MAR 10 2017

Chuck Hubert
A/Manager, Environmental Impact Assessment
Mackenzie Valley Environmental Impact Review Board
PO BOX 938
YELLOWKNIFE NT X1A 2P1

VIA EMAIL

Dear Mr. Hubert:

Canadian Zinc Corporation's Prairie Creek all-season road environmental assessment – GNWT technical report (EA1415-01)

The Government of the Northwest Territories (GNWT) is a party to the Mackenzie Valley Environmental Impact Review Board's environmental assessment (EA) of Canadian Zinc Corporation's proposed Prairie Creek all-season access road. GNWT has participated actively in the stages of the EA process to date and has considered the evidence on the public registry for this file.

On behalf of the GNWT please accept the attached technical report. GNWT will participate in the upcoming hearings for this file, and anticipates that the GNWT's report and hearing participation will meaningfully inform the Review Board's final considerations for this file. GNWT looks forward to the remaining stages of the EA process.

If the board or any of the participants in this EA have questions regarding the GNWT's technical report, please contact Trish McFaull, Manager, Project Assessment Branch, by email at Trish_McFaull@gov.nt.ca, by phone at 867-767-9180 (Ext. 24021), or Paul Mercredi, Project Assessment Analyst, by email at Paul_Mercredi@gov.nt.ca and by phone at 867-767-9180 (Ext. 24025).

Sincerely,

L Seale

Lorraine Seale
Director, Securities and Project Assessment

Attachment

Government of Northwest Territories | Gouvernement des Territoires du Nord-Ouest

GOVERNMENT OF THE NORTHWEST TERRITORIES TECHNICAL REPORT

FOR

CANADIAN ZINC CORPORATION'S

PRAIRIE CREEK ALL SEASON ROAD PROJECT

EA1415-01

Submitted to:

Mackenzie Valley Environmental Impact Review Board

200 Scotia Centre
Box 938, 5102-50th Ave
Yellowknife, NT X1A 2N7

March 10, 2017

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Abbreviations and Acronyms

AIA	Archeological Impact Assessment
AOA	Archeological Overview Assessment
CZn	Canadian Zinc Corporation
DOT	Department of Transportation
DAR	Developer's Assessment Report
DLUPC	Dehcho Land Use Planning Commission
EA	Environmental assessment
ECCC	Environment and Climate Change Canada
GIS	Geographic Information System
GNWT	Government of the Northwest Territories
IAB	Indian Affairs Branch
INAC	Indigenous and Northern Affairs Canada
IR	Information Request
LNG	Liquefied Natural Gas
MVEIRB	Mackenzie Valley Environmental Impact Review Board
MVRMA	*Mackenzie Valley Resource Management Act*
NBDB	Nahanni Butte Dene Band
NNPR	Nahanni National Park Reserve
NWT	Northwest Territories
PR	Public Registry
SEA	Socio-Economic Agreement
TOR	Terms of Reference
VC	Valued Component
WMMP	Wildlife Mitigation and Monitoring Plan

1. Non-Technical Summary

The Government of the Northwest Territories (GNWT) is a party to the Mackenzie Valley Environmental Impact Review Board's environmental assessment of Canadian Zinc Corporation's proposed Prairie Creek All-Season Road. GNWT has developed this Technical Report after active involvement in the environmental assessment process and review of the Developer's Assessment Report, Information Requests, and other materials on the public registry (PR).

This technical report summarizes the GNWT's participation in and conclusions with respect to the environmental assessment of the development. The GNWT believes that Canadian Zinc can undertake the development in a way that is not likely to cause does not pose a significant adverse impacts to the environment, providing it complies with all regulatory requirements and implements the commitments it has made for this development and applicable commitments from the EA of the Prairie Creek Mine and winter road. The GNWT is not recommending any measures to the Review Board.

The GNWT notes that the next steps in the environmental assessment could be affected by considerations related to the scope of development, current land use activities by the Nahanni Butte Dene Band, and whether the Nahanni Butte Dene Band is a co-developer.

Land management – The GNWT's approach to the proposed road would be consistent with existing "resource access roads" in the Northwest Territories. Neither GNWT nor the developer would be able to deny the public access to the portions of the road on Territorial Lands. However, the developer will be required to lease land for facilities associated with the Liard River crossing area, and it is possible that the leases could create barriers to access.

Heritage resources – The GNWT recommends that the developer conduct an Archaeological Impact Assessment before construction, with a focus on the infrastructure associated with the development.

Wildlife – The GNWT has not identified likely significant adverse impacts to reviewed wildlife species within GNWT's jurisdiction. The GNWT recognizes the developer's commitments in relation to wildlife and recommends that the developer:

- support Nahanni Butte Dene Band to develop a harvest monitoring program, or expand its existing environmental monitoring programs;
- enhance its approach to identifying and communicating seasonal "wildlife caution zones;"
- consider a trail camera study; and
- update its Wildlife Mitigation and Monitoring Plan to include actions related to Collared Pika and boreal caribou.

Water Quality - The GNWT recognizes the developer's commitments to monitor watercrossings during construction and road operation, and will participate in regulatory phase discussions.

Permafrost – The GNWT recognizes the developer's commitments to conduct permafrost monitoring and and will participate in regulatory phase discussions.

Socio-economics - Overall, as the development relates to socio-economics, the GNWT agrees with the developer's conclusions. The Prairie Creek Mine Project Socio-Economic Agreement applies to the proposed all-season road and provides for a collaborative monitoring approach to socio-economic impacts with the goal of maximizing benefits to NWT residents. The developer's continued support and collaboration with the

GNWT on health, wellness and training programs is expected to provide opportunities for Northern residents and foster discussion with communities.

Public transportation system – The GNWT believes that the existing NWT public highway system can accommodate the traffic proposed by the developer, provided all of the usual speed and weight restrictions are adhered to and the developer complies with all other applicable regulatory requirements. The Prairie Creek Mine Project Transportation Collaboration Agreement applies to the proposed all-season road.

2. Introduction

As set out in the Land Use and Sustainability Framework, the GNWT is committed to making balanced land management decisions in the context of sound environmental stewardship, with consideration of ecological, social, cultural, and economic values to ensure maximum benefits to current and future generations. This responsibility is shared with Aboriginal, federal, territorial and municipal governments, boards and agencies and every resident of the NWT.

The GNWT supports environmental impact assessment and the Mackenzie Valley Environmental Impact Review Board's (MVEIRB) process as a planning tool to ensure that the impact on the environment of proposed developments receives careful consideration before actions are taken in connection with them, and to ensure that the concerns of Aboriginal people and the general public are taken into account.

This technical report summarizes the GNWT's conclusions with respect to MVEIRB's environmental assessment (EA) of Canadian Zinc Corporation's (CZn) proposed Prairie Creek All-season Road, MVEIRB file number EA1415-01. GNWT has reviewed the Developer's Assessment Report (DAR) and participated actively in all phases of the EA to date, including participating in scoping sessions, commenting on the Terms of Reference (TOR), submitting and responding to Information Requests (IRs), participating in technical sessions, and reviewing the developer's commitments. The GNWT has also met with the developer multiple occasions to clarify information and discuss commitments that will mitigate possible impacts of the development. Summaries of these discussions and agreed-upon developer's commitments are on the public registry for this EA. This submission takes into consideration all of the documents posted to the MVEIRB's public registry for this proceeding as of 5 pm March 7, 2017; GNWT has not necessarily considered documents posted after that date.

GNWT departments including the Departments of Lands; Environment and Natural Resources; Industry, Tourism and Investment; Health and Social Services; Education, Culture and Employment; Justice; Transportation; Finance; and Aboriginal Affairs and Intergovernmental Relations have reviewed the developer's proposal in terms of their respective mandates and responsibilities related to the development. This report provides context for specific issues that departments have considered and proposes mechanisms through which concerns may be resolved.

The report is organized as follows:

Section 1: Non-technical summary

Section 2: Introduction

Section 3: Environmental assessment process

Section 4: Land management and administration

Section 5: Heritage resources

Section 6: Wildlife

Section 7: Aquatic environment

Section 8: Socio-economics

Section 9: Public transportation system

Section 10: Recommendations and key conclusions

Recommendations and key conclusions are presented in bold text throughout the document and are listed in Section 10.

Approximately half of the proposed development is located on federal lands (Parks Canada – Nahanni National Park Reserve and Indigenous and Northern Affairs Canada (INAC) – Indian Affairs Branch lands); the other half is located on Territorial Lands. GNWT and federal officials have shared relevant technical and other information throughout this EA and will continue to do so. Further, GNWT is working closely with Canada to enable governments to fulfill the duty to consult Aboriginal peoples and, where applicable, accommodate potential adverse impacts of the development on asserted or established Aboriginal and/or Treaty rights.

The GNWT appreciates the opportunity to express its views and provide recommendations to MVEIRB for this EA. GNWT representatives will attend the public and community hearings in Nahanni Butte and Fort Simpson. All documents referenced in this report appear on the public record for this proceeding.

Because the proposed development is partially on federal land, Canada's March 27, 2014 delegation of certain *Mackenzie Valley Resource Management Act* (MVRMA) authorities to the GNWT Minister of Lands does not apply. The Minister of Lands and Ministers of other relevant GNWT departments will participate in the MVRMA section 130 EA decision process as Responsible Ministers and will provide their concurrence to the Federal Minister before that Minister signs any decision letter under s. 130 of the MVRMA.

