February 27, 2024

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Acho Dene Koe
FIRST NATION

SENT ELECTRONICALLY ONLY
By Way Of: cfairbairn@reviewboard.ca

RE: MACKENZIE VALLEY HIGHWAY – ENVIRONMENTAL IMPACT REVIEW (EA 1213-02)

Acho Dene Koe First Nation writes to provide comments on proceedings of the proposed Mackenzie Valley Highway (EA1213-02) that will connect Wrigley to Norman Wells with a gravel all-season road.

This project represents a once-in-a-generation type project and, with that, will bring significant opportunities and challenges to the territory. It is, therefore, essential that in the development of this project, deliberate effort be made to consider the full spectrum of impacts this project will have on communities within the Northwest Territories.

Acho Dene Koe First Nation's Traditional Territory and waters span three jurisdictions: British Columbia, the Yukon Territory, and the Northwest Territories. Our main community is currently settled in Fort Liard, north of the British Columbia-Northwest Territories border, still, our members continue to use and occupy our Traditional Territory as a whole. As our ancestors did, we hunt, trap, fish, and gather for food, social, cultural, and trading purposes throughout our Traditional Territory. We assert Aboriginal rights, including title, throughout our Traditional Territory.

Our rights and our Traditional Territory are affected by the proposed development.

Acho Dene Koe First Nation Treaty and Aboriginal Rights

In 1922, our ancestors adhered to Treaty 11, and these rights are constitutionally protected under s. 35(1) of the *Constitution Act, 1982*. Among other things, Treaty 11 protects our right to pursue our usual vocations of hunting, trapping and fishing. When signing Treaty 11, our ancestors were assured that this liberty would not be taken away or curtailed. Any erosion of our ability to hunt, trap, and fish would be a serious infringement of our Treaty rights.

The courts have cast serious doubt on whether Treaty 11 extinguished Aboriginal title to the land. In *Re: Paulette's Application*, the trial judge found that "notwithstanding the language of the two treaties [8 and 11,] there is sufficient doubt on the facts that aboriginal title was extinguished.[1]"

More recently, the Federal Court recognized that the Federal Government's failure to set aside reserves for Sambaa K'e First Nation was a fundamental breach of Treaty 11, and Sambaa K'e continued to have a strong *prima facie* case for Aboriginal title, which elevated the Crown's duty to consult with them.[2] We maintain that our Aboriginal rights, including Aboriginal title, have never been ceded, abandoned, or extinguished in any part of our Traditional Territory.

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[1] *Re: Paulette's Application*, [1973] 6 W.W.R. 97 (N.W.T.) [*Re: Paulette's Application*] at paras 84 and 116.
[2] *Sambaa K'e Dene First Nation v. Duncan*, 2012 FC 204 at para 139 [*Sambaa K'e Dene First Nation*].

Aboriginal rights, which include title, are constitutionally protected legal rights, pursuant to s. 35(1) of the *Constitution Act, 1982*. Aboriginal rights include priority use rights to resources (e.g., fish, wildlife, trees, traditional medicines, and foods). Aboriginal title confers on the rights-holding group the exclusive right to decide how the land is used and the right to benefit from those uses, subject to the restriction that the uses must be consistent with the group nature of the interest and the enjoyment of the land by future generations.[3]

Acho Dene Koe First Nation holds constitutionally protected Treaty rights, asserts Aboriginal rights within our Traditional Territory, and takes seriously any infringement of our rights.

Crown's Duty to Consult

Where the Crown has "knowledge, real or constructive, of the potential existence of the Aboriginal right or title and contemplates conduct that might adversely affect it", the Crown has a duty to consult with the First Nation[4].

The Acho Dene Koe First Nation currently uses, and has historically used, our Traditional Territory for fishing, hunting, trapping, and gathering. Acho Dene Koe First Nation has negotiated and signed an Agreement in Principle with Canada and the Government of the Northwest Territories and continues to negotiate a modern treaty based on our inherent right to self-government. Consistent with *Sambaa K'e Dene First Nation*, the Acho Dene Koe First Nation has a strong prima facie title claim, and as a result, the Crown's consultation obligations are on the high end of the spectrum.

Development and resource exploitation have already significantly impacted and infringed on our Treaty and Aboriginal rights and title, and any new developments will continue to do so in a compounding manner. An infringement cannot be justified without meaningful consultation and accommodation, which may include compensation.

The Acho Dene Koe First Nation expects and intends to enter full, meaningful consultation with the Government of Northwest Territories before any decision that has the potential to infringe on our Treaty or Aboriginal rights. The importance of protecting our Treaty and Aboriginal rights and of preserving natural resources cannot be overstated.

