then a tapering off over time in alcohol related misdemeanors. The April and May data show no massive increase in alcohol related calls, but data from June and July may be indicative. The RCMP in Behchoko? and Whatì, as well as educators in the Mezi school in Whatì, were key to the Tli?cho? Government’s assessment of a short-term “spike” in substance abuse patterns following the TASR construction. These service providers have a unique vantage point in the community and they are aware of the trends related to unhealthy social behaviors that occur in the community, as well as their patterns of fluctuation throughout the year. The RCMP and educators both commented on the current “spike” in unhealthy behaviors during the winter road season. As noted in our response in PR#96, Table 1-1, this annual “spike” results in high levels of social issues for service providers to manage every year. Even though both the RCMP and educators anticipate this “spike” to occur with the opening of the TASR, they expect that the novelty of the initial road opening will wear off after a year’s time and the spike in social issues will gradually decline (Personal communication, RCMP 2016; Personal communication, Education Department 2016). With a permanent road in place, the opportunity for “spikes” in negative social behaviors is likely to decline or disappear. In sum, evidence for this prediction came from highly knowledgeable and informed community service providers who have observed, experienced, and managed these repetitive trends on an annual basis in Whatì. The TASR has potential to prevent this “spike” from occurring repeatedly in the future, and can reduce the overall pressures on community services providers who annually manage these social issues. Please refer to IR#12 issued to the GNWT for further information. <b>Part 2</b> It is the Tli?cho? Government’s opinion that all mitigations listed in PR#96, Table1-1, are important for reducing adverse impacts from the TASR. The TCSA has committed to ongoing public education as part of a preventative approach to tackling substance abuse in the community, which remains a priority for the Community of Whatì. That being said, there are several mitigations which we feel are particularly important for managing social impacts in the community: Community Government of Whatì Mitigations (PR# 96, Appendix D) <i>Community Safety</i></p> <ol style="list-style-type: none"> <li>1. The Community Government of Whatì` is investigating options to strengthen community security. This is an issue that needs to be addressed jointly by the Tli?cho? Government and the Community Government of Whatì`, as well as other supportive agencies.</li> <li>2. There is a need to provide on-the-land treatment for substance abusers, using the healing-power of the elders and the land. This is a social issue that needs to be addressed collectively, and one recommendation is to introduce the Nishi Program by accessing a variety of funding sources. In most cases, social issues are “community issues” that at the very least require community input into the solution. TCSA should be viewed for a tool or an organization that has resources to help communities.</li> <li>3. There is currently an alcohol prohibition in place in Whatì`. Annually, TCSA, the RCMP, and the GNWT allocate a large sum to prohibition enforcement and responding to the negative impacts, which are most often ineffective. The Community Government of Whatì` would like to review the possibility of revisiting the prohibition ban, in favour of more proactive resilience strategies for managing alcohol and drug consumption in the community.</li> </ol> <p><i>Community Preparedness</i></p>

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		<p>potential project effects will be in place before the start of project construction.</p>	<p>6) The Community Government of Whatì is an active supporter of a local Inter-Agency Committee which includes the RCMP, Health, various TCSA agencies, and the Tli?cho? Government. Whatì Inter-Agency responds to issues related to community preparedness. Issues such as emergency response, social programs, and the community &amp; lands concerns are all brought to this monthly forum. Reasonable discussions about costs, liabilities and insurance will need to be addressed at this forum. Both parties commit to continuing this community forum in order to coordinate among agencies. TCSA</p> <p>12) The Tli?cho? Community Services Agency commits to providing more information for local health nurses on a range of health issues, such as sexually transmitted infections, among other issues. <i>Municipal Collaboration</i></p> <p>13) There will be annual coordination between the Councils of Whatì and Behchoko? to ensure that any changes and impacts are being collectively considered, addressed, and managed. GNWT Mitigations (from PR# 7, Table 8-8)</p> <ul style="list-style-type: none"> <li>• If bootlegging and trafficking are identified by a community as a policing priority in its annual policing plan, the Department of Justice’s Community Justice Division and the RCMP will assist in providing increased education and awareness around the issues, including the negative impacts of bootlegging and trafficking on the community and the consequences for perpetrators.</li> <li>• The RCMP will conduct patrols and check stops and will inspect vehicles for illegal substances if they have reasonable grounds to do so.</li> <li>• The GNWT has a number of initiatives in place for the prevention of family violence such as, “What Will it Take?”, a social marketing campaign aimed at changing attitudes and beliefs about family violence. It also has services in place to help victims of family violence, such as the ability to apply for an emergency protection order “24/7”, community-based Victim Services, and funding to support the five NWT family violence shelters and victims living in regions without shelters.</li> </ul> <p>The Tli?cho? Government and the TCSA will continue to work collaboratively together on the timely implementation of these mitigations. The question of whether they will tackle the problem sufficiently has been raised. TG and CGW Mitigations 1-3 are about managing problems as they arise, and are vital to community security. They don’t necessarily address addictions directly, but they do address some of the key issues surrounding addictions. Mitigation 3 (lifting the prohibition) addresses the question of criminalizing young people for their addictions, and thereby forcing them out of the job market. Behchoko? is currently addressing this, tracking the results of the prohibition lift, and sharing their findings through monthly communication between the SAOs. TG and CGW Mitigation 6 is where all the issues are surfaced. In the May 2017 Interagency meeting minutes, a new issue was raised, namely that support needs to be in place for reintegration of released offenders, with education resources to be available for addictions, sexual health and parenting (see Whatì Interagency Meeting Minutes, 2017, See Appendix A). This is an intervention that will address new addictions or reemerging addictions. The Interagency forum has been a timely and coordinated venue where new social and mental health issues can be brought to the attention of all service providers. Mitigations 12 &amp; 13 are about education, which is one of the vital and most relied upon methods for reducing addiction rates. The Community of Whatì has consistently adapted to emerging social issues as they arise in the region. An example is the new offender reintegration program, which was developed after the concern was raised that offenders were having troubles readjusting to daily life with support in the community. The more tools and resources that the community have at their disposal – prior to the TASR being built – the better equipped the community and residents will be for its construction and operations. Whatì has an Economic Development Officer to deliver financial literacy courses, which has proven to be very valuable for resident’s financial management. Initiatives such as these are one measure of support that can help residents better manage their daily lives. In the future, for example, the CGW might identify the need for an extra mental health worker, social worker and/or community nurse. These resources would proactively equip the community with the necessary tools to effectively manage Whatì life with the TASR. Given that the impacts will emerge and shift over time, we are prepared to respond to data and changes as they emerge. There is a high degree of connectivity between all levels of government, and every department works together to report on and observe trends annually at the Interagency Working Group. The TCSA has the lead to manage these issues in this respect. The Tli?cho? Government is highly attuned to this issue – and the issue will be a primary focus at each Interagency Working Group, as it was in 2017. <b>Part 3</b> The Tli?cho? Government has not actually met up with the Department of Industry, Tourism and Investment (intended date for meeting of January 2017 (PR#96 p53)). However, ITI does collect data on an ongoing basis and reports annually in the communities. In a staff level meeting, the Tli?cho? Government and ITI agreed to more in depth data sharing. Further, ITI is a participant in the Interagency Meetings, and the data provided is excellent in that forum. The Tli?cho? Government and the GNWT continue to work closely with one another on finding a collaborative and reasonable solution to this issue. Furthermore, there is excellent data available to the Tli?cho? Government and TCSA from many sources, some of which include: the Bureau of Statistics on all core employment, housing and other socio-economic outcomes; monthly nursing station reports; and monthly crime data from the RCMP, among others. Given that there is an Interagency Working Group in both Whatì and Behchoko?, and there are now joint Council sessions (of the two communities), we have</p>

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			<p>a high level of confidence in the tracking, management and response to the trends that we see in the data. Furthermore, there is strong connectivity of key service providers to decision makers, as for example the RCMP report monthly to the SAO in each community and to the Councils. <b>References:</b> Interagency Committee Meeting Minutes, May 18, 2017. Appendix A to IR.</p>
14	To: the DeveloperRe: substance abuse and mitigations	<p><b>Comment</b> The developer predicted the project is likely to cause residual adverse effects through pathways that increase social pressures, access to drugs and alcohol, and reduce residents' sense of safety and security (PR#110 p 5-59). The community of Whati has identified substance abuse and bootlegging as a priority over the last two years and has created an action plan in collaboration with the RCMP (PR#110 p 5-19). The action plan is one of the developer's proposed mitigations for addressing social pressures exacerbated by increased access to drugs and alcohol and increased demand for policing and social services (PR#110 p 5-19). According the developer, action plan implementation depends on the resources available, and if resource issues are raised, the RCMP will work with the community to address the issue (PR#110 p 5-19).</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Will the action plan be updated to incorporate the likely adverse effects predicted? If so, when?</li> <li>2. What aspects of this action plan will mitigate the effects that require increased demands for policing and social services, and will they be implemented at the outset of project operations?</li> <li>3. Are resources sufficient for the action plan initiatives to effectively address the temporary spike of adverse effects predicted by the Aboriginal Governments, as soon as the road is open (PR#96 p34, 47)?</li> </ol>	<p><b>July 12:</b> 1. The policing action plans are developed annually in partnership between the RCMP and community residents. The plans reflect priorities determined by residents and the RCMP, and would incorporate any emerging trends in community safety concerns. The plans are updated quarterly with actions that RCMP and community partners have taken to address priorities, and are adjusted to respond to emerging needs. In addition to the action plans, detachment commanders also provide monthly reports to community leadership that include more updated information on current trends in criminal offenses and policing activities in the community. 2. The policing action plans allow the community and the RCMP to jointly identify public safety concerns as well as the specific activities the RCMP and community EA1617-01 Tli?cho All-Season Road Information Request Responses from GNWT June 29, 2017 Submission Page 2 of 2 partners will take to address them. The plans include the policing priority, actions to be taken, resources required, who is to be accountable to meet the objective, a timeline for completion, and status updates. Each quarter, the actions and status of actions are updated, encouraging continued collaboration and accountability by all stakeholders. 3. The Department of Justice and the RCMP work closely together to ensure that the RCMP is resourced to respond to community safety pressures. Operationally, the RCMP has processes in place to respond to temporary surges in policing demands. If the RCMP requires additional resources to meet long-term needs, it is identified and addressed through strategic operations management discussion, and potentially the business planning process.</p>
15	To: the DeveloperRe: Traffic Estimates	<p><b>Comment</b> During a meeting with the developer, the Review Board asked the developer to elaborate on traffic estimates and patterns (PR#50). The developer provided additional information in the ASR Appendix C. However, there remain outstanding concerns with the traffic estimates. In the PDR and ASR the developer estimated 20-40 vehicles per day, averaged over a 24-hour period. This average traffic scenario was used in the developer's assessment of effects and led to a conclusion of no significant effects to any assessed VC; the residual effects assessment was no effect or negligible. For instance, the developer states, "Thus, noise, or visual stimulus from traffic will be periodic and unlikely to result in permanent barrier effects that will reduce survival and reproduction." (PR#110 p4-177 and 4-183</p> <p style="padding-left: 40px;">"the likelihood of collision is low given the low speed limit and low predicted traffic volume of the road." (PR#110 p4-18)</p> <p>However, the developer's averaged traffic scenario of 1.7 vehicles per hour will not actually occur in any given hour. Rather, traffic is likely to fluctuate on a daily and seasonal basis. How vehicles are likely to actually use the road is important in understanding potential effects and should form the basis of the effects assessment. A more detailed estimation of traffic should include a consideration of activities that may cause pulses in usage, such as: Tlich Government assemblies, bingos, hand games, weekends, or moose hunting season. The estimates should also consider daily traffic patterns including maximums, and seasonal patterns including maximums. A further consideration of how many vehicles may use the road is required. The developer and Tlich Government have stated many positive benefits of the road that can only be realized if people drive on the road. This includes access to other communities, shopping, health care, education, increases in tourism, hunting and fishing. Also, community members from Whati who currently own cars but leave them Yellowknife may have not been accounted for in the developer's estimates. It is not clear if these potential inputs to the daily and yearly traffic estimates were considered.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Please provide an updated quantitative estimate of traffic that considers a realistic scenario of use including daily and seasonal variations and maximums.</li> <li>2. Please apply these updated traffic estimates, including maximums, in the effects</li> </ol>	<p><b>July 21:</b> The positive benefits of the Tli?cho All-Season Road (TASR) do require that people use it, and this was acknowledged in Appendix C of the Adequacy Statement Response (ASR). The estimate of up to 40 vehicles per day on the TASR represents an average number of vehicles per day over the course of a year; it does not represent a prediction of traffic volume on a daily basis. Daily and seasonal variation in number of vehicles using the road is expected. Although specific details about when people would drive to and from Whati on the TASR are not available to predict exact daily and seasonal variation in traffic volume, some generalizations are possible based on data from other roads and anticipated broad patterns of expected use for of the TASR. For example, seasonal traffic patterns for Highway 3 indicate peak traffic volume occurs during June, July and August (DOT, 2016). Hourly traffic patterns on Highway 3 indicate that 79% of daily volume occurs between 8:00 am to 8:00 pm (DOT 2016). Similar patterns may occur for the TASR for those travelling between Whati and Yellowknife. However, unlike Highway 3, peak traffic volumes on the TASR are predicted to occur during winter when winter roads north of Whati are open (ASR, Appendix C). Traffic volume estimates for the Project were predicted to be up to 40 vehicles per day on average during operation if the Fortune Mineral's NICO project was developed. There will be periods when greater than 40 vehicles travel the road in single day. However, there will also be corresponding periods where there is little to no traffic. Although pulses of higher traffic are likely to occur and may result in a higher effect magnitude (e.g., greater risk of wildlife-vehicle collision), the higher effect magnitude will be offset over a given year by a reduced magnitude during periods of little to no traffic. Over the course of the year the effect will average to typical daily traffic volume. The ASR (PR#110) wildlife assessment assumed traffic volume of up to 40 vehicles daily (i.e., a daily average) would occur continuously in the Application Case to maximize the predicted effect of the Project, and account for uncertainty in daily and seasonal variation. This value represents a traffic volume greater than expected under many circumstances (i.e., traffic volumes are not expected to reach 40 vehicles per day unless the NICO project is developed), resulting in a precautionary assessment. The GNWT acknowledges that road volumes may change over time (ASR, Appendix C) and will use adaptive management when managing and monitoring wildlife in the vicinity of the proposed TASR alignment. Additionally, the GNWT is considering locations to where traffic counters could be installed along the TASR alignment. The GNWT is working on drafting a Wildlife Effects Monitoring Program (WEMP) and updating the draft Wildlife and Wildlife Habitat Protection Plan (WWHPP). A draft WEMP will be provided prior to the technical sessions and a revised draft WWHPP will be provided to reviewers prior to the public hearing. Additionally, the Tli?cho? Government (PR# 97) references no innate perception of contamination of animals harvested near existing roads, nor stigma against harvest along or in proximity to existing roads for Tli?cho? citizens.</p> <p><b>References</b></p> <p>DOT (Department of Transportation, Government of the Northwest Territories). 2016. 2015 Highway Traffic Report. Prepared by the Department of Transportation, Government of the Northwest Territories, Yellowknife, NWT, Canada.</p>

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		assessment including, but not limited to, the effects on: wildlife VCs, traditional use of the land, perception of the land, and public safety/emergency response.	
16	To: the Developer Re: Road Safety and Emergency Response Planning	<p><b>Comment</b> The developer informed the Review Board that "The Community Governments of Behchoko` and Whati` will seek to enter into discussions with the GNWT and other emergency response departments and organizations to ensure a strategy is in place for emergency response measures along the Project route" (PR#110 p5-37).</p> <p><b>Recommendation</b> Please provide the Review Board with an update on discussions between the Community Governments of Behchoko` and Whati` and the GNWT regarding emergency response.</p>	<p><b>July 17: IR Preamble</b> Upon review of this IR, the Government of the Northwest Territories (GNWT) and Tli`cho Government (TG) recognized that it would be of a greater benefit to work together in developing a response as the Tli`cho Government and its citizens have greater authority in responding to community driven programming and mitigations. A focus group was held (June 8, 2017) with all the senior leaders of the Tli`cho Government, Tli`cho Community Services Agency (TCSA) and Senior Administrative Officers from Behchoko and Whati. These focus groups provided guidance, allowed for an in-depth response and provided greater clarity with respect to which authority holds responsibility. Please note, if further questions emerge on any of these issues at hearings or technical sessions, the GNWT may turn to the Tli`cho Government for comment. <i>IR Response</i> In 2017- 2018, the GNWT will be reviewing the delivery of ground ambulance and highway rescue services in the Northwest Territories. The review is intended to support the establishment of a plan to address current challenges and identify measures for safety and security along territorial highways. There is an increased interest from the two Behchoko` fire halls to increase their capacity and provide emergency response services along the Tli`cho All-Season Road (TASR). Key communities which deliver rescue and ambulatory services (including Behchoko`) will be involved in the 2017-2018 plans to complete a comprehensive operational review. Following the referenced review above, an Action Plan will be developed to address identified gaps, deficiencies and future needs with ground ambulance and highway rescue services. This work will take into consideration the TASR to the community of Whati. Since December 2016, the Senior Administrative Officer for the Community Government of Behchoko` (CGB) has held ongoing dialogue with the regional fire marshal regarding their emergency response service capabilities in the future scenario of an all season road. It was noted in <a href="#">PR#96</a>, IR7, that the Community Government of Whati (CGW) is interested in expanding its emergency services and personnel – both EMT and firefighting capacity. While the CGW has not yet engaged directly in discussions with the GNWT regarding expansion of these services, these conversations are anticipated to take place in the future. The GNWT has established a multi-departmental working group involving Health and Social Services, Department of Justice, Department of Infrastructure and the Department of Municipal and Community Affairs to develop a Ground Ambulance and Highway Rescue Services Action Plan. MACA is responsible for facilitating a prompt and coordinated response by the GNWT and its partners to emergencies affecting all or part of the NWT. The Department also assists communities in developing and maintaining municipal emergency plans and programs, which is a requirement of the Civil Emergency Measures Act (CEMA). Ground ambulance and highway rescue services beyond municipal borders falls outside the scope of CEMA. Municipal legislation empowers community governments to establish ground ambulance and highway rescue services, and they possess the authority to pass bylaws allowing ambulance and emergency services to extend beyond community boundaries (on public highways) and to set rates for ambulance services. The CGB, CGW, TCSA and the GNWT continue to work closely with one another regarding emergency response services.</p>
17	To: the Developer Re: Food Security and Traditional Harvesting, combined effects of the project on food availability	<p><b>Comment</b> The developer and parties suggest that Whati residents will benefit from access to cheaper and healthier store-bought foods as a result of this project (PR#110 p 5-37, PR#110 pdf p 564, PR#110 pdf p 562, PR#96 pp69-70). The developer predicts that project operations could create a positive residual effect to “food security,” (PR#110 p 5-59) and concludes no mitigations are necessary (PR#110 p 5-20). The Review Board requires the developer to consider how the potential impacts listed below relate to the developer’s conclusion:</p> <ul style="list-style-type: none"> <li>• The potential for increased hunting pressure from outsiders (PR#96 p 12) including traditional harvesters and recreational hunters, and reduced harvesting success (PR#96 p 68). Recognize that the North Slave Métis harvest moose and caribou in the area, and caribou remains a principle item in the North Slave Métis diet (PR#110 p 5-14).</li> <li>• The potential for increased participation in traditional harvest activities due to greater access (PR#96 p 41).</li> <li>• Concerns that the traditional cultural principles for sustainably harvesting resources may no longer be observed (PR#7 Appendix B p 14).</li> <li>• Potential effects on trappers’ incomes, considering biophysical effects to harvested and trapped species, during road construction and operation (PR# 96 p 68).</li> <li>• Effects on the availability of affordable groceries in Whati, including future plans, supply and demand from Whati residents, mine employees, Gameti residents and Wekweeti residents (PR#96 p 41) and possible increases in the cost of living (PR#96 p 59) and the cost of food (PR#96 p 68).</li> <li>• Effects from a potential reduction in reliance on country food (PR#96 p 12).</li> <li>• Potential changes to the amount of time that Whati residents have to participate in the subsistence economy (PR#7 Appendix B p57) and to prepare, cook, distribute and learn</li> </ul>	<p><b>July 17: IR Preamble</b> Upon review of this IR, the GNWT and Tli`cho Government recognized that it would be of a greater benefit to work together in developing a response as the Tli`cho Government and its citizens have greater authority in responding to community driven programming and mitigations. A focus group was held (June 8, 2017) with all the senior leaders of the Tli`cho Government, Tli`cho Community Services Agency and Senior Administrative Officers from Behchoko` and Whati. These focus groups provided guidance, allowed for an in-depth response and provided greater clarity with respect to which authority holds responsibility. Please note, if further questions emerge on any of these issues at hearings or technical sessions, the GNWT may turn to the Tli`cho Government for comment. <i>IR 17 Response Discussions: Summary:</i> Food security, as defined by the United Nations’ Committee on World Food Security, is the condition in which all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy Life (CFS: Committee on World Food Safety; Global Strategic Framework for Food Security &amp; Nutrition [FCS], Fifth Version 2016) The GNWT has provided this definition for Food Security as a guide for this analysis. Widely accepted indicators of food security include the following parameters (Everybody Eats; A discussion Paper of Food Security in Newfoundland and Labrador, November 2015 Pg. 4, Food First NL). Production: Fishing, Farming and Processing Distribution: Transportation, Delivery, Wholesale Access: Growing, Buying, Harvesting (Hunting &amp; Fishing) Consumption: Preparing, Preserving, Celebrating (Tradition) Disposal: Recycling, Composting, Incineration The Tli`cho All- season Road (TASR) will increase access to remote areas for Tli`cho citizens and Indigenous peoples who assert Aboriginal rights near the proposed road development project. The road will provide staging areas (roadside turnouts) for vehicles and equipment used for trapping and provide access points for traditional land uses such as berry picking, trapping (increasing income), fishing and hunting. The road will also improve access to the area for traditional purposes. From a purely food security position, this is a positive net effect for all Indigenous groups that historically use the area. The TASR will travel through recent burned areas where forest fires have created large tracts of fertile lands that promote growth of morel mushrooms which has recently provided seasonal employment to Indigenous harvesters living in close proximity to the area. Wages earned from picking morels may provide a source of income and increase the resident’s capacity to afford a wider selection of groceries. It is not known if territorial highways affect furbearing animals in the way that roads affect northern ungulates in terms of collisions or habitat fragmentation. The Government of the Northwest Territories (GNWT) provides Local Wildlife Committees (LWC) with annual funding assistance through the Community Harvesters Assistance</p>