3. Environmental assessment process

Overview of GNWT participation to date

The GNWT has participated actively in all phases of MVEIRB's environmental assessment (EA) process and will continue to participate in the remaining phases. To date GNWT's participation has included:

- Reviewing and commenting on the developer's land use permit application (MV2014F0013) and water licence application (MV2014L8-0006) to the Mackenzie Valley Land and Water Board (April – May 2014);
- Reviewing and commenting on the developer's proposed Terms of Reference (ToR) (June 2014);
- Participating in scoping sessions (June – July 2014);
- Reviewing and commenting on MVEIRB's ToR (July 2014);
- Confirming that the Socio-Economic Agreement in place for the Prairie Creek Mine Project also applies to the proposed development (July-August 2014);
- Identifying the participation and status of GNWT departments in the EA (February 2015);

- Writing to Aboriginal Groups and Organizations to encourage their participation in the EA, particularly with respect to submitting evidence related to potential adverse impacts effects of the development on asserted or established Aboriginal and/or Treaty rights[1] (May 2015, March 2016, June 2016);
- Submitting and responding to Information Requests (IRs), during both the first and second rounds (February – March 2016 and September – October 2016);
- Participating in the technical sessions held in Yellowknife (June 13-16, 2016);
- Participating in the cultural impacts technical sessions held in Nahanni Butte and Fort Simpson (July 2016);
- Providing relevant documents to MVEIRB for filing on the public registry;
- Reviewing all submissions to the MVEIRB public registry; and
- Meeting with the developer to clarify information and discuss commitments (summaries are on the public registry).

Permits, Licences, Authorizations and Agreements

Subject to the considerations outlined in the remainder of this section, the following instruments would apply to the Territorial Lands portions of the developer's proposed activities, should the development proceed to the regulatory phase[2]:

- GNWT Department of Transportation *access permit*, to connect the proposed road to the NWT public highway system (Highway 7);
- GNWT Department of Lands *Licence* (also known as a 'Licence of Occupation') for the portion of the road, including any winter-only portions, on Territorial Lands;
- GNWT Department of Lands *water lot leases* on both sides of the Liard River crossing, below the high water mark for the barge landing facilities;
- GNWT Department of Lands *surface lease* (s) for the north shore of the Liard River crossing, above the high water mark for the barge landing/staging facilities;
- GNWT Department of Lands *surface lease(s)* for any laydown areas, maintenance areas, camps or airstrips on Territorial Lands that may be required during the operations phase of the development[3];
- GNWT Department of Lands *quarry permits* for all quarries associated with the development;
- Mackenzie Valley Land and Water Board *land use permit* and *Type 'B' water licence*, both of which would apply to the portion of the development on Territorial Lands[4]; and

GNWT does not have applications for some of the above instruments, though discussions are ongoing.

In addition, the following agreements between GNWT and the developer apply to this development:

- Socio-Economic Agreement, signed August 2011 (PR 37, PR 38, PR 385)
- Prairie Creek Mine Project Transportation Collaboration Agreement, signed August 2012 (PR 191)

[1] The Canadian Northern Economic Development Agency sent similar letters on behalf of the Government of Canada.
[2] Note that some of these activities may have been previously assessed.
[3] Laydown areas that are required only during construction will require land use permits, but will not require leases.
[4] GNWT notes that, should the development proceed to the regulatory phase, the MVLWB may choose to issue a single land use permit that would apply to the portions of the road on IAB and Territorial Lands.

Scope of development

GNWT recognizes the unique circumstances surrounding the application for Canadian Zinc's Prairie Creek all season access road. The proposed development is an extension of the facilities and activities assessed and permitted in the early 1980s and assessed in EA0809-002 (mine development and operation supported by winter road access and winter-only crossing of the Liard River). The scope of the development has changed several times since MVEIRB issued the final Terms of Reference (TOR) on September 12, 2014 (PR 42). The developer originally stated that it intended to construct an all-season road in two phases, supported by an all-season airstrip and a transfer facility (the proposed Tetcela Transfer Facility) within Nahanni National Park Reserve, as well as previously permitted sporadic airstrip use, a transfer facility (the previously assessed and permitted Liard Transfer Facility) and camps and other facilities on Territorial Lands. Although the TOR state (p. 7) that "The Review Board may amend the scope of development at any time during the environmental assessment if the proposed development changes," MVEIRB has not formally amended the scope of development since issuing the final TOR.

In preparing this technical report, GNWT has noted the following points with respect to the scope of development and the developer's proposed activities. Some of the proposed activities discussed by parties during this EA have been previously assessed and are outside the scope of development for the current proceeding. The points below are not intended to provide a comprehensive description of the current scope of development.

In the DAR, Canadian Zinc stated that it intended to construct the road in a single phase, rather than two separate phases. The developer provided further updates in its response to IR2-MVEIRB-01.

Airstrips
GNWT notes that although the initial application package included reference to an airstrip, the Review Board has excluded from the scope of development any airstrips, whether on Territorial or federal lands. The developer has confirmed (PR 370) that it does not intend to use the airstrip at the former Grainger Camp. The GNWT therefore considers the developer's commitments from EA0809-002 to remediate the site to continue to be binding on the developer.

Transfer Facilities
Although the initial applications included reference to the Tetcela Transfer Facility within Nahanni National Park Reserve, , the developer has since indicated (e.g. PR370) that this facility is no longer a part of the Prairie Creek all season road proposed scope of development.

The Liard Transfer Facility was assessed during EA0809-002 and the MVLWB subsequently issued a permit (MV2008T0012). As of April 1, 2014, the permitted site is located on Territorial Lands. To date, Canadian Zinc has not conducted any land use activities under this permit. On November 29, 2016, Canadian Zinc wrote to the Review Board (PR 375) to advise that "the originally conceived LTF [Liard Transfer Facility] will no longer be needed." GNWT is not aware of any communication from Canadian Zinc to MVLWB to request cancellation of the existing land use permit.

Closure and Reclamation
GNWT notes that the scope of development includes closure and reclamation of the road.

Nahanni Butte Dene Band Youth/Wellness Camp
Several documents on the public registry (eg PR 374) refer to the NBDB's intention to construct and operate a camp on Territorial Lands, along the proposed road. GNWT understands this activity to be outside the scope of the development under assessment in the current proceeding.

Transportation and use of Liquefied Natural Gas for mine power
On February 14, 2017 Canadian Zinc issued a press release announcing that it had signed a Memorandum of Understanding with the Northwest Territories Power Corporation "to examine the supply of electrical power for the development and operation of the Prairie Creek Mine … and to evaluate the integration of other energy alternatives, and specifically Liquefied Natural Gas ("LNG"), as part of the energy supply for the mine." Canadian Zinc filed this press release on the public registry (PR 417). GNWT understands the transportation or use of LNG to be outside the scope of the development under assessment in the current proceeding.

Procedural considerations regarding scope
As a party to this proceeding with a reasonable expectation of a fair process, GNWT reserves any right to submit further conclusions to the board that may vary from this technical report should Canadian Zinc propose to the board any further changes to the scope of development.

Nahanni Butte Dene Band land use activities

Since late January 2017, the Nahanni Butte Dene Band (NBDB) has posted materials to the public registry (media reports (PR 402, PR 423[1]) and a letter to INAC (PR 422)) stating that the Band is undertaking land use activities which represent the first phase of construction of the all-season road to Prairie Creek currently before MVEIRB for environmental assessment. GNWT Department of Lands and INAC staff have visited Nahanni Butte and the area where the land use activities are occurring several times since the community's initial announcement. On February 3, 2017, GNWT staff also participated in an information meeting in the community with federal government and MVEIRB staff, as documented on the public registry (PR 408). GNWT staff have also met several times with NBDB in the course of their duties. At each opportunity to clarify directly to GNWT the connection of the land use activities to the development currently being assessed by MVEIRB, the NBDB asserted that it was unrelated to Canadian Zinc's proposed road. However, NBDB has not provided a consistent explanation of the purpose of the land use activities. At the time of writing this technical report, GNWT has been unable to definitively confirm if NBDB's land use activities are separate from or part of Canadian Zinc's Corporation's proposed all-season road. The situation is very fluid; GNWT is continuing to communicate with NBDB, to travel to the community, and to monitor activities on the ground in an effort to realize compliance with the NWT *Lands Act* and Regulations. Where appropriate, GNWT is working together with INAC on this issue.

GNWT will provide updates to MVEIRB as more information becomes available and will advise MVEIRB promptly if this information changes the GNWT's conclusions and recommendations as presented in this technical report. New information may require adjustments to the EA workplan posted February 20, 2017 (PR 416); GNWT will provide its views on any such adjustments in accordance with the Review Board's Rules of Procedure.

[1] A third media report (PR 405) on the registry contains similar statements. The registry does not indicate who submitted this report.

“Co-management” approach

Correspondence on the public registry from the developer and from NBDB creates uncertainty regarding the identity of the developer for the all-season road.

For example, on November 29, 2016, the developer wrote to INAC (PR 374) and stated:

> The NBDB and CZN have agreed to co-manage the road development, and to develop and operate the road with due care for the land, water, wildlife and culture.

On January 10, 2017, the Nahanni Butte Dene Band (NBDB) wrote to the Review Board (PR 396) and stated that:

> The NBDB would like to inform all parties that it will participate in the Review Board’s technical session as co-managers with Canadian Zinc Corporation. It is our understanding that anything to do with the all-season road to the Prairie Creek Mine is subject to our pending co-management agreement.

Further, in a letter to the Review Board on January 20, 2017 (PR 400), the NBDB stated that

> … the proponent has agreed to negotiate and abide by a co-management agreement with a First Nation community that has an established Aboriginal claim[5] to surface rights in the area under Board review. There is an expectation that after the Agreement is finalized, the NBDB would be recognized by the Board as a co-proponent to the application.