Mackenzie Valley Highway

The Mackenzie Valley Highway represents a once-in-a-generation type project, the magnitude of which will result in permanent changes to many communities within the Northwest Territories and not just those along the development. We recognize this development may bring some positive changes, including job opportunities, lower cost of living, and new industries and businesses, such as tourism. In connecting the Sahtu to southern portions of the territory, the highway may provide increased opportunities for residents to travel to connect with family members and seek medical assistance or services previously only accessed seasonally or via costly air service.

However, many adverse impacts will also accompany this project.

Those impacts directly related to project construction or maintenance activities, such as habitat destruction and disruption, land transformation, and vehicular incidents, should be focal points of this assessment and resulting mitigation efforts. Those more tangentially or indirectly related to the project, serving as secondary impacts (e.g., impacts to community health and well-being, changes in traditional practices and economies, and access to drugs and alcohol), can be difficult to fully appreciate and avoid. For example, the highway may increase the

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[3] *R.* v. *Sparrow*, [1990] 1 S.C.R. 1075 and *Delgamuukw* v. *B.C.*, [1997] 3 S.C.R. 1010; *Tsilhqot'in Nation v. British Columbia*, 2014 SCC 44.

[4] *Haida Nation v. British Columbia (Minister of Forests)*, [2004] 3 S.C.R. 511 at para. 35

overall amount of traffic entering the Northwest Territories, increasing the potential for vehicular incidents, wildlife disturbance, crime, and access to harmful substances, which may appear anywhere increased traffic is experienced. As a result, through this assessment, effort must be afforded to ensure that risks and adverse impacts are fully understood and minimized for all communities, including those communities' peripheral to or, like Acho Dene Koe First Nation, become pass-through areas. Similar effort is necessary to ensure that all communities impacted by this development receive appropriate net benefits to accommodate them but also to help the NWT as a whole flourish while mitigating the likely cumulative impacts of development. To best understand the impacts, a cumulative effects study ought to be conducted, and the impact on Treaty and Aboriginal rights, including our rights to hunt, harvest, and fish, should be accounted for. In so doing, the MVEIRB and the GNWT must reflect on the words of Justice Burke in *Yahey v. British Columbia:* "with more and more takings and development it becomes harder and harder for the Crown to fulfill its promise to Indigenous people that their modes of life would not be interfered with."[5]

Our Community's Potential Relationship to the Highway

Acho Dene Koe First Nation is in the southwest corner of the Northwest Territories and Dehcho Region, with our Traditional Territory extending into northern British Columbia and eastern Yukon. Our community's main population center is in Fort Liard, home to more than 450 people. Fort Liard is located approximately 330 km from the project's southern terminus (Wrigley). Though the impacts on our community may be less or more tangential compared to communities along the proposed corridor, it does not mean that these impacts won't be meaningfully felt.

Our community is located along the Highway 7 corridor (and Highway 77 in British Columbia), which is the main transportation route from British Columbia into the Northwest Territories. This route provides a critical link for our community, allowing for the transport of goods from southern parts of Canada, as well as providing access for our members to goods and services in Fort Nelson and elsewhere. Highway 7, along with Highway 1 and Highway 5, serve as the three primary transportation routes for traffic into the territory, and by extension, to the Mackenzie Valley Highway (from outside the territory). As a primary impact of this project on our community, we see this project driving increased traffic through Acho Dene Koe First Nation Traditional Territory along Highway 7.

In considering the full impacts of this project, we offer the following key concerns and recommendations for the project to support identifying and mitigating potential impacts. Additionally, Appendix A at the end of this letter outlines specific feedback based on the Developer's Assessment Report, for consideration by the Developer (GNWT) as well as the Mackenzie Valley Review Board.

We, however, preface our analysis and commentary of potential concerns and impacts by noting the lack of meaningful road traffic predictions included in the Developer's Assessment Report. It is imperative to have a detailed understanding of potential changes in traffic flow to and from the proposed Mackenzie Valley Highway, especially as it relates to out-of-territory transport. Further studies, including traffic modelling, are imperative to understand the full extent of the expected impact and, therefore, to inform mitigation discussions.

Impacts on Health and Well-being of Acho Dene Koe First Nation Members

The relationship between adverse impacts on health and well-being and major infrastructure and resource development projects has been documented frequently across Canada[6]. Without mitigations in place, there is a positive correlation between the occurrence of such projects and crimes (including assault and sexual assault),

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[5] *Yahey v British Columbia*, 2021 BCSC 1287 at para 520.