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		<p>about country foods (PR#96 p 67).</p> <p>It is unclear how the developer considered each of these impacts on their own or in combination in its overall conclusions about residual effects and mitigations.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Discuss likely overall effects to Whatì residents' ability to access and afford appropriate, healthy food that meets their dietary needs by considering the combined effects of the impacts suggested by Whatì residents and Aboriginal Governments (above). Include cumulative effects from the NICO mine and an extended operating season of the winter roads from Gamèti and Wekweèti. Discuss the likelihood of overall impacts. Include tables or figures to present complex interactions, where appropriate.</li> <li>2. How will the effects predicted in question 1) above vary among different groups of Whatì residents, for example, single parents, Elders, infants, the employed and "chronically unemployed" (PR#7 Appendix B)?</li> <li>3. Propose mitigations and explain specifically how the developer will mitigate likely cumulative effects, if applicable.</li> </ol>	<p>Program (CHAP) for distribution to their respective memberships. The purpose of this funding is to provide financial assistance to organizations recognized by the GNWT as representing the interests of hunters and trappers within a particular community. These program funds assist in defraying a portion of capital and operating costs of harvesting activities. Funding is available for renewable resource harvesters for the purchase of small tools and related equipment required to store, process and preserve foods from community hunts or harvests. The Take a Kid Trapping / Harvesting Program supports community youth in the development of hunting and trapping skills. The GNWT also provides support to various youth serving organizations that use 'on-the-land' / hunting / trapping as a means to support health and social well-being goals. Conservation is also related to food security. Increased access by all hunters (Indigenous and/or non-Indigenous) into the area could result in an increase in competition for subsistence animal species and may potentially decrease the amount of available country food. To ensure protection of wildlife is to preserve access to country foods. Currently the hunting of Barren- ground Caribou populations is protected by a ban on an open hunt. These measures are in-place to ensure the protection of wildlife and conserve food for future generations. As wildlife populations recover to sustainable harvest levels, bans may be lifted and limitations on hunting may then be removed. Please refer to the Tli?cho Government's response to IR 18 Perception of Land, Table 18-1, for further details regarding potential impacts and benefits on harvested species as a result of the TASR. The GNWT believes that the TASR itself will increase food security. The community of Whatì is currently dependent on the arrival of groceries by air freight during the snow-free months. An all-season road will make it possible for community members to access stores in Yellowknife, Hay River or any other location of their choice that is connected to the road and highway system. The TASR allows for greater freedom and independence for residents who choose drive to stores which provide a great variety of groceries when the opportunity is available, or alternatively, to provide access to freight companies that will ship food directly into Whatì. Community members will not have to rely on commercial business to arrange for transport of food and residents that have family members travelling back from Yellowknife can have food delivered directly if required. This will inevitably reduce the potential of food shortages, increase food variety and allow Tli?cho community members to plan shopping trips and shopping frequency. The Community Government of Whatì has completed a Strategic plan (2014-2019) "Our Focus for the Future", which was approved by council May 5, 2014. The strategic plan includes references to being dependent on the current winter road as a community weakness. The all-weather road is viewed as potentially bringing opportunities that the community members can capitalize on, and is referenced under the current community Opportunities section of the plan. The GNWT is aware however, that, food stability &amp; security are listed in the plan as current community threats. (Community of Whatì Strategic Plan 2014-2019: #healthycommunity#happy). Whatì residents are the best people to answer how potential changes to the amount of time that Whatì residents have to participate in the subsistence economy and to prepare, cook, distribute and learn about country foods. It is the GNWT's position that the TASR will support greater participation in the subsistence economy by providing increased access to areas to those who may have had limited access prior to its construction (low income residents). This access will allow for a higher level of participation and distribution between the communities of Whatì and Behchoko`. With regard to learning about the preparation, cooking and distribution of country foods, the GNWT currently produces a number of resources and provides programs that are available for communities seeking guidance that assist in making healthy choices (Table 1 below):</p> <p><b>Table 1: Existing GNWT Programs and Resources</b></p> <table border="1"> <thead> <tr> <th data-bbox="1510 1241 1939 1298">Existing GNWT Programs and Resources</th> <th data-bbox="1939 1241 3020 1298">Program Summary</th> </tr> </thead> <tbody> <tr> <td data-bbox="1510 1298 1939 1423">Healthy Food Guidelines:</td> <td data-bbox="1939 1298 3020 1423">A resource that was developed by the First Nations Health Council to support schools in creating healthy food environments that include traditional foods, guidelines for foods/beverages to be served frequently, moderately, and foods to avoid serving, samples of rotational menus, ideas for healthy food fundraising and recipes.</td> </tr> <tr> <td data-bbox="1510 1423 1939 1516">Nutrition Fair for Northern Communities:</td> <td data-bbox="1939 1423 3020 1516">Developed by a GNWT coalition, this is a compendium of ideas that can be used to organize community nutrition fairs. 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			<p>component of the program provides hands-on opportunities for families to make a variety of healthy meals using affordable, locally available ingredients with a focus on vegetables, dried beans, and lentils. Traditional foods and activities are also incorporated into the program. Group or individual cooking and meal planning sessions are offered to meet the nutritional needs of all family members but especially for children less than 5 years of age. As part of the program, families receive a box of healthy food so that they can make meals at home. Coordination with local stores to provide food boxes and/or food vouchers, as well as donations from community gardens helps support the program.</p> <p>Nutrition North Program: The GNWT administers direct contributions to the Tli?cho Government the Nutrition Education Initiative to increase community members' knowledge of healthy eating and increase skills for shopping for and preparing healthy store bought and country foods. The Nutrition Education Initiative is part of the Nutrition North Program, a federal program jointly administered by the federal departments of Indigenous and Northern Affairs Canada (INAC) and Health Canada. Eligibility for the Nutrition Education Initiative is based on the federal retail food subsidy criteria developed by INAC. Health Canada then complements the INAC retail subsidy through the funding of community-based nutrition education initiatives.</p> <p>Traditional Foods in Health and Social Services Facilities: The GNWT is working on a Traditional food policy to assist in facilitating the provision of traditional foods for communities, elders, patients, and residents who require treatment or long-term care in Health and Social Services facilities. GNWT regulations require facilities to apply for and have permits to accept, purchase, and use local meats. Currently, local traditional foods are provided in Behchoko, Fort Smith, Fort Simpson and Yellowknife Traditional Wellness Program, with less frequent provision in Hay River and Inuvik. The aim is to further promote and increase the use of traditional foods across all facilities in collaboration with other organizations, local traditional food suppliers and the health system to capture the nutritional, health and socio-cultural benefits of eating traditional country foods.</p> <p>The road will also provide the Tli?cho with greater access to their lands and wider territory. Residents from Behchoko` travelling further North into the Tli?cho Lands, Wek`èezhìi and Mòwhì Gogha Dè Nîitâèè (the Gamètì Winter road runs through Tli?cho Lands) will enjoy increased participation in the subsistence economy, and several other Indigenous groups will be able to harvest, trade, hunt and fish in an areas that would normally be only accessible by boat, air, and off road vehicle after the closure of the winter road (harvesting where within the Wek`èezhìi boundary, will be subject to the Tli?cho Land Claim Agreement). <i>IR 17.1 Response</i> As stated in IR 96, IR 4, the TASR is expected to provide citizens of Whatì with “cheaper, more diverse, and healthier store bought foods” (p. 69). Presently, food for the community is flown in via charter flights, resulting in an increased cost of food due to added freight charges. Flying in food not only results in higher costs for Whatì residents, but it also reduces the variety of nutritious foods available, particularly when compared to urban centres (such as Yellowknife) where food is trucked in. Recently, a new food program was implemented in Whatì that aimed to reduce food costs in the grocery store (Communication with Whatì SAO, June 8, 2017). The results of this program has seen a net positive effect, with staple food items – such as eggs, bread, and milk – going down in price. As such, these nutritional food items are more affordable for the households and individuals in the community. We believe the TASR will follow the same pattern as these targeted interventions, which have proven to reduce the costs of nutritious food items for citizens in Whatì. A detailed suggestion for food warehouse storage in Whatì is addressed below in response to IR 17.3. It is anticipated that the reduced cost of food in Whatì is likely to render positive impacts for the communities of Gamètì and Wekweètì, particularly during the extended winter road season. The TASR is expected to extend the winter road to Gamètì and Wekweètì by approximately six weeks (<a href="#">PR# 7</a>, page 5-10). With this longer driving season, residents of Gamètì and Wekweètì will have the opportunity to access Whatì’s food store, and in theory, cheaper and nutritious goods for longer periods during the winter. We have also noted in <a href="#">PR# 96</a> IR4, that Tli?cho? citizens are heavily reliant on their country foods, with over 90% of Tli?cho? households eating meat and/or fish that are obtained from hunting and fishing.<sup>[1]</sup> The community of Whatì has some of the highest participation rates in region for harvesting activities, compared to NWT averages. In <a href="#">PR# 96</a> IR1, it is suggested that the TASR will increase Tli?cho? citizen’s ability to more easily access important hunting and fishing areas, thus increasing their consumption of country foods (page 12). Issues related to increased access in Tli?cho? country are addressed in the responses to Review Board IR 18 and IR 19. The Tli?cho? Government and Community Government of Whatì recognize the complexity of the main benefits and losses with increased access to Tli?cho? lands, and as such, are committed to ensuring that hunting and access on Tli?cho? lands are well-managed. Mitigation 10: To ensure effective management, the TG will investigate the need for regulations and policies to manage the construction of cabins and design of hunting, trapping, and fishing in the area, in order to minimize impacts on local animal populations. The Tli?cho? Government and the GNWT commit to work together to provide clear guidance on this topic. The combination of the reduced costs of foods in the Whatì grocery store, plus an increased ability to consume country foods, is likely to render an overall decrease in the cost of living and Whatì residents’ grocery bills. This benefit extends to more remote communities such as Gamètì and Wekweètì, with the extension of the winter road season. In sum, the communities are likely to see a net benefit from the decreased costs of foods – and overall cost of living – as a result of the TASR. We expect that the residual effect of the road on prices of food will be positive. Therefore, a cumulative effects assessment is not required. This would only be required if there were a residual negative effect of the road on food security. Therefore, there will be no further</p>

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			<p>estimates done about the cost of food related to the potential future scenario of the NICO mine. <i>IR 17.2 Response</i> With an overall reduction of the costs of food in the Whatì store, we expect an overall net benefit for the residents of Whatì. This is particularly important to note for some of the more vulnerable groups of residents who have lower or fixed incomes. If you refer to <a href="#">PR#96</a> Table 3B-1, the Tli?cho? Government has outlined and detailed how certain groups of residents in Whatì will see an added benefit from more affordable foods as a result of the TASR. This includes an increase in childhood nutrition and for youth in the community, young women and families being able to access to cheaper and nutritional foods, and elders being able to access more affordable, nutritious foods from the store. <i>IR 17.3 Response</i> In addition to the mitigations already listed in <a href="#">PR# 96</a> (Table 1-1; Appendix D), additional work has been done, and discussed, to manage potential impacts from the TASR in regards to cheaper, more affordable foods. It should be noted that the Tli?cho? Regional Economic Development Working Group (TREDWG) has integrated a country foods strategy into its economic development plan, which focuses particularly on activities carried out by Tli?cho? women, such as harvesting berries and medicines. This is a new initiative that was approved in June 2017 and has been designed with the intent to reduce the cost of living for Tli?cho? citizens. It is anticipated that this program will further increase the consumption of country foods, especially for Tli?cho? women and families. The community food program that was implemented in Whatì (see IR Response 17.1 above) is an indication of the success of food program interventions for accessing cheaper and more nutritious foods (Focus group with staff, June 8, 2017). Another option that has been discussed by the Community Government of Behchoko? and Community Government of Whatì is looking at building a food warehouse in each community. The intent of a food warehouse would be to increase Behchoko? and Whatì's capacity for food storage, which could further reduce the frequency in which food is trucked and transported into the communities and thus lowering costs even further. A food warehouse also has the potential to increase the supply and variety of food available for residents to purchase. A food warehouse in Whatì would further increase the community's capacity to supply food for neighbouring communities, such as Wekweèti and Gamèti. Further dialogue is needed between the CGW, CGB and the GNWT to clarify this potential opportunity. <b>References</b> NWT Bureau of Statistics. 2013. Households eating meat or fish obtained from hunting or fishing in 2013. <a href="http://www.statsnwt.ca/Traditional%20Activities/">http://www.statsnwt.ca/Traditional%20Activities/</a></p> <p><a href="#">[1]</a> NWT Bureau of Statistics. 2013. Households eating meat or fish obtained from hunting or fishing in 2013. Available online at <a href="http://www.statsnwt.ca/Traditional%20Activities/">http://www.statsnwt.ca/Traditional%20Activities/</a></p>																								
18	To: TGR: follow-up to Review Board IR, Perception of the Land	<p><b>Comment</b> On Oct 28, 2016 the Review Board asked the Tlicho Government how the project could affect the Tlicho 's perception of the land through information request number two (PR#74 p2). In response the Tlicho Government stated that "this is an entirely speculative question until such time as the GNWT files its response to the adequacy statement regarding effects on the biophysical species in question" (PR#97 p12). On April 13, 2017 the developer submitted its Adequacy Statement Response (PR#110).</p> <p><b>Recommendation</b> Can the Tlicho Government please review the GNWT's ASR and provide an answer to the Review Board's October 28th IR#2 which requested,</p> <ol style="list-style-type: none"> <li>Please describe and evaluate potential direct or indirect impacts and mitigation to traditional use and way of life from the proposed all-season road including from: <ul style="list-style-type: none"> <li>anticipated disturbances to wildlife and wildlife movement associated with the operation of an all-season road affecting the perception of the land by traditional users; and</li> <li>a change in perception of the land resulting in changes to traditional use or value of the area. (PR#74 p2)</li> </ul> </li> </ol>	<p><b>July 11: TG response.</b> Both of the Review Board's bulleted requests are related to the pathway of effects on traditional use and way of life, of changes in the perception of land by Tli?cho? citizens. The first sub-bullet suggests that one intermediate effects pathway to a change in perception of the land could be from wildlife disturbance and alterations to movement/migratory pathways. However, the second bullet does not identify any specific intermediate effects pathway. For the purposes of informing the Review Board with a conservative estimation of effects, the Tli?cho? Government has chosen to examine all possible factors contributing to changing perception of the land by Tli?cho? citizens in this response. Given the highly subjective nature of the inquiry, however, qualitative responses are all that can be provided. This response focuses on the intermediate effect pathway of anticipated disturbances to wildlife and wildlife movement and how these may impact on perception of land by Tli?cho? citizens (as identified by the Board). Following that, a short discussion on other factors that may contribute to changing perception of land is provided. <i>Effects of Disturbances to Wildlife and Wildlife Movement on Tli?cho? Perception of Land</i> The GNWT's Adequacy Statement Response (ASR) (PR# 11) provides an assessment of effects to wildlife and biophysical species. The Tli?cho? Government response addresses those wildlife species included in our original assessment of effects in the traditional knowledge study (PR# 28). Table 18-1 below details the pathways for anticipated disturbances to wildlife and wildlife movement associated with the TASR project, focusing particularly on how each impact may or may not affect Tli?cho? land users' ability to access and utilize the land. The Tli?cho? Government and Community Government of Whatì have already committed to mitigation to manage these impacts. The details of the mitigation plan are listed below the table.</p> <p><b>Table 18-1: Wildlife species impact pathways</b></p> <table border="1"> <thead> <tr> <th data-bbox="1501 1544 1659 1604">IMPACT PATHWAYS</th> <th data-bbox="1665 1544 1874 1604">Potential adverse effects</th> <th data-bbox="1880 1544 2088 1604">Potential beneficial effects</th> <th data-bbox="2094 1544 2570 1604">Estimated net benefit/loss to Tli?cho? harvesters</th> <th data-bbox="2576 1544 2806 1604">Existing Mitigation Measures</th> <th data-bbox="2812 1544 3033 1604">Relevant ASR Sections</th> </tr> </thead> <tbody> <tr> <td colspan="6" data-bbox="1501 1614 3033 1655"><b>Key Species</b></td> </tr> <tr> <td colspan="6" data-bbox="1501 1659 3033 1699"><b>Barren-Ground Caribou (BGC)</b></td> </tr> <tr> <td data-bbox="1501 1703 1659 1903"><i>Increased access to the area for Tli?cho? and non-Tli?cho? harvesters</i></td> <td data-bbox="1665 1703 1874 1903">Potential competition over resources with non-Tli?cho? harvesters due to easier access to harvesting areas; potential for</td> <td data-bbox="1880 1703 2088 1903">Increased access to harvesting areas that are permitted for Tli?cho? citizens; longer hunting season and easier access for Tli?cho?</td> <td data-bbox="2094 1703 2570 1903">Likely no or minimal net loss in the current regulatory situation, as hunting barren-ground caribou is currently restricted (The Bathurst herd is closed for harvesting and only aboriginal hunters with permits can hunt the Bluenose East herd). 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				<p>increased presence of non-Tli'cho? harvesters in the area; longer hunting season and easier access for non-Tli'cho? harvesters due to the Gamèti winter road being extended by up to six weeks; potential for more cabins to be built out on the land, and more permanency to access by Tli'cho? harvesters.</p>	<p>harvesters to BGC habitat, especially Behchoko? residents, due to the Gamèti winter road being extended by up to six weeks.</p>	<p>caribou could increase north of Whati` with an all-season road. Barren-ground caribou rarely travel farther south than Whati`. However, TASR provides increased opportunities for Tli'cho? and non-Tli'cho? harvesters to hunt north of Whati due to easier access and longer ice road season to Gamèti. In other words, the road is unlikely to alienate Tli'cho? harvesters from caribou hunting. Non-Tli'cho? coming into the area to harvest in the future will be subject to joint governance, monitoring and enforcement between the TG and GNWT.</p>	<p>place Additional comments: -The BGC Bathurst herd is closed for harvesting; -Only aboriginal hunters with permits can harvest the BGC Bluenose East herd at a harvest level managed by the wildlife decision makers that includes the Tli'cho? Government, GNWT and WRRB. -See the Spill Contingency Plan, PR#7, Appendix L</p>	<p>Analysis 4.4.3.2: Reasonably Foreseeable Development Case Results 4.6.2.2 Effects Classification and Determination of Significance</p>
			<p><i>Sensory disturbance from road construction and ongoing operations (i.e., noise, smell, dust and pollution from traffic)</i></p>	<p>Possible decline of presence of BGC populations in the vicinity of the road; possible decline in presence of BGC available for harvest in the vicinity of the road.</p>	<p>No benefits.</p>	<p>Likely negligible to minor net loss because barren-ground caribou rarely travel as far south as the TASR area, and tend to avoid roads.</p>		
			<p><i>Increased predation due to longer and wider linear disturbance increased (line of sight) for predators</i></p>	<p>Possible decline in BGC populations in the vicinity of the road; possible increase in predation due to wolves and other predators having improved access along a wider linear disturbance.</p>	<p>No benefits.</p>	<p>Likely negligible to minor net loss. Given that barren-ground caribou rarely travel this far south, increased predator access to barren-ground caribou in the all-season road area would be limited if these conditions continue. In addition, the TASR is largely already cleared; therefore, the road construction will require minimal additional clearing and cause minimal additional increase in effective line of sight for predators.</p>		
			<p><i>Contamination of waterways and wetlands due to increases in traffic (i.e., gas and oil spills) and other emergencies</i></p>	<p>Possible decline in quality and quantity of BGC habitat in the area; increased risk of illness in wildlife due to consumption of contaminants, slightly reduced possibility of BGC in vicinity of road due to disturbance associated with spills.</p>	<p>No benefits.</p>	<p>Likely negligible to minor net loss, but of low concern for Tli'cho? harvesters as the frequency and magnitude of spills is low. In the event of a spill, required clean-up is swift and well understood by Tli'cho? harvesters.</p>		
			<p><i>Physical clearing and disturbance during construction</i></p>	<p>Possible decline in BGC due to habitat loss; increased morbidity and mortality could reduce the number of BGC available for harvest in the</p>	<p>No benefits.</p>	<p>Disturbance effects are inevitable in the area, but will be minimized for caribou due to: a) reduced clearing requirements because of existing linear corridor; and b) the rare and not-recent occurrence of barren-ground caribou in the area. This is likely a negligible to minor net loss, but of low concern for Tli'cho? because barren-ground caribou rarely</p>		

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				area.		travel this far south. The unlikely presence of barren-ground caribou during construction will be managed cooperatively with the GNWT, if that is indeed the case.		
			<b>Boreal Caribou</b>					
			<i>Increased access to the area for Tli?cho? and non-Tli?cho? harvesters</i>	Potential increase in non-Tli?cho? harvesters in the area; increased harvesting opportunities for boreal caribou.	Increased access to harvesting areas for Tli?cho? citizens.	Likely a balance between net gain and net loss due to the road providing an increase in access to both Tli?cho? and non-Tli?cho? harvesters in the area; TASR overall provides Tli?cho? harvesters with greater access to previously inaccessible hunting areas. In other words, the road is likely to present an opportunity to Tli?cho? harvesters for caribou hunting. There is potential for increased pressure on boreal caribou as a result of TASR. Non-Tli?cho? coming into the area to harvest in the future will be subject to joint governance, monitoring and enforcement between the TG and GNWT.	TG: -Mitigation 10 (see below) GNWT: -see PR#7, Table 8-5 for potential wildlife-related TASR impacts and mitigations measures in place Additional comments: -See the Spill Contingency Plan, PR#7, Appendix L	4.2.3.1 Results 4.3.2.1 No Linkage Pathways 4.3.2.2 Secondary Pathways 4.3.2.3 Primary Pathways 4.4.2.1 Residual Effects Analysis 4.4.3.1 Reasonably Foreseeable Development Case Results 4.6.2.1 Effects Classification and Determination of Significant
			<i>Sensory disturbance from road construction and ongoing operations (i.e., noise, smell, dust and pollution from traffic)</i>	Possible avoidance by boreal caribou of habitat in the vicinity of the road; decline in boreal caribou available for harvest in area.	No benefits.	Given that caribou generally avoid linear disturbances (based on collared caribou moments in Alberta and other areas). If caribou are already avoiding the road, then the change to perception will be minimal. If they avoid the road more, then they may become more difficult to harvest and Tli?cho? harvest may become slightly impacted.		
			<i>Increased predation due to longer and wider linear disturbance increased (line of sight) for predators</i>	With caribou typically avoiding roads, there is a possible increase in predation due to wolves and other predators having improved access along a wider linear disturbance.	No benefits.	Possible net loss, but of low concern for Tli?cho? harvesters as the TASR is largely already cleared; this also increases harvester's access and ability to hunt and trap wolves and other predators in the area.		
			<i>Linear disturbance from spur roads and other activities</i>	Possible decline of presence of boreal caribou due to increase in cabins, ATVs/snow machines and people in the area; possible increase in predation due to wolves and other predators having access to new trails.	Improved access along the already-disturbed tractor trail, increasing overall harvesting areas for Tli?cho? citizens	Possible net loss, but overall potential net gain for Tli?cho? harvesters because of improved access to harvesting areas; likely increases in Tli?cho? harvester's access and ability to hunt and trap wolves and other predators in the area. Any spur roads would be subject to Tli?cho? permissions (see the Tli?cho? Agreement and Tli?cho? Land Use Plan).		
			<i>Contamination of waterways and wetlands due to increases in traffic (i.e., gas and oil</i>	Possible decline in quality and quantity of boreal caribou habitat in the area; risk of illness in wildlife due to contaminant consumption.	No benefits.	Likely negligible (because of spill controls) to minor net loss, but of low concern for Tli?cho? harvesters as the frequency and magnitude of spills is low. In the event of a spill, required clean-up is swift and well understood by Tli?cho? harvesters.		

ID	Topic	Reviewer Comment/Recommendation	Proponent Response					
			<i>spills) and other emergencies</i>					
			<i>Physical clearing and disturbance during construction</i>	Possible decline in boreal caribou available for harvest in the area.	No benefits.	Likely net loss as boreal caribou are highly sensitive to disturbance, however impacts will be minimized due to the reduced clearing requirements because of the existing linear corridor. This remains a low concern for Tli?cho? harvesters as construction is temporary and an overall short period of time.		
			<b>Moose</b>					
			<i>Increased access to the area for Tli?cho? and non-Tli?cho? harvesters</i>	Potential increase in non-Tli?cho? harvesters in the area; increased harvesting opportunities for moose.	Increased access to harvesting areas for Tli?cho? citizens.	Likely a balance between net gain and net loss due to the road providing an improved access to both Tli?cho? and non-Tli?cho? harvesters in the area; overall this provides Tli?cho? harvesters with improved access to the already disturbed hunting area. Non-Tli?cho? coming into the area to harvest in the future will be subject to joint governance, monitoring and enforcement between the TG and GNWT.		
			<i>Sensory disturbance from road construction and ongoing operations (i.e., noise, smell, dust, and pollution from traffic)</i>	Possible avoidance by moose in the vicinity of the road; decline in moose available for harvest.	No benefits.	Possible net loss due to the decrease of animals near the road, however it is a likely net gain due to the increase in Tli?cho? harvester's access to the road itself and areas adjacent to the road (e.g., from spur roads and trails) where moose will be; this is an overall low concern for Tli?cho? harvesters. Moose could be attracted by noise as they are very curious. However, continuous noise could scare moose off from the area along the road, and dust could affect habitat quality, which could lead to decline in local moose population along the road.	TG: -Mitigation 10 (see below) GNWT: -see PR#7, Table 8-5 for potential wildlife-related TASR impacts and mitigations measures in place Additional comments: -See the Spill Contingency Plan, PR#7, Appendix L	4.2.3.3 Results 4.3.2.1 No Linkage Pathways 4.3.2.2 Secondary Pathways 4.3.2.3 Primary Pathways 4.4.2.3 Residual Effects Analysis 4.4.3.3 Reasonably Foreseeable Development Case Results 4.6.2.3 Effects Classification and Determination of Significant
			<i>Increased predation near linear disturbances due to longer and wider linear disturbance increased (line of sight) for predators</i>	Possible decline of moose in the area as they often avoid bison due to their smell; possible increase in predation due to wolves and other predators having access to the roads and linear landscapes.	No benefits.	Likely net loss, but of low concern for Tli?cho? harvesters as this also increases Tli?cho? harvesters' access and ability to hunt and trap wolves and other predators in the area.		
			<i>Linear disturbance from spur roads and other activities</i>	Possible decline in moose due to increase in cabins, ATVs/snow machines, and people in the area; possible increase in predation due to wolves and other predators having access to new trails.	Improved access along the already-disturbed tractor trail, increasing overall harvesting areas for Tli?cho? citizens	Possible net loss, but overall potential net gain for Tli?cho? harvesters because of increased access to harvesting areas; likely increases in Tli?cho? harvesters' access and ability to hunt and trap wolves and other predators in the area. Furthermore, construction of spur roads would be subject to Tli?cho? permissions (see the Tli?cho? Agreement and Tli?cho? Land Use Plan).		