To date, neither Canadian Zinc nor NBDB have filed detailed information about the proposed co-management agreement with MVEIRB, and MVEIRB has continued to conduct the assessment on the basis that Canadian Zinc Corporation is the developer of the all-season road. In addition, as outlined above, GNWT does not have confirmation of whether Nahanni Butte’s recent land use activities are separate from or part of Canadian Zinc’s proposed all-season road.

GNWT’s technical report is based on the understanding that Canadian Zinc Corporation is the developer for the current proceeding. In any EA, certainty regarding the identity of the developer, including any partnership or joint venture arrangements, is essential to understanding how legal responsibilities and requirements resulting from the EA would be fulfilled. Certainty regarding the identity of the developer would also be required for any land management or regulatory processes that may occur after the EA.

New information regarding the identity of the developer may change the GNWT’s conclusions and recommendations as presented in this technical report. GNWT will advise MVEIRB promptly of any such changes. New information may require adjustments to the EA workplan posted February 20, 2017 (PR 416); GNWT will provide its views on any such adjustments in accordance with the Review Board’s Rules of Procedure.

[5] GNWT understands "established Aboriginal claim to surface rights" to mean that NBDB has established a claim to the extent that the GNWT and Canada are in land and resource negotiations with the Dehcho First Nations, of which NBDB is a member. However, the negotiating parties have not yet reached an Agreement in Principle.

4. Land management and administration

4.1.1 Tenure requirements – road

The GNWT's and administrative approach to the proposed road would be consistent with its approach to existing "resource access roads" in the NWT. As noted in the response to IR Round 1 #44 (PR 191), the NWT legislative and regulatory framework does not include mechanisms specific to the management and administration of industrial or resource access roads. Section 2 of the *Public Highways Act* provides for the Commissioner to designate a proposed or existing highway as a primary highway. GNWT confirms that it will not designate the proposed road as a primary highway.

In the absence of mechanisms specific to resource access roads, the GNWT applies legislation and regulation based on established policies and guidance.

GNWT stated in its response to IR Round 1 #44 (PR 191) that GNWT does not view the granting of leases (i.e., exclusive right to occupancy) for extended linear developments on lands under GNWT administration and control as a sound land management practice. If GNWT were to lease a road or other linear development to an individual or corporate entity, the lessee would be legally authorized to prohibit members of the public, including Aboriginal persons, from using or crossing any portion of the leased land. This outcome would be inconsistent with Lands' Establishment Policy which states that the mandate of the Department of Lands is to "manage, administer and plan for the sustainable use of public land in the Northwest Territories in a fair and transparent manner that reflects the interests of the people of the Northwest Territories," in addition to other GNWT priorities and interests.

Should the development be approved to proceed to the regulatory phase, the Department of Lands will require the developer to apply for a licence (also called a "licence of occupation") for the portions of the road on Territorial Lands. GNWT is working closely with INAC to support consistent management of the lands from the Liard Highway to the Nahanni National Park Reserve boundary and will continue this work to ensure that terms and conditions for the licences of occupation are consistent.

A licence of occupation is a non-exclusive authorization that permits the occupancy of land for a specific purpose, and does not convey exclusive possession of the lands. The Department of Lands currently administers licences for other resource access roads in the NWT such as the Tibbitt to Contwoyto Winter Road Joint Venture and the portions of the Selwyn-Chihong Mining Limited Howard's Pass Access Road on Territorial Lands.

Under the current legislative and regulatory framework, if the proposed development is approved to proceed to the regulatory phase and GWNT issues a licence to the developer, neither GNWT nor Canadian Zinc would have the authority to deny the public access to the road. Similarly, GNWT and the operators of the Tibbitt to Contwoyto Winter Road Joint Venture and the Selwyn-Chihong Mining Limited Howard's Pass Access Road do not have the authority to deny the public access to the portions of those roads on Territorial Lands.

On existing resource access roads, road users not associated with the road operator assume responsibility for their own activities. As GNWT noted during the technical sessions (PR 240, Day 1, p. 71), the same considerations would apply to the proposed Prairie Creek all-season road. Furthermore, the proposed Prairie Creek all-season road is an industrial road being built to industrial standards not intended for public use and through rough mountain terrain. The GNWT would not recommend that the public use the road.

Licence holders are able to inform and educate road users and to monitor road usage. GNWT advised the developer in August 2015 (PR 198) that discussions with operators of similar roads might be of assistance in understanding how those operators have addressed similar challenges.

Licences for existing resource access roads include conditions requiring the licence holder to post signs at the entrance and along the road. These signs are required to provide road users notice that any use of the road is at their own risk. Signage has been required in licence terms and conditions on current industry access roads and the GNWT would take the same approach for the licence of occupation for this development.

Accordingly, GNWT supports the following developer's commitments (PR 355, pp. 3, 16):

- To post signs to request that the road not be used and warn of the dangers posed by frequent, heavy mine traffic,
- To monitor and record non-mining traffic activity on the all-season road, including the establishment of a checkpoint, and report this information annually, and
- To have local environmental monitors on the all-season road during periods of mine traffic.

GNWT notes that the developer has filed its commitments from EA0809-002 on the public registry for this EA (PR 356), and that some of these commitments refer to "unauthorized users." A term such as "non-mine users" would be more appropriate.

GNWT will review the revised commitments, will file any comments on the public registry, and will address this matter as required in its closing arguments.

For the information of the Review Board and all parties, GNWT is currently exploring options to clarify aspects of the legislative and policy framework applicable to resource access roads. This work will not be completed during the time frame of the current proceeding.

4.1.2 Tenure requirements - Liard River crossing

The developer is proposing to cross the Liard River by private barge in the summer and by ice bridge/winter road during the winter, with a potential transfer facility on the south side of the river (PR 375). The south side of the crossing is located on Indian Affairs Branch (IAB) lands and is under the administration and control of Indigenous and Northern Affairs Canada (INAC). The north side of the crossing is located on Territorial Lands under the administration and control of GNWT.

The GNWT advised the developer on September 22, 2016 (PR 302) that surface leases are necessary for barge landing sites, staging areas, transfer sites, airstrips and any other areas where the developer requires long-term use and infrastructure to support mine production.

Surface leases would also be required for the water-lot areas on both sides of the Liard River to support the development of barge landing sites below the ordinary high watermark. On the north side of the river, the developer would also need to lease from GNWT the adjacent shoreline above the high watermark to the extent required for barge landing infrastructure and staging requirements[6]. Since a lease interest conveys exclusive possession to the lease holder, a lease by its nature restricts access. A lessee has the ability to allow others access onto or across their lease. A lessee will need to consider any risks and liabilities before consenting to access on or across its leases. Further, a lessee may not enter into sub-leasing arrangements (granting access in exchange for payment), without the express consent of the lessor (GNWT).

[6] A similar lease would be required from INAC on the south side of the river.

At this time, the details and extent of the land tenure requirements are being discussed in preparation for the potential regulatory phase. The developer has not applied for leases or licences at this time. GNWT discussed tenure requirements with the developer in November 2016 (PR 390) and March 2017 (PR 428), and set out application requirements in a letter dated January 10, 2017 (PR 401). The GNWT is working closely with INAC to ensure consistent management of the crossing area, including the development of similar terms and conditions for staging/barge landing areas on both sides of the river, and notes that INAC clarified land tenure requirements on IAB Lands in a January 27, 2017 letter to Nahanni Butte Dene Band (PR 420).

Based on the conceptual information reviewed to date, GNWT believes that it is possible that the developments at the barge landing sites, along with geographic features, and the developer's proposed check-points, can act as barriers to access, should the developer decide to exercise its right to restrict access to leased parcels. The developer has indicated that it may provide additional information in its responses to technical reports. GNWT will review any such information that is provided. As noted above, new information may require adjustments to the EA workplan posted February 20, 2017 (PR 416). GNWT will provide its views on any such adjustments in accordance with the Review Board's Rules of Procedure.

It is important to note that access to the area already exists for hunters, traditional users and the general public. Even if the developer exercises its right to restrict access to leased parcels, individuals denied access to the leased areas would still be able to travel around the parcels and potentially gain access to the road. The GNWT anticipates that travelling around the parcels would be considerably more difficult than travelling across the leased areas. As noted above, the proposed Prairie Creek all-season road is an industrial road being built to industrial standards not intended for public use and through rough mountain terrain. The GNWT would not recommend the public use the road. The GNWT supports the developer's commitments to inform and educate road users and to monitor road use.

Tenure requirements – sites to support responsible road operation

Surface leases would be required for any staging areas, transfer sites, maintenance locations, camps or airstrips needed for responsible road operation on GNWT lands. Such leases would be adjacent to the road right of way and likely would have minimal effect on access to the road.

4.1.3 Recommendations

Recommendation GNWT #1:

GNWT recommends that the developer:

- **review its commitments regarding road access and use from the current proceeding and from EA0809-002 to ensure that they are consistent with the legislative and regulatory framework, and**
- **include any necessary revisions in its response to other parties' technical reports.**

Recommendation GNWT #2:

GNWT recommends that the developer continue to work with GNWT and INAC to clarify lease requirements related to proposed facilities and activities in the Liard River crossing area.

5. Heritage resources

5.1.1 Archaeological Sites

The *Archaeological Sites Act* and the *Archaeological Sites Regulations* provide for the protection, care and preservation of sites, works, objects and specimens in the NWT. The GNWT's Department of Education, Culture, and Employment (ECE) is responsible for the management of archaeological sites for areas of the All Season Road development located outside the boundary of the Nahanni National Park Reserve (NNPR). Based on the available evidence, GNWT concludes that significant adverse impacts on archaeological sites are not likely.