[6] Stienstra, D., Levac, L., Baikie, G., Stinson, J., Clow, B., & Manning, S. (2016). *Gendered and intersectional implications of energy and resource extraction in resource-based communities in Canada's North. Canadian Research Institute for the Advancement of Women.*

sexually transmitted infections (STIs), changes to family dynamics, as well as a decline in the exercise of traditional practices.[7]

These changes in health and well-being are associated with increases in transient workers or persons associated with a project, rotational work, changes in access to the land and opportunities to practice traditional activities[8].

Frequently, these impacts manifest disproportionately against women and members of the 2SLGBTQQIA community, because of domestic or intimate partner abuse, human trafficking, as well as reduced benefit realization from fewer education or job opportunities.[9]

Sections 13.1-13.5 of the Calls to Justice from the Missing and Murdered Indigenous Women and Girls report, speaking to the extraction and development industries, draw direct attention to these risks.

> *13.1 We call upon all resource-extraction and development industries to consider the safety and security of Indigenous women, girls, and 2SLGBTQQIA people, as well as their equitable benefit from development, at all stages of project planning, assessment, implementation, management, and monitoring.*
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> *13.2 We call upon all governments and bodies mandated to evaluate, approve, and/or monitor development projects to complete gender-based socio-economic impact assessments on all proposed projects as part of their decision making and ongoing monitoring of projects. Project proposals must include provisions and plans to mitigate risks and impacts identified in the impact assessments prior to being approved.*
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> *13.3 We call upon all parties involved in the negotiations of impact-benefit agreements related to resource-extraction and development projects to include provisions that address the impacts of projects on the safety and security of Indigenous women, girls, and 2SLGBTQQIA people. Provisions must also be included to ensure that Indigenous women and 2SLGBTQQIA people equitably benefit from the projects.*
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> *13.4 We call upon the federal, provincial, and territorial governments to fund further inquiries and studies to better understand the relationship between resource extraction and other development projects and violence against Indigenous women, girls, and 2SLGBTQQIA people. At a minimum, we support the call of Indigenous women and leaders for a public inquiry into the sexual violence and racism at hydroelectric projects in northern Manitoba.*
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> *13.5 We call upon resource-extraction and development industries and all governments and service providers to anticipate and recognize increased demand on social infrastructure because of development projects and resource extraction, and for mitigation measures to be identified as part of the planning and approval process. Social infrastructure must be expanded, and service capacity built to meet the anticipated needs of the host communities in advance of the start of projects. This includes*

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[7] Stienstra, D., Manning, S. M., Levac, L., & Baikie, G. (2019). *Generating prosperity, creating crisis: Impacts of resource development on diverse groups in northern communities. Community Development* Journal, 54(2), 215–232

[8] Shandro, J. A., Veiga, M. M., Shoveller, J., Scoble, M., & Koehoorn, M. (2011). *Perspectives on community health issues and the mining boom–bust cycle.* Resources Policy, 36(2), 178-186.

[9] Stienstra, D., Manning, S.M, Levac, L (2020). *More Promise than Practice: GBA+, Intersectionality and Impact Assessment.*

but is not limited to ensuring that policing, social services, and health services are adequately staffed and resourced.[10]

The Developer's Assessment Report details potential impacts, with a lens on disproportionate gender-based or identity-based effects within the Project Development Area (PDA), Local Assessment Area (LAA), and Regional Assessment Area (RAA), however, generally, we find that the geographic scope of the assessment does not appropriately consider farther afield (both upstream and downstream of the proposed development) locations which may still realize these impacts. The Northwest Territories is unique in considering the potential impacts of a highway project. Notably, the low roadway density, and overall lack of significant roadways mean that road-based traffic flow into the territory is highly constrained, with Highway 1, Highway 5, and Highway 7 serving as the only three major access points into and out of the territory. All out-of-territory traffic increases resulting from the Mackenzie Valley Highway will not simply originate in Fort Simpson (the southern-most community along Highway 1 considered within the RAA) but instead will flow from British Columbia or Alberta via Highway 7 and Highway 1 or 5, respectively. This overall increase in traffic flow, including through gravel rather than paved roads, must be considered and accounted for in the assessment.

In addition to traffic, a related issue is increased population density. Acho Dene Koe First Nation communities are already experiencing housing shortages, as is the Northwest Territories more generally. Though industry may bring economic opportunities, it also brings people who may be inclined to stay in border areas (between the Territory and British Columbia or Alberta). Acho Dene Koe First Nation itself is situated on the border of the province of British Columbia and Northwest Territories and is near Highway 7. The current infrastructure is not sufficient to support more bodies. Further, more people, depending on where they settle, may have a further cumulative impact on our ability to exercise our Treaty and Indigenous rights and pursue our traditional way of living. The introduction or expansion of industry must come hand in hand with realistic considerations of what the territory and our Indigenous peoples can tolerate.