ID	Topic	Reviewer Comment/Recommendation	Proponent Response						
			<i>Contamination of waterways and wetlands due to increases in traffic (i.e., gas and oil spills) and other emergencies</i>	Possible avoidance by moose, or decline in quality and quantity of moose habitat in the area; decline in moose available for harvest; risk of illness in wildlife.	No benefits.	Likely negligible to minor net loss, but of low concern for Tli?cho? harvesters as the frequency and magnitude of spills is low. In the event of a spill, required clean-up is swift and well understood by Tli?cho? harvesters			
			<i>Physical clearing and disturbance during construction</i>	Possible decline in moose available for harvest in the area.	No benefits.	Likely net loss, but of low concern for Tli?cho? harvesters as construction is temporary and an overall short period of time.			
			<b>Bison</b>						
			<i>Increased access to the area for Tli?cho? and non-Tli?cho? harvesters</i>	Potential increase in non- Tli?cho? access and harvesting opportunities of bison, which are typically attracted to roadways.	Improved access to harvesting areas in the TASR region for Tli?cho? citizens.	Likely a net gain for future harvest due to the road providing an increase in access to Tli?cho? harvesters in the area. At this time, there is no harvest of bison allowed in the R/WB/01 region, which encompasses the TASR, because no tags are issued for this region. As a result, harvesting of bison by non- Tli?cho? harvester is of low concern.			
			<i>Contamination from road construction and ongoing operations (i.e., noise, smell, dust and pollution from traffic)</i>	Possible decline in bison populations in the vicinity of the road; decline in bison available for harvest.	No benefits.	Neutral, it is anticipated that bison populations will increase near roadways. Further, there is already right of way along the TASR route, meaning that bison would likely already be there if they wanted to expand their range to this area. This is an overall low concern for Tli?cho? harvesters.	TG: -Mitigation 10 (see below) GNWT: -see PR#7, Table 8-5 for potential wildlife-related TASR impacts and mitigations measures in place Additional comments: -Bison harvesting is currently restricted in the R/WB/01 region, which includes the TASR -See the Spill Contingency Plan, PR#7, Appendix L		
			<i>Increased predation near linear disturbances due to longer and wider linear disturbance increased (line of sight) for predators</i>	Presence of bison may deter moose and boreal caribou from the area; possible increase in predation due to wolves and other predators having access to the roads.	No benefits.	Likely net loss, but of low concern for Tli?cho? as there is no harvest of bison permitted.			
			<i>Linear disturbance from spur roads and other activities</i>	Possible decline in bison due to increase in cabins, ATVs/snow machines and people in the area; possible increase in predation due to wolves and other predators having access to new trails.	Improved access along the already-disturbed tractor trail.	Possible net loss, and harvesting will not change as there is very low current bison harvest; likely increase in Tli?cho? harvesters' ability to hunt and trap wolves and other predators in the area. Furthermore, construction of spur roads would be subject to Tli?cho? permissions (see the Tli?cho? Agreement and Tli?cho? Land Use Plan).			
			<i>Contamination of waterways</i>	Possible decline in quality and quantity of bison in the area;	No benefits.	Likely negligible to minor net loss, but of low concern for Tli?cho? harvesters as the frequency and magnitude of spills is low. In			

4.2.3.4 Results  
4.3.2.1 No Linkage Pathways  
4.3.2.2 Secondary Pathways  
4.3.2.3 Primary Pathways  
4.3.3 Pathways analysis

ID	Topic	Reviewer Comment/Recommendation	Proponent Response					
			<i>and wetlands due to increases in traffic (i.e., gas and oil spills) and other emergencies</i>	increased risk of illness in wildlife.		the event of a spill, required clean-up is swift and well understood by Tli?cho? harvesters.		
			<i>Physical clearing and disturbance during construction</i>	Possible decline in bison available for harvest in the area.	No benefits.	Likely net loss, but of low concern for Tli?cho? harvesters as construction is temporary and an overall short period of time.		
			<b>Fur Bearing Animals</b>					
			<i>Increased access to the area for Tli?cho? and non-Tli?cho? harvesters</i>	Potential competition for more easily accessible trapping areas; increased harvesting opportunities for animals; established trappers in the area may lose income due to potential decline in species.	Increased access to trapping areas for Tli?cho? citizens.	Likely net gain for Tli?cho? harvesters because of increased access to trapping areas; potential loss of income for established trapline holders.		4.2.3.5 Results 4.3.2.1 No Linkage Pathways 4.3.2.2 Secondary Pathways 4.3.2.3 Primary Pathways 4.4.2.4 Residual Effects Analysis 4.6.2.4 Effects Classification and Determination of Significance
			<i>Sensory disturbance from road construction and ongoing operations (i.e., noise, smell, dust and pollution from traffic)</i>	Possible disturbance of fur bearing animal habitat; potential reduction in fur bearing animal populations in the vicinity of the road; possible decline in animals available for trapping.	No benefits.	Likely net loss, but is of low concern as frequency and degree of disturbance is expected to be low.	TG: -Mitigation 10 (see below) GNWT: -see PR#7, Table 8-5 for potential wildlife-related TASR impacts and mitigations measures in place	
			<i>Increased predation near linear disturbances due to longer and wider linear disturbance increased (line of sight) for predators</i>	Possible decline of fur bearing animals in the area, but unlikely as most predators are fur bearing animals	Potential increase in variety of species available to Tli?cho? citizens for trapping and harvesting, as predation near linear disturbances is typically linked to improved access for predators; increase in Tli?cho? harvesters' ability to trap/hunt fur bearing animals and predators.	Likely overall net gain as a widened linear disturbance has potential to attract fur bearing animals, such as wolves and other predators; overall net gain for Tli?cho? harvesters because of increased access to harvesting areas and food sources; likely increases in Tli?cho? harvesters' access and ability to hunt and trap wolves and other predators in the area.	Additional comments: -See the Spill Contingency Plan, PR#7, Appendix L	
			<i>Linear disturbance from spur roads and other activities</i>	Possible decline in fur bearing animals due to increase in cabins, ATVs/snow machines and people in the area.	Improved access along the already-disturbed tractor trail, increasing overall harvesting areas for Tli?cho?	Possible net loss, but overall potential net gain for Tli?cho? harvesters because of increased access to harvesting areas. Furthermore, construction of spur roads would be subject to Tli?cho? permissions (see the Tli?cho? Agreement and Tli?cho? Land Use Plan).		

ID	Topic	Reviewer Comment/Recommendation	Proponent Response			
					citizens.	
			<i>Contamination of waterways and wetlands due to increases in traffic (i.e., gas and oil spills) and other emergencies</i>	Possible decline in quality and quantity of fur bearing animals in the area; increased risk of illness.	No benefits.	Likely negligible to minor net loss, but of low concern for Tli?cho? harvesters as the frequency and magnitude of spills is low. In the event of a spill, required clean-up is swift and well understood by Tli?cho? harvesters.
			<i>Physical clearing and disturbance during construction</i>	Possible decline in fur bearing animals available for harvest and trapping in the area.	No benefits.	Likely net loss, but of low concern for Tli?cho? harvesters as construction is temporary and an overall short period of time.
			<b>Fish Species</b>			
			<i>Increased access to the area for Tli?cho? and non-Tli?cho? harvesters</i>	Potential competition for more easily accessible fishing areas; increase in sport fishing and non-Tli?cho? fishers in the area.	Increased access to fishing areas for Tli?cho? citizens; increased opportunities for Tli?cho? participation in the tourism market.	Likely net gain for Tli?cho? harvesters because of increased access to fishing areas; increased opportunities for Tli?cho? ecotourism in the area.
			<i>Sensory disturbance from road construction and ongoing operations (i.e., noise, smell, dust and pollution from traffic)</i>	Possible decline in fish quality and quantity in adjacent water sources due to possible contamination.	No benefits.	Likely net loss, but is of low concern as noise and smell from the road are unlikely to have a big impact on fish.
			<i>Introduction of new species (or invasive species) to the area</i>	Potential for invasive species to affect natural ecosystems (i.e. fishers using live bait from other regions).	No benefits.	Likely net loss, but is of low concern to harvesters as the likelihood and magnitude of such occurrence is low.
			<i>Linear disturbance from spur roads and other activities</i>	Possible decline in fish due to increase in human activity in the area.	Improved access along the already-disturbed tractor trail, increasing overall harvesting areas for Tli?cho? citizens.	Likely net gain for Tli?cho? harvesters because of increased access to fishing areas; increased opportunities for Tli?cho? ecotourism in the area. Furthermore, any spur roads would be subject to Tli?cho? permissions (see the Tli?cho? Agreement and Tli?cho? Land Use Plan).
			<i>Contamination of waterways and wetlands due to increases in traffic (i.e., gas and oil</i>	Possible decline in fish in waterways adjacent to the TASR, or near water crossings, due to exposure to contamination.	No benefits.	Likely net loss, and is a concern for Tli?cho? harvesters, but this will be mitigated through careful design of stream crossing and spill response procedures. Further, the frequency and magnitude of spills is low. In the event of a spill, required clean-up is swift and well understood by Tli?cho? harvesters.
						TG: -Mitigation #10 (see below) GNWT - See PR#7, Table 8-7 for potential fish habitat impacts and mitigations measures in place Additional comments: -See the Spill Contingency Plan, PR#7, Appendix L
						3.1.6 Results 3.2 Pathway Analysis 3.3 Residual Effects Analysis 3.4 Prediction and uncertainty 3.5 Effects Classification and Determination of Significance

ID	Topic	Reviewer Comment/Recommendation	Proponent Response												
			<p><i>spills) and other emergencies</i></p> <p>Improving access to new territory and areas in Tli?cho? lands will result in potential impacts to areas. The elders have expressed concern that the risks to wildlife, loss of wildlife, and potential impacts on the land and ecologically important habitat may decrease Tli?cho? citizens' ability to harvest in the TASR area (PR# 28). However, the TASR also represents an opportunity for Tli?cho? citizens to improve access to existing territory that is less accessible, or at least very difficult to travel to. This presents a new opportunity for all land users to discover areas within their lands with valuable wildlife and fish species available for harvest. The Tli?cho? Government and Community Government of Whatì acknowledge the issues associated with new access to Tli?cho? lands, and as such, are committed to ensuring that hunting and access on Tli?cho? lands are well managed using the existing and potentially new management tools available. In addition to the provisions set forth in the Tli?cho? Agreement and Tli?cho? Land Use Plan, the Tli?cho? Government has committed to the following mitigation to reduce potential impacts from wildlife and traditional use as a result of the TASR:</p> <p>Mitigation 10: To ensure effective management, the Tli?cho? Government will investigate the need for regulations and policies to manage the construction of cabins and design of hunting, trapping, and fishing in the area, in order to minimize impacts on local animal populations. The Tli?cho? Government, Federal Government and the GNWT commit to work together to provide clear guidance on this topic. Furthermore, the Tli?cho? Government has described its ability to control fish harvesting in PR# 97, IR 1, pp. 4 to 11. This IR response outlines the GNWT-DOT mitigations pertaining to fish species and fish habitat, which contribute to the Tli?cho? Government's protection and management of "fishing sites and fish species throughout the construction and operation of the TASR." Between the GNWT-DOT fisheries mitigations, the TG and CGW Mitigation 10 (above) and the Tli?cho? Government's control over access and harvest limits:</p> <p><i>...the TG anticipates only low residual impacts to occur in regards to fisheries. Given the health of our fish stocks, we do not expect to see a noticeable decline in fish stocks or harvest success for Tli?cho? citizens, and any adverse effect will be balanced by economic development associated with tourism revenues. (PR# 97, IR 1, p. 11)</i> The Tli?cho? Government is working on a number of initiatives to protect and effectively manage Tli?cho? lands, as well as Tli?cho? land users' ability to harvest fish and wildlife in a future TASR scenario. Some of the work the Tli?cho? Government is undertaking includes:</p> <ul style="list-style-type: none"> <li>• The Tli?cho? Agreement provides the Tli?cho? Government the authority to undertake land use planning and law-making for the portions of the TASR area that are situated on Tli?cho? lands. Existing legislation of general application (e.g., the Fisheries Act and accompanying regulations, etc.) also apply. Any new legislation would be subject to the hierarchy provisions of the Tli?cho? Agreement, and require the review provision described in the Tli?cho? Agreement, this would include review by the WRRB for areas within their mandate.</li> <li>• The Tli?cho Government has approved Guidelines for Cabins on Tli?cho Lands (approved by CEC on May 21, 2015);</li> <li>• The Tli?cho Government passed a Tli?cho Lands Protection Law in 2005.</li> <li>• For public lands outside of Tli?cho lands (the majority of TASR is on these public lands and not Tli?cho lands), the Tli?cho Government is working in collaboration with its treaty partners (GNWT and Canada) on developing a mechanism for Land Use Planning in the Wek'èezhi'ì Management Area;</li> <li>• For cabins on public lands outside of Tli?cho lands, the Tli?cho Government has provided consultation/engagement feedback to the GNWT on its Recreation Land Management Framework; and</li> <li>• The Tli?cho Government is collaborating with the GNWT on drafting of new/revised proposed legislation in the following areas: <i>Forest Management and Protection Act, Protected Areas Act, Waters Act, Environmental Rights Act, and Environmental Protection Act.</i></li> </ul> <p>The Tli?cho Government provides the following initial effects characterization table for exemplary purposes only. Table 18-2: Effects characterization related to perception of land changes from wildlife disturbance</p> <table border="1"> <thead> <tr> <th data-bbox="1501 1675 1827 1705">Indicator</th> <th data-bbox="1833 1675 2200 1705">Characteristic</th> <th data-bbox="2206 1675 3030 1705">Rating/Effect Size</th> </tr> </thead> <tbody> <tr> <td data-bbox="1501 1709 1827 1891" rowspan="4">Tli?cho Perception of Land (via wildlife disturbance and wildlife movement alterations only)</td> <td data-bbox="1833 1709 2200 1739">Direction</td> <td data-bbox="2206 1709 3030 1739">Negative</td> </tr> <tr> <td data-bbox="1833 1743 2200 1804">Magnitude of residual effects after mitigation applied</td> <td data-bbox="2206 1743 3030 1804">Low to moderate (existing linear disturbance in place; strong monitoring and management plans in place)</td> </tr> <tr> <td data-bbox="1833 1808 2200 1838">Geographic extent</td> <td data-bbox="2206 1808 3030 1838">Primarily limited to the LSA around the all-season road</td> </tr> <tr> <td data-bbox="1833 1842 2200 1891">Duration/reversibility</td> <td data-bbox="2206 1842 3030 1891">Long-term and permanent (increased wildlife mortality risk in LSA and life of road effects duration)</td> </tr> </tbody> </table>	Indicator	Characteristic	Rating/Effect Size	Tli?cho Perception of Land (via wildlife disturbance and wildlife movement alterations only)	Direction	Negative	Magnitude of residual effects after mitigation applied	Low to moderate (existing linear disturbance in place; strong monitoring and management plans in place)	Geographic extent	Primarily limited to the LSA around the all-season road	Duration/reversibility	Long-term and permanent (increased wildlife mortality risk in LSA and life of road effects duration)
Indicator	Characteristic	Rating/Effect Size													
Tli?cho Perception of Land (via wildlife disturbance and wildlife movement alterations only)	Direction	Negative													
	Magnitude of residual effects after mitigation applied	Low to moderate (existing linear disturbance in place; strong monitoring and management plans in place)													
	Geographic extent	Primarily limited to the LSA around the all-season road													
	Duration/reversibility	Long-term and permanent (increased wildlife mortality risk in LSA and life of road effects duration)													

ID	Topic	Reviewer Comment/Recommendation	Proponent Response	
			Frequency/timing	Continuous with intermittent disturbance from road traffic after construction is complete
			Likelihood	Certain (some additional habitat loss from clearing) Probable (alterations of wildlife movement patterns due to traffic; increased harvesting activity along and in spurs off of all-season road)
			<p><b><i>Other Changes from the All-Season Road that May Have Effects on Tli?cho Perception of Land</i></b> The Review Board has also asked us to describe other direct or indirect impacts from the TASR that may contribute to a change in the perception of the land resulting in changes to traditional use or value of the area. Although the TASR route has an existing right of way and is partially cleared already, there is potential for Tli?cho harvesters and land users to perceive a difference in the landscape during construction and following the completion of the road. This may include a decreased sense of peacefulness in the area, both from construction machinery (which is temporary and relatively short term), and the improved accessibility to the area – which includes car traffic and non- Tli?cho presence. While the peacefulness of the area may be altered for land users who currently access the area, Tli?cho citizens overall will be provided with improved access to the TASR area that many harvesters, and Tli?cho youth in particular, have not accessed before. The positive outcomes from this result in more opportunities to harvest wild game and fish, gather plants and berries, practice traditions and teach our youth how to live well and carry on the Tli?cho way of life. Thus, the direction of effects may be both positive and negative, depending on the experience of individuals and whether they have used the area in the past or not. Generally speaking, we suggest that for harvesters who use the area actively already, there will be a mix of positive (easier access to an existing harvesting area) and negative (increased sense of competition from non- Tli?cho presence, slight alterations to the wilderness character of the area) effects. For Tli?cho who have little existing use of the TASR LSA, we can predict a primarily positive effect, as they will have a new, easily accessible area to enjoy within the Tli?cho Region. These “non-current users” will not see reductions in the wilderness values of the area, because they do not have a strong existing connection with the area as it currently is. We recognize that the current state of the existing right of way will change with the TASR, largely via an increase in sensory disturbances such as noise, dust and smells from vehicle pollution. However, the magnitude and frequency of these disturbances are not expected to be high, especially once the road is in its operations. Unlike the main highway, the vast bulk of traffic driving on the TASR is likely to be Tli?cho? citizens. As such, the road will be seen as a tool for improving access to already disturbed areas, not as an intrusion on untouched lands. Although there will be physical changes in the landscape, which has potential to alter a Tli?cho citizen’s perception of land, the vast increase in accessibility and opportunity to practice Tli?cho culture and connect youth more easily to the land is likely to yield a highly positive perception of the landscape. Spills or contaminants are unlikely to have negative effects on Tli?cho perception of land. It would take a major spill event by a river on the TASR to create a localized aversion to harvesting from the area. It is the responsibility of the Proponent to manage any such event (See PR #7, Appendix L, Emergency Spill Response Plan). We note as well that such risks are already in place with the existing winter road fuel transport system, and there is no evidence that Tli?cho citizens have been avoiding harvesting along the winter road. The GNWT and the Whatì Community Government have monitoring and emergency management plans in effect for different scenarios. The Tli?cho Government carefully manages culturally significant sites. The falls and the portage are both high value sites – and they fall within the Tli?cho lands. They will be managed very carefully.</p>	
			<p>Whatì community members do protect the falls (especially the elders). It will be a visiting area once the road comes in, but it can be maintained by a community member throughout the week to ensure that it is kept clean and that no one over nights. (Personal communication, Tli?cho staff, June 28, 2017) The Tli?cho Government has discussed ways to manage public access to certain locations, such as the Whatì Falls, any restrictions on the use of the falls will be established in accordance with the Tli?cho? Agreement (chapter 19) and Tli?cho? law. Overall, the Tli?cho? Government does not expect the road to alienate Tli?cho? citizens from the land, nor is it likely to cause Tli?cho? citizens to think of the project-affected area as being less “Tli?cho? lands” than it is today. As noted in the table above, both the Tli?cho Government and GNWT have developed a series of mitigations to effectively manage and reduce impacts to fish and wildlife in the TASR area, which is connected to the Tli?cho perception of the land. With these measures in place, such as ensuring bridge crossing at Lac la Marte River is west of the portage (PR# 7, page 5-3), critically important areas will be maintained and the value Tli?cho ascribed to the landscape is not expected to lessen. The Tli?cho Government provides the following initial effects characterization table for exemplary purposes only. Table 18-3: Effects characterization on perception of land</p>	
			<b>Indicator</b>	<b>Characteristic</b>
			Tli?cho Perception of Land (via all other factors than wildlife related considerations)	Direction
			<b>Rating/Effect Size</b> Negative to positive (negative impacts may occur if spills occur, human fires spread into the forest, or large numbers of outside users come into the area; positive impacts may occur if Tli?cho citizens spend more time on the land in this previously difficult to access area and make it more a part of their seasonal	

ID	Topic	Reviewer Comment/Recommendation	Proponent Response												
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19	To: the DeveloperRe: Traditional Harvesting, Assessment Endpoints, Measurement Indicators, and conclusions	<p data-bbox="382 1191 1494 1741"><b>Comment</b> The developer's wildlife effects assessment conclusions were used to infer conclusions regarding effects to traditional harvesting. However, it is not clear whether the wildlife effects assessment is able to adequately measure/assess effects to traditional harvesting. The developer's assessment of wildlife VCs (such as bison, woodland caribou, moose, and fish) used "measurement indicators" to assess effects to the wildlife VCs which, in turn were compared with the assessment endpoint. The measurement indicators are: habitat availability, habitat distribution, and survival and reproduction. The assessment endpoint applied to wildlife is "self-sustaining and ecologically effective populations" (PR#110 p4-3). The developer states that the "ecologically effective" component of the assessment endpoint considers traditional harvesting (PR#110 p4-4). It is not clear how Indigenous people's ability to traditionally harvest could be described or measured with the measurement indicators proposed by the developer. The complexities of traditional harvesting are not adequately measured by solely examining habitat availability, distribution and survival and reproduction. For example, additional considerations likely include the ability of Indigenous harvesters to harvest at the same success rate, at the same time, in the same locations as they have traditionally done. Clarification is also required regarding extrapolations drawn from the conclusions of the wildlife effects assessment applied to traditional harvesting. The developer states</p> <p data-bbox="382 1741 1494 1903">"Overall, residual effects of the Project on wildlife and fish due to increased competition from overharvesting by non-Tli?cho residents will not have a significantly adverse effect on the ability of wildlife and fish to be self-sustaining, and therefore on the ability of Tli?cho, NSMA, YKDFN and DGGFN [Deh Gah Got'ie First Nations] members to continue harvesting" [emphasis added] (PR#110 p5-58).</p>	<p data-bbox="1501 1191 3033 1231"><b>July 17:</b></p> <p data-bbox="1594 1266 1805 1296"><b>GNWT Response</b></p> <p data-bbox="1547 1332 3033 1427">1. Several different indicators were considered in assessing potential effects to Traditional Use and Way of Life (Section 5.4.3.1) and Harvesting (Section 5.4.3.2) of the Adequacy Statement Response (ASR; ), as provided in the Adequacy Statement (Table 5.3-1; ). Potential changes in the following indicators were considered: <b>Traditional Use and Way of Life Indicators:</b></p> <p data-bbox="1563 1463 2054 1493">Practice of traditional activities and culture;</p> <p data-bbox="1563 1530 2390 1560">Quantity or quality of traditionally harvested resources (availability); and,</p> <p data-bbox="1563 1596 2038 1626">Perception of the land by traditional users.</p> <p data-bbox="1609 1663 1883 1693"><b>Harvesting Indicators:</b></p> <p data-bbox="1563 1729 3033 1903">Competition for resources. Wildlife and wildlife habitat measurement indicators were only considered in assessing the potential changes in the indicators <i>quantity or quality of traditionally harvested resources (availability) and competition for resources</i>. The ability of Indigenous harvesters to continue practicing traditional land use, including traditional harvesting, will depend on numerous factors which were assessed under both topics of Traditional Use and Way of Life and Harvesting. The following paragraphs summarize the potential effects pathways that were considered in assessing effects to Traditional Use and</p>												

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		<p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Can the developer please clarify how the measurement indicators used in the wildlife assessment are able to assess effects to traditional harvesting including changes to harvesting success rates, locations, and timing?</li> <li>2. Does the developer's conclusion that that Tli'cho, NSMA, YKDFN and DGGFN members can "continue harvesting" refer to traditional harvesting (e.g. with similar success rates to what was observed in the past, in the same locations that were historically used)?</li> </ol>	<p>Way of Life and Harvesting. <b>Potential Effects Pathways</b></p> <ul style="list-style-type: none"> <li>• <i>Enhanced year-round access to hunting, trapping and fishing areas for harvesters</i> (Section 5.4.3.1); and,</li> <li>• <i>Direct disturbance to preferred traditional use areas including culturally significant areas</i> (Section 5.4.3.1).</li> </ul> <p>The assessment of potential Project effects on traditional use and way of life and harvesting considered both direct and indirect effects. Direct effects are generally related to changes in access to traditional use areas or disturbance to land that would result in the land no longer being available for traditional activities. Direct effects on traditional use considered locations and timing of harvesting, where data was available.</p> <ul style="list-style-type: none"> <li>• <i>Effects to wildlife and fish resulting in changes in the availability of traditional resources for harvesting</i> (Section 5.4.3.1); and,</li> <li>• <i>Effects to wildlife and fish resulting in changed traditional perceptions of the land</i> (Section 5.4.3.1).</li> </ul> <p>Indirect effects are related to changes in the availability of traditionally harvested resources (i.e. wildlife and fish). Indirect effects are therefore related to residual adverse effects on other aspects of the environment affecting the availability of resources that can be harvested, such as changes in the quantity, or abundance and distribution of wildlife and fish resources, and changes in the quality of these resources. As a result, the assessment of Project effects on traditional use and way of life, including traditional harvesting, considers the results of effects assessments of valued components for Wildlife and Wildlife Habitat (Section 4.3) and for Fish and Fish Habitat (Section 3.3). Indirect effects are also related to changes in traditional use or value of traditional use areas based on people's changed perceptions of the land or resources.</p> <ul style="list-style-type: none"> <li>• <i>Increased mobility and time spent away from the community may result in changes to traditional way of life and culture</i> (Section 5.4.3.1).</li> </ul> <p>The assessment also considers intangible aspects of traditional harvesting, such as connection to land, transfer of Traditional Knowledge, and continued practice of the Indigenous way of life on the land. Socio-economic factors that may affect traditional land use and harvesting were also considered under Economic Wellbeing (Section 5.4.2).</p> <ul style="list-style-type: none"> <li>• <i>Increased access and use of the region may result in increased harvesting pressure on wildlife and fish by outsider harvesters</i> (Section 5.4.3.2).</li> </ul> <p>Concerns were identified by Indigenous residents about increased harvesting pressure on wildlife and fish and competition in the Project area, due to increased public access (PR#7; #28), and was discussed under Harvesting (Section 5.4.3.2). Therefore, the measurement indicators and residual effects results in the wildlife and wildlife habitat assessment, were only considered when assessing the indirect effects (availability of resources) on traditional land use, and effects of increased harvesting pressure (competition for resources) on harvesting.</p> <p>2.The ability of Indigenous harvesters to continue harvesting at the same success rate will depend on numerous factors. Baseline information related to current Indigenous harvesting success in the NWT, including the number of animals harvested and how often they are harvested, is unknown. In the absence of current and publicly available data related to Indigenous harvesting success, the assessment considers the most relevant data available to predict residual Project effects on traditional use and harvesting, including access to preferred traditional use areas, availability of resources, and competition for resources. The ASR acknowledges the potential for both positive and negative Project effects on traditional use and harvesting (Sections 5.4.3.1 and 5.4.3.2). The Project is expected to result in enhanced access to the existing trail network and preferred hunting, trapping, fishing and culturally important areas for Indigenous harvesters, and potentially to new areas in the region previously inaccessible most of the year (Section 5.4.3.1 and 5.5.3.1). Direct disturbance to preferred harvesting areas is considered minimal because the proposed Tli'cho All-season Road (TASR) predominantly follows an existing trail that is currently used by harvesters, and because access along preferred summer and winter harvesting routes will be maintained during Project operations with the installation of bridges over the La Martre and James rivers. The consideration and installation of suitable road crossings, pullouts and signage at access points of other culturally significant winter snowmobile trails, or summer ATV trails that intersect the TASR will also enhance access (Section 5.4.3.1). The wildlife and wildlife habitat assessment (Section 4.4) assessed the potential effects of the Project on ungulates and furbearers, including changes in abundance and distribution, and therefore changes in the availability of resources for harvesting. Although some local changes in the movement patterns, distribution and abundance of boreal and barren-ground caribou, moose and furbearers were expected because of the Project, adverse and long-term changes in wildlife populations were not anticipated at the regional</p>