Canadian Zinc has conducted two archaeological impact assessments (AIA) on portions of the road route outside of NNPR. These include an AIA of the existing winter road route in the vicinities of Grainger Gap and Wolverine Pass done in 2009, and an AIA of the Front Range Alternative for the winter road (56.2 km) done in 2012.

The footprint of the proposed all-season road is far greater than the areas assessed in the 2009 and 2012 AIAs. It now includes borrow sources and borrow access roads, various camps, staging areas, and other supporting facilities, new land disturbance associated with installation of bridges and culverts, as well as summer and winter crossings of the Liard River, and potential road re-alignments.

The DAR did not provide detailed information on the archaeological potential of the specific areas of land disturbance associated with the proposed all-season road. In the first round of information requests (PR 192, GNWT1), and again in the technical sessions (PR240), GNWT requested that the developer provide an Archaeological Overview Assessment (AOA) of the all-season road development

Canadian Zinc posted an AOA report to the public registry on December 5, 2016 (PR 379). The AOA identified numerous areas of elevated archaeological potential within the footprint of the development. The AOA report recommends that a preconstruction AIA be conducted and that the scope focus on the infrastructure associated with the development, especially the borrow sources, camps, staging areas, drainage crossings and areas that were not included in the previous studies or identified specifically during consultation with Nahanni Butte Dene Band.

5.1.2 GNWT position

Based on review of the results and recommendations of the AOA report the GNWT agrees with the findings of the AOA that a preconstruction AIA be conducted to fully assess potential impacts to archaeological sites from the development. The results of the AIA will be used to design and implement appropriate mitigation measures. The GNWT anticipates that this will mitigate any potential significant adverse impacts to archaeological sites.

In addition to the infrastructure sites noted above, the GNWT recommends that the AIA cover areas of elevated archaeological potential within the 60 m road right of way (identified by the GIS Potential Model) that were not included in the previous studies.

Under the *Archaeological Sites Regulations* the AIA of the All Season Road development must be conducted by a professional archaeologist who is eligible to hold a *Class 2 NWT Archaeologist Permit* and the application for an *NWT Archaeologist Permit* must be submitted to the Department of Education, Culture and Employment at

least 60 days before the start of fieldwork. The application should include maps that clearly show the AIA target areas based on the criteria listed for the road.

5.1.3 Recommendation

Recommendation GNWT #3:

The GNWT recommends that the developer conduct a preconstruction AIA to assess potential impacts to archaeological sites from the development. Specific targets for the AIA will be based on the results of the AOA and cover areas of elevated archaeological potential within the 60 m road right of way (identified by the GIS Potential Model) that were not included in previous AIAs.

6. Wildlife

6.1 Wildlife and wildlife habitat

In assessing the impacts of the proposed Prairie Creek all-season road on wildlife and wildlife habitat, GNWT has focused its review on Appendix E of the Developer's Assessment Report (DAR) (PR 102), both the 2012 (PR 138) and updated 2016 (PR 297) drafts of the Wildlife Mitigation and Monitoring Plan (WMMP), the July 2016 Vegetation and Wildlife Baseline Surveys (PR 289) report and responses and additional analyses conducted as part of information requests. In accordance with its wildlife mandate and obligations outlined in the *Wildlife Act* and Section 76 of the NWT *Species at Risk Act*, GNWT's review has focused on wildlife species that are under territorial jurisdiction (i.e. excludes migratory birds and fish), with particular attention to pre-listed or listed species assessed as at risk by either NWT Species at Risk Committee (SARC) or COSEWIC. With respect to caribou, GNWT has primarily assessed the development's impacts on the boreal woodland caribou ecotype, with the understanding that Parks Canada has focused its review of caribou primarily on the northern mountain caribou ecotype in relation to herds that occupy the Nahanni National Park Reserve.

Summary of GNWT's conclusions on wildlife:

> **Significant adverse impacts to wildlife reviewed by GNWT are not likely, but predictions related to key impacts need to be tested**

Based on the information Canadian Zinc has filed on the EA registry to date and commitments made during the EA, the GNWT generally supports Canadian Zinc's conclusions captured in Appendix E of its DAR and further outlined in Undertaking 17 from the Technical Sessions (PR 250) and in response to IR MVEIRB#22 (PR 188) that significant adverse impacts to reviewed wildlife species within GNWT's mandate are unlikely. Concerns raised by GNWT related to pre-disturbance surveys for denning grizzly and black bears were satisfactorily addressed in Canadian Zinc's response to GNWT IR #3 (PR 341) in the second round and in the July 2016 Vegetation and Wildlife Baseline Surveys (PR 289). GNWT notes Canadian Zinc's willingness to collaborate on surveys to detect potential western toad breeding ponds in the vicinity of the road, as per the commitment resulting from the Technical Session (PR 263) , and looks forward to working with Canadian Zinc on that Valued Component (VC). Canadian Zinc's responses to IR's (including GNWT #1 Second Round IR, PR 341) and additional studies regarding the baseline work conducted on rare plants have generally

addressed GNWT's questions and concerns. GNWT looks forward to seeing revisions to a final WMMP that incorporates commitments made in those items.

GNWT would like to highlight that some of the technicalities in its rationale for coming to a conclusion of non-significance for boreal caribou differ from those presented by Canadian Zinc, and are discussed in Section 6.5. Furthermore, determination of significance in the context of EA is based on a number of predictions regarding the nature of the impact or the effectiveness of the mitigation approach *that need to be tested*. GNWT believes that a more rigorous approach to effects monitoring for several key VCs will be required going forward to satisfy monitoring requirements in the *Wildlife Act* and the *Mackenzie Valley Resource Management Act* (MVRMA). Furthermore, GNWT suggests that some refinements will be necessary to the WMMP to ensure that the commitments are adequately captured and that compliance and effects monitoring are sufficient. This will require further engagement with GNWT, Park Canada, Nahanni Butte Dene Band and others. Preliminary recommended changes and refinements to the WMMP that are most relevant to support EA are included in this technical report, though other refinements may be required in GNWT's formal review of the WMMP after the EA.

6.2 Harvest

The risk of increased harvest mortality is relatively low, but monitoring is needed.

6.2.1 Developer's conclusions

Canadian Zinc concludes that the alignment of the all season road will generally follow the winter access road alignment, which was modified to address concerns from the NBDB to avoid sensitive wildlife areas and harvesting areas. The developer considers the proposed mitigations will be effective to limit impacts to harvest (DAR PR 55).

6.2.2 GNWT's conclusions

Increased harvest mortality to wildlife from public access is a key wildlife management concern for the GNWT when a new road is being considered. As noted in GNWT's response to Information Request MVEIRB IR 44 (PR 191) and discussed in Section 4 GNWT's approach to the management and administration of industrial or resource access roads does not provide either GNWT or the road operator with the authority to deny the public access to such roads. The IR response also stated that there is little basis for pursuing a no-shooting zone along the road given that there is neither a strong public safety concern nor a clearly identified existing wildlife conservation concern. Regardless, there are several factors that contribute to GNWT's conclusion that there is minimal risk that additional harvest from access to the road could reach significant levels.

As outlined in DAR Addendum - Appendix E - Section 2.5.2 (pg. 11) (PR 102), the portion of the access road from the north side of the Liard River to the mine site will not be accessible to highway vehicles during the periods when the barge is not operating and the ice bridge is not open (potentially November 4 – November 28, and April 21 – May 13).

Canadian Zinc will be operating a private barge at the Liard River and could limit the use of the barge by vehicles that are not associated with the development, and thus limit access to the portion of the road on the north side of the Liard River during the open water season.

For *non-residents* and *non-resident aliens* (as the *Big Game Hunting Regulations* define those terms), most hunting seasons open in the summer and close by October 31, before the ice bridge would be open.

If the ice bridge is only open from November 28 onwards, there would only be roughly 2 months during which resident hunters could use highway vehicles to hunt from the northern portion of road, as the open harvesting seasons for moose and woodland caribou is from 15 July to January 31 (i.e. the road from the Liard River to the mine would only be accessible by highway vehicles for at most 2 months/yr).

Bag limits for *resident*, *non-resident* and *non-resident alien* hunters for Dall's sheep, mountain goat, woodland caribou, moose and bison are already limited to one individual per licence holder per year, and tags are required to harvest these species.

Given this prediction, monitoring of harvest that occurs along the road or in the developer's proposed study area is necessary to ensure that a conservation concern does not arise as a result of the road. GNWT notes that the developer has made commitments related to harvest monitoring and Nahanni Butte Dene Band involvement in such monitoring (PR 355).

6.2.3 Recommendation

Recommendation GNWT #4:

GNWT acknowledges the developer's commitments concerning harvest monitoring and recommends that MVEIRB recognize these commitments as developer's commitments to be included in the scope of development for this EA and captured in the Report of Environmental Assessment. GNWT recommends that Canadian Zinc provide support to NBDB to develop a harvest monitoring program to track and report to the GNWT on patterns and levels of harvest associated with the road. GNWT suggests that this information could be collected at the check station being proposed on the north side of the Liard River crossing. Otherwise, GNWT recommends that existing environmental monitoring programs supported by Canadian Zinc could be expanded to include formal collection and reporting of harvest information. GNWT is willing to be part of discussions on the design of such a program.

6.3 Risks of collisions

To minimize and test predictions related to collision risk, a more formalized approach to identifying areas of high collision risk is necessary.

6.3.1 Developer's conclusion

Canadian Zinc concluded that there are no identified wildlife sensitive areas proximal to the road or known high collision risk locations. Monitoring will provide information that can be used to adjust site-specific mitigations.