Our concern regarding the geographic extent of the RAA (and thereby the assessment) as it relates to community health and well-being is an important one since the exclusion of effects assessment in communities such as Fort Liard limits the understanding the increase in traffic flow (and associated effects) will have on our community. Further, while we note that the Developer has identified several plans to work with impacted communities following the assessment to further understand impacts and develop programming to minimize those impacts on health and well-being proactively, the geographic extent describing which communities will be considered is not clearly defined. As a result, we are concerned that our community may be in a position where we are burdened with increased traffic and population density, leading to adverse impacts on health, community well-being, and our Treaty and inherent Indigenous rights, without these impacts being effectively understood, monitored, or responded to with adequate resources. We see the potential for this project to present unmitigated residual effects to our community.

In considering the geographic extent of adverse effects on community health and well-being, to properly understand the impacts of this project, we request that the Developer conduct additional baseline analysis and modelling to capture existing and predicted community health and well-being within all communities along Highway 1, 5, and 7. Further, we call on the Developer to clarify the Well-Being Adaptive Management Plan, Safety and Security Plan for Vulnerable Members, and other relevant plans to ensure that all communities along the Highway 1, 5, and 7 corridors be monitored for adverse impacts to the community health and well-being, as well as ensure proactive measures are in place to mitigate potential impacts, and further measures to respond to changes in community health and well-being. This includes but is not limited to defining pathways for

[10] Native Women's Association of Canada. (2019). *Missing and Murdered Indigenous Women and Girls Calls for Justice*. https://nwac.ca/assets-knowledge-centre/Web-MMIWG-calls-to-justice..new.pdf

collaborative program development with community leadership, appropriate resourcing and capacity for community programming, monitoring mechanisms, and triggers for action.

Impacts on the Exercise of Rights Along the Highway 7 Corridor

Overall, increased traffic, especially by transport trucks along roadways in the Northwest Territories, may increase stress to wildlife due to high-speed vehicles, noise, vibration, light, dust, and vehicular collisions.[11]

Increased road traffic and the associated increase in noise and human activity have been linked to a reduction in effective habitat availability for some wildlife species, which may deter wildlife harvested for food, as well as furbearing animals targeted by Acho Dene Koe First Nation trappers.

Additionally, the increased abundance of tourists, or transient persons through the Highway 7 corridor, and people moving to these areas may increase pressures on wildlife and fish due to increased hunting and fishing by non-Acho Dene Koe First Nation members. As a result, hunt and harvest opportunities for our members are likely to experience an overall decline.

The Highway 7 corridor is an important transportation corridor for Acho Dene Koe First Nation members. Additionally, the access that this corridor provides to the heart of Acho Dene Koe First Nation territory makes it a hot spot for historic and contemporary activity by Acho Dene Koe members. In Section 13.4.2.3 of the Developer's Assessment Report, the Developer suggests that traffic noise will not exceed the applicable threshold, triggering residual effects. We question this approach as for some, especially Elders within our community who recall Acho Dene Koe First Nation before significant highway development, any amount of road noise would be considered an intrusion and, therefore, could drive change behavioural patterns and the exercise of traditional practices within earshot. We suggest that contrary to the findings of the assessment report, Acho Dene Koe First Nation will experience adverse impacts to their inherent Aboriginal Rights because of effects that reasonably will alter their ability to exercise their rights.

Using previously collected information, Acho Dene Koe First Nation has identified many instances where sites of importance to Acho Dene Koe First Nation, where members conduct protected activities, or which are otherwise of interest to Acho Dene Koe First Nation are in near proximity to Highway 7. In summary, 49 cabins, 2 berry picking sites/areas, 12 trailheads, 8 trapline areas, and 4 moose/caribou/sheep hunting areas, are found within 500 m of Highway 7. Additionally, the corridor passes through important ungulate winter range habitat in British Columbia.[12]

Acho Dene Koe First Nation members use cabins along the Highway 7 corridor as central bases for hunting, fishing, berry picking activities, as well as recreation. The areas are already under threat from the cumulative impacts of historic oil and gas development, infrastructure, and logging. As a result, the protection of these lands is vital to the fabric of the Acho Dene Koe First Nation culture. Degradation by direct or further contributions to cumulative impacts continues to erode this fabric and damages our members' ability to discharge their Treaty and Aboriginal rights. The impacts that will be realized if this proposed project is authorized will negatively and irreversibly change how Acho Dene Koe First Nation members interact with our territory.