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			<p>scale (Section 5.4.3.1). Although some changes to local distributions of individual wildlife may result from Project construction, these changes are expected to be minor and temporary. The availability of wildlife resources for harvesting may decrease in certain preferred harvesting areas during both Project construction and operations, into the long-term (Sections 5.5.3.1 and 5.5.3.2) due to a combination of effects, such as sensory disturbance and barriers to movement. However, the associated predicted effect on the availability of wildlife resources for harvesting is expected to be limited, since the regional area contains high proportions of habitat undisturbed by anthropogenic sources for boreal caribou, barren-ground caribou, moose and furbearers where they can be harvested. Residual effects on the availability of wildlife for harvesting due to increased harvesting were predicted to be low in magnitude and continuous. Adverse and long-term changes in wildlife populations are not anticipated (Section 5.5.3.2). The ongoing monitoring of caribou populations, movement patterns and harvesting, and adaptive management by the GNWT in collaboration with Indigenous governments and co-management boards will play a large role in determining continued Indigenous harvesting success. The fish and fish habitat assessment (Section 3.4) assessed the potential effects of the Project on fish habitat availability and distribution, and on fish abundance. With the implementation of mitigation measures, including the enforcement of NWT's fishery regulations by DFO and the GNWT to prevent overfishing in any one area, no residual effects from Project construction or operation activities were anticipated on existing fisheries in the region. The preferred traditional fishing locations are also largest (i.e., Lac La Martre, La Martre River, and Boyer Lake), and have substantial fish abundances that can likely support an increase in fishing pressure; therefore, it was determined that fish would remain available for traditional harvesting at both the regional and local scale.</p>																														
20	To: TG Re: Supply References	<p><b>Comment</b> The TG made reference to several documents in its response to the Review Boards Oct 28, 2016 information requests but did not provide a copy of the document for the public registry.  <b>Recommendation</b> Please submit the paper referenced on page 32 of PR#96 (Edwards K. et al. 2011), and relevant references from PR#7, Appendix B; PR#96; PR#97.</p>																															
21	To: the Developer Re: updated commitments list	<p><b>Comment</b> The developer's Adequacy Statement Response provides several lists of commitments. However there are concerns with the information submitted to date including:</p> <ul style="list-style-type: none"> <li>the concordance table references some but not all developer commitments found in the ASR and PDR</li> <li>the Review Board is aware of additional developer commitments that have occurred since the submission of the ASR including a "habitat suitability model", "wildlife effects monitoring program for boreal caribou", and "GNWT commits to consider opportunities to restore other linear disturbances to offset the TASR" (PR#99)</li> <li>GNWT is undertaking a collaring program for boreal caribou (PR#107)</li> </ul> <p>On May 8, 2017 the developer submitted an updated concordance table which stated that an updated list of commitments would be provided prior to the hearing. The Review Board considers commitments as a vital part of the EA process. Commitments are often mitigations for adverse effects that allow parties and the Review Board to focus attention on remaining issues. This helps to focus the process and allows for a timely and efficient EA. The Review Board agrees with the developer that an updated list of commitment should be provided before the hearing. However, an updated list provided prior to the technical session is also required.  <b>Recommendation</b> Can the developer please provide two separate lists of consolidated and updated commitments for both the construction phase and the operational phase?</p>	<p><b>July 21:</b> Two tables of commitments made in relation to the TASR to date are provided below: Table MVEIRB-IR21-1 for construction and Table MVEIRB-IR21-2 for operation. A final list of corporate commitments will be submitted prior to the closure of the Public Registry. All the commitments described here will be implemented by the GNWT or Project Co., unless otherwise indicated. The general subject area, discipline, and source of the commitment (for context) are indicated for each commitment. Commitments listed below include actions, practices, procedures or undertakings that will be completed specifically to mitigate or address an issue. Typically, actions that are legally required (for example under the <i>Fisheries Act</i>, <i>Navigable Waters Act</i>, the <i>Wildlife Act</i> or the <i>Migratory Birds Convention Act</i>) are not included as commitments. <b>Table MVEIRB-IR21-1: Tli?cho All Season Road Construction Commitments</b></p> <table border="1" data-bbox="1526 1145 3024 1911"> <thead> <tr> <th></th> <th>Subject</th> <th>Discipline</th> <th>Source</th> <th>Commitment Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Avian Species at Risk</td> <td>Terrestrial Environment</td> <td><a href="#">PR#132</a>. 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6	Camps	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>For large camps, erosion and sediment control structures will be installed where needed to avoid impacts to fish habitat (FFHPP 2016 [<a href="#">PR#7, Appendix X</a>]).</li> </ul>			
7	Camps	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Sewage waste generated from large camp construction/use will be stored in a leak-free container before being transported to an approved disposal facility to avoid impacting fish and fish habitat (FFHPP 2016 [<a href="#">PR#7, Appendix X</a>]).</li> </ul>			
8	Camps	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>All materials brought to camp sites will be removed at camp closure to avoid impacts to fish and fish habitat. Some materials may be incinerated (FFHPP 2016 [<a href="#">PR#7, Appendix X</a>]).</li> </ul>			
9	Culture	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>Implement the Archaeological Site Find Protocol to provide guidance to employees and contractors conducting ground disturbing operations</li> </ul>			
10	Disturbance to Wildlife	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>The Tli?cho Government will investigate the need for regulations and policies to manage the construction of cabins and design of hunting, trapping, and fishing in the area, in order to minimize impacts on local animal populations. The Tli?cho Government will work to provide clear guidance on this topic. (Mitigation 10 of <a href="#">PR#96, Appendix D Motion 2015-018</a>).</li> </ul>			
11	Disturbance to Wildlife	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Disturbance of significant wildlife features, such as nests and dens will be avoided using pre-construction monitoring and set-back distances described in the Wildlife Management and Monitoring Plan.</li> </ul>			
12	Disturbance to Wildlife	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>The mitigation strategies recommended by the Northern Land Use Guidelines will be considered, which includes best practices for avoiding, minimizing and rehabilitation of impacts to vegetation and topography.</li> </ul>			
13	Disturbance to Wildlife	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Destruction of bat roosts will be avoided by managing, to the extent possible, the incremental removal of vegetation so that it occurs outside of spring through fall. If vegetation clearing is required within this time, pre-clearing surveys and no-work zones for identified active maternity roost sites will be conducted to avoid disturbance.</li> </ul>			
14	Disturbance to Wildlife	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Avoid disturbance of hibernating bats by surveying for sites of hibernacula potential (i.e., abandoned buildings and mines and caves) within 200 m of ROW for bat use prior to construction.</li> </ul>			
15	Disturbance to Wildlife	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Avoid disturbance to migratory birds by clearing land outside of the bird nesting and fledging season (May to mid-August); however, if vegetation clearing is required within this time, pre-clearing nest surveys will be completed and no-work zones for identified active nesting sites will be used to minimize disturbance.</li> </ul>			
16	Dust	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Dust suppression techniques (as per the GNWT Guideline for Dust Suppression and GNWT-DOT's Erosion and Sediment Control Manual) will be utilized to reduce dust emissions onto vegetation outside of the ROW.</li> </ul>			
17	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>The effects of erosion will be minimized by implementing best management practices for erosion and sedimentation control (described in the GNWT-DOT Erosion and Sediment Control Manual, e.g., silt curtains, runoff management), where necessary.</li> </ul>			
18	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Sediment releases into watercourses will be mitigated by using isolation methods when completing in-stream construction. Isolation methods will be used for work below the high water mark for streams with flowing water at the time of construction (DFO Measures to Avoid Causing Harm to Fish and Fish Habitat).</li> </ul>			
19	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Where isolations are required for construction in flowing watercourses, bypass pumps will pump water through or onto a diffuser to disperse the force of the pumped water and avoid scour of the watercourse bed and banks. Any grey water removed from the isolation will be pumped away from the watercourse and onto a vegetated area to prevent sediment from reaching the watercourse (DFO Measures to Avoid Causing Harm to Fish and Fish Habitat). Where an adequate vegetated area is not available, grey water will be filtered before returning to the watercourse or pumped into a container and removed from site.</li> </ul>			

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20	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Additional erosion mitigation (i.e., rock reinforcement or armouring) will be applied at watercourse crossings where needed to minimize future erosion, as per the GNWT-DOT Erosion and Sediment Control Manual (<a href="#">PR#7, Appendix W</a>).</li> </ul>			
21	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Materials installed below the high water mark (i.e., riprap) will be clean to avoid adding deleterious substances to watercourses (DFO Measures to Avoid Causing Harm to Fish and Fish Habitat).</li> </ul>			
22	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Disturbed areas along the streambanks will be stabilized and allowed to re-vegetate upon completion of work to minimize future erosion (FFHPP 2016 <a href="#">PR#7, Appendix X</a>).</li> </ul>			
23	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Environmental Monitors will be onsite during construction to monitor the installation of crossing structures. Turbidity will be conducted at crossings with flowing water at the time of construction as per the In-Field Water Analysis Plan to meet regulatory requirements (<a href="#">PR#7, Appendix AA</a>).</li> </ul>			
24	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Removed vegetation/debris will be removed from site to prevent them entering the watercourse, and grading of the stream banks at approaches will not occur (FFHPP 2016 <a href="#">PR#7, Appendix X</a>).</li> </ul>			
25	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Disturbed areas along the streambanks will be stabilized upon completion of work to minimize erosion (GNWT-DOT Erosion and Sediment Control Manual, DFO Measures to Avoid Causing Harm to Fish and Fish Habitat).</li> </ul>			
26	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Debris and excess materials resulting from construction will be removed from the work site to prevent them reaching water bodies, as per the GNWT-DOT Erosion and Sediment Control Manual (<a href="#">PR#7, Appendix W</a>).</li> </ul>			
27	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>To reduce potential for sediment release, areas for cleaning equipment will be a minimum of 30 m away from watercourses and will not drain into or toward watercourses.</li> </ul>			
28	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Excess soils resulting from construction will be removed from the work site to prevent them reaching water bodies and impacting fish and fish habitat.</li> </ul>			
29	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Turbidity monitoring will be conducted at crossings with flowing water at the time of construction as per the In-Field Water Analysis Plan to meet regulatory requirements (<a href="#">PR#7, Appendix AA</a>).</li> </ul>			
30	Erosion and Sediment Release	Aquatic Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>The In-Field Analysis Plan can be updated to indicate the management actions that would be implemented depending on the difference between the upstream and downstream turbidity levels (including immediate response triggers such as more frequent monitoring and assessment of mitigation measure). The In-Field Water Analysis Plan will be updated to include an appendix with the locations of the watercourse crossings and associated station numbers to be set up at the commencement of construction. The In-Field Water Analysis Plan will be updated to include one set of confirmatory TSS (during construction around immediate water crossing) to identify the ballpark relationship of TSS and turbidity at each site.</li> </ul>			
31	Erosion and Sediment Release	Aquatic Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>Water quality grab samples upstream and downstream of the four major water crossings can be added to the In-Field Water Analysis Plan to demonstrate best water quality management practices. The plan will be updated to include grab samples of TSS at select sites/time periods over the course of construction to ensure turbidity testing remains comparable. Baseline data will be collected upstream of the construction activity at the same time as the downstream samples to provide surety of any difference in turbidity levels.</li> </ul>			
32	Fisheries	Aquatic Environment	ASR Section 3 Assessment of	<ul style="list-style-type: none"> <li>In-stream works where water is present will be conducted to avoid critical periods for spring-spawning fish, such as Arctic Grayling. In-stream work completed during the</li> </ul>			

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					nt	Effects to Fish and Fish Habitat	open water season will only take place between July 16 and September 14 as identified in the DFO Fish Timing Windows for the NWT to avoid impacting fish during critical life stages. In-stream works will be conducted when watercourses are dry or frozen to bed where possible.
33	Fisheries	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat				<ul style="list-style-type: none"> <li>Disturbance of fish and fish habitat below the high water mark will be minimized by using snow bridges/ice fills or temporary bridges (with no fill below the high water mark) as construction access and work platforms instead of fording (DFO Measures to Avoid Causing Harm to Fish and Fish Habitat).</li> </ul>
34	Fisheries	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat				<ul style="list-style-type: none"> <li>Pumping rates will be matched to watercourse flow rates in order to maintain fish habitat upstream and downstream of isolations (DFO Measures to Avoid Causing Harm to Fish and Fish Habitat). Backup pumps will be kept available to ensure flows and fish habitat are maintained in the event of a malfunction of the primary pump(s).</li> </ul>
35	Fisheries	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat				<ul style="list-style-type: none"> <li>To avoid fish entrainment/impingement, fish screens on pumps will be designed according to DFO guidelines, kept clean and free of ice and debris, and inspected for damage prior to each withdrawal. A backup fish screen will be kept available to be used if the primary screen is frozen or damaged (DFO Measures to Avoid Causing Harm to Fish and Fish Habitat).</li> </ul>
36	Fisheries	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat				<ul style="list-style-type: none"> <li>Culverts will be designed and installed to avoid creating fish movement barriers and to meet normal flow velocities for all seasons; culvert slopes will be optimized during construction to reduce velocities at the outlet (FFHPP 2016 [PR#7, Appendix X]).</li> </ul>
37	Fisheries	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat				<ul style="list-style-type: none"> <li>Temporary snowfill/ice bridge crossings will be constructed to not restrict or block flow at any time to maintain fish habitat and ensure fish passage. Prior to spring break-up, ice bridges will be physically v-notched in the middle to allow it to melt from the centre (FFHPP 2016 [PR#7, Appendix X]).</li> </ul>
38	Fisheries	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat				<ul style="list-style-type: none"> <li>Project staff will not be allowed to hunt or fish during construction or operations while on their work rotation to minimize overexploitation of fish populations.</li> </ul>
39	Fisheries	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat				<ul style="list-style-type: none"> <li>Only water sources identified using DFO Protocol for Winter Water Withdrawal in the Northwest Territories will be used for winter withdrawal to avoid impacts to fish and fish habitat. Withdrawal volumes and rates will not exceed guidelines in order to maintain fish habitat.</li> </ul>
40	Fisheries	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat				<ul style="list-style-type: none"> <li>All water use will be monitored and tracked and, if required, regulated through a water license to avoid impacts to fish habitat (FFHPP 2016 [PR#7, Appendix X]).</li> </ul>
41	Health and Well-Being	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects				<ul style="list-style-type: none"> <li>The TCSA commits to providing more information for local health nurses on a range of health issues, such as sexually transmitted infections, among other issues (Mitigation 12 of PR#96, Appendix D Motion 2015-018).</li> </ul>
42	Health and Well-Being	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects				<ul style="list-style-type: none"> <li>The TCSA will be participating in the Healthy Living Fairs in each community in order to provide community specific information and education to all community members. These fairs increase awareness of common infections, diseases and illnesses, and promote a healthy lifestyle.</li> </ul>
43	Invasive Plants	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat				<ul style="list-style-type: none"> <li>Cleaning and inspection of Project vehicles and equipment prior to entering the NWT to avoid introducing noxious and invasive plants.</li> </ul>
44	Invasive Plants	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat				<ul style="list-style-type: none"> <li>Re-cleaning Project vehicles and equipment if an area of weed infestation is encountered, prior to advancing to a weed-free area to minimize the spread of noxious and invasive plants.</li> </ul>
45	Invasive Plants	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat				<ul style="list-style-type: none"> <li>Locating and managing cleaning locations on the Project site to avoid the spread of noxious and invasive plants.</li> </ul>
46	Invasive Plants	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat				<ul style="list-style-type: none"> <li>Any required reseeding will be done so with an approved native, non-invasive, seed to avoid the introduction of noxious and invasive plants.</li> </ul>

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47	Labour	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>Project construction and operations will be funded through the P3 procurement process, and so will be exempt from the GNWT Business Incentive Policy requirements. However, the GNWT will include conditions in bid contracts that include a requirement for Tli'cho and Northern hires. Contractors should demonstrate how local labour and businesses will be sourced, plans to provide and maximize on-the-job training for local residents, and an approach to communicating and collaborating with local governments and Aboriginal organizations regarding local involvement in construction and operations.</li> </ul>			
48	Labour	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>In the event that incidental Project activities are funded extra to the P3 process, the GNWT Business Incentive Policy will be applied, as appropriate.</li> </ul>			
49	Land Use	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>The GNWT, in collaboration with the Tli'cho Government and other planning partners, is in the process of working towards the development of a land use plan for public lands in the Wek'èezhii Management Area.</li> </ul>			
50	Land Use	Socio-Economics and Land Use	PDR, Section 5.1.2	<ul style="list-style-type: none"> <li>During final design phase, consideration will be taken to ensure a safe snowmobile crossing is established near bridge near km 45.2.</li> </ul>			
51	Land Use	Socio-Economics and Land Use	PDR, Section 7.1.2	<ul style="list-style-type: none"> <li>Verify that the cabin sites near the Project footprint are at least 50 m away. May need to double check coordinate locations with TG prior to construction and ensure that the two cabins that will be rebuilt (burnt as a result of 2014 fire) are far enough away.</li> </ul>			
52	Land Use	Socio-Economics and Land Use	PDR, Section 5.1.2	<ul style="list-style-type: none"> <li>Maintain safe access to T'oohehoteè, an important portage site at the La Martre River.</li> </ul>			
53	Land Use	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>Annual coordination between the Councils of Whatì and Behchoko?' to ensure that any changes and impacts are being collectively considered, addressed and managed (Mitigation 13 of <a href="#">PR#96</a>, Appendix D Motion 2015-018).</li> </ul>			
54	Management and Enforcement	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>Continuation of the Whatì Inter-Agency Committee. The Whatì Inter-Agency Committee responds to issues related to community preparedness. Issues such as emergency response, social programs, and the community &amp; lands concerns are all brought to this forum. Reasonable discussions about costs, liabilities and insurance will need to be addressed at this forum (Mitigation 6 of <a href="#">PR#96</a>, Appendix D Motion 2015-018).</li> </ul>			
55	Seepage	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Runoff from quarry areas will be directed away from fish habitat and sediment control measures will be installed. Where natural topography is modified for quarry areas, natural contours will be reconstructed and the area will be revegetated upon closure.</li> </ul>			
56	Seepage	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Only non-acid generating material will be used for construction of the road and watercourse crossings to avoid impacting fish habitat with deleterious substances; testing will verify lack of acid rock drainage and metal leaching potential.</li> </ul>			
57	Seepage	Aquatic Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>Should concrete be required (and cannot be precast), un-cured/partly cured concrete will be isolated from watercourses.</li> </ul>			
58	Seepage	Aquatic Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>The Quarry Operations Plan will follow Lands' Guidelines. Should pit drainage be planned, appropriate management techniques will be utilized. This includes designing and constructing the quarry to drain naturally without ponding or the requirement for pumping, ensuring water exists naturally through diffuse flow back into the natural environment with the avoidance of distinct run-off channels and ensuring buffer zones of undisturbed land and vegetation for water to flow exists.</li> </ul>			
59	Seepage	Aquatic Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>A consultant will be hired to analyze laboratory results and will indicate what parameters should be analyzed prior to sending samples to the laboratory during in-field geotechnical investigations.</li> </ul>			

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60	Spills	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Emergency Response Plan and Spill Contingency Plan (<a href="#">PR#7</a>) will be developed and implemented, including ready access to an emergency spill clean-up kit for cleaning up any spills during construction or maintenance of the TASR. Drivers and construction crews on site will be familiar with the spill contingency plan and appropriately qualified to minimize impacts resulting from spills and leaks.</li> </ul>		
61	Spills	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Fuels, lubricants and hydraulic fluids for equipment used will be carefully handled to prevent spillage, properly secured against unauthorized access or vandalism, provided with spill containment and disposed of in accordance with the Waste Management Plan to avoid spillage impacts on fish and fish habitat. Fuel caches will be located on flat stable terrain or in natural depressions away from slopes to water bodies, and caches will be clearly marked and drums will be placed on their sides and spaced to facilitate inspections (FFHPP 2016 <a href="#">[PR#7, Appendix X]</a>).</li> </ul>		
62	Spills	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Construction equipment will be regularly maintained and inspected to ensure it is free of leaks (FFHPP 2016 <a href="#">[PR#7, Appendix X]</a>).</li> </ul>		
63	Spills	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Machinery used for work below the high water mark will use only biodegradable hydraulic fluid, and drip pans/trays will be placed under all equipment while not in use (FFHPP 2016 <a href="#">[PR#7, Appendix X]</a>).</li> </ul>		
64	Spills	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>All stationary fuel storage containers will have integrated 110% secondary containment, and refueling and servicing of machinery and storage of fuel and other materials for the machinery will occur a minimum of 30 m away from any water body, where possible, to avoid impacts to fish and fish habitat (FFHPP 2016 <a href="#">[PR#7, Appendix X]</a>).</li> </ul>		
65	Spills	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Equipment used in or near water will be clean and free of oil, grease or other deleterious substances. Vehicles travelling on the road will be properly loaded and loads appropriately covered where necessary (FFHPP 2016 <a href="#">[PR#7, Appendix X]</a>).</li> </ul>		
66	Spills	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Accidental spill impacts will be minimized by posting and enforcing speed limits on the road.</li> </ul>		
67	Spills	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Any spills will be reported immediately to the NWT Spill Line to minimize spillage impacts, as per the Spill Contingency Plan (FFHPP 2016 <a href="#">[PR#7, Appendix X]</a>).</li> </ul>		
68	Spills	Aquatic Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>In instances where fuel storage does not already incorporate 110% containment (such as drums and jerry cans vs. the larger double-walled storage tanks), containment pads will be provided for all fuel storage, dispensing and transfer sites</li> </ul>		
69	Spills	Aquatic Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>DOT will be using the DOT ESC Manual as guidance in the development of an ESC plan, including monitoring, reporting and adaptive management. These plans will be finalized by the contractor ensuring the contractor is fully aware and capable of the requirements in that plan, while DOT provides oversight while remaining accountable</li> </ul>		
70	Spills	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Hazardous materials and fuel will be stored according to regulatory requirements to avoid contamination to the environment and workers (i.e., Hazardous Substances Management Plan).</li> </ul>		
71	Spills	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>An approved Spill Contingency Plan will be followed by Project staff to prevent spills and if they were to occur as a result of an accident, that they will be controlled to minimize the area impacted.</li> </ul>		
72	Spills	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Emergency spill kits will be available wherever toxic materials or fuel are stored and transferred during construction to minimize effects to vegetation and wildlife habitat.</li> </ul>		
73	Spills	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Spill response and containment will be completed expeditiously in accordance with the approved site-specific Spill Contingency Plan to reduce the area impacted.</li> </ul>		
74	Spills	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Construction equipment, machinery, and vehicles will be regularly maintained to avoid accidental spills.</li> </ul>		

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75	Spills	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>GNWT-DOT's Erosion and Sediment Control Manual, in conjunction with a suitable road design, will be utilized for erosion and sediment control and slope stabilization, which should minimize damage to riparian, stream, wetland and lake habitat from altered hydrology.</li> </ul>		
76	Spills	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Domestic and recyclable waste and dangerous goods will be stored on-site in appropriate containers to avoid exposure until they are shipped off-site to an approved facility.</li> </ul>		
77	Spills	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Fuel storage areas will be equipped with spill kits, will be located at least 30 m away from water bodies and large fuel storage tanks (2,000 to 50,000 L) will be double walled.</li> </ul>		
78	Water crossings	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Culverts will be embedded as appropriate to maintain species and habitat present, and will be installed parallel to the existing channel to minimize changes to channel morphology.</li> </ul>		
79	Water crossings	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Water crossing structures (e.g., culverts, bridges, ice bridges/snow fills) will be installed and maintained using best management practices (DFO Measures to Avoid Causing Harm to Fish and Fish Habitat) and following environmental approval conditions to minimize impacts to fish and fish habitat.</li> </ul>		
80	Water crossings	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Disturbed areas along the streambanks will be stabilized and allowed to re-vegetate upon completion of work to rehabilitate damage caused to fish habitat (DFO Measures to Avoid Causing Harm to Fish and Fish Habitat).</li> </ul>		
81	Water crossings	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Permanent bridges will not contact water bodies to minimize impacts below the ordinary high water mark, bridge abutment installation will span the active channel. Pier installation will be outside the active channel and within the floodplain (1 in 5 year flood).</li> </ul>		
82	Water crossings	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Impacts to riparian vegetation at temporary crossings will be minimized by using structures such as snow fills and single-span bridges instead of fording, especially where banks are susceptible to erosion. Trees/shrubs removed at these crossings will be cut &gt;10 cm above the ground level to maintain root structure and stability (FFHPP 2016 [PR#7, Appendix X]).</li> </ul>		
83	Wildlife Habitat	Terrestrial Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>The Wildlife Management and Monitoring Plan will be updated to be consistent with the proposed Wood Bison recovery strategy to the extent feasible.</li> </ul>		
84	Wildlife Habitat	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>The current layout of the Project footprint will minimize the amount of new disturbance by primarily following the existing Old Airport Road route to Whatì and intersecting areas previously burned.</li> </ul>		
85	Wildlife Habitat	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Lights will be positioned to shine downwards and/or will be fixed with shielding to minimize the distribution of peripheral light and shut off when not in use.</li> </ul>		
86	Wildlife Habitat	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Construction will be temporarily suspended when species at risk, moose and barren-ground caribou are known to be within construction activities to minimize sensory disturbance. Environmental Monitors will be used to help identify the presence of wildlife.</li> </ul>		
87	Wildlife Habitat	Terrestrial Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>The GNWT (via ENR) will approach the Barren-Ground Caribou Technical Working Group, regarding possible approaches for monitoring wildlife harvest in relation to TASR.</li> </ul>		
88	Wildlife Safety	Terrestrial Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>Gentle moving of caribou during construction activities will be considered when deemed safe and effective by ENR and will involve the slow approach of environmental monitors to the caribou encourage them to move. If caribou are unwilling to leave the area, operations should be suspended and people should leave the area. This may only be done when the safety of the caribou, workers or equipment are at imminent risk, otherwise operations should be suspended to allow caribou to move away on their own accord.</li> </ul>		
89	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Construction activities will be limited during sensitive periods to minimize effects on wildlife. For example, surface blasting will be suspended when caribou are identified within a 'danger zone' and the period for no harm or disturbance to migratory birds and</li> </ul>		

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						their nesting habitat will be observed.
90	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>Wildlife will have the right-of-way on all roads during construction.</li> </ul>
91	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>In the event that an active den or nest is identified during construction, GNWT-ENR will be consulted to determine an appropriate strategy to avoid or minimize disturbance.</li> </ul>
92	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>Observations of caribou and species at risk will be reported to Environmental Monitors. Any next steps will be actioned as per the directions outlined in the WMMP.</li> </ul>
93	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>Harassment and feeding of wildlife by Project staff will be prohibited.</li> </ul>
94	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>Project staff will be provided with environmental awareness training.</li> </ul>
95	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>Environmental Monitors will be on site to document wildlife and manage and minimize risks to wildlife and workers.</li> </ul>
96	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>Exposure of wildlife to contaminants will be avoided by use of appropriate deterrents (e.g., temporary fencing, noise makers) to discourage wildlife from entering an affected area.</li> </ul>
97	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>No hunting or fishing by Project staff will be permitted to avoid wildlife harvest.</li> </ul>
98	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>Development and implementation of a Waste Management Plan to avoid access to food waste by wildlife</li> </ul>
99	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>Food wastes will be collected in suitable receptacles that minimize attraction or impact to wildlife.</li> </ul>
100	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>Waste products will be stored in secured containers and transported to appropriate facilities to avoid access by wildlife.</li> </ul>
101	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>Littering and feeding of wildlife will be prohibited to avoid wildlife attraction to the site.</li> </ul>
102	Wildlife Safety	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat			<ul style="list-style-type: none"> <li>All workers and visitors will be educated on waste management practices for the Project site to avoid wildlife attraction. Waste management practices will be enforced.</li> </ul>
103	Caribou	Terrestrial Environment	GNWT Response to MVEIRB IR #3 – Boreal Woodland Caribou			<ul style="list-style-type: none"> <li>A draft Wildlife Effects Monitoring Program (WEMP) will be provided prior to the technical sessions and a revised draft Wildlife and Wildlife Habitat Protection Plan (WWHPP) will be provided to reviewers prior to the public hearing. Together, the WEMP and WWHPP constitute a Wildlife Management and Monitoring Plan (WMMP), which will outline caribou management specifics.</li> </ul>
104	WMMP	Terrestrial Environment	GNWT Response to ECCC IR#10 – WMMP			<ul style="list-style-type: none"> <li>A draft WEMP will be provided prior to the technical sessions and a revised draft WWHPP will be provided to reviewers prior to the public hearing. Together, the WEMP and WWHPP constitute a WMMP.</li> </ul>