6.3.2 GNWT's conclusion

Canadian Zinc's updated draft WMMP identified several mitigations to minimize collision risk along the road. In Table 3 of the Updated Draft WMMP (PR 297), Canadian Zinc states that it will have highly visible signs

installed along the road to alert drivers of "wildlife caution zones." In response to GNWT IR #7 (PR 200) in the first round of information requests, Canadian Zinc stated that there are "no identified wildlife sensitive areas proximal to the road or known high collision risk locations" and suggested that site specific information will be adjusted as necessary as more information is obtained. Indeed, signage is likely to be effective if Canadian Zinc can identify where these zones are and place signs in locations that are responsive to seasonal changes in wildlife use of the road corridor. While Canadian Zinc has also committed to collecting wildlife sightings along the road, the approach to monitoring for obtaining the site specific information that will adaptively feed into mitigations of collision risk along the road is vague. For example, drivers may be reporting via radio when the developer's employees, drivers, contractors, etc. see wildlife along the road and communicating this to other drivers, but it is not clear whether and how this information is being recorded, georeferenced, entered into a database and analyzed in combination with other data sources (i.e. formal surveys, identified high-value habitats along the road) to inform site-specific mitigations. GNWT notes that technologies such as trail cameras and or wildlife sighting apps could play a role in a more formalized program. For example, testing whether wildlife is more likely to cross the road in particular high-value habitats can be achieved by a well-designed trail camera study.

6.3.3 Recommendation

Recommendation GNWT #5:

To support an adaptive approach to minimizing collision risks along the proposed road, GNWT recommends that Canadian Zinc develop a more formal, detailed approach to identifying and communicating seasonal "wildlife caution zones" in its WMMP that includes:

- **How information collected by drivers will be collected and recorded;**
- **Which datasets will be used to identify "wildlife caution zones," and how often they will be combined and analyzed;**
- **Tools that might be used to facilitate recording and georeferencing; and**
- **How often the need to add, remove or change signage will be assessed and reported on (seasonally, annually).**

6.4 Collared Pika

With mitigations identified in the Updated Draft WMMP (PR 297) and in response to MVEIRB IR#5 (PR 341), GNWT concludes that significant impacts to Collared Pika are unlikely; however, Canadian Zinc should conduct effects monitoring of Pika to confirm this.

6.4.1 Developer's conclusion

Canadian Zinc concludes that Collared Pika may be adversely affected as changes to its habitat's effectiveness are expected. (DAR - Appendix E – Vegetation and Wildlife and Wildlife Habitat PR 102).

6.4.2 GNWT's conclusion

Collared Pika is a territorially managed species occurring on both Territorial and federal Lands overlapping the area of the proposed development. Collared Pika has been recently added to the federal *Species at Risk Act* List with a status of special concern (February 2016). Presence/not detected monitoring conducted by

Canadian Zinc in proposed borrow sites containing suitable talus habitat has identified active and inactive sites. While Canadian Zinc did not respond to GNWT's IR on Collared Pika in the second round of IRs, GNWT acknowledges Canadian Zinc's commitments in response to a similar IR from MVEIRB (MVEIRB #5 (PR 341)) to realign the section of the proposed road once on or adjacent to talus habitat (e.g. KP 34.8, to 39), to conduct presence/not detected surveys prior to using borrow sources in which they have been identified, and to mitigate impact at sites where they are detected by either moving activities to a new borrow source or unoccupied portion of the same borrow sources. While this will help to avoid directly killing Pika and minimize habitat loss, Pika populations persist by continually occupying, dispersing and re-occupying localized suitable habitat patches. As such, the persistence of Pika populations in the development area may still rely on sites that are not occupied at the time of survey, but that are nonetheless lost. Therefore, Canadian Zinc should undertake longer term monitoring of habitat patch occupancy and abundance.

6.4.3 Recommendation

Recommendation GNWT #6:

GNWT recommends:

- **That Canadian Zinc include in its final WMMP the Collared Pika commitments outlined in its response to MVEIRB IR#5 (PR 320);**
- **That Canadian Zinc conduct long-term monitoring of Collared Pika abundance and patch occupancy in talus habits within 300m of the road.**

6.5 Boreal Caribou

This development will add new habitat disturbance to the NT1 boreal caribou range, but the contribution of the development to habitat disturbance within the range is unlikely to lead to or accelerate declines of boreal caribou in the southern portion of their range, given the relatively small footprint in the context of the region and entire range and given that the development is located on the periphery of the range in an area where local knowledge suggests population density is low.

6.5.1 Developer's conclusion

The developer concluded that the impacts on boreal caribou will be will be adverse, moderate in magnitude, geographical extent and reversibility, and high in duration, frequency and certainty (Chart 2, below). Canadian Zinc estimated that the proposed all season road will directly affect 1,700 hectares of boreal caribou

habitat.

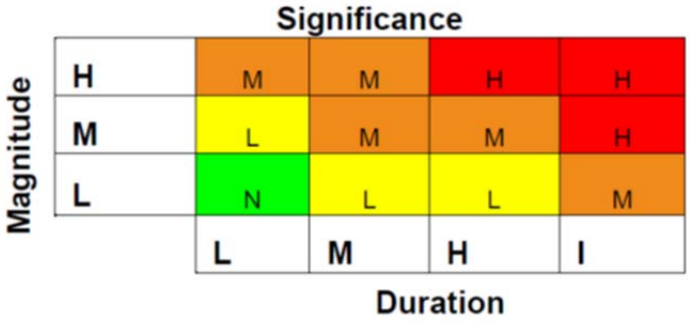

Chart 2: Moderate Geographic Extent Significance Determination

6.5.2 GNWT's conclusion

Boreal caribou are listed as a threatened species under both the federal *Species at Risk Act* and *the NWT Species at Risk Act*. The GNWT is responsible for implementing actions to support recovery of this species though both federal and territorial processes. For example, GNWT tracks habitat disturbance and is developing range plans to demonstrate how critical habitat will be maintained over the long term. The 2012 federal Recovery Strategy for the Woodland Caribou (*Rangifer tarandus caribou*), Boreal population, in Canada (Recovery Strategy) (PR 190) identifies critical habitat as a minimum of 65% of undisturbed habitat within each boreal caribou range[7]. Disturbance includes anthropogenic features plus a 500 m buffer and fire disturbance ≤40 years old. Under the strategy, there is a single, continuous boreal caribou range in the Northwest Territories extending from the Alberta/BC border north to the Inuvialuit region and into the Yukon territory , called the NT1 range. The proposed development footprint overlaps the NT1 range from where the road alignment meets the Liard highway west until approximately KP 125.

GNWT's calculations show that the NWT boreal caribou population as a whole is likely to be self-sustaining based on current levels of habitat disturbance in the NT1 range.

When the Recovery Strategy for boreal caribou was released in 2012, the Northwest Territories (NT1 range) had 69% undisturbed habitat, based on the combined footprint of 500 m buffered human disturbance visible on 1:50,000 scale Landsat imagery from 2008-2010 and fires less than 40 years old as of 2009. Based on the amount of habitat disturbance in the range at that time, the population was considered to be self-sustaining. Since then, GNWT has been updating the footprint of fires ≤40 yrs old on an annual basis, but the human disturbance map has not yet been updated. GNWT has also made slight adjustments to the NT1 range boundary, and it now covers an area of 44,292,049 ha (compared to 44,155,546 ha reported in the Recovery

7 GNWT's analysis in this technical report incorporates both the national Recovery Strategy for the Woodland Caribou, Boreal population, released in 2012, and the territorial Recovery Strategy for the Boreal Caribou in the Northwest Territories, released on March 1, 2017. The use of the national strategy as the primary reference point reflects the joint territorial and federal responsibility for boreal caribou.

Strategy). Sixty-five percent (65%) of the range represents 28,534,130 ha. Table 1 contains calculations of habitat disturbance in the NT1 range to 2016 (preliminary estimates for 2016) and demonstrates that as of 2016, the estimated percentage of undisturbed habitat across NT1 range is 66.02%.

T**able 1: Updated calculations of disturbance within the NT1 range (44,282,081.19 ha) until fall 2015, with preliminary calculations of fire and habitat recovery disturbances for 2016.**

	Area (ha)	**Remaining area (ha) undisturbed**	**% of NT1 range**
NT1 Range	44,282,081.19	n/a	n/a
Undisturbed habitat as of fall 2015 (based on fires from 1975-2015 and EC human disturbance footprint current to 2010)		29,221,426.15	65.99
New disturbance from major projects **built after 2010** (Conoco Phillips, Husky, MGM, Explor and MVFL)	-49,564.32	29,171,861.83	65.88
New disturbance from projects major **approved after 2010 but not yet built** (2 FMA[8] timber harvest sequences, Canyon Creek Access Road)	-42,518.06	29,129,343.77	65.78
Preliminary estimate of new burn from the 2016 fire season	-254,095	28,875,248.77	65.21
Estimate of potential habitat recovery (>40 years since last burn) in 2016.	+359,299	29,234,547.77	66.02
New disturbance from major **proposed projects** (Tłı̨chǫ all-season road, CZN all-season road)	-7,797.93	29,226,749.84	66.00

There is regional variation in levels of undisturbed habitat within the NT1 range. For example, boreal caribou may be at greater risk in the southern portion of the range because levels of habitat disturbance are higher. Within the Dehcho and South Slave portion of the NT1 range, there was 50.5% undisturbed habitat as of fall 2015. Relative to other portions of the range, the Dehcho administrative region has the highest levels of human disturbance footprint (17.2% human disturbance/37% fire disturbance/48.6% combined disturbance). Population monitoring in the South Dehcho between 2005-2016 suggests there is a stable to declining trend in the regional boreal caribou population as the geometric mean population rate of increase (λ) is 0.95 (λ = 1 indicates a stable population, <1 indicates declining population and >1 indicates an increasing population), although there is high inter-annual variability (Larter and Allaire 2016, PR 431). Regional differences within the NT1 range are an important factor GNWT is considering in devising its approach to range planning for boreal caribou; however, at the NT1 range level, the NWT boreal caribou population as a whole is likely to be self-sustaining because there is currently >65% undisturbed habitat within the entire NT1 range.