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[11] Government of Northwest Territories (Environment and Natural Resources). 2016. *NWT State of the Environment Report*. https://www.enr.gov.nt.ca/en/nwt-state-environment-report **[link not working, I have only found the highlight report from 2016: https://www.gov.nt.ca/ecc/sites/ecc/files/state_of_environment_highlights_2016.pdf]**

[12] British Columbia, Ministry of Forest, Lands, Natural Resource Operations and Rural Development – Wildlife and Habitat. 2021. https://catalogue.data.gov.bc.ca/dataset/ungulate-winter-range-approved

Increased Business Development Opportunities – Road Construction and Maintenance
The Mackenzie Valley Highway will be one of the largest public infrastructure projects in the history of the Northwest Territories. It is essential that, where possible, economic development benefits be offered back to Indigenous communities in the Sahtu and Dehcho, as well as others across the Northwest Territories, in priority to those outside of the territory.

The Acho Dene Koe First Nation sees economic benefits as an important offset for unavoidable or unmitigable impacts to communities in the Sahtu and Dehcho, which includes Acho Dene Koe First Nation. Therefore, we request that the Developer make clear targets and commitments for Indigenous inclusion in all aspects of the project, to ensure benefits to those communities are maximized.

Increased Business Development Opportunities – Community-Owned Businesses
One of the greatest potential benefits of the Mackenzie Valley Highway to our community is the economic opportunity that it presents.

The potential increase in traffic through the Highway 7 corridor is expected to bring more tourists and industry. As Fort Liard is the only settlement with services between Fort Liard and the Nahanni Butte turnoff, our community is well situated to attract motorists as they pass to and from the Mackenzie Valley Highway. As a result, there is potential for economic benefits through the sale of fuel, food, supplies, and crafts, as well as services related to tourism or industry (e.g., vehicle maintenance).

In ensuring that communities such as Acho Dene Koe First Nation are well positioned to realize these benefits, we note there is a need for the Developer, with support from other Government of Northwest Territories departments, to develop programming to ensure community-owned businesses can attract and service this traffic. This includes appropriate programming to support business development, marketing, and capital.
If you have any questions concerning our response, I will ask that you email our Lands Office at lands@adkfirstnation.ca

Thank you.

Yours truly,
ACHO DENE KOE FIRST NATION

Chief Eugene Hope

Cc. Brad Morrissey, Manager of Business Development (ADK Holdings Ltd)
Nick Leeson, Legal Counsel
Mark MacDougall, Lands Director (Consultant – Shared Value Solutions)
Chirag Patney, Lands Manager (Consultant – Shared Value Solutions)
Council

Appendix A: Specific Comments Regarding the Developers Assessment Report

Reference	Comment	Recommendation
Section 5.5.9.1 Traffic Volumes	For the purposes of the assessment, the Developer anticipates an average traffic volume of 50 vehicles per day (of various sizes) and will include: Local traffic travelling between communities, commercial traffic needed for community operations and resupply, traffic associated with operating small businesses, such as tourism, and industrial traffic to support exploration, development, operations and/or closure and reclamation of natural resource developments, such as oil and gas or forestry. We are concerned that the Developer does not appear to provide any rationale for why the number 50 vehicles per day was selected, nor is there a detailed breakdown of estimates of the point of origin or destination of the vehicles (i.e., an elaboration of the composition of anticipated traffic). Without this information, it is difficult to understand the broader impacts of this project beyond the limited extent of the highway corridor/RAA. We anticipate that the impact will be significantly higher than 50 vehicles, especially at the lower ends of the highway, including the connecting roads such as Highway 7, which passes through our Traditional Territory. In this case, and as a result of the increased noise, traffic, and general activity, animals, including the boreal caribou, on which we traditionally rely and have Indigenous rights to hunt and trap, will invariably go even further afield to escape the increased commotion of the roadway. This is particularly concerning given the sensitive nature of many of these animals, including their endangered or threatened statuses. We surmise that the 0.03% disturbance	We request that the Developer provide a baseline characterization of traffic on roadways reasonably considered to be leading to/from the future Mackenzie Valley Highway (specifically, Highway 1, 5, and 7). Additionally, as part of the effects assessment, we request that the Developer provide predicted traffic flows (broken down seasonally) for the Mackenzie Valley Highway as well as Highway 1, 5, and 7 leading to/from it. Estimates of traffic flow should be substantiated by existing or foreseeable development, migration, tourism, and/or other factors, or draw on comparable examples elsewhere in the Northwest Territories/Canada. When considering the disturbance to animal habitat, impacts, including increased traffic upstream and downstream of the development area, must be taken into account.