**Table MVEIRB-IR21-2: Tli?cho All Season Road Operation Commitments**

	Subject	Discipline	Source	Commitment Description
1	Avian Species at Risk	Terrestrial Environment	<a href="#">PR#132</a> . Meeting between GNWT and ECCC. 9 June 2017	<ul style="list-style-type: none"> <li>GNWT/Golder will assess ECCC's avian monitoring data from Highway 3 when it is received and update their effects assessment with the data incorporated, or provide an explanation as to why the data will not be included.</li> <li>GNWT will post the decision to use additional data or not to the public registry once</li> </ul>

ID	Topic	Reviewer Comment/Recommendation	Proponent Response			
						available
2	Culture	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects			<ul style="list-style-type: none"> <li>The Tli?cho Government and/or the CGW will erect signage to prevent damage to culturally significant areas (such as the La Martre Falls)</li> </ul>
3	Disturbance to Wildlife	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects			<ul style="list-style-type: none"> <li>The Tli?cho Government will investigate the need for regulations and policies to manage the construction of cabins and design of hunting, trapping, and fishing in the area, in order to minimize impacts on local animal populations. The Tli?cho Government will work to provide clear guidance on this topic. (Mitigation 10 of <a href="#">PR#96</a>, Appendix D Motion 2015-018).</li> </ul>
4	Dust	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat			<ul style="list-style-type: none"> <li>Dust entering fish habitat will be minimized by enforcing speed and load limits to preserve the road bed, and regular road maintenance will be conducted to suppress dust production (as per the GNWT Guideline for Dust Suppression).</li> </ul>
5	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat			<ul style="list-style-type: none"> <li>Riparian areas will be maintained whenever possible to minimize erosion and impacts to fish habitat, with vegetation removal limited to the width of the ROW. At watercourse crossings, a riparian buffer will be maintained along the width of the ROW except at the actual crossing location (FFHPP 2016 <a href="#">[PR#7, Appendix X]</a>).</li> </ul>
6	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat			<ul style="list-style-type: none"> <li>Watercourses will be inspected upstream and downstream of the crossings for erosion, scour, and flow blockages during the spring freshet and through the open water season, as required. Impacts will be minimized by culvert maintenance, including removal activities of debris (e.g., ice, beaver dams), following DFO guidance (i.e., gradual removal such that flooding downstream, extreme flows downstream, release of suspended sediment, and fish stranding can be avoided).</li> </ul>
7	Erosion and Sediment Release	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat			<ul style="list-style-type: none"> <li>Snow will be ploughed off of the road in such a manner that it melts into vegetated areas in the spring to filter out sediment, minimizing downstream sedimentation impacts to fish and fish habitat (FFHPP 2016 <a href="#">[PR#7, Appendix X]</a>).</li> </ul>
8	Fisheries	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat			<ul style="list-style-type: none"> <li>The Tli?cho Government may control access to Tli?cho lands to conserve and protect areas used for harvesting by Tli?cho citizens to minimize overexploitation impacts (<a href="#">PR#74</a>).</li> </ul>
9	Health and Well-Being	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects			<ul style="list-style-type: none"> <li>The TCSA commits to providing more information for local health nurses on a range of health issues, such as sexually transmitted infections, among other issues (Mitigation 12 of <a href="#">PR#96</a>, Appendix D Motion 2015-018).</li> </ul>
10	Health and Well-Being	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects			<ul style="list-style-type: none"> <li>The TCSA will be participating in the Healthy Living Fairs in each community in order to provide community specific information and education to all community members. These fairs increase awareness of common infections, diseases and illnesses, and promote a healthy lifestyle.</li> </ul>
11	Health and Well-Being	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects			<ul style="list-style-type: none"> <li>Speed limits aimed at maintaining safe driving speeds for vehicles.</li> </ul>
12	Health and Well-Being	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects			<ul style="list-style-type: none"> <li>There are no shelters in the Tli?cho region, however the TCSA and the GNWT are engaging with the communities to create community specific family violence protocols and response teams. This is done via a contribution agreement between the Department of Health and Social Services and the TCSA to cover the costs associated with community engagement and development of the protocols by a consultant.</li> </ul>
13	Health and Well-Being	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects			<ul style="list-style-type: none"> <li>The CGW will continue public education locally to ensure that travellers of the road report when they depart, and when they arrive to track road users in the event of inclement weather (<a href="#">PR#96</a> TG IR 2.3).</li> </ul>
14	Infrastructure	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects			<ul style="list-style-type: none"> <li>Investigate, with NorthwesTel, areas of no cellular coverage along the road with an aim to increase cell coverage to the full TASR, allowing for emergency communication in the event of an accident.</li> </ul>

ID	Topic	Reviewer Comment/Recommendation	Proponent Response				
15	Labour	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>Project construction and operations will be funded through the P3 procurement process, and so will be exempt from the GNWT Business Incentive Policy requirements. However, the GNWT will include conditions in bid contracts that include a requirement for Tli?cho and Northern hires. Contractors should demonstrate how local labour and businesses will be sourced, plans to provide and maximize on-the-job training for local residents, and an approach to communicating and collaborating with local governments and Aboriginal organizations regarding local involvement in construction and operations.</li> </ul>			
16	Labour	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>In the event that incidental Project activities are funded extra to the P3 process, the GNWT Business Incentive Policy will be applied, as appropriate.</li> </ul>			
17	Labour	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>Mobilization of the Economic Development Officers in communities to prepare the workforce for employment opportunities (Mitigation 4 of <a href="#">PR#96</a>, Appendix D Motion 2015-018).</li> </ul>			
18	Labour	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>Development of a training strategy by the Tli?cho Regional Economic Development Working Group (TREDWG), in conjunction with Aurora College and the Mine Training Society, that identifies available skilled labour for construction employment opportunities in each of the communities (<a href="#">PR#96</a> TG IR 1).</li> </ul>			
19	Labour	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>To avoid inequitable distribution of employment to regional or migrant labour forces, the TREDWG has identified that the local labour force required for construction is available (<a href="#">PR#96</a> TG IR 1).</li> </ul>			
20	Labour	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>Planning for employment and local opportunity catchment is expected to reduce a surge in the required out-of-territory labour force during construction, reducing the potential for in-migration into the region. (<a href="#">PR#96</a> TG IR 1).</li> </ul>			
21	Labour	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>Implementation of the Tli?cho Regional Economic Development and Training Strategy, and community action plans. These identify priorities and actions that target specific training needs and help to fill those gaps.</li> </ul>			
22	Land Use	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>The GNWT, in collaboration with the Tli?cho Government and other planning partners, is in the process of working towards the development of a land use plan for public lands in the Wek'èzhii Management Area.</li> </ul>			
23	Land Use	Socio-Economics and Land Use	PDR, Section 5.1.2	<ul style="list-style-type: none"> <li>Maintain safe access to T'ooohdeèhoteè, an important portage site at the La Martre River.</li> </ul>			
24	Land Use	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>Annual coordination between the Councils of Whatì and Behchoko? to ensure that any changes and impacts are being collectively considered, addressed and managed (Mitigation 13 of <a href="#">PR#96</a>, Appendix D Motion 2015-018).</li> </ul>			
25	Land Use	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>GNWT-ENR will enforce the NWT's hunting regulations which are in place to ensure that wildlife is conserved for future generations and that hunting is done safely.</li> </ul>			
26	Land Use	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>Suitable road crossings, pullouts and signage should be installed at access points of winter snowmobile trails, or summer ATV trails that intersect the TASR, to ensure that travel is not impeded (<a href="#">PR#28</a>).</li> </ul>			
27	Land Use	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>The Tli?cho Government will continue to manage cabin construction on Tli?cho lands.</li> </ul>			
28	Management and	Socio-Economics	Section 5 Assessment of	<ul style="list-style-type: none"> <li>Continuation of the Whatì Inter-Agency Committee. The Whatì Inter-Agency Committee responds to issues related to community preparedness. Issues such as</li> </ul>			

ID	Topic	Reviewer Comment/Recommendation	Proponent Response				
				Enforcement and Land Use	Socio-Economic effects	emergency response, social programs, and the community & lands concerns are all brought to this forum. Reasonable discussions about costs, liabilities and insurance will need to be addressed at this forum (Mitigation 6 of <a href="#">PR#96</a> , Appendix D Motion 2015-018).	
			29	Management and Enforcement	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>The CGW is investigating the establishment of a Community Bylaw Officer to support policing efforts during Project operations to mitigate activities that could result in accidents or emergencies along the road.</li> </ul>
			30	Management and Enforcement	Socio-Economics and Land Use	Section 5 Assessment of Socio-Economic effects	<ul style="list-style-type: none"> <li>The Tli?cho Government has the authority and jurisdiction to write laws, develop its own strategies, and maintain a balance between subsistence harvesting and industrial development on its lands (see the Tli?cho Agreement and Tli?cho Land Use Plan). The Tli?cho Government will work with the GNWT to review the mitigations that are developed and considered for managing harvesting impacts that occur as a result of the new all-season access of the TASR (<a href="#">PR#96</a> IR 4.3, page 69).</li> </ul>
			31	Seepage	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Drainage from quarries will not flow directly into any water bodies or watercourses and a minimum of 30 m of undisturbed land will be maintained between a quarry and any fish bearing water body to avoid impacts to fish habitat (FFHPP 2016 <a href="#">PR#7, Appendix X</a>).</li> </ul>
			32	Spills	Aquatic Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>In instances where fuel storage does not already incorporate 110% containment (such as drums and jerry cans vs. the larger double-walled storage tanks), containment pads will be provided for all fuel storage, dispensing and transfer sites.</li> </ul>
			33	Spills	Aquatic Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>DOT will be using the DOT ESC Manual as guidance in the development of an ESC plan, including monitoring, reporting and adaptive management. These plans will be finalized by the contractor ensuring the contractor is fully aware and capable of the requirements in that plan, while DOT provides oversight while remaining accountable.</li> </ul>
			34	Spills	Aquatic Environment	ASR Section 3 Assessment of Effects to Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Road maintenance equipment will be regularly maintained and inspected to ensure it is free of leaks to avoid impacts to fish and fish habitat (FFHPP 2016 <a href="#">PR#7, Appendix X</a>).</li> </ul>
			35	Wildlife Habitat	Terrestrial Environment	WLWB Preliminary Screening	<ul style="list-style-type: none"> <li>The GNWT (via ENR) will approach the Barren-Ground Caribou Technical Working Group, regarding possible approaches for monitoring wildlife harvest in relation to TASR.</li> </ul>
			36	Wildlife Habitat	Terrestrial Environment	PR#99. Meeting between GNWT, ECCC, WRRB and CANNOR. 10 November 2016	<ul style="list-style-type: none"> <li>Establish a wildlife effects monitoring program for boreal caribou to assess their response to construction and operation of the TASR and to assess population trend for boreal caribou in the region.</li> </ul>
			37	Wildlife Habitat	Terrestrial Environment	Section 4 Effects to Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Signs indicating the daily wildfire risk will be posted at the TASR junctions at Highway 3 and the existing Whati community access road to minimize the risk of accidental fires.</li> </ul>
			38	Caribou	Terrestrial Environment	GNWT Response to MVEIRB IR #3 – Boreal Woodland Caribou	<ul style="list-style-type: none"> <li>A draft Wildlife Effects Monitoring Program (WEMP) will be provided prior to the technical sessions and a revised draft Wildlife and Wildlife Habitat Protection Plan (WWHPP) will be provided to reviewers prior to the public hearing. Together, the WEMP and WWHPP constitute a Wildlife Management and Monitoring Plan (WMMP), which will outline caribou management specifics.</li> </ul>
			39	WMMP	Terrestrial Environment	GNWT Response to ECCC IR#10 – WMMP	<ul style="list-style-type: none"> <li>A draft WEMP will be provided prior to the technical sessions and a revised draft WWHPP will be provided to reviewers prior to the public hearing. Together, the WEMP and WWHPP constitute a WMMP.</li> </ul>

**North Slave Metis Alliance: Shin Shiga**

1	General comment	<p><b>Comment (Submitted after Due Date)</b> Due to staff schedule and shortage, NSMA was only able to conduct a cursory review of the chapter 3 "Assessment of Effects to Fish and Fish Habitat" before the due date for this Information Request (IR) stage. NSMA will continue to review the remaining chapters of the proponent's Response to Adequacy Statement (the Response). Should we have any</p>
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ID	Topic	Reviewer Comment/Recommendation	Proponent Response
		<p>questions following our review, we will directly engage with the GNWT and/or other relevant parties and authorities. NSMA will share relevant correspondences with the Review Board to ensure effective information sharing during the environmental assessment. NSMA appreciates the understanding of the Review Board and other parties of the assessment.</p> <p><b>Recommendation</b> N/A</p>	
2	<p>IR#1: (To GNWT) Rock type verification during construction and runoff monitoring (3.2 Pathway Analyses)</p>	<p><b>Comment (Submitted after Due Date)</b> Proponent describes various pathways and corresponding mitigations for potential negative impacts from project runoff. Proponent includes in the mitigations: rock type verification and runoff monitoring at the quarries. NSMA is uncertain how the proponent is going to monitor runoffs from the roads as a way of verification of rock type and its acid-generating and/or metal leaching characteristics.</p> <p><b>Recommendation</b> Please provide information (parameters, frequency, duration, location etc) about runoff monitoring along the constructed road.</p>	<p><b>July 12:</b> Geochemical verification of borrow source material is currently underway (see W2016S0009 for further details). The results will identify which borrow sources will be suitable for construction use. Only material that has been cleared through the geochemical verification process will be utilized in the construction of the road in order to guarantee that the road surface material will not be susceptible to acid rock drainage or metal leaching. Because only non-acid generating rock/non-metal leaching material will be utilized, it is not necessary to monitor the chemical makeup of runoff from the roads. Monitoring of runoff will be conducted from an erosion and sediment control perspective; further details about this specific type of monitoring will be available in the ESC Plan that will be developed with the help of Project Co.</p>
3	<p>IR#2: (To Tlicho Government) P3-42 Tlicho Regulation of Fishing.</p>	<p><b>Comment (Submitted after Due Date)</b> Proponent cites a number of times that Tlicho Government may apply and implement its own regulation of fishing within Tlicho Lands. NSMA understands from the Response that, at present, the same recreation fisheries regulation elsewhere in the NWT applies within the Tlicho Lands; and that regulation by Tlicho Government will be in addition to, but not a replacement of, the existing recreation fisheries regulation that is currently administered by the GNWT. NSMA would like to request further information about the nature and progress of the potential development and implementation of the Tlicho Government's regulation of fisheries within Tlicho Lands.</p> <p><b>Recommendation</b> Please provide, where exists, information about: Current status of development, schedule of development, vision and scope, and mechanisms of implementation and enforcement, of the Tlicho Government's regulation of fisheries on Tlicho Lands.</p>	<p><b>July 11: TG response.</b> The Tli?cho? Government has the legislative authority and jurisdiction to write laws, develop its own strategies, as well as control and effectively manage subsistence harvesting and industrial development on its lands (see the Tli?cho? Agreement and Tli?cho? Land Use Plan). The Tli?cho? Government acknowledges the NSMA's request with respect to fisheries regulation, however observes that the development, implementation and enforcement of Tli?cho? laws is a matter outside the jurisdiction of the Review Board and outside the jurisdiction of this environmental assessment process. Furthermore, the request does not speak to the subject matter of the TASR and so this information request will not be directly addressed. The Tli?cho? Government refers to the already developed NWT Fisheries Regulations, as well as the NWT Sport Fishing Guide, both of which set a context for policy and regulation in the region. Legislation set forth in the NWT Fisheries Regulations dictates:</p> <p><i>5(1) No person shall fish except under the authority of a licence issued under these Regulations or under the Aboriginal Communal Fishing Licences Regulations. (Government of Canada 2017)</i></p> <p><i>27(1) Notwithstanding subsection 5(1) and subject to subsection (2), a person may engage in sport fishing without a sport fishing licence if the person is</i></p> <p><i>(a) Northwest Territories resident or a resident Canadian under the age of 16 years or 65 years of age or over; or</i></p> <p><i>(b) a non-resident under the age of 16 years who is accompanied by a person who holds a sport fishing licence. (Government of Canada 2017)</i> As well, there is sensitivity to maintaining the fish stock and diversity in the region, as evidenced by the commercial fisheries prohibitions in the NWT Fishery Regulations – specifically Section 13.1: “No person shall be issued a commercial licence to fish in the waters of Lac la Martre unless that person has resided continuously in the settlement of Lac la Martre for a period of not less than six months immediately preceding the day he applies for that licence.” This is indicative of a level of prudence and caution that has been taken towards fisheries in the region. In PR#97, IR1, the Tli?cho? Government provides a detailed response pertaining to fish harvesting concerns as a direct or indirect result of the construction and operation of the TASR, including our ability to enact legislative authority to control and effectively manage fish harvesting on Tli?cho? Lands. The Tli?cho? Government is committed to working with the DFO and other government partners to ensure the protection and management of fishing sites and fish species throughout the construction and operation of the TASR. <b>References:</b></p> <p>Government of Canada. 2017. Northwest Territories Fishery Regulations. Published by the Minister of Justice. Accessed on June 22, 2017. Available online at <a href="http://laws-lois.justice.gc.ca/PDF/C.R.C.,_c._847.pdf">http://laws-lois.justice.gc.ca/PDF/C.R.C.,_c._847.pdf</a></p> <p>Government of the Northwest Territories. 2017. Northwest Territories Sport Fishing Regulations Guide. April 1, 2017 - March 31, 2018. Accessed on June 22, 2017. Available online at: <a href="http://www.enr.gov.nt.ca/sites/enr/files/nwt_sport_fishing_guide_2017-18.pdf">http://www.enr.gov.nt.ca/sites/enr/files/nwt_sport_fishing_guide_2017-18.pdf</a></p>
4	<p>IR#3: (To GNWT and Tlicho Government) P3-54 Implementation of fisheries regulations on shared water bodies</p>	<p><b>Comment (Submitted after Due Date)</b> NSMA understands from the Response that some fish-bearing water bodies are located over Tlicho Lands boundary. This means, when Tlicho Government's fisheries regulations are in effect, one water body could be regulated by two different governments (GNWT and Tlicho Government) and respective regulations.</p> <p><b>Recommendation</b> Please provide, where it exists, information about how the two governments plan to coordinate regulations and enforcements of fisheries on the water bodies along the Tlicho</p>	<p><b>July 11: TG response.</b> The Tli?cho? Government has the legislative authority and jurisdiction to write laws, develop its own strategies, as well as control and effectively manage subsistence harvesting and industrial development on its lands (see the Tli?cho? Agreement and Tli?cho? Land Use Plan). Where appropriate, the Tli?cho? Government will work collaboratively with the Department of Fisheries and Oceans on fisheries regulations of water bodies along, or outside, the Tli?cho? lands boundary. The Tli?cho? Government acknowledges the existing laws, regulations and guidebooks with respect to managing and regulating fisheries (See TG Response to NSMA IR 2). The Tli?cho? Government acknowledges the NSMA's request with respect to a government-to-government coordinated</p>

ID	Topic	Reviewer Comment/Recommendation	Proponent Response
		Lands boundary.	<p>approach for fisheries regulation and enforcement, and observes that the request does not speak to the subject matter of the TASR and so this information request will not be directly addressed. In PR#97, IR1, the Tli'cho? Government provides a detailed response pertaining to fish harvesting concerns as a direct or indirect result of the construction and operation of the TASR. The response describes Tli'cho? Government's ability to enact its legislative authority, its ability to effectively manage and control fish harvesting on Tli'cho? Lands, and describes the additional recommended mitigations and the commitments already in place by the GNWT to reduce impacts on fish, fish habitat and fishing. The Tli'cho? Government is committed to working with the Department of Fisheries and Oceans and the GNWT to ensure the protection and management of fishing sites and fish species throughout the construction and operation of the TASR. <b>Developer response</b> NSMA is correct in the understanding that one water body along the boundary between Tli'cho and public land could be regulated by multiple governments. The Department of Fisheries and Oceans Canada (DFO) is the responsible management authority for fish and fish habitat in the NWT while the Tli'cho Government has the power to enact laws in relation to fishery activities in waters on Tli'cho lands (section 7.4.3 of the Tli'cho Agreement). The GNWT does not have the authority to manage fisheries in the NWT and therefore cannot speak to how fisheries management will be coordinated along the Tli'cho boundary near the proposed Tli'cho All-season Road. Although the GNWT does not manage fisheries, GNWT officers, under a Memorandum of Understanding with DFO, have been cross appointed to enforce sport fishing regulations and will continue to do so should the project proceed. To provide clarity around the GNWT's role with regard to fisheries management, the GNWT has included federal Order in Council P.C. 1976-535 as an attachment to this information request response. DFO was called the Department of the Environment at the time the Order in Council was written.</p>
5	IR#4: (To Tli'cho Government) P3-51 Sustainable Development of Fishing-Based Tourism Opportunities"	<p><b>Comment (Submitted after Due Date)</b> The Response cites "sustainable development of fishing-based tourism opportunities" by Tli'cho Government as a mitigation against potential adverse effects on fish and its habitat from the proposed TASR. NSMA acknowledges fishing-based tourism can be a sustainable development initiative.</p> <p><b>Recommendation</b> Please provide, where possible, information about Tli'cho Government's current plan for the development of sustainable fishing-based tourism opportunities and how it can mitigate against potential adverse effects from the proposed TASR.</p>	<p><b>July 11: TG response.</b> The Tli'cho? Government and Community Government of Whatì view tourism as a positive economic development opportunity from the construction and operation of the TASR. The response to IR5 in PR# 96 provides detail on the potential for tourism in Whatì and for its residents, which is also a core focus of the TREDWG Economic Development Strategic Plan (2017). Plans for tourism growth in Whatì are reviewed in (see PR#96 IR5), and the Tli'cho? Government and Community Government of Whatì` do not expect any negative impacts associated with tourism as a result of the TASR. At the time of writing PR#96 in December 2016, the TREDWG Economic Development Strategic Plan was still a draft. The Strategic Plan was officially approved in June 2017, which lists tourism as a priority for each of the four communities. The communities are all working on Tli'cho? Community Priorities and Action Plans. Possible tourism opportunities could include (but are not limited to) fishing trips, canoe trips, cultural tours, and wilderness excursions. The aims of each community Action Plan are to ensure increased economic development for Tli'cho? citizens, Tli'cho? entities and the Tli'cho? Government; and to ensure relevant training and education for Tli'cho? citizens (Tli'cho? Government 2017). Tourism is a core industry for fostering healthy economic development growth in Whatì. The Tli'cho? Land Use Plan (LUP) further identifies strategies and areas suitable for eco-cultural tourism opportunities. The Tli'cho? LUP defines eco-cultural tourism as "responsible travel in naturally and culturally rich locations that conserves the environment, and improves the well-being and promotes the understanding of Tli'cho" (Tli'cho? Government 2013, p. 56). To this effect, tourism brings forward opportunities for benefitting Tli'cho? citizens while simultaneously protecting Tli'cho? Lands:</p> <p><i>Tourism has the potential to provide economic benefits to Tli'cho citizens. Ecotourism and cultural tourism are both growing markets worldwide and are expected to become increasingly popular in the North as access and travel becomes more convenient and affordable. Ecotourism – touring natural habitats in a manner meant to minimize ecological impact – can be beneficial as it can help to protect Tli'cho lands at the same time as providing local benefits for Tli'cho. Guided hiking, canoeing and air travel would form the basis for ecotourism experiences. The rich history and traditions of the Tli'cho can offer opportunities to build cultural tourism as well.</i></p> <p><i>Other tourism endeavours include commercial hunting and fishing lodges as well as outfitters, cultural tours and wilderness guides. Currently there is one tourism operation on Tli'cho lands, which is a fishing lodge on Lac la Martre<sup>[1]</sup>. (Tli'cho? Government 2013, p. 33). The Tli'cho? Government presently has five Land Protection Zones, four of which permit eco-cultural tourism. Given this, there remains vast potential for the expansion of sustainable Tli'cho?-led eco-cultural tourism opportunities on Tli'cho? lands, which includes fishing-based tourism opportunities. Furthermore, the Tli'cho? Government is developing a Tli'cho? Region Tourism Strategy. The Tourism Strategy is designed to foster the healthy growth of tourism across the entire Tli'cho? region, with specific considerations for each individual community's needs and capacities. For Whatì specifically, the plan suggests guided fishing tours on Lac la Martre as a potential opportunity for future community tourism – an opportunity that has considerable potential for growth with easier access as a result of the TASR. The Tourism Strategy provides sound evidence for the Tli'cho? region's readiness to implement, and benefit from, tourism opportunities in each community, including Whatì. An additional contribution to the Tli'cho? Government's approach to tourism growth is the development of the Tli'cho? Arts and Crafts Strategy, which is still not completed. The aim of the strategy is to maintain and strengthen the Tli'cho? traditional economy through the sale of Tli'cho? arts and crafts, such as mittens, moccasins, and vests, among other items. While Tli'cho? artists and crafters have been selling their work for a number of years, particularly through the highly</i></p>