Boreal woodland caribou density and distribution in the area is not well documented, though local knowledge suggests it is low.

[8] Forest Management Agreement.

The density and distribution of boreal caribou in the area of the road alignment is not well documented. The Terms of Reference (PR 42) asks Canadian Zinc for an assessment of impacts on boreal caribou abundance and distribution. While Canadian Zinc did not conduct formal surveys for abundance and distribution of boreal caribou, limited winter aerial survey work for Canadian Zinc conducted by Golder and Associates in 2011 identified no caribou or caribou tracks in the area where the development overlaps with boreal caribou range (Technical Memorandum, Golder Associates, March 2011, PR 446). Local knowledge provided at the Cultural Impacts technical session in Nahanni Butte (PR 275) confirms that boreal caribou are found in the area. Traditional knowledge suggests that population levels of boreal caribou are considered low in the Liard Valley and to the west between the river and the mountain (Dehcho First Nations 2011 in Species at Risk Committee 2012 – submitted to public registry). GNWT has had limited success in locating animals to collar and has not conducted any formal aerial surveys west of the Liard River. That the proposed development is located on the western periphery of the boreal caribou range and that wildlife populations tend to be sparser on the edge of their range further supports this observation.

6.5.3 Recommendation

Recommendation GNWT #7:

GNWT recommends that Canadian Zinc consider designing and implementing as part of its WMMP a trail camera study along the Territorial Lands portion of the all-season road alignment west of the Liard River to confirm presence of boreal caribou and evaluate the need for further monitoring of boreal caribou in this area. This program, including the identification of appropriate study locations, can also help to confirm the effectiveness of mitigations to deter public access on the road.

The proposed all-season road alignment will increase the amount of new habitat disturbance within the NT1 range beyond Canadian Zinc's estimates, though still not substantially.

Both the developer and the GNWT acknowledge that the proposed all-season road alignment will increase the amount of new disturbance within boreal caribou range; however, the developer and GNWT have come to different conclusions regarding the extent of that disturbance.

Canadian Zinc initially estimated that the proposed all-season road (including camps, borrow sources and access roads) will directly affect 53.3 ha of boreal caribou habitat, or 1,700 ha using a 500 m buffer. Both GNWT and ECCC questioned Canadian Zinc's approach to arriving at this figure in the second round of IRs (GNWT IR# 4 and ECCC IR #1 – PR 341). Canadian Zinc responded that the 1,700 ha calculation over-estimates boreal caribou habitat loss because a) it does not account for the realignment though the Grainger Gap and b) the calculation did not incorporate fire and other anthropogenic disturbances. Furthermore Canadian Zinc also revealed that their calculation did not account for the sections of the all-season road alignment that overlap with the already permitted winter road. Canadian Zinc stated that "the winter road disturbance has already been assessed by the Review Board in EA0809-002, and therefore this disturbance should be subtracted from the calculation".

GNWT disagrees that Canadian Zinc has over-estimated the amount of new indirect habitat disturbance that will be contributed by the proposed all-season road for two reasons. First, although the standard buffer applied to all types of disturbance footprint in the Recovery Strategy is 500m, the zone of influence of a road may be larger. Woodland caribou (boreal and mountain ecotypes) have been observed to avoid roads by

distances varying between 0.25 – 5 km (Cumming and Hyer 1998, Oberg 2001, Schindler et al. 2007, LeBlond et al. 2013, Polfus et al. 2011, Fortin et al. 2013). While the degree of avoidance appears to be related to road traffic volume, avoidance of low use roads may be as great as 1 km (Polfus et al. 2011; low use defined as gravel/dirt roads excluding ATV trails).

Secondly, the permitted winter road (150224 alignment) was never built and does not exist as a disturbance on the landscape. The permitting of the winter road in 2008 predates the release of the Recovery Strategy and therefore the potential disturbance associated with that road would not have been assessed in the context of the risk to the local population defined in the Recovery Strategy. Environmental assessment is required to make use of the best available information. The current information is that the majority of the preferred all-season road alignment within the boreal caribou range occurs in undisturbed habitat. Much of the proposed road all-season road alignment dated 160422 (which overlaps portions of the old winter road and the permitted winter road alignment) and preferred alignment option 160405 do not appear as currently disturbed habitat on maps of habitat disturbance produced by Environment and Climate Change Canada (~2010) and the Dehcho Land Use Planning Commission (~2002) (PR 329 - See Figures 2 and 3 therein).

Based on the shape files provided by Canadian Zinc (PR 182), GNWT calculated that new buffered disturbance from the development would be about 5515 ha for the 160422 alignment + borrow sources, and about 5590 ha for the preferred 160405 alignment + borrow sources (including the portion of alignment 160422 + borrow sources from ~KP124 onwards) (GNWT's IR #4 – PR 341). The new buffered footprint from the two alignment options is shown in Figure 1 (below). These calculations exclude areas of overlap with the existing buffered anthropogenic disturbance mapped by ECCC based on 2008-2010 Landsat imagery and fires ≤ 40 yrs old (1975-2015). Note that the preliminary estimates of fire footprint and recovered habitat for 2016 presented in Table 1 were not included in this estimate of habitat disturbance.

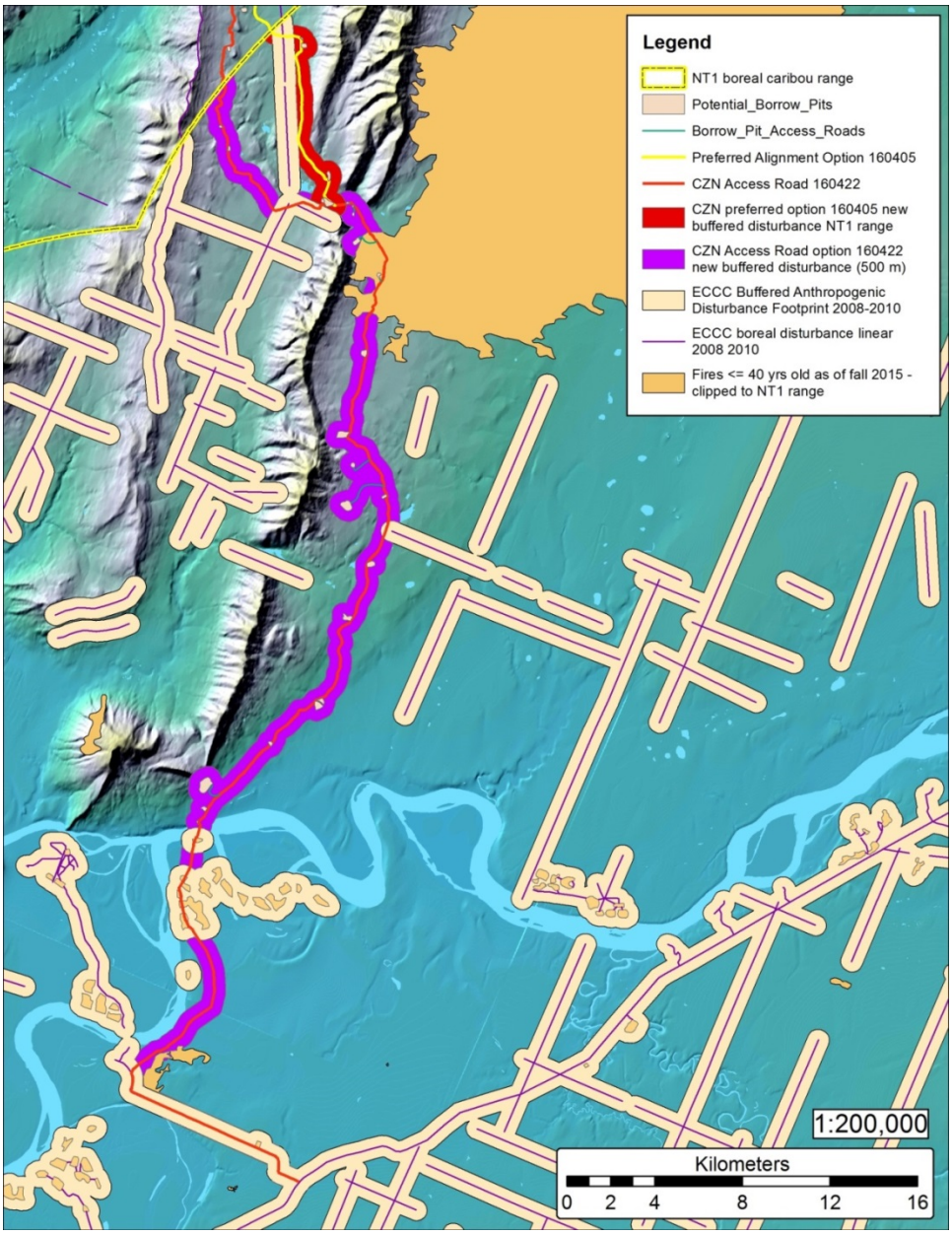

Figure 1 New 500 m buffered disturbance from Canadian Zinc access road alignments 160405 and 160422, plus borrow pits and borrow pit access roads. Existing 500 m buffered anthropogenic disturbance mapped by ECCC and fires <= 40 yrs old up to 2015 are also displayed on the map.