	estimation in the DAR is significantly too low and fails to account for the cumulative effects of the development. The impacts of the project, upstream and downstream, cannot be overstated and must be properly considered by way of this assessment.	
Section 8.2.1 Assessment Areas	The Regional Assessment Area (RAA) is defined as areas where potential direct, indirect, and induced effects of the Project may occur, which includes the communities in the Sahtu Region that are outside of the LAA, as well as the communities of Fort Simpson, Fort Good Hope Dél̨ne̹ and Colville Lake. We recognize the inherent difficulty of establishing an RAA for a project of this nature, especially given the unique context of the Northwest Territories and the population centres that exist. Indirect or induced effects may extend along the Highway 1 and Highway 7 corridors all the way to the respective borders with Alberta and British Columbia, as a result of increased traffic and flow of goods from more southern Canada.	We recommend that elements of the RAA be extended to consider impacts on all communities along the Highway 1 and 7 corridors to the borders with Alberta and British Columbia. This extension should consider the potential impacts of the project through construction and operation on public safety and social pressures (e.g., drugs, alcohol, crime, gender-based violence, and the spread of infectious diseases such as sexually transmitted infections (STIs)).
Section 8.2.2 The Project Will Affect the Availability of Drugs and Alcohol	The Developer proposes, as a mitigation measure to anticipated social pressures during construction and operations and maintenance, a commitment to establish a Mackenzie Valley Highway Well-Being and Adaptive Management Plan that includes measures to address the project's effects on community wellness and substance abuse and bootlegging.	We acknowledge this Plan as an important step but are concerned that this plan has not been developed and, therefore, is not available for review and comment. There is a serious concern that it will not be a satisfactory form of mitigation. The intended methodology to be used is ambiguous, and it is unclear whether it will appropriately address all effects associated with community well-being (for instance, human trafficking and violent crimes – which may exist as co-morbidities with increased drug and alcohol availabilities, are not described). This Plan must be co-developed with affected communities and be developed before final approval of this project.

Section 8.2.3 The Project Will Affect Public Safety	The Developer acknowledges that coinciding with the highway construction, operation, and maintenance will lead to an increase in the number of traffic accidents that will lead to serious injury or death. We agree with this, as well as the assessment that there are significant gaps in the ability for aid to be rendered in the event of accidents as a result of limited communication and emergency infrastructure. We want to highlight that in addition to those identified gaps, even in situations where an incident occurs near a population centre, existing health and emergency resources are very limited in most instances along Highway 1 and 7, leading to the proposed MVH. As a result, existing health and emergency resources may be easily overwhelmed by both surges and patients due to serious incidents, or generally by the increase in volume due to increased flow of traffic.	The Developer must consider the potential impacts on emergency and health resources in established population centres along the entirety of the Highway 1 and 7 corridors leading to (in addition to those found along) the proposed MVH. ADKFN foresees instances in which increased traffic entering the Northwest Territories from British Columbia may tax the already limited resources in Fort Liard as it is one of only a few population centres between Fort Nelson, British Columbia and Fort Simpson en route to the MVH.
Section 8.2.4 The Project is Likely to Result in Change in Demands for Social Infrastructure and Services	The Developer concludes that the effects of the project on changes in demands for social infrastructure and services (including policing and crime, health services, and social services) during all phases are expected to be adverse but of low magnitude, irregular, infrequent and reversible, therefore not significant. We disagree with this finding, as it overlooks much of the findings of the previous two subsections that note significant adverse effects on public safety and the availability of drugs and alcohol. We generally agree that incidents themselves may be irregular, as they may correspond with the presence of people, goods, or substances in a given location; however, given the severely limited resources in nearly all population centres in the Northwest Territories (excluding Yellowknife), a surge event in crime or demand on health services, may have lasting effects	We request that the Developer recognize that existing social resources may not be positioned effectively to handle increased demand volume or surge events and that these effects, although may be irregular, may be seasonal, locally of higher magnitude, and in some if not many instances irreversible through the life of the project. As a result, these effects may result in adverse impacts to communities that may be locally if not globally significant. Further analysis must be conducted on additional resource needs along the Highway 1 and 7 corridors as well as in communities along the proposed MVH project.