ID	Topic	Reviewer Comment/Recommendation	Proponent Response
			<p>successful Tli?cho? Online Store, promoting the sale of arts and crafts through additional tourism-based initiatives is also a key driver to strengthening the Tli?cho? traditional economy. The Tli?cho? Government will continue to work closely with local partners, such as the NWT Tourism, local municipalities, tourism operators, local businesses, retail operators, and craft fairs to continue to promote Tli?cho? culture and artistry through tourism-based initiatives. The coalescence of the TREDWG Strategic Plan, the future Tourism Strategy, the future Tli?cho? Arts and Crafts Strategy and the Tli?cho? LUP, in addition to the research and analysis explained in PR# 96, IR 5, reveal the extent to which the Tli?cho? Government has invested in careful planning for tourism growth in the Tli?cho? region, including Whatì. Tourism is an underdeveloped economic development opportunity. All of the plans noted above will be vital for building a local tourism industry in a future-TASR scenario that is respectful of Tli?cho? culture and laws, ensures the benefits of tourism remains in communities and with Tli?cho? citizens, and contributes to the protection and enhancement of Tli?cho? lands.</p> <p><b>References:</b></p> <p>Tli?cho? Government. 2013. Tli?cho Wenek'e: Tli?cho Land Use Plan. Tli?cho Government, Behchoko`, NT, Canada.</p> <p>Tli?cho? Government. 2017. Tli?cho? Final Draft Training and Economic Development Strategy. Opportunities for economic development. February, 2017. Available online at www.tlicho.ca</p> <hr/> <p>[1] In 2016, the Whatì fishing lodge was booked to capacity (based on 150 people doing a three-day trip) throughout the season, generating approximately \$432,000 in revenue. The lodge anticipates to be fully booked again in the coming 2017 season (personal communication with operator, December 15, 2016).</p>

**Wek'eezhii Renewable Resources Board: Boyan Tracz**

1	<p>IR#1; To: the Developer; Caribou (boreal and barren-ground) - Application of Assessment Endpoint and Measurement Indicators: Adequacy Statement Response (PR#110) - sec 4.0 (e.g. 4.2.3.1, 4.2.3.2.)</p>	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> The importance of the Assessment Endpoint is in determining the significance of impacts (incremental and cumulative). The Adequacy Statement Response (ASR; sec 4.6) states that “<i>Residual effects were determined to be significant if a VC is expected to no longer be: (1) self-sustaining, or (2) ecologically effective</i>”. The ASR (sec 4.1.2) describes self-sustaining populations as: “<i>healthy and viable populations, which are by definition robust and capable of withstanding environmental change and accommodating stochastic population processes</i>”, and “<i>an ecologically effective population differs from a self-sustaining population if the number of individuals needed to maintain ecological function is greater than the number required to maintain a viable population for the long term.</i>” The ASR (sec 4.2) describes how the ability of a species to tolerate disturbance is evaluated using the concepts of ecological adaptability and resilience; for boreal caribou: “<i>At Base Case, boreal caribou are predicted to be self-sustaining and ecologically effective with a low risk, but are near their resilience limits</i>”; for barren-ground caribou: “<i>Barren-ground caribou are expected to have the capacity to adapt and be resilient to existing natural and human-related disturbances and associated variations in habitat availability, which at Base Case are not limiting.</i>” However, the ASR also states that “<i>Due to the current low abundance and harvest restrictions of Bathurst caribou and Bluenose-East barren-ground caribou are considered unlikely to be self-sustaining and ecologically effective at Base Case</i>” which raises questions about why barren-ground caribou can be expected to be resilient and adaptable. Several parties, including GNWT, raised questions regarding the definition of the Assessment Endpoint for caribou in previous environmental assessments for barren-ground caribou (e.g. MVEIRB’s 2016 Reasons for a Decision Report for EA1314-01 Dominion Diamond Ekati Corp. Jay pit). Building on recent case studies is a useful step toward efficiency and effectiveness in environmental assessments.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Please summarize lessons that can be learnt about defining Assessment Endpoints for caribou from recent MVEIRB environmental assessments;</li> <li>2. Please summarize evidence (demographic and habitat-related) supporting the statement that boreal caribou are “near” their resilience limits, and discuss the implications for the Assessment Endpoints and Measurement Indicators (see also IR#2);</li> </ol>	<p><b>July 17: Note: This response replaces a previous response to WRRB IR#1 which was included in PR#142.</b> The assessment endpoint of self-sustaining and ecologically effective wildlife populations was most recently used in the assessment of the Jay Project (Dominion Diamond 2014). During the review of the Jay Project Developer’s Assessment Report, several communities, regulatory agencies, and the Review Board indicated they had concerns with the application of this assessment endpoint for wildlife and specifically for caribou. For example, the GNWT indicated that it had “concerns that the choice of assessment endpoint (self-sustaining and ecologically effective caribou populations) has been problematic as a benchmark against which to measure changes in the measurement indicators and that there was not a clear enough methodology to link changes in the selected measurement indicators to the endpoint” (GNWT 2015a). The Review Board further pointed out that the use of self-sustaining and ecologically effective populations as an assessment endpoint was “inadequate because impacts to caribou could be significant for other reasons, such as a diminished ability of Aboriginal people to successfully and sustainably harvest caribou” (MVEIRB 2016). Both of these points are important and each is addressed in turn in the following paragraphs. Identifying ecological benchmarks or threshold values for measurement indicators that can be used to determine whether a population will or will not be self-sustaining or ecologically effective is challenging. However, the difficulty of the task should not preclude its undertaking as part of environmental assessments. Self-sustaining and ecologically effective populations are concepts (values) ingrained in conservation biology (Hunter and Gibbs 2007). These concepts are related to the abundance and distribution and ecological function of each Valued Component. Self-sustaining populations are healthy, robust populations capable of withstanding environmental change and accommodating random demographic processes (Reed et al. 2003). Protection of ecological effectiveness is aimed at preserving a species role in an ecosystem because interactions with other species are important for EA1617-01 Tli?cho All-Season Road Information Request Responses from GNWT July 26, 2017 IRR Update Page 3 of 6 maintaining ecosystem function (Soulé et al. 2003; Sabo 2008; Säterberg et al. 2013). Achieving self-sustaining and ecologically effective populations is a primary goal of most species conservation, protection, or recovery plans. For example, achieving a self-sustaining population is the goal for the recovery strategy of woodland caribou (EC 2012). Similar goals are identified in plans developed for other species such as burrowing owls (AESRD 2012) or wolverines (EC 2014), and the 2011-2015 barren-ground caribou management strategy (GNWT 2011) includes management principals of herd health and persistence (i.e. ability to be self-sustaining). Environment and Climate Change Canada (ECCC) provides guidance about how much habitat is sufficient within a cumulative effects context, and the guidance focuses on maintaining sufficient habitat to achieve long-term species persistence and a wide range of ecological functions (EC 2013). Although defining the precise point at which a population loses its self-sustaining and ecologically effective status is not easy, there is no reason to exclude this central conservation paradigm from environmental assessment. No alternative conservation-based assessment endpoints were proposed as part of recent MVEIRB environmental assessment reviews. This point was recognized by the GNWT in its final technical report for the Jay Project. The GNWT stated that, in the absence of specific targets for acceptable levels of change for barren-ground caribou, the assessment approach of using a weight of evidence to determine whether populations were self-sustaining and ecologically effective was “generally sound”, even though the GNWT did not agree with</p>
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ID	Topic	Reviewer Comment/Recommendation	Proponent Response
		<p>3. Please describe (i) the implications for the TASR assessment if impacts are significant, given that barren-ground caribou herds currently can be considered neither self-sustaining nor ecologically effective; and (ii) relative to (i), please provide revised text for the Assessment Endpoints and Measurement Indicators and implications for proposed adaptive mitigation for barren-ground caribou (see also IR#2).</p>	<p>all conclusions stemming from the analysis (GNWT 2015b). Another important lesson that can be learned about assessment endpoints as an outcome of recent MVEIRB decisions is that the distinction between maintaining self-sustaining and ecologically effective populations and maintaining ecosystem services needs to be more clearly explained in environmental assessments. Maintaining self-sustaining and ecologically effective wildlife populations is an appropriate assessment endpoint and basis for significance determination from a conservation perspective. This assessment endpoint, which is based on ecological science, is not sufficient for ecosystem services (such as wildlife harvest or viewing opportunities). Because ecosystem services are the benefits people obtain from the environment, determining the significance of adverse effects to ecosystem services is a social science question. Maintaining self-sustaining and ecologically effective wildlife populations should help maintain ecosystem services, such as the continued opportunity for consumptive use of animals by people or wildlife viewing opportunities, but this will EA1617-01 Tli?cho All-Season Road Information Request Responses from GNWT July 26, 2017 IRR Update Page 4 of 6 not always be the case. Answering questions about whether ecosystem services have been adequately maintained, such as whether the number of animals available for harvest is sufficient, ought to be undertaken by integrating societal values and perspectives. Typically, this will be undertaken as part of the cultural or Traditional Land Use assessment, which considers changes in human use of natural resources. Ecological science can provide information about the magnitude of change, but community input and social science are required to determine whether changes to ecosystem services are significant. The second aspect of this information request from WRRB is to provide evidence that boreal caribou are approaching a limit where a self-sustaining population would be retained. In the case of boreal caribou, where a measurable target has been set for self-sustaining caribou populations by ECCC (i.e., 65% undisturbed habitat), the approach to determining whether or not a VC population will be self-sustaining is simplified. Consequently, evidence supporting the conclusion of the Adequacy Statement Response that boreal caribou in the NT1 range may be approaching the limit for a self-sustaining population is primarily associated with the amount of undisturbed habitat in the NT1 range. At the Base Case, undisturbed habitat in the NT1 range was estimated at 66.8%, which is above but near the critical threshold of 65% needed for boreal caribou populations to be self-sustaining with moderate risk (EC 2012). The third aspect of this information request from WRRB is to provide more information about whether the impacts of TASR contribute to the lack of a self-sustaining and ecologically effective population of barren-ground caribou in the Base Case (i.e., would the Project contribute to an existing significant adverse cumulative effect). As noted in the ASR (Section 4.4.2.2) and in responses to WRRB IR#3 and #6 (PR#134), collar data and Traditional Knowledge (PR#28) indicate that barren-ground caribou will have a distribution that interacts with the Project only when populations are near peak abundances. Furthermore, even though the road may extend the length of the potential winter harvest season, harvest restrictions for barren-ground caribou are likely to be in place until the population is better able to sustain harvest. The Project would not contribute to the significant adverse cumulative effect identified for barren-ground caribou in the Base Case. References AESRD (Alberta Environment and Sustainable Resource Development). 2012. Alberta Burrowing Owl Recovery Plan 2012-2017. Alberta Environment and Sustainable Resource Development Recovery Plan No. 21. Edmonton, AB. EA1617-01 Tli?cho All-Season Road Information Request Responses from GNWT July 26, 2017 IRR Update Page 5 of 6 Dominion Diamond (Dominion Diamond Ekati Corporation). 2014. Developer’s Assessment Report for the Jay Project. Dominion Diamond Ekati Corporation. Yellowknife, NWT. EC. 2012. Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal population, in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa, ON. EC. 2013. How Much Habitat is Enough? Third Edition. Environment Canada, Toronto, ON. EC. 2014. Proposed Recovery Strategy for the Wolverine (Gulo gulo), Eastern population, in Canada – 2014. Environment Canada, Ottawa, ON. Available at: <a href="http://www.sararegistry.gc.ca/default.asp?lang=En&amp;n=A18B84C4-1#_05">http://www.sararegistry.gc.ca/default.asp?lang=En&amp;n=A18B84C4-1#_05</a>. GNWT (Government of the Northwest Territories). 2011. Caribou Forever – Our Heritage, Our Responsibility: A Barren-ground Caribou Management Strategy for the Northwest Territories 2011-2015. Department of the Environment and Natural Resources, Government of the Northwest Territories. Yellowknife, NWT. GNWT. 2015a. GNWT responses to information requests for the environmental assessment of the Dominion Diamond Ekati Corporation’s Jay Project – EA1314-10. <a href="http://www.reviewboard.ca/upload/project_document/EA1314-01_GNWT_responses_to_information_requests.PDF">http://www.reviewboard.ca/upload/project_document/EA1314-01_GNWT_responses_to_information_requests.PDF</a> GNWT. 2015b. Dominion Diamond Ekati Corporation’s Jay Project (EA1314-10) – GNWT Closing Submission. 23 October 2015. <a href="http://www.reviewboard.ca/upload/project_document/EA1314-01_GNWT_Closing_submission.PDF">http://www.reviewboard.ca/upload/project_document/EA1314-01_GNWT_Closing_submission.PDF</a> Hunter ML, Jr., Gibbs JP. 2007. Fundamentals of Conservation Biology, Third edition. Blackwell Publishing Ltd., Oxford, United Kingdom. IFC (International Finance Corporation). 2012. Guidance Note 6: biodiversity conservation and sustainable management of living natural resources. Available at: <a href="https://www.ifc.org/wps/wcm/connect/a359a380498007e9a1b7f3336b93d75f/Updated_GN6-2012.pdf?MOD=AJPERES">https://www.ifc.org/wps/wcm/connect/a359a380498007e9a1b7f3336b93d75f/Updated_GN6-2012.pdf?MOD=AJPERES</a> EA1617-01 Tli?cho All-Season Road Information Request Responses from GNWT July 26, 2017 IRR Update Page 6 of 6 MVEIRB (Mackenzie Valley Environmental Impact Review Board). 2016. Report of Environmental Assessment and Reasons for Decision. Dominion Diamond Ekati Corporation’s Jay Project – EA1314-10. Reed DH, O’Grady JJ, Ballou JD, Frankham R. 2003. The frequency and severity of catastrophic die-offs in vertebrates. Animal Conservation 6:109–114. Säterberg T, Sellman S, Ebenman Bo. 2013. High frequency of functional extinctions in ecological networks. Nature 499: 468-470. Sabo JL. 2008. Population viability and species interactions: life outside the single-species vacuum. Biological Conservation 141:276-286. Soulé ME, Estes JA, Berger J, Del Rio CM. 2003. Ecological effectiveness: conservation goals for interactive species. Conser Biol 17: 1238-1250.</p>
2	IR#2; To: the	<b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> The ASR (sec 4.2) describes	<b>July 17:</b> The measurement indicators considered in the Adequacy Statement Response (ASR, <a href="#">PR#110</a> ) included habitat availability,

ID	Topic	Reviewer Comment/Recommendation	Proponent Response								
	<p>Developer; Caribou (boreal and barren-ground) - Measurement Indicators: Adequacy Statement Response (PR#110) – sec 4.0 (e.g. 4.2., 4.4.)</p>	<p>Measurement Indicators used to characterize impacts on an assessment endpoint. Residual effects analysis states that: “the residual effects <i>analysis for the Application Case is completed by calculating and predicting changes to measurement indicators</i>” (emphasis added). Changes in habitat availability and animal use were estimated quantitatively, and changes in habitat distribution (including the effects on wildlife movement and habitat connectivity) were estimated qualitatively. Changes in survival and reproduction (abundance) were identified qualitatively and quantitatively. Almost no data or analyses are presented except the spatial accounting for habitat availability. However, data are available directly for VCs, or from comparable situations. Indicators from previous environmental assessments can provide values that could be used to demonstrate the statistical power needed to detect changes in the Measurement Indicators as a result of impacts (e.g. movement rates and deflection rates). Recent environmental assessments, and their post-approval monitoring, have increased the statistical rigor and reporting of monitoring; a useful example are Baffinland’s annual monitoring reports (e.g. see: <a href="http://www.baffinland.com/downloadocs/2016annualmonitoringreport20170404_2017-10-33-17.pdf">http://www.baffinland.com/downloadocs/2016annualmonitoringreport20170404_2017-10-33-17.pdf</a>). An annotated list of indicators and an analysis of statistical power required to detect changes can increase confidence in the assessment, and improve the effectiveness of monitoring.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Please summarize in tabular form, the Measurement Indicators for boreal and barren-ground caribou and annotate the indicators with: the number of years available for each indicator, mean values with coefficient of variation, and extreme values;</li> <li>2. Provide an estimation of the applicability of the data to detect changes relative to the effect size of the potential impacts, and list how monitoring will be used to detect effect sizes.</li> </ol>	<p>habitat distribution and survival and reproduction. The data and approach used to assess changes in each measurement indicator are presented in Table 1. <b>Table 1: Measurement indicators for boreal and barren-ground caribou</b></p> <table border="1" data-bbox="1510 209 3055 546"> <thead> <tr> <th data-bbox="1510 209 1961 243">Measurement Indicator</th> <th data-bbox="1961 209 3055 243">Data used to support indicator</th> </tr> </thead> <tbody> <tr> <td data-bbox="1510 243 1961 364">Habitat availability</td> <td data-bbox="1961 243 3055 364">Habitat availability was quantified using SPOT 4/5 20 m land cover data (Section 4.2.2) in conjunction with habitat suitability indices to quantitatively available habitat for each wildlife Valued Components (VC). The SPOT 4/5 20 m land cover data are a composite of imagery from 2005 to 2010 (Olthof et al. 2015).</td> </tr> <tr> <td data-bbox="1510 364 1961 425">Habitat Distribution</td> <td data-bbox="1961 364 3055 425">Habitat distribution was qualitatively assessed using maps of habitat availability. Habitat distribution was also quantitatively assessed in response to ECCC IR#6.</td> </tr> <tr> <td data-bbox="1510 425 1961 546">Survival and Reproduction</td> <td data-bbox="1961 425 3055 546">Survival and reproduction was assessed quantitatively based on changes to habitat availability and qualitatively based on knowledge of potential changes in abundance from other Project components and activities. Greater than 47 scientific studies related to caribou survival and reproduction are cited in the ASR.</td> </tr> </tbody> </table> <p>The conclusions presented in the assessment are based on maximum predicted effects. That is, the assessment was precautionary and effects were overestimated where uncertainty was identified. For example, the Project footprint was buffered by 100 metres at water crossings because there was uncertainty about where precisely water crossings would be located. Moreover, all 13 potential borrow sites were included in the footprint for the assessment even though all may not be required for Project construction or maintenance. Because the maximum predicted effect was used, mean values of possible outcomes or coefficients of variation around expected possible outcomes were not presented and would not be applicable when using maximum predicted effect. Data used to support predictions made as part of the assessment are suitable for application to monitoring the effects of the Project and comparing measured outcomes to the predictions made in the ASR. For example, after construction of the Project is complete, the actual changes in caribou habitat availability and distribution can be measured using the same spatial data used to make assessment predictions. The draft Wildlife Effects Monitoring Program (WEMP), which will include information about the effects monitoring the GNWT is proposing for the Project, will be available prior to the Technical Sessions. The approach applied to the assessment was to make precautionary effects predictions to address uncertainties and provide confidence that effects have not been underestimated. The assessment approach used is appropriate for meeting the Terms of Reference (PR#69). Monitoring should demonstrate that the effects are less than predicted in the assessment. <b>References</b> Olthof I, Latifovic R, Pouliot D. 2015. Medium Resolution Land Cover Mapping of Canada from SPOT 4/5 data. Geomatics Canada, Open File 4, 37p., doi:10.4095/295751.</p>	Measurement Indicator	Data used to support indicator	Habitat availability	Habitat availability was quantified using SPOT 4/5 20 m land cover data (Section 4.2.2) in conjunction with habitat suitability indices to quantitatively available habitat for each wildlife Valued Components (VC). The SPOT 4/5 20 m land cover data are a composite of imagery from 2005 to 2010 (Olthof et al. 2015).	Habitat Distribution	Habitat distribution was qualitatively assessed using maps of habitat availability. Habitat distribution was also quantitatively assessed in response to ECCC IR#6.	Survival and Reproduction	Survival and reproduction was assessed quantitatively based on changes to habitat availability and qualitatively based on knowledge of potential changes in abundance from other Project components and activities. Greater than 47 scientific studies related to caribou survival and reproduction are cited in the ASR.
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3	<p>IR#3; To: the Developer; Barren ground caribou - Spatial Boundaries: Adequacy Statement Response (PR#110) – sec 4.0 (e.g. 4.1.3.1)</p>	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> The ASR (sec 4.1.3.1) describes the spatial boundaries for the wildlife assessment, which for barren-ground caribou are a 35km buffer for the TASR. However, in previous environmental assessments (e.g. Fortune NICO, EA0809-004 [2009]), the cumulative winter range or the cumulative annual range have been the spatial scope for barren-ground caribou herds.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Please summarize in tabular form the precedents set in previous environmental assessments (e.g. MVEIRB and NIRB) for spatial boundaries of barren-ground caribou herds used for assessment of incremental and cumulative impacts;</li> <li>2. Re-examine and justify the spatial boundaries for TASR relative to the precedents established for previous environmental assessments.</li> </ol>	<p><b>July 12:</b> Seasonal ranges of barren-ground caribou herds have been used to assess incremental and cumulative effects of proposed developments when 1. a proposed development is located within a valued component’s defined range; and, 2. a proposed development interacts with other developments to generate cumulative effects within the same defined range. Recent examples in the Northwest Territories where this has occurred include the Jay project (Dominion Diamond 2014), Gahcho Kué project (De Beers 2011) and NICO project (Fortune 2010). Annual ranges of collared caribou from 1996 to 2015 and 2005 to 2015 from the Bathurst and Bluenose-East caribou herds, respectively, are presented in Appendix G of the Adequacy Statement Response (PR#110). The Tli’cho All-Season Road Project is completely outside the annual range of the Bluenose-East caribou herd and outside the 99% utilization distribution of the Bathurst caribou herd based on collar data. This indicates that barren-ground caribou herds are unlikely to interact with the Project across a range of abundances. See response to WRRB IR#6. Based on the approach used in recent environmental assessments, barren-ground caribou could have been omitted from the assessment because the Project does not interact with the defined ranges for barren-ground caribou. However, following a precautionary approach, barren-ground caribou were included in the assessment. A primary reason for inclusion was that the Traditional Knowledge Study report (PR#28) indicated that barren-ground caribou were harvested in the area surrounding the Project in the mid-1990s, when barren-ground caribou in the Bathurst and Bluenose-East herds were much more abundant than today. This suggests that some individuals within barren-ground caribou populations have the potential to interact with the Project intermittently when the herds are at high abundance. The study area used in the assessment was precautionary, appropriate for understanding potential effects of the Project to barren-ground caribou when population densities are high, and meets the Terms of Reference (PR#69). <b>References</b> De Beers (De Beers Canada Inc.). 2010. Gahcho Kué Project Environmental Impact Statement. Submitted to the Mackenzie Valley Review Board. Yellowknife, NWT. Dominion Diamond (Dominion Diamond Ekati Corporation). 2014. Developer’s Assessment Report for the Jay Project. Submitted to the Mackenzie Valley Review Board. Yellowknife, NWT. Fortune (Fortune Minerals Limited). 2011. NICO Cobalt-Gold-Bismuth-Copper Project. Developer’s Assessment Report. Submitted to the Mackenzie Valley Review Board. Yellowknife, NWT.</p>								
4	<p>IR#4; To: the Developer; Barren ground caribou - Temporal boundaries: Adequacy Statement</p>	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> The ASR (sec 4.1.3.2) describes a 2-4 year construction phase and an operation phase anticipated to be indefinite. However, the implications for monitoring and adaptive mitigation of an indefinite operational phase are not discussed. No information is supplied on how, and if, definite operational phases are considered in other environmental assessments for roads. For example, there is no commentary</p>	<p><b>July 21:</b> The Tli’cho All-Season Road (TASR) will be a public road. Precedents set in environmental assessments (EAs) for other NWT public roads include the Inuvik to Tuktoyaktuk Highway (ITH). Similar to the ASR, the ITH Environmental Impact Statement considered ITH operation indefinite (HTITGNWT 2011). Roads for private enterprises have also been assessed in the NWT (e.g., Dominion Diamond 2014), but roads of private enterprises are operationally definite, which makes them distinct from a public road that will be managed by the GNWT as part of a much broader network of public roads. Ongoing natural resource monitoring and</p>								