For the purposes of calculating Canadian Zinc's contribution to new habitat disturbance, GNWT considers the 5590 ha of new buffered disturbance from the preferred 160405 alignment + borrow sources and access roads to be the working estimate. GNWT will update this estimate to include finalized fire and recovery metrics for 2016 as well as any changes to alignment in the future. GNWT has calculated that 5590 ha represents about 0.01% new disturbance within the NT1 range**.** Therefore, even at the higher levels calculated by GNWT, the proposed road would not cause the NT1 range to fall below 65% undisturbed habitat. This still applies when also factoring in potential new disturbance of other major proposed projects in the NT1 range (i.e Tłı̨chǫ All-Season Road at approximately 2208 ha).

Mitigations proposed and commitments made by Canadian Zinc are likely to reduce the risk to boreal caribou; though refinements are necessary.

GNWT has reviewed the mitigations proposed in the DAR and the August 2016 updated WMMP (PR 297) to address impacts to boreal caribou and has the following comments:

Several mitigations refer to a distance of 500 m as a trigger for speed reductions or activity stoppages, but it is not clear how this will be monitored in forested habitat or whether it is meant to be applied to a linear distance along the road.

With respect to the potential of reducing new habitat disturbance, Canadian Zinc has stated that the approved winter road, and the all-season road mostly follow the former access road, however GNWT noted in the video viewing of the road alignment on February 24, that this does not seem to apply for the portion of the road that is within the boreal caribou range.

Commitment #6 made by Canadian Zinc during the Technical Session (PR 296) was not included in the updated draft WMMP. The commitment read: " CanZinc commits to installing windrows, lumber, or other brush clearing material to discourage access (and limit sightlines) to the road corridor by wildlife and humans at intersections with linear features." Figure 2 (below) shows linear features in the area captured by both the 1:50,000 scale ECCC disturbance mapping as well as features detected in the finer scale digitized by the Dehcho Land Use Planning Committee (DLUPC) based from IRS imagery (1999-2003) at 1:10,000 scale.

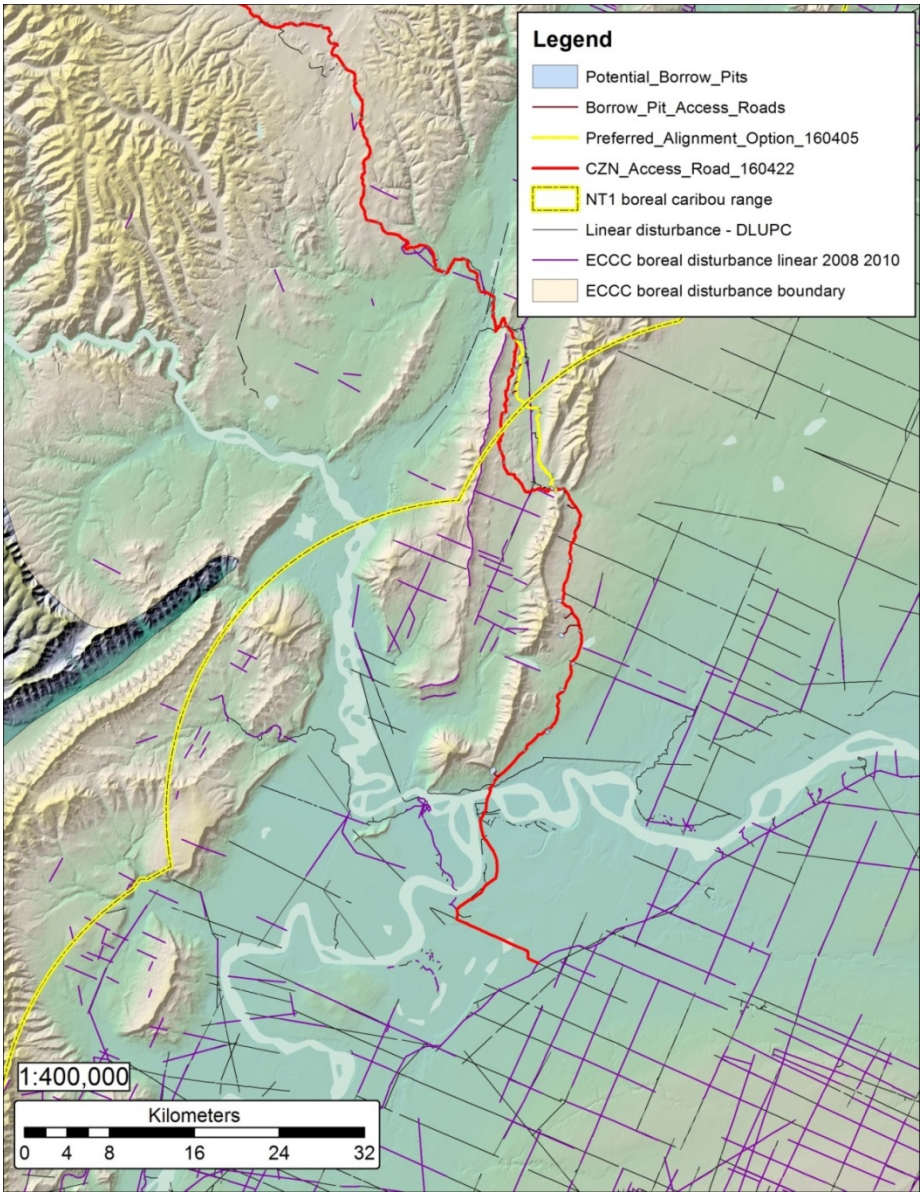

Figure 2 – Proposed Canadian Zinc all-season access road alignment (April 5, 2016), preferred alignment option (April 22, 2016), borrow pits and borrow pit access roads, superimposed on Linear disturbance features mapped by Environment and Climate Change Canada (ECCC) based on 1:50,000 scale Landsat Imagery from 2008-2010 and linear disturbance features digitized by the Dehcho Land Use Planning Committee (DLUPC) based from IRS imagery (1999-2003) at 1:10,000 scale.

It is clear that the network of linear features in the area is more extensive than suggested by the ECCC database and that there are several linear features that intersect the proposed road alignment. Research from other jurisdictions shows that caribou predation by wolves that are using linear features to travel more efficiently in otherwise contiguous habitat is a key factor contributing to declining population trends in landscapes with high densities of linear disturbances. Discouraging predator and human travel from the road may reduce mortality factors associated with roads. GNWT suggests that a trail camera program, as per Recommendation #7 of this report, could also be used to detect and quantify use of linear features intersecting the road by wildlife and people.

6.5.4 Recommendation

Recommendation GNWT #8:

GNWT acknowledges the developer's commitments concerning boreal caribou habitat and recommends that MVEIRB recognize these commitments as developer's commitments to be included in the scope of development for this EA and captured in the Report of Environmental Assessment. GNWT further recommends that the developer revise its WMMP to incorporate Commitment #6 from the technical sessions.

7. Aquatic environment

7.1 Watercourse Crossings – Monitoring

7.1.1 Developer's conclusions

There was some initial discussion during the environmental assessment regarding specifics related to monitoring requirement for watercourse crossings of the road. Undertaking #8 from the technical sessions (PR 250) stated that:

> CanZinc, Parks, and ECCC (and possibly GNWT) will meet and report back regarding appropriate water monitoring approaches including: parameters (turbidity, pH, DO and conductivity), frequency, sampling locations and application of an adaptive management approach.

There is now a commitment from Canadian Zinc to work with the stakeholders during the regulatory process. Canadian Zinc wrote to MVEIRB on October 19, 2016 (PR 315) and stated that it would "assume the revision of the Sediment and Erosion Control Program to incorporate a suitable water quality monitoring program as a commitment. As noted by the Review Board on October 20 following the Second Round of Information Requests (PR 320):

> By turning undertaking #8 into a commitment, CanZinc has agreed to work with Parks Canada and ECCC, and possibly also the GNWT, in establishing appropriate water monitoring approaches. This commitment will continue to be applicable in the regulatory and permitting phases.

This commitment is included in the developer's October 2016 list of commitments (PR 355, p. 17):

> CZN has committed to the development and implementation of an inspection and monitoring program for all stream crossing structures. The inspection and monitoring program would reflect the crossing risk rankings. Key to the monitoring would be the detection of any changes to channel positions and the potential for erosion with respect to the crossing structures, and consideration of required adaptive management.

7.1.2 GNWT's conclusions

GNWT concurs that monitoring of watercourse crossings during construction and road operation should be required during the regulatory phase which will outline the specific parameters and frequencies that are required. GNWT will work with Canadian Zinc and other stakeholders during the regulatory and permitting phases as required.

If all regulatory requirements and developer's commitments are fulfilled, in GNWT's view significant adverse impacts to related to watercourse crossings are unlikely.

7.1.3 Recommendation

Recommendation GNWT #9:

GNWT acknowledges the developer's commitments to establish a watercourse monitoring program during construction and road operation and recommends that MVEIRB recognize these commitments as developer's commitments to be included in the scope of development for this EA and captured in the Report of Environmental Assessment. GNWT agrees that the specifics of this monitoring can be discussed during the regulatory phase.

7.2 Permafrost

7.2.1 Developer's Conclusion:

At the technical sessions, the developer committed to developing a permafrost monitoring plan as a permit condition, informed by a detailed investigation of permafrost along the road alignment (PR 246).