	on the health and well-being of others in the community or general public.	
Section 8.2.6.1 The Project Will Positively Affect Local Employment and GDP, and there will be Measures to Maximize Local and Indigenous Employment	The Developer states that it is anticipated that 50% of the 200-330 person contractor workforce will be from the Sahtu and Dehcho communities or elsewhere in the NWT, with the remaining coming from outside of the NWT. Additionally, in addressing concerns that southerners (those from outside of the NWT) will be hired for positions unless NWT residents are prioritized, an MVH Contractor Training and Employment Plan will be developed. Unfortunately, commitments to develop an employment plan fall short of explicitly making commitments to ensure that a specific proportion of Indigenous persons and/or NWT residents will be hired/contracted for this project. As a result, without firm commitments, we cannot consider this benefit realized.	We request that the Developer, make firm minimum benefit goals for Indigenous members and NWT residents, as well as other commitments regarding training and contracting NWT-owned businesses. These goals must be made clear and binding as part of the evaluation process such that it can feed into an overall assessment of net-project effects.
8.2.7 The Project Will have Several Positive Effects and Minimal Adverse Effects on Local Businesses	We generally agree with the Developer that local businesses will largely experience neutral or positive effects as a result of this project. Further, as part of the MVH Contractor Training and Employment Plan, there will be measures to support local hiring and business to support the realization of benefits for local businesses.	As part of the MVH Contractor Training and Employment Plan, the Developer, with support from relevant organizations and agencies within the Northwest Territories, should outline robust measures that can ensure local businesses maximize benefits, including but not limited to opportunities supporting marketing, capital growth, and diversification, that may have both direct and indirect benefits for communities as they may be able to better service increased traffic in the territory, generate wealth, and serve the communities in which they are located it.
8.2.9 The Project Will Have Minimal Effects on Harvesting and the Traditional Economy	The Developer concludes that this project will have minimal effects on harvesting and the traditional economy. Acho Dene Koe First Nation, like many other communities in the Northwest Territories, relies heavily on traditional and rights-based harvest, as well as economies that are derived from those practices. We anticipate that our community will benefit to an extent from	In considering the impacts this project will have on harvesting and traditional practice, it is important that the local context be considered along the major transport routes connecting to the MVH. This includes assessing the potential direct impacts of the increased presence and occupation of non-members/non-residents on perceptions or use of the land.

	commercial aspects of these practices as increased traffic through our community en route to the MVH will result in increased sales of crafts which use natural products such as fur, bark, stones, etc., however, we caution that the adverse impacts of increased traffic along Highway 7 should not be understated. Specifically, with the construction of Highway 7, our Traditional Territory was bisected. This changed how our community was able to access our lands, shifting away from water-based access to road-based access. With this shift, many of our members shifted to areas where they practiced traditional activities (e.g., hunting, fishing, and trapping) and erected temporary or permanent structures along the highway corridor. With the increase in traffic entering the Northwest Territories through British Columbia along Highway 7, we are concerned that lands used for cabins, staging and lands used for the exercise of rights may be disturbed, or adversely affected by increased traffic, and the presence of non-members. We can foresee the possibility of increased resource harvest pressures, as well as increases in transient occupation of lands and, in some instances, vandalism or unauthorized occupation of member-owned dwellings that occur along the Highway 7 corridor. These instances may, in turn, result in conflicts or modifications in behaviour among our members to avoid certain areas, resulting in shifts or reductions in traditional practices. As made clear by the aforesaid, there are serious cumulative adverse impact concerns that will affect various elements of our traditional way of life and our Treaty and Indigenous rights.	
Section 9.1.1 Summary of Assessment	The Developer elaborates on their determination that the Project's adverse effects are not significant even though	Impacts on public safety and social pressures are inherent in a project such as this but must be considered

	residual effects on public safety and social pressures are identified as specific. Specifically, they rationalized this determination by citing the many other effects that are identified as not significant, as well by noting that the Government of Northwest Territories will develop and implement follow-up and monitoring activities, including the development of a well-being adaptive management plan that will support the development of measures to address the adverse effects of the Project. We take issue with this determination and are concerned that the Developer has not fully considered the potential effectiveness of monitoring and follow-up measures. Within the Canadian context, substance abuse (especially those related to opioids such as fentanyl), alcoholism, and gender-based/intimate partner violence in Indigenous communities and vulnerable populations are considered at epidemic levels. To an extent communities within the Northwest Territories have been shielded where strict controls on availabilities of drugs and alcohol can be implemented (such as in remote communities), however, in other communities such as ours we have seen the impacts of substance abuse and violence adversely alter our community fabric. This is echoed elsewhere in Canada, especially in Indigenous communities and among vulnerable populations. We are concerned that many communities, including the Government of Northwest Territories as a whole, are not effectively positioned or supported to deal with the societal changes that will accompany the increased flow of people and traffic (along with societal pressures that accompany them). As a result, while public safety and social pressures are indeed identified as	more so given their disproportionate impact. As a result, we believe that the Developer must take additional measures to work with communities to flesh out meaningful strategies to anticipate and react to impacts on public safety and social pressures on a near territory-wide basis. We believe that this effort must be taken as part of the Environmental Impact Assessment process to consider the overall impacts and effects rather than simply establishing commitments to act on it at a later date.