ID	Topic	Reviewer Comment/Recommendation	Proponent Response
	Response (PR#110) – sec 4.0 (e.g. 4.1.3.2)	<p>regarding the advantages of periodic appraisals triggered by thresholds (such as a doubling in traffic frequency), or the attributes of the VCs (such as generation times as used by COSEWIC) that could be applied to sub-divide an indefinite operational phase into shorter time periods.</p> <p><b>Recommendation</b> Please summarize in tabular form precedents set in previous environmental assessments for roads and how indefinite operational phases have been treated, for example how an indefinite period may be sub-divided into shorter operational phases.</p>	<p>management is governed by existing legislation in the NWT (such as the <i>Wildlife Act</i>, the <i>Forestry Act</i> and legislation that may be enacted under the Tli?cho Agreement) and can be applied to mitigate potential or realized impacts. Adaptive mitigation will occur according to established management actions by government agencies for specific wildlife or environmental issues with respect to public infrastructure. This would include periodic appraisals and adjustments based on the results of ongoing monitoring for the TASR. Examples of current adaptive mitigation on NWT roads include barren-ground caribou harvest restrictions in the North Slave region and restrictions on bison harvest adjacent to Highway 3 and throughout the Mackenzie Bison Sanctuary in response to population monitoring of caribou and bison. Specified firewood harvesting areas have also been defined adjacent to Highway 3. Moreover, as part of the EA process, WRRB will have the opportunity to provide input into the updated Wildlife Management and Monitoring Plan, which will cover the operation phase of the TASR and will include information about the timing of periodic appraisals. <b>References</b> Dominion Diamond (Dominion Diamond Ekati Corporation). 2014. Jay Project Developer’s Assessment Report.</p>
5	<p>IR#5; To: the Developer; Caribou (boreal and barren-ground) - Access re: increased potential for harvest:Adequacy Statement Response (PR#110) – sec 4.0 (e.g. 4.2.3.2.)</p>	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> The ASR mentions that impacts to caribou from the TASR may include increased harvest pressure, as well as possible changes in behavior in response to hunting, which can amplify or modify responses to all traffic. However, there is a lack of detailed quantitative data to establish baseline levels for harvest, making assessment of the potential impacts of access more difficult. Use of additional available data could increase the prediction of impacts from increased access. In addition to information provided in the Tli?cho Government Traditional Knowledge study (PR#28), data on the harvest of barren-ground caribou are available in the form of harvest summaries from recent years (e.g. see: <a href="http://wrrb.ca/sites/default/files/2013-2014%20BGC%20Harvest%20Summary%20Report%20%20FINAL_Oct15_2015.pdf">http://wrrb.ca/sites/default/files/2013-2014%20BGC%20Harvest%20Summary%20Report%20%20FINAL_Oct15_2015.pdf</a>), and from the 1987-93 Dogrib harvest study. For boreal caribou, there are modelling approaches which could be combined with traditional knowledge of harvest sites to assess the likely encounter rates of boreal caribou with the TASR corridor and to improve the predicted vulnerability to harvest. For example, the estimated density of 0.17 to 3.44 boreal caribou/100 km<sup>2</sup> (Hillis and Cluff 2005) provided in the ASR (sec 4.4.2.1) can be extrapolated to encounter rates and vulnerability to harvesting and compared to known harvest sites.</p> <p><b>Recommendation</b> Compile and collate existing caribou harvest data (boreal and barren-ground) to establish baseline levels and provide a commentary of its spatial and temporal applicability to the TASR corridor.</p>	<p><b>July 21:</b> The approach used in the Adequacy Statement Response (ASR, <a href="#">PR#110</a>) was to qualitatively assess boreal and barren-ground caribou harvest based on information about baseline human use provided in the PDR (<a href="#">PR#7</a>) and the spatial distribution of caribou and harvest provided in the Traditional Knowledge Study Report (<a href="#">PR#28</a>). This approach was appropriate given uncertainty about the number and location of caribou harvested under existing conditions, including limited spatial specificity with respect to the Project in the harvest data identified by Wek’èzhii Renewable Resource Board (WRRB) in the IR. These uncertainties are discussed for boreal and barren-ground caribou in the following sections. <b>Boreal caribou harvest</b> Harvest records are limited to hunter survey records completed by resident hunters and do not account for Aboriginal harvest. The geographic details of areas hunted or where caribou were harvested are highly variable, ranging from nearby lake names to Administrative zone, if provided. Woodland caribou (boreal ecotype) resident harvest survey data indicate that between 2001-2015 there were nine instances of boreal caribou harvested in the R management zone, which overlaps the Wek’èzhii region. In 14 out of 15 years, at least one or more hunters reported hunting along the Old Lac La Martre Winter road, but there was only one reported successful harvest of boreal caribou in this area. The Traditional Knowledge Study Report (<a href="#">PR#28</a>) provides information about the distribution of boreal caribou harvest, but not the number or year. Thus, there is a high degree of uncertainty about quantities of boreal caribou harvested or hunting effort specific to the area around the Tli?cho All-Season Road Project during the Base Case. <b>Barren-ground caribou harvest</b> The Revised Joint Proposal on Caribou Management Actions in Wek’èzhii (<a href="http://wrrb.ca/sites/default/files/2013-2014%20BGC%20Harvest%20Summary%20Report%20%20FINAL_Oct15_2015.pdf">http://wrrb.ca/sites/default/files/2013-2014%20BGC%20Harvest%20Summary%20Report%20%20FINAL_Oct15_2015.pdf</a>) indicates that Aboriginal harvest of barren-ground caribou in management zones R/BC/01 and R/BC/02 occurred during winters 2012 to 2014, but these management areas do not overlap with the ASR barren-ground caribou study area. Harvest of Bathurst caribou for winter 2012, 2013 and 2014 included 135, 166 and 167 animals (bulls, cows and calves combined), respectively, in zone R/BC/02. Harvest of Bluenose east caribou in these same winters was 1,316, 1,492 and 1,474, respectively, in zone R/BC/01. A harvest distribution map included in this report indicates that no barren-ground caribou were harvested in the ASR barren-ground caribou regional study area in winter 2014. The Dogrib Harvest Study was a collaboration between the Government of the Northwest Territories and the Dogrib Treaty Council, which collected wildlife harvest data from 1987 to 1993 for the Rae Lakes, Snare Lake, Rae-Edzo and Lac La Martre areas. The publically available report does not include the wildlife harvest information because this is proprietary property of the Tli?cho Government and WRRB. Although area-specific harvest rates were not provided in the report, the report states that “<i>Location data was not consistently collected throughout the course of the study. In the early years of the study some locations for some of the communities were assigned coordinates. The tendency in assigning locations was to go with lake names or community vicinity for the smaller communities and to use coordinates for Rae-Edzo harvests until 1992 when Rae-Edzo began to follow the style of the other communities. It appears that in late 1989 a decision was made to not continue input of the location data to the harvesting database.</i>” Whether or not harvest took place in the vicinity of the Project is unknown but the report suggests that harvest locations may not be specific enough to provide baseline estimates for the Project. Although harvest data from this study were not directly accessible, these data have been described by Adamczewski et al. (2009), which is summarized in the following paragraph. Adamczewski et al. (2009) reports that in the early 1990’s Aboriginal harvest may have been 18,000 animals annually (Dogrib Harvest Study cited) from the Bathurst herd. These authors’ estimated that 2,000 caribou were harvested by residents in the early 1990’s and that 7,000 Bathurst caribou combined were harvested by resident, Aboriginal and outfitter hunters from 2006 to 2009. No geographic-specific harvest location or numbers of animals harvested specific to the Bluenose east caribou herd was discussed. Report figures 5.21a and 5.21b include harvest distribution during 2008 and 2009 and do not show that barren-ground caribou were harvested in the ASR barren-ground caribou regional study area. The maps do indicate that hunters traveled from Fort Providence, Fort Resolution, Fort Smith, Hay River, and Yellowknife to harvest caribou near the communities of Gamètì, Wekweètì and Whatì in the Base Case. The Traditional Knowledge Study Report (<a href="#">PR#28</a>) identifies barren-ground caribou harvest near the Project, but indicates that harvest was limited to the early 1990’s when barren-ground caribou herds were near peak abundances and present in the area near the Project. <b>References</b></p> <p>Adamczewski JZ, Boulanger J, Croft B, Cluff D, Elkin B, Nishi J, Kelly A, D’Hont A, Nicholson C. 2009. <a href="#">Decline of the Bathurst Caribou Herd 2006-2009: A technical evaluation of field data and modeling</a>. Draft technical report December 2009.</p>

ID	Topic	Reviewer Comment/Recommendation	Proponent Response
			GNWT.
6	IR#6; To: the Developer; Barren-ground caribou - Potential encounter rates with TASR: Adequacy Statement Response (PR#110) (e.g. sec 4.2.2.2.,4.2.3.2.)	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> The ASR concludes that regular interaction of barren-ground caribou with the proposed TASR is not expected, primarily based on changes in placement of herd seasonal ranges due to declines in populations. The ASR discusses the declines in the Bathurst and Bluenose-East herds and where herds were harvested historically (using both science and TK-based information sources), though data analyses describing the changes in population size and distribution relative to the TASR are not included. However, data are available to quantify the extent of the overlap barren-ground caribou may have with the TASR, incorporating the level of abundance when either herd wintered in the vicinity of the TASR corridor, and the number of years.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Provide an analysis, including a tabular summary, of Bathurst and Bluenose-East herds overlap with the TASR corridor by year and by sample attributes relative to estimated trends in herd size;</li> <li>2. Please identify and comment on limitations (e.g. number of collars, cows only vs. cows and bulls)</li> </ol>	<b>July 12:</b> The attached document contains the developer's complete response.
7	IR#7; To: the Developer; Boreal Caribou - Habitat Availability (quantification of): Adequacy Statement Response (PR#110) (e.g. sec 4.0 (e.g. 4.2.3.1., 4.4.3.1), Project Description Report (PR#7) - sec 8.7 (e.g. 8.7.1.5.), 2017 Recovery Strategy for Boreal Caribou in the Northwest Territories (PR# 106)	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> The ASR states that approximately 60% of the Wek'èezhii portion of the NT1 range is undisturbed boreal caribou habitat. The Project Description Report (PDR) states that the North Slave region portion of the NT1 range had 52.4% undisturbed habitat as of Fall 2015. The Recovery Strategy for the Boreal Caribou in the Northwest Territories states that there is approximately 55% of undisturbed habitat in Wek'èezhii.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Recognizing the influence of North Slave and Wek'èezhii boundaries and differences in spatial data layers and methodologies, please provide details explaining why the three estimates for the percent of critical habitat remaining in Wek'èezhii differ among the ASR, the PDR, and the NWT Recovery Strategy;</li> <li>2. Describe how the variability (52.4-60%) in the estimated amount of undisturbed habitat for boreal caribou in the Wek'èezhii portion of NT1 range changes the uncertainty for assessing potential impacts, and the proposed monitoring and adaptive mitigation for boreal caribou;</li> <li>3. Please clarify if buffering development included direct habitat changes or indirect habitat loss through behavior; if indirect habitat loss was included, please clarify how the avoidance distance was selected.</li> </ol>	<b>July 17:</b> The North Slave Region and the Wek'èezhii Management Area have different southern boundaries and the North Slave Region is larger so values of undisturbed habitat reported for the North Slave Region may not be the same as for Wek'èezhii Portion of the NT1 range. As well, the temporal scope of the PDR was through 2015 and the ASR through 2016. In 2016, there were 96,660 ha of burns from 1975 wild fire in the Wek'èezhii Portion of the NT1 range that were considered suitable caribou habitat (i.e., >40 years old [EC 2012]), which would have been unsuitable in 2015. This amounts to a 2.1% increase of undisturbed habitat from 2015 to 2016. The assessment was conducted at the NT1 range scale, not the Wek'èezhii scale (see response to WRRB IR#8). The slight differences noted at the NT1 range scale for boreal caribou critical habitat relative to the various reports are the result of differences in the spatial data files and coordinate system projections applied in a Geographic Information System (GIS) platform. For example, the PDR used Canada Albers Equal Area Conic projection with Landsat imagery that has a 30 metre resolution. The ASR ( <a href="#">PR#110</a> ) used SPOT 4/5 land cover data with a 20 metre resolution for all wildlife valued component habitat mapping, which required LCC E008 (Lambert Conformal Conic) projection. Projection of the ASR's buffered development disturbance data using Canada Albers Equal Area Conic results in 3,924,820 ha of disturbance in the NT1 range. Projection of the same buffered development disturbance data using LCC E008 projection results in 3,697,667 ha of disturbance in the NT1 range, representing a difference of 227,153 ha based on projection alone. This would also affect measurements at smaller scales throughout the NT1 range such as the Wek'èezhii Portion of the NT1 range. The development disturbance data used in the Base Case also included the entire length of the existing old airport winter road, whereas the PDR only included parts that were visible on Landsat imagery in ECCC disturbance data. Reconnaissance information ( <a href="#">PR#7</a> ; <a href="#">PR#54</a> ) on the existing route shows that the entire route is disturbed even though some disturbance is not visible in Landsat imagery. Additionally, the RFD Case in the ASR included the NICO and Mackenzie Valley Highway projects, which were not included in the PDR or preliminary screening calculations. The contribution of these data to the observed differences were small because they intersect existing development and fire disturbance already present in the Base Case. The RFD Case in the ASR reduced undisturbed habitat in the NT1 range by 0.2%, and these two future projects would represent only a fraction of this amount. Importantly, no matter which data sources or projection are used, undisturbed habitat within the NT1 range remains above the 65% minimum threshold for undisturbed habitat identified by ECCC as necessary to support a self-sustaining boreal caribou population with a low to moderate risk (EC 2012). The methods used to calculate disturbance for the ASR were appropriate to meet the Terms of Reference ( <a href="#">PR#69</a> ), and the degree of difference between calculations does not alter the confidence in the conclusions of the assessment. Disturbance in the NT1 range is primarily from fire (e.g., calculations presented in the ASR indicate 73% of disturbance is due to fire and 27% is due to buffered development). The addition of the Project increases the amount of disturbance in the NT1 range by less than 0.1%. The addition of the Project and reasonably foreseeable developments increases the amount of disturbance in the NT1 range by about 0.2%. Consequently, as concluded in the ASR, habitat disturbance for boreal caribou is approaching the limits identified by ECCC for maintaining a self-sustaining caribou population, primarily as a result of fire. The limits have not been exceeded in the Base Case, will not be exceeded as a result of the Project and are not likely to be exceeded as a result of the current projected reasonably foreseeable developments. This is true for all of the different approaches for calculating amount of disturbance in the NT1 range. Therefore, monitoring and adaptive management approaches do not change as a function of the methods used for calculating disturbance. Following Environment and Climate Change Canada guidelines for mapping undisturbed critical habitat (EC 2012), a 500 metre buffer was applied to development to capture indirect effects (sensory disturbance and/or perceived predation risk). Consequently, the area measured as disturbed by development incorporates both direct and indirect effects. <b>References</b> Environment Canada. 2012. Recovery strategy for the woodland

ID	Topic	Reviewer Comment/Recommendation	Proponent Response
			caribou ( <i>Rangifer tarandus caribou</i> ), boreal population, in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. xi + 138 pp.
8	IR#8; To: the Developer; Boreal Caribou - Habitat Availability (thresholds at NT1 and Wek'èzhìi scale): Adequacy Statement Response - Sec 4.0 (e.g. 4.2.3.1.), Recovery Strategy for the Woodland Caribou Boreal Population, in Canada (PR#38), 2017 Recovery Strategy for Boreal Boreal Caribou in the No	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> The ASR states that: "...66.8% of the NT1 range is undisturbed boreal caribou habitat, which exceeds the 65% minimum threshold for undisturbed habitat predicted necessary to support a self-sustaining boreal caribou population (Environment Canada 2012). At Base Case, boreal caribou are predicted to be self-sustaining and ecologically effective with a low risk, but are near their resilience limits" (section 4.2.3). The ASR goes on to state that habitat selection by boreal caribou is typically driven by an avoidance of deciduous and early succession forest stands that support high densities of moose and deer neither of which occur in the Wek'èzhìi portion of NT1 range, but are present and inherent in the results of southern jurisdictions reflected in the 65% threshold. As a result, it is suggested that boreal caribou in the Wek'èzhìi area may not require as much undisturbed habitat in order to meet their life history requirements and avoid predation. The NWT Recovery Strategy states "...there must be strong evidence, validated by Environment Canada, from population data collected over an extended period of time to support the management decision to establish a lower range-specific threshold. In the absence of strong evidence to support lowering the undisturbed habitat threshold below 65%, the amount of critical habitat for all ranges is at least 65% undisturbed habitat (Environment Canada 2012). The NWT does not currently have strong evidence to support changing the threshold, and the minimum threshold of 65% disturbance applies to the NWT range." The Recovery Strategy also recognizes that habitat disturbance and fragmentation vary among administrative regions in NWT, and that regions have their own management agencies and land use plans, requiring development of region-specific range plans and an overall NWT-Yukon range plan for habitat management (i.e. see Approach 1.1). Although the NWT Recovery Strategy focuses on the NWT boreal caribou population (NT1), it feeds into a national process and aims to be complementary to the national recovery strategy.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Please describe how the percentage of critical habitat in Wek'èzhìi (see also IR#1) changes the level of uncertainty about whether boreal caribou in Wek'èzhìi can be considered to be self-sustaining;</li> <li>2. Please comment on the need to modify the threshold of undisturbed habitat (65%) according to the accuracy of the habitat mapping (see also IR#7).</li> </ol>	<p><b>July 12:</b> Following guidance from Environment and Climate Change Canada (ECCC), the Adequacy Statement Response (ASR, PR#110) evaluated self-sustaining status of caribou at the NT1 range. The threshold of undisturbed critical habitat for the NT1 range was determined by ECCC (EC 2012) using cross-Provincial and –Territorial boreal caribou data. The application of this threshold in the Adequacy Statement Response (ASR) is consistent with the Federal and Territorial recovery strategies. Boreal caribou present in the Wek'èzhìi portion of the NT1 range have the ability to use undisturbed critical habitat outside of the Wek'èzhìi portion of the NT1 range to meet survival and reproductive requirements and interact at a population level with other caribou in the NT1 range. The relationship between undisturbed critical habitat in the Wek'èzhìi portion of the NT1 range and the dynamics of the boreal caribou occupying the Wek'èzhìi portion of the NT1 range is unknown, and uncertainty about whether this may represent a source or sink within the broader NT1 range is high. There is no need to modify the threshold based on map accuracy. Results generated in the Project Description Report (PR#7), during preliminary screening and the ASR, which consider reasonably foreseeable developments (RFDs), all indicate that that amount of undisturbed critical habitat is above the 65% threshold so conclusions about boreal caribou status remain the same. Any difference due to different land cover data or projection is systematic (i.e., it affects disturbed and undisturbed habitat the same way) so does not influence relative changes between the Base, Application and RFD cases. In other words, the percent of undisturbed critical habitat is calculated the same way. The disturbance data used in habitat mapping included disturbances through 2016 and was more representative of existing conditions. No adjustment to the ECCC (EC 2012) threshold is proposed nor is necessary for the purpose of the assessment. References Environment Canada. 2012. Recovery Strategy for the Woodland Caribou (<i>Rangifer tarandus caribou</i>), Boreal Population, in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. xi + 138 pp.</p>
9	IR#9; To: the Developer; Boreal Caribou - Habitat availability (connectivity / fragmentation): Adequacy Statement Response (PR#110) - sec 4.0 (e.g. 4.4.2.1.), Project Description Report (PR#7) - sec 8.7 (e.g. 8.7.1.5.)	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> Nagy (2011) recognized different approaches to developing thresholds for sustainable levels of natural and anthropogenic impacts beyond which viable populations of boreal caribou cannot be maintained, and also recognized that spatial configuration of habitat is important when assessing habitat quality. In the ASR, it is mentioned that Nagy (2011) found a positive correlation between population growth rates and access to secure unburned habitat, particularly where most of the habitat was in patches greater than 500 km<sup>2</sup>. Nagy's modelling suggested that viable populations of boreal caribou can be maintained in areas where ≥46% of the area is secure unburned habitat and 54% of that secure unburned habitat is in patches &gt;500 km<sup>2</sup>, with the understanding that these areas must also have low predator and alternate prey diversity. The ASR states that: "<i>Fragmentation effects have less influence than direct habitat loss when there is a large proportion of undisturbed habitat on the landscape, which is apparent across the NT1 range. Boreal caribou are predicted to be resilient to these small changes in physical habitat loss from development, and there should be a negligible effect on distribution or connectivity across the NT1 range.</i>" The ASR also states: "<i>At Base Case, undisturbed boreal caribou habitat has a patchy distribution throughout the NT1 range. Fire disturbance also occurs in large patches throughout the NT1 Range. The NT1 range has existing linear disturbance, in the form of roads, trails, power transmission lines and seismic lines, particularly in the southern part of the NT1 range. Large but less common patches of undisturbed habitat are also present in the northwestern part of Wek'èzhìi Portion of NT1 Range</i>". The ASR concludes that boreal caribou in the NT1 range appear to be within limits of capacity and resilience to the Base Case. However, commentary regarding limits of capacity and resilience at</p>	<p><b>July 17:</b> Please see the attached document for the developer's response.</p>

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		<p>the Wek'èezhii scale is not provided. It was clarified in the TASR ASR Technical Review Session that habitat distribution (i.e. arrangement and connectivity of quality habitat) was evaluated qualitatively (see PR#120). However, no qualitative assessment of the patch sizes in Wek'èezhii and their possible viability as functional boreal caribou habitat is provided.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Provide a qualitative assessment of the patch sizes including a frequency distribution of the patch sizes of secure unburnt habitat in Wek'èezhii (refer to methods outlined in Nagy 2011 regarding patch size classes) and provide a map of Wek'èezhii which clearly shows the spatial arrangement of secure unburnt habitat patches (&gt;500km<sup>2</sup>) relative to the TASR corridor;</li> <li>2. Compare the percentage of burnt habitat patches greater than 500km<sup>2</sup> by burn age class to estimate trends in the total amount of critical habitat estimated in Wek'èezhii (see also IR#7 and #8);</li> <li>3. With reference 1) and 2) above, describe how boreal caribou in Wek'èezhii are within the limits of adaptive capacity and resilience; consider connectivity (e.g. roads as semi-permeable barriers) and predation-related impacts in the response (see also IR#7 and #8).</li> </ol>																																																																																																																																																																				
10	<p>IR#10; To: the Developer; Boreal caribou â€ Increased traffic collisions: Adequacy Statement Response (PR#110) â€ sec 4.0 (e.g. 4.2.3.4 Bison, Survival and Reproduction), Project Description Report (PR#7) â€ (e.g. Bison, p.8-19)</p>	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> The ASR and PDR clarify that vehicle collisions are a significant source of mortality for bison, for example indicating that that since 1998 there have been nearly 300 collisions resulting in over 400 bison killed. However, the number of collisions with boreal caribou is not specified. Experience from other jurisdictions documenting boreal caribou collisions and effective mitigation are also not provided.</p> <p><b>Recommendation</b> To determine the risk of traffic collisions for boreal caribou, please summarize relative boreal caribou densities, traffic frequencies, and collisions for the jurisdictions with the available data.</p>	<p><b>July 17:</b> Records of collisions reported for Highway 3 are the most applicable to the Project. This is because Highway 3 is adjacent to the Project area and would include similar valued components and traffic traveling between communities that may also use the Project. Traffic collisions reported for other jurisdictions are less relevant because traffic, wildlife communities, habitat and other landscape factors that influence collision rates will be different. Records of collisions reported for Highway 3 between wildlife and motor vehicles indicate that from 2006 to 2016, one caribou was struck on Highway 3 near Fort Providence. The incident occurred on January 25, 2009 and whether the caribou was boreal or barren-ground was not recorded. If other collisions occurred during this period, they were not reported. Annual daily average and peak summer average daily traffic volume on Highway 3, which has a posted speed limit of 90 km/hr, during 2006 to 2015 are provided in Tables 1 and 2 (DOT 2016). Both annual daily average and peak summer daily average traffic volume have fluctuated through time. Given that only one caribou-traffic collision was reported, caribou vehicle strikes appear to be extremely infrequent. Traffic volume of up to 40 vehicles per day was assumed in the assessment for the Project with a 70 km/hr speed limit. Traffic volume, speed limit and visibility are key factors that influence the frequency of wildlife-vehicle strike mortalities (EBA 2001; Neumann et al. 2012). Given that lower traffic volumes and speed limits are expected for the Project compared with Highway 3, the available data support the conclusion presented in the Adequacy Statement Response that the potential for the Project to cause caribou mortality through vehicle collisions is low.</p> <table border="1" data-bbox="1507 1191 3039 1588"> <thead> <tr> <th colspan="13">Table 1: Estimated Annual Average Daily Traffic on Northwest Territories Highway 3, 2006 to 2015</th> </tr> <tr> <th rowspan="2">Kilometre</th> <th rowspan="2">Counter ID</th> <th rowspan="2">Description</th> <th colspan="10">Annual Average Daily Traffic</th> </tr> <tr> <th>2015</th> <th>2014</th> <th>2013</th> <th>2012</th> <th>2011</th> <th>2010</th> <th>2009</th> <th>2008</th> <th>2007</th> <th>2006</th> </tr> </thead> <tbody> <tr> <td>25</td> <td>3-25</td> <td>1 km north of Enterprise, south of Paradise Gardens</td> <td>380</td> <td>370</td> <td>300</td> <td>300</td> <td>270</td> <td>270</td> <td>250</td> <td>320</td> <td>300</td> <td>270</td> </tr> <tr> <td>175</td> <td>3-175</td> <td>53 km north of Chan Lake, 62 Km south of Edzo</td> <td>360</td> <td>350</td> <td>280</td> <td>280</td> <td>250</td> <td>240</td> <td>250</td> <td>310</td> <td>300</td> <td>210</td> </tr> <tr> <td>240</td> <td>3-240</td> <td>3 km south of Rae access, south of Frank's Channel</td> <td>530</td> <td>890</td> <td>950</td> <td>820</td> <td>760</td> <td>840</td> <td>620</td> <td>770</td> <td>780</td> <td>780</td> </tr> <tr> <td>324</td> <td>3-324</td> <td>21 km east of Boundary Creek</td> <td>660</td> <td>740</td> <td>790</td> <td>680</td> <td>670</td> <td>750</td> <td>640</td> <td>640</td> <td>640</td> <td>640</td> </tr> <tr> <td>338</td> <td>3-338</td> <td>0.8 km west of Highway 3 and 4 Intersection</td> <td>6020</td> <td>6600</td> <td>6990</td> <td>6050</td> <td>5880</td> <td>6730</td> <td>5600</td> <td>5600</td> <td>5500</td> <td>5680</td> </tr> </tbody> </table> <table border="1" data-bbox="1507 1624 3039 1876"> <thead> <tr> <th colspan="13">Table 2: Estimated Peak Summer* Average Daily Traffic on Northwest Territories Highway 3, 2006 to 2015</th> </tr> <tr> <th rowspan="2">Kilometre</th> <th rowspan="2">Counter ID</th> <th rowspan="2">Description</th> <th colspan="10">Peak Summer Average Daily Traffic</th> </tr> <tr> <th>2015</th> <th>2014</th> <th>2013</th> <th>2012</th> <th>2011</th> <th>2010</th> <th>2009</th> <th>2008</th> <th>2007</th> <th>2006</th> </tr> </thead> <tbody> <tr> <td>25</td> <td>3-25</td> <td>1 km north of Enterprise, south of Paradise Gardens</td> <td>460</td> <td>480</td> <td>400</td> <td>370</td> <td>360</td> <td>390</td> <td>340</td> <td>400</td> <td>360</td> <td>290</td> </tr> <tr> <td>175</td> <td>3-175</td> <td>53 km north of Chan Lake, 62 Km south of Edzo</td> <td>480</td> <td>460</td> <td>370</td> <td>370</td> <td>330</td> <td>350</td> <td>**</td> <td>360</td> <td>280</td> <td>**</td> </tr> </tbody> </table>	Table 1: Estimated Annual Average Daily Traffic on Northwest Territories Highway 3, 2006 to 2015													Kilometre	Counter ID	Description	Annual Average Daily Traffic										2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	25	3-25	1 km north of Enterprise, south of Paradise Gardens	380	370	300	300	270	270	250	320	300	270	175	3-175	53 km north of Chan Lake, 62 Km south of Edzo	360	350	280	280	250	240	250	310	300	210	240	3-240	3 km south of Rae access, south of Frank's Channel	530	890	950	820	760	840	620	770	780	780	324	3-324	21 km east of Boundary Creek	660	740	790	680	670	750	640	640	640	640	338	3-338	0.8 km west of Highway 3 and 4 Intersection	6020	6600	6990	6050	5880	6730	5600	5600	5500	5680	Table 2: Estimated Peak Summer* Average Daily Traffic on Northwest Territories Highway 3, 2006 to 2015													Kilometre	Counter ID	Description	Peak Summer Average Daily Traffic										2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	25	3-25	1 km north of Enterprise, south of Paradise Gardens	460	480	400	370	360	390	340	400	360	290	175	3-175	53 km north of Chan Lake, 62 Km south of Edzo	480	460	370	370	330	350	**	360	280	**
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175	3-175	53 km north of Chan Lake, 62 Km south of Edzo	480	460	370	370	330	350	**	360	280	**																																																																																																																																																										