In response to GNWT's information request (PR 370), Canadian Zinc provided a Technical Memo that includes a list of commitments related to the management of potential effects to permafrost including the establishment of a monitoring program as well as monitoring requirements at borrow pits (Tetra Tech Memo – PR344).

The developer's October 2016 table of commitments (PR 355) include confirmation that all recommendations by consultants have been accepted by Canadian Zinc and will be assumed as commitments," and the following items specific to permafrost monitoring:

- CanZinc commits to developing a permafrost monitoring plan as a permit condition, informed by a detailed investigation of permafrost along the road alignment;
- CZN will undertake a suitable site investigation program to further investigate permafrost issues during the detailed design process, and will implement appropriate mitigations during road construction activities to address those issues; and
- Individual borrow source development and management plans will be prepared for each borrow source that will incorporate site-specific recommendations relating to permafrost, as necessary.

7.2.2 GNWT's conclusion

As specific local area of permafrost including an assessment of ice content has not been identified at this time for the road or borrow sites, GNWT is unable to assess the magnitude of permafrost degradation or its impact significance. GNWT's experience suggests that if ice rich permafrost exists along the road or at borrow sites, its degradation would result in likely significant adverse impacts to water and local landscapes.

GNWT supports the establishment of a permafrost monitoring program during the regulatory process. GNWT is also supportive of monitoring at borrow sites which would include water monitoring and permafrost monitoring, if permafrost is present.

GNWT acknowledges the developer's commitments to establish a permafrost monitoring plan during the regulatory process and recommends that MVEIRB recognize these commitments as one of developer's commitments to be included in the scope of development for this proceeding, and captured in the Report of Environmental Assessment.

7.2.3 Recommendation

Recommendation GNWT #10:

GNWT recommends the establishment of a permafrost monitoring plan during the regulatory process and that these commitments are captured in the Report of Environmental Assessment.

8. Socio-economics

8.1.1 GNWT's conclusion

Overall, as the development relates to socio-economics, the GNWT agrees with the conclusions reached by the developer in the DAR.

The GNWT has not identified any likely significant adverse impacts of the All-Season Road development on the human environment.

The Prairie Creek Mine Project Socio-Economic Agreement (SEA) is a contract between GNWT and Canadian Zinc Corporation which provides for a collaborative monitoring approach to socio-economic impacts with the goal of maximizing benefits to NWT residents, and is applicable to the Prairie Creek All Season Road. In response to a request from GNWT, the developer confirmed in a letter that the existing SEA would apply to the proposed all-season road (PR 37, 38, 385), thereby committing that the SEA employment and procurement commitments benefitting Northerners will apply to the development. The developer's continued support and collaboration with the GNWT on health, wellness and training programs is expected to provide opportunities for Northern residents and foster discussion with communities.

The GNWT notes that the development as currently scoped would not create new all-season access to the community of Nahanni Butte. GNWT attended the cultural impacts technical session in Nahanni Butte in July 2016 and notes that the workshop report (PR 275) states:

> The community expressed interest in holding a community workshop to consider mitigative measures in addressing social impact concerns. A workshop will assist Canadian Zinc in establishing policies and workforce guidelines that have community support, and promote respect for the culture and lifestyle of Nahanni Butte residents.

It is GNWT's understanding that the community has not held such a workshop to date, and that the developer and NBDB are working bilaterally on these matters as required. If requested by NBDB, the GNWT is willing to participate in a community workshop with Canadian Zinc and NBDB to discuss socio-economic opportunities and concerns associated with the development.

Both GNWT and Canadian Zinc are committed to continuing to work collaboratively to ensure that commitments in the Socio-Economic Agreement are achieved.

9. Public transportation system

9.1.1 GNWT transportation related issues

The Government of the Northwest Territories (GNWT), Department of Transportation (DOT) is responsible for the operations, maintenance and reconstruction of the NWT public highway system. GNWT has reviewed the evidence on the public registry and has concluded that the development is unlikely to have significant adverse impacts on the public highway system, including current usage, provided that the developer adheres to all of the usual speed and weight restrictions.

In August 2012, DOT signed a Transportation Collaboration Agreement with Canadian Zinc (PR 191) to work collaboratively to ensure effective cooperation regarding the public transportation system. This agreement applies to the proposed all-season road, which is expected to use 130 km of NWT Highway 7 (the Liard Highway) and 12 km of the Nahanni Butte Access Road. GNWT has invested $30 million over the last 20 years and has plans to invest an additional $21 million in the future on Highway 7. GNWT has invested $4 million to increase the standard of the Nahanni Butte Access Road to an all-season road; this work is complete. An additional $1.5 million is expected for future improvements.

During the EA, GNWT has posed information requests to the developer and has met with the developer on matters related to the public transportation system (PR 390). GNWT notes that Canadian Zinc has stated on the public record for this environmental assessment that it is able to construct and operate the Prairie Creek all season road with the existing Highway 7 load restrictions (PR 240 Day 4, pp 160-161).

GNWT encourages the developer to contact DOT with their updated hauling schedules and weights. GNWT will continue to use speed and weight restrictions to mitigate potential negative impacts of heavy traffic as and when required. DOT's authority to determine speeds for highways in the NWT is found under the *Motor Vehicles Act* and the *Public Highways Act*. DOT establishes maximum weight limits, overweight permits, etc. for vehicles under the *Large Vehicle Control Regulations*, which are administered under the *Motor Vehicles Act*.

GNWT expects that the existing NWT public highway system can accommodate the traffic proposed by the developer, provided all of the usual speed and weight restrictions are adhered to and that all potential impacts to the NWT public highways system can be mitigated effectively to allow safe and efficient use by the developer and the public.

Should the development proceed to the regulatory phase, the developer will be required to apply for an access permit from the Department of Transportation to construct any access to the NWT public highway system as defined under the *Highway Designation and Classification Regulations.*

9.1.2 Recommendation:

Recommendation GNWT #11:

GNWT recommends that the developer continue to work with the Department of Transportation regarding proposed hauling schedules and weights and other matters related to the public transportation system.

10. List of Recommendations

GNWT #1

GNWT recommends that the developer:

- **review its commitments regarding road access and use from the current proceeding and from EA0809-002 to ensure that they are consistent with the legislative and regulatory framework; and**
- **include any necessary revisions in its response to other parties' technical reports.**

GNWT #2

GNWT recommends that the developer continue to work with GNWT and INAC to clarify lease requirements related to proposed facilities and activities in the Liard River crossing area.

GNWT #3

The GNWT recommends that the developer conduct a preconstruction AIA to assess potential impacts to archaeological sites from the development. Specific targets for the AIA will be based on the results of the AOA and cover areas of elevated archaeological potential within the 60 m road right of way (identified by the GIS Potential Model) that were not included in previous AIAs.

GNWT #4

GNWT acknowledges the developer's commitments concerning harvest monitoring and recommends that MVEIRB recognize these commitments as developer's commitments to be included in the scope of development for this EA and captured in the Report of Environmental Assessment. GNWT recommends that Canadian Zinc provide support to NBDB to develop a harvest monitoring program to track and report to the GNWT on patterns and levels of harvest associated with the road. GNWT suggests that this information could be collected at the check station being proposed on the north side of the Liard River crossing. Otherwise, GNWT recommends that existing environmental monitoring programs supported by Canadian Zinc could be expanded to include formal collection and reporting of harvest information. GNWT is willing to be part of discussions on the design of such a program.

GNWT #5

To support an adaptive approach to minimizing collision risks along the proposed road, GNWT recommends that Canadian Zinc develop a more formal, detailed approach to identifying and communicating seasonal "wildlife caution zones" in its WMMP that includes:

- **How information collected by drivers will be collected and recorded;**
- **Which datasets will be used to identify "wildlife caution zones," and how often they will be combined and analyzed;**

- **Tools that might be used to facilitate recording and georeferencing; and**
- **How often the need to add, remove or change signage will be assessed and reported on (seasonally, annually).**

GNWT #6

GNWT recommends:

- **That Canadian Zinc include in its final WMMP the Collared Pika commitments outlined in its response to MVEIRB IR#5 (PR 320);**
- **That Canadian Zinc conduct long-term monitoring of Collared Pika abundance and patch occupancy in talus habits within 300m of the road.**

GNWT #7

GNWT recommends that Canadian Zinc consider designing and implementing as part of its WMMP a trail camera study along the Territorial Lands portion of the all-season road alignment west of the Liard River to confirm presence of boreal caribou and evaluate the need for further monitoring of boreal caribou in this area. This program, including the identification of appropriate study locations, can also help to confirm the effectiveness of mitigations to deter public access on the road.

GNWT #8

GNWT acknowledges the developer's commitments concerning boreal caribou habitat and recommends that MVEIRB recognize these commitments as developer's commitments to be included in the scope of development for this EA and captured in the Report of Environmental Assessment. GNWT further recommends that the developer revise its WMMP to incorporate Commitment #6 from the technical sessions.

GNWT #9

GNWT acknowledges the developer's commitments to establish a watercourse monitoring program during construction and road operation and recommends that MVEIRB recognize these commitments as developer's commitments to be included in the scope of development for this EA and captured in the Report of Environmental Assessment. GNWT agrees that the specifics of this monitoring can be discussed during the regulatory phase.

GNWT #10

GNWT recommends the establishment of a permafrost monitoring plan during the regulatory process and that these commitments are captured in the Report of Environmental Assessment.

GNWT #11

GNWT recommends that the developer continue to work with the Department of Transportation regarding proposed hauling schedules and weights and other matters related to the public transportation system.

Both GNWT and Canadian Zinc are committed to continuing to work collaboratively to ensure that commitments in the Socio-Economic Agreement are achieved.