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			<table border="1" data-bbox="1510 149 3024 290"> <tr> <td>240</td> <td>3-240</td> <td>3 km south of Rae access, south of Frank's Channel</td> <td>1240</td> <td>1190</td> <td>1260</td> <td>1110</td> <td>830</td> <td>910</td> <td>**</td> <td>750</td> <td>770</td> <td>860</td> </tr> <tr> <td>324</td> <td>3-324</td> <td>21 km east of Boundary Creek</td> <td>740</td> <td>810</td> <td>1050</td> <td>850</td> <td>750</td> <td>790</td> <td>820</td> <td>**</td> <td>**</td> <td>**</td> </tr> <tr> <td>338</td> <td>3-338</td> <td>0.8 km west of Highway 3 and 4 Intersection</td> <td>8030</td> <td>8810</td> <td>9330</td> <td>7970</td> <td>7010</td> <td>7470</td> <td>**</td> <td>**</td> <td>6120</td> <td>6730</td> </tr> </table> <p data-bbox="1510 298 2091 328">*Summer = June, July and August.      <b>References</b></p> <p data-bbox="1594 364 3024 425">DOT (Department of Transportation, Government of the Northwest Territories). 2016. 2015 Highway Traffic Report. Prepared by the Department of Transportation, Government of the Northwest Territories, Yellowknife, NWT, Canada.</p> <p data-bbox="1594 465 3024 526">EBA (EBA Engineering Consultants Ltd.). 2001. Tibbitt to Contwoyto Winter Road Environmental Setting Report. Prepared for the Tibbitt to Contwoyto Winter Road Joint Venture, Yellowknife, NWT, Canada.</p> <p data-bbox="1594 566 3024 626">Neumann W, Ericsson G, Dekkti H, Bunnefeld N, Keuler NS, Helmers DP, and Radeloff VC. 2012. Difference in Spatiotemporal Patterns of Wildlife Road-crossings and Wildlife-vehicle collisions. <i>Biological Conservation</i> 145: 70-78.</p>	240	3-240	3 km south of Rae access, south of Frank's Channel	1240	1190	1260	1110	830	910	**	750	770	860	324	3-324	21 km east of Boundary Creek	740	810	1050	850	750	790	820	**	**	**	338	3-338	0.8 km west of Highway 3 and 4 Intersection	8030	8810	9330	7970	7010	7470	**	**	6120	6730
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11	IR#11; To: the Developer; Boreal Caribou - Predation-related impacts (influence of moose and bison): Adequacy Statement Response (PR#110) sec 4.0 (e.g. 4.3.2.2. Secondary Pathways), Draft Mackenzie Bison Management Plan (PR# 80)	<p data-bbox="391 637 1485 1312"><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> In the ASR, increased predation as a result of new access was identified by the Review Board as one of the “key areas of concern”. Increased predation as a result of new access is discussed under secondary pathways as the changes in predator and prey use of linear corridors and converted habitat is expected to have negligible net residual effects. The focus of the potential impacts of bison and moose is discussed under primary pathways with regards to impacts to habitat (e.g. loss of functional habitat due to competition). The Draft Mackenzie Bison Management Plan mentions that in recent years Tlicho community members have observed bison both along the highway and in wooded areas between Behchoko and Whati (PR#80). In the SARC Species Status Report for the Wood Bison (<a href="http://www.nwt-species-at-risk.ca/sites/default/files/wood_bison_status_report_final_w_assessment_-_may1716_-_w_nyarling_correction.pdf">http://www.nwt-species-at-risk.ca/sites/default/files/wood_bison_status_report_final_w_assessment_-_may1716_-_w_nyarling_correction.pdf</a>), it is mentioned that an increase in both bison range and population is viewed as a reason for increased wolf numbers in the North Slave region, and that this is a concern with regards to ungulates, “in particular” with regards to boreal caribou (see also IR#3). The ASR mentions that fire is beneficial to bison as it opens up new foraging areas, but clarifies that recently burned forest may not influence habitat selection given bison do not use heavily forested patches around small patches of recently burned forest. The ASR provides some details on the possible impacts of white tailed deer and moose with regards to increased predation risk clarifying that neither moose nor deer currently occur at high densities in Wek’èzhii. However, the ASR also mentions that studies have found moose populations are expected to increase approximately 10-30 years post fire, and the predicted increase would increase the probability of encounter and predation rates on boreal caribou.</p> <p data-bbox="391 1320 599 1346"><b>Recommendation</b></p> <ol data-bbox="438 1382 1485 1608" style="list-style-type: none"> <li>1. Provide a spatial and temporal assessment for bison range expansion relative to the likelihood of increased wolf and black bear predation risk to boreal caribou in Wek’èzhii; please refer to information from March 2017 boreal caribou collaring survey (see also GoC ECCC IR#7);</li> <li>2. Provide clarification on the possible impacts of an increasing moose population on increased predation risk to boreal caribou; timeframe is 10-30 years from 2017;</li> <li>3. Provide specific suggestions for how changes in predation could be measured.</li> </ol>	<p data-bbox="1510 637 3024 1826"><b>July 17:</b> The Adequacy Statement Response (ASR; <a href="#">PR#110</a>) provides a spatial and temporal assessment for bison range expansion in Section 4.3.3. Habitat availability in the Base Case considers all previous and existing fire and development disturbance across the bison study area. Habitat mapping was based on bison habitat preferences from the scientific literature (Jensen et al. 2003; Larter 1988) and recovery plans (ECCC 2016). An area of potentially suitable, but currently unoccupied, bison habitat was identified at the north end of the regional study area (RSA), north of Whati. This area was recently burned and forested habitat is expected to recover over time, reducing potential value for bison. While the road corridor itself has the potential to facilitate northward movement of bison given vegetation and ease of travel, as is seen on other NWT highways, overall habitat change in the area due to fires and succession is not expected to support extensive northward expansion of bison,. Traditional Knowledge indicates that bison habitat in the vicinity of the Project is limited (<a href="#">PR#28</a>). For these reasons, the assessment concluded that bison range expansion had a weak linkage to the Project. The potential increase in bison range expansion (and abundance) from the Project would be small and have a negligible adverse influence on predation risk for caribou. The boreal caribou collaring survey completed by ENR, March 7 to 12, 2017, indicated the presence of bison and bison tracks along the existing old airport winter road and in adjacent areas (see Maps in response to ECCC IR#7 (<a href="#">PR#128</a>)). While the survey only covered part of the Mackenzie Bison Sanctuary, the locations of bison in or near areas recently burned are consistent with habitat mapping results provided in the ASR (<a href="#">PR#110</a>). The survey results are consistent with Section 4.2.3.4 of the ASR, which notes that the Mackenzie range population has expanded their range to the north over the last 20 to 30 years (SARC 2016) in the Base Case. Gates and Larter (1990) reported that expansion of the Mackenzie range was driven primarily by population density. Once a critical threshold was reached, individuals went in search of new, unoccupied habitats. Range expansion is often initiated by bulls (SARC 2016), and is limited by distribution of available habitat (Gates and Larter 1990). Moose populations respond positively to forest fire because fire increases the availability of deciduous browse species that moose depend on throughout the winter (MacCracken and Viereck 1990; Collins and Helm 1997). Moose densities were found to be greatest in 10 to 26 year old burned areas (Maier et al. 2005). LeResche et al. (1974) and Weixelman et al. (1998) also found that moose populations tended to peak 20 to 30 years post-fire. Thus, moose abundance can be expected to increase in areas 10 to 25 years post-burn. Consequently, predation risk to boreal caribou may increase as wolf populations respond to increased moose densities in the vicinity of the Project within 10 to 30 years from 2017. Human harvest of moose (and wolf) may also increase with a positive change in moose (and wolf) abundance, and benefit caribou. These expected changes are largely related to existing fire disturbance, not to the Project, and would occur with or without the Project. Although moose are expected to increase and this may result in higher wolf abundance and predation risk for boreal caribou, the effect this may have on boreal caribou populations remains uncertain. Black bear, wolf and moose occur at much lower densities in the NT1 range than they do in southern jurisdictions where apparent competition has led to boreal caribou declines in more highly fragmented landscapes (Latham et al. 2011). Preliminary results for the SK1 range, where black bear, wolf and moose densities are similar to the NT1 range, indicates that the boreal caribou are secure, stable or increasing slightly (McLoughlin 2016). Like the NT1 range, the SK1 range has very low development disturbance, but the SK1 range has 55% burn disturbance, which is greater than the 24.4% in the NT1 range at the Base Case. Changes in predation could be measured by undertaking an intensive study of the survival of collared boreal caribou, including rapid field investigation of mortality signals to determine cause of death. <b>References</b> Collins WB, Helm DJ. 1997. Moose, <i>Alces alces</i>, Habitat Relative to Riparian Succession in the Boreal Forest, Susitna River, Alaska. <i>Canadian Field-Naturalist</i> 111:567–574. Environment and Climate Change Canada. 2016. Recovery Strategy for the Wood Bison (<i>Bison bison athabascae</i>) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada. Ottawa. viii + 52 pp.</p> <p data-bbox="1594 1866 3024 1886">Gates CC, NC Larter. 1990. Growth and Dispersal of an Erupting Large Herbivore Population in Northern Canada: The</p>																																							

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			<p>Mackenzie Wood Bison (<i>Bison bison athabasca</i>). Arctic. 43: 231-238.</p> <p>Jensen Olaf C, et al. Assessing Suitable and Critical Habitat for Wood Bison (<i>Bison bison athabasca</i>) Using Geographic Information Systems (GIS) and Remote Sensing: Preliminary Results. Diss. M. Sc. Thesis, Department of Earth and Atmospheric Sciences, University of Alberta, Edmonton, 2003.</p> <p>Larter NC. 1988. Diet and Habitat Selection of an Erupting Wood Bison Population. Master of Science Thesis. University of British Columbia. URL: <a href="https://open.library.ubc.ca/cIRcle/collections/831/items/1.0097699">https://open.library.ubc.ca/cIRcle/collections/831/items/1.0097699</a>. Accessed 25 Jan 2017. Latham ADM, Latham C, McCutchen NA, Boutin S. 2011. Invading White-tailed Deer Change Wolf-caribou Dynamics in Northeastern Alberta. Journal of Wildlife Management 75: 204–212. LeResche RE, Bishop RH, Coody JW. 1974. Distribution and Habitats of Moose in Alaska. Le Naturaliste Canadien. 101: 143-178 MacCracken JG, Viereck LA. 1990. Browse Regrowth and Use by Moose after Fire in Interior Alaska. Northwest Scientist 64:11–18.</p> <p>Maier JAK, Ver Hoef JM, McGuire AD, Bowyer RT, Saperstein L, Maier HA. 2005. Distribution and Density of Moose in Relation to Landscape Characteristics: Effects of Scale. Canadian Journal of Forest Research 35:2233–2243.</p> <p>McLoughlin, P. 2016. Population Dynamics and Critical Habitat of Woodland Caribou in the Saskatchewan Boreal Shield. Saskatoon. SARC. 2016. Species Status Report for Wood Bison (<i>Bison bison athabasca</i>) in the Northwest Territories. Species at Risk Committee, Yellowknife, NT. Weixelman DA, Bowyer RT, Van Ballenberghe V. 1998. Diet selection by Alaskan moose During Winter: Effects of Fire and Forest Succession. In: Ballard, W. B.; Rodgers, A. R. J., eds. Proceedings, 33rd North American moose conference and workshop/4th international moose symposium; 1997 May 17-23; Fairbanks, AK. Alces. 34(1): 213-238</p>																					
12	<p>IR#12; To: the Developer; Mitigation measures – Adaptive management: Adequacy Statement Response (PR#110) – e.g. Table 8.5, Appendix M – draft Wildlife and Wildlife Habitat Protection Plan (PR#7)</p>	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> Throughout the ASR there are statements related to mitigation and reference to the draft Wildlife Monitoring and Management Plan (WMMP). However, the draft WMMP does not have a section on adaptive mitigation, and the proposed monitoring and mitigation in the ASR are relatively generalized (e.g. Table 8.5 provides a generalized list of mitigation without specific thresholds or linkage to monitoring). The EIRB Final Report for the Inuvik to Tuktoyaktuk Highway (see: <a href="http://eirb.ca/projects/inuvik-tuk-highway/?document=final-panel-report-2013-01-25">http://eirb.ca/projects/inuvik-tuk-highway/?document=final-panel-report-2013-01-25</a>) emphasised the importance of adaptive management especially given the uncertainties and gaps in the evidence to assess impacts. Additionally, recent environmental assessments demonstrate the linkage between monitoring and adaptive mitigation and would be useful models for TASR.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Provide a tabular summary of the proposed approach for adaptive mitigation for the All-Season Road Inuvik to Tuktoyaktuk;</li> <li>2. Provide a tabular summary of the approaches used for adaptive mitigation in recent environmental assessments (such as NIRB’s assessment for Sabina project).</li> </ol>	<p><b>July 21:</b> Adaptive mitigation is implemented in response to monitoring results. Where monitoring indicates an unanticipated adverse environmental effect, specific actions to avoid or minimize this effect are undertaken. For example, surveys undertaken prior to clearing vegetation might identify the nest of a migratory bird (the monitoring result), and adaptive mitigation would be applied to avoid harming the nest while it is active. Similarly, monitoring may indicate areas of greater risk of collision between wildlife and vehicles and adaptive mitigation might take the form of increased signage or reduced speed limits. Adaptive mitigation has been applied to other roads in the NWT. For instance, the Environmental Impact Statements (EIS) for the Inuvik to Tuktoyaktuk Highway and Sabina Gold and Silver Corporation’s Back River Project (Sabina 2015) include adaptive mitigation. Table WRRB IR12-1 lists the adaptive mitigation described for construction activities in the Inuvik to Tuktoyaktuk EIS and notes whether the Black River EIS and the ASR also included these adaptive mitigations.</p> <p><b>Table WRRB IR12-1: Adaptive Mitigation Included in the Inuvik-to-Tuktoyaktuk Highway Environmental Impact Statement (ITH) , the Project Adequacy Statement Response (ASR) and Back River Project Final Environmental Impact Statement (EIS)</b></p> <table border="1" data-bbox="1513 1302 3020 1739"> <thead> <tr> <th>Inuvik to Tuktoyaktuk Adaptive Mitigation</th> <th>Included in Back River EIS</th> <th>Included in ASR</th> </tr> </thead> <tbody> <tr> <td>All workers will be instructed not to disturb any wildlife observed.</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>Wildlife monitors will be on-site during construction to monitor potential wildlife issues and manage risks.</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>Pre-construction surveys will be used to avoid sensitive wildlife areas</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>Spill contingency plans will be implemented to prevent and address leaks and spills. In the event of a spill, all efforts will be made to properly contain and manage the spill.</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>Wildlife have the right-of-way at all times. Monitoring is through visual observation and adaptive mitigation is by giving right-of-way.</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>The presence of wildlife in the areas of construction and access roads will be communicated to other drivers.</td> <td>Yes</td> <td>Yes</td> </tr> </tbody> </table> <p>The adaptive mitigation presented in Table WRRB IR12-1 for ITH was also applied to the Project and is included in Table 4.3-1 of the ASR. Similar adaptive mitigation has also been applied in recent environmental assessments, such as the Jay Project Developer’s Assessment Report (Dominion Diamond 2014) and Gacho Kué Project EIS (De Beers 2011). The adaptive management approach for the Tli’cho All-Season Road will be included in an updated Wildlife Management and Monitoring Plan (<a href="#">PR#7</a>, Appendix H),</p>	Inuvik to Tuktoyaktuk Adaptive Mitigation	Included in Back River EIS	Included in ASR	All workers will be instructed not to disturb any wildlife observed.	Yes	Yes	Wildlife monitors will be on-site during construction to monitor potential wildlife issues and manage risks.	Yes	Yes	Pre-construction surveys will be used to avoid sensitive wildlife areas	Yes	Yes	Spill contingency plans will be implemented to prevent and address leaks and spills. In the event of a spill, all efforts will be made to properly contain and manage the spill.	Yes	Yes	Wildlife have the right-of-way at all times. Monitoring is through visual observation and adaptive mitigation is by giving right-of-way.	Yes	Yes	The presence of wildlife in the areas of construction and access roads will be communicated to other drivers.	Yes	Yes
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			<p>and will consider approaches used for other public roads such as the Inuvik to Tuktoyaktuk Highway. Adaptive management approaches used for private roads such as the Whale Tail Project haul road and roads associated with the Jay Project will be considered, although many mitigation measures for private roads are not applicable to public roads. This information will be submitted in the full context of the Wildlife Management and Monitoring Plan, rather than as a stand-alone summary in an Information Request response. As part of the EA process, WRRB will have the opportunity to provide input into the updated Wildlife Management and Monitoring Plan. <b>References</b> De Beers (De Beers Canada Inc.). 2011. Environmental Impact Statement for the Gahcho Kué Project. Dominion Diamond (Dominion Diamond Ekati Corporation). 2014. Jay Project Developer’s Assessment Report. Sabina (Sabina Gold and Silver Corporation). 2015. Final Environmental Impact Statement for the Back River Project.</p>
13	<p>IR#13; To: the Developer; Mitigation measures - Reclamation: Adequacy Statement Response (PR#110) – sec 4 (e.g. 4.5., 4.4.3.), Project Description Report (PR#7) – sec 4, 8 (e.g. 4.12., Table 8-5), Appendix M – draft Wildlife and Wildlife Habitat Protection Plan (PR#7)</p>	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> In relation to assessing existing habitat conditions, the PDR, and WMMP mention reclamation, progressive reclamation and/or regeneration as a means by which habitat loss can be offset (e.g. PDR Table 8-5 Summary of Wildlife-Related TASR Design Mitigation Measures, WMMP Table 2 Habitat Loss and/or Alteration Mitigation Measures). The ASR clarifies that reclamation plans are not available for Reasonably Foreseeable Developments (RFDs), and the PDR clarifies that reclamation of the current winter road alignment “...will occur upon permanent closure of the road; however this reclamation does not fall under the current application. It is mentioned herein because this section of land helps offset the disturbance created by the proposed TASR corridor”, and “...if further details pertaining to reclamation are required, an updated Closure and Reclamation Plan will be submitted post permit approval”; the Preliminary Closure and Reclamation Plan provided in the PDR focuses on camp reclamation and the closure of temporary access roads. Similar to the request for details regarding the approach to measuring available habitat (e.g. see IRs #7 and #8 ), there is concern how accounting for “online” and “offline” habitat can influence the quantification of available functional habitat, and assessment of the effectiveness of the proposed mitigation measures.</p> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. Please provide a definition for when disturbed habitat will be considered to be “reclaimed” (e.g. be considered functional habitat for boreal caribou);</li> <li>2. Please provide additional clarity on the approaches that will be used to quantify and track habitat changes regarding reclamation of anthropogenic features.</li> </ol>	<p><b>July 17:</b> To predict maximum effects and provide a conservative assessment, the Adequacy Statement Response (<a href="#">PR#110</a>) assumed direct disturbance to wildlife habitat by the Tli’cho All-Season Road (TASR) was permanent. Consequently, the assessment did not consider habitat to be reclaimed (e.g., considered functional habitat for boreal caribou). Instead, the Adequacy Statement Response indicates that if the existing winter road were reclaimed, this reclamation could benefit wildlife and may offset impacts from the TASR corridor. The draft Wildlife Management and Monitoring Plan (WMMP) that was submitted with the water licence and land use permit applications is being updated to reflect that the existing winter road is outside of the boreal caribou range and would not provide an offset to boreal caribou. The draft WMMP is also being updated to reflect that the current Tli’cho winter road falls under the authority of the Tli’cho Government and therefore the GNWT cannot commit to reclamation of the winter road at this time. As per section 19.8.1 of the Tli’cho Agreement, the Government of the Northwest Territories only has a right of free access to the Tli’cho winter road’s right of way in order to establish, build, manage, control, vary and close up the Tli’cho winter road. Any reclamation activities planned for the terrestrial portions of the Tli’cho winter road (KM 0-60) will be managed and addressed jointly by the Tli’cho Government and the GNWT by way of a bilateral agreement.</p>
14	<p>IR#14; To: ECCC; EA process / Species at Risk requirements: ECCC letter to MVEIRB - COSEWIC status of barren-ground caribou (PR#105)</p>	<p><b>Comment (Submitted after Due Date) (Submitted after Due Date)</b> Environment and Climate Change Canada provided MVEIRB a letter to assist the Board and parties in the assessment of barren-ground caribou (PR#105). In their letter, ECCC states: “As a matter of best practice, ECCC recommends that species under consideration for listing on SARA, including those designated as “at risk” by COSEWIC, be considered during a project assessment in a manner similar to listed species under s.79. Caribou (Barren-ground population) are at the forefront of wildlife issues and concerns during most project assessments under the Mackenzie Valley Resource Management Act due to their social, cultural and economic value. As a result, MVEIRB already fulfills many of the expectations under s.79 of SARA with regards to Caribou (Barren-ground population) during environmental assessments and is encouraged to continue this effort.”</p> <p><b>Recommendation</b> ECCC to provide further details on their expectations for the environmental assessment regarding barren-ground caribou, with specific reference to which expectations under s.79 are currently being fulfilled by MVEIRB and which are not.</p>	<p><b>July 11: GOC response.</b> As a competent minister under the federal <i>Species at Risk Act</i> (SARA), ECCC advises the Mackenzie Valley Environmental Impact Review Board (Review Board) on the consideration of species at risk in an assessment of the environmental effects of a project. Caribou (Barren-ground population) have been assessed as threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in November 2016 and are under consideration for listing on the federal SARA. As a matter of best practice, ECCC recommends that species under consideration for listing on the federal SARA, including those designated as “at risk” by COSEWIC, be considered during a project assessment in a manner similar to listed species under s.79. Under subsection 79(1) of the federal SARA, the Review Board is required to notify the competent minister(s) in writing if the project is likely to affect a federal SARA listed wildlife species or its critical habitat. ECCC received notification from the Review Board related to the Tli’cho All Season Road (TASR) Project on August 5, 2016 (PR#6). If Caribou (Barren-ground population) become listed under the federal SARA during the environmental impact assessment process, then there would be a legal requirement for the Review Board to send an additional notification letter for the species. Under subsection 79(2) of the federal SARA, the Review Board must identify all adverse effects on listed species and critical habitat including direct, indirect and cumulative effects. This requirement is met by the Review Board through the inclusion of species at risk as valued components (VCs) in the environmental assessment (see Terms of Reference; PR#69). ECCC advises that proponents consider species assessed by COSEWIC but not yet listed under the federal SARA. While at the start of the TASR environmental assessment, COSEWIC had not completed its assessment for Caribou (Barren-ground population). However, Caribou (Barren-ground population) was included as a VC in the TASR environmental assessment due to its social, cultural and economic value in the Northwest Territories. ECCC recommends that the Review Board establish measures to avoid or lessen and monitor adverse effects of the project on Caribou (Barren-ground population), similar to all federally listed species at risk as per subsection 79(2). This includes all adverse effects, not just those deemed significant during project assessment. This information was initially provided by the Proponent in the Adequacy Statement Response and associated management plans, as required by the Terms of Reference. The Proponent’s characterization of effects and proposed mitigation will be reviewed by interested parties through the environmental assessment and form the basis of advice to the Review Board. The Review Board will make a determination in the Report</p>

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			<p>of Environmental Assessment whether it will include measures to avoid, mitigate and monitor effects of the TASR Project on Caribou (Barren-ground population) as a matter of best practice, for this species under consideration for listing. ECCC recommends that measures are based on the best available information for this species. Should Caribou (Barren-ground population) be added to the federal List of Wildlife Species at Risk during the TASR environmental assessment, the Review Board will need to ensure measures are taken to avoid or lessen and monitor the effects on this species. Further information on responsibilities, best practices and ECCC's expectations regarding the consideration of wildlife species at risk in environmental assessment processes is available in the following documents:</p> <ul style="list-style-type: none"> <li>• <i>Addressing Species at Risk Act Considerations Under the Canadian Environmental Assessment Act for Species Under the Responsibility of the Minister responsible for Environment Canada and Parks Canada</i> (<a href="https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/policies/SARA-CEAA-LEP-LCEE-guide_0811_eng.pdf">https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/policies/SARA-CEAA-LEP-LCEE-guide_0811_eng.pdf</a>);</li> <li>• <i>The Species at Risk Act Environmental Assessment Checklists for Species Under the Responsibility of the Minister Responsible for Environment Canada and Parks Canada</i> (<a href="http://www.sararegistry.gc.ca/virtual_sara/files/policies/SARA_EA_Checklist_0811_eng.pdf">http://www.sararegistry.gc.ca/virtual_sara/files/policies/SARA_EA_Checklist_0811_eng.pdf</a>);</li> <li>• <i>Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada</i> (<a href="http://publications.gc.ca/collections/collection_2014/ec/CW66-237-2004-eng.pdf">http://publications.gc.ca/collections/collection_2014/ec/CW66-237-2004-eng.pdf</a>).</li> </ul> <p>While these federal SARA documents have not been updated and make specific reference to the <i>Canadian Environmental Assessment Act</i>, much of their content is still relevant and applicable to other federal environmental assessment regimes in Canada such as the <i>Mackenzie Valley Resource Management Act</i> (MVRMA). Draft Guidelines for considering wildlife at risk (including SARA species) in environmental impact assessment in the Mackenzie Valley were also developed by the Review Board. These draft guidelines outline the roles and responsibilities of developers, regulators, expert government departments and the Review Board. The most recent version of these draft guidelines are available at: <a href="http://www.reviewboard.ca/process_information/guidance_documentation/draft_guidelines.php">http://www.reviewboard.ca/process_information/guidance_documentation/draft_guidelines.php</a></p>