	significant adverse effects, the ability of the Developer (with the backing of the entire territorial government) may be understating the potential adverse impacts and overstating the collective ability of communities and Government of Northwest Territories to mitigate these impacts.	
Section 9.5.3.2 Mitigation	The Developer notes that community members and leadership in Norman Wells and Tulita indicated there was a need to address existing health needs and service issues before the project is operational. In response, GNWT has committed to developing a Community Readiness Strategy that will include a Well-Being Adaptive Management Plan to address these concerns. This commitment has not been fleshed out into a plan that can be evaluated for effectiveness, and therefore, we raise concerns about whether it is indeed a suitable mitigation measure. Additionally, no information is provided about the implementation timeline or the geographic extent that will be covered by this plan.	We recommend that GNWT provide additional information in the form of a draft plan, terms of reference, or plan framework that allows ADKFN and other parties to review the efficacy of the plan. Further, we request that GNWT provide additional information about the temporal and geographic extent of the plan, as well as associated monitoring and adaptive management efforts. This information is critical to ensure that project-related effects in the PDA, LAA, RAA and beyond are appropriately identified, mitigated and responded to.
Section 13.1.1 Regulatory and Policy Setting	Section 13.1.1 outlines the Developer's approach to set thresholds for the acoustic environment. We find this approach flawed as it does not consider the full extent of the relationship Indigenous persons exercising their rights may have within the environment of their respective territory as they relate to the holistic experience.	Nuisance noise is far more nuanced and personal than the Guidelines and thresholds propose. Specifically, in areas such as the Northwest Territories, the soundscape is largely dominated by natural sounds. Any anthropogenically derived sounds may be viewed as an intrusion and may cause Acho Dene Koe First Nation members and animals on which we rely to exercise our inherent Indigenous rights to avoid areas. Therefore, we recommend the threshold for vehicular traffic be considered a long-term community annoyance, or one that is considered an annoyance at any point it is observed outside of the highway right-of-way. We further request additional analysis of increases in road traffic throughout

		the Highway 7 corridors, recommending applicable mitigation measures to minimize impacts on those exercising rights within the nearby Highway corridor.

Canadian Northern Economic Development Agency
Agence canadienne de développement économique du Nord

February 1, 2024

JoAnne Deneron
Chair
Mackenzie Valley Environmental Impact Review Board
Yellowknife, NT

Via: Online Review System

Government of Canada's Comments on the Mackenzie Valley Highway Project Developer's Assessment Report

Dear Ms. Deneron,

To support the Review Board's intentions to allow back and forth comments and questions that all parties can benefit from, the Government of Canada is providing this initial set of comments and recommendations (attached) on the Government of the Northwest Territories (GNWT) Department of Infrastructure's (INF) Mackenzie Valley Highway (MVH) Project Developer's Assessment Report (DAR).

As provided in the Online Review System's Item for Review of the MVH Project DAR, it is understood that the Review Board is encouraging reviewers and the developer to provide and respond to comments and questions as soon as possible, to support an efficient process. In response, the Northern Projects Management Office (NPMO) is submitting the attached comments on behalf of Fisheries and Oceans Canada (DFO), Environment and Climate Change Canada (ECCC), and Health Canada (HC). Crown-Indigenous Relations and Northern Affairs Canada, Natural Resources Canada, and Transport Canada have reviewed the DAR but do not have any comments at this time.

It is understood that there will continue to be opportunities to provide comments and recommendations on the proposed project as the environmental assessment (EA) proceeds. The Government of Canada appreciates the opportunity to provide these early comments on the DAR.

If you have any questions related to this correspondence, please contact Shannon Allerston at Shannon.Allerston@cannor.gc.ca or 867-445-7230.

Sincerely,

Adrian Paradis
Projects Director
Northern Projects Management Office
Canadian Northern Economic Development Agency

Government of Canada
Gouvernement du Canada

Canada

GCDOCS # 103867187
GCDOCS # 121508682

Topic	Reference	Comment	Recommendation
Fisheries and Oceans Canada (DFO)			
DFO 1: Shapefiles	General	DFO received a shapefile for the proposed right of way, existing bridges and proposed borrow locations and would like to thank the proponent. Additional shapefile information would be very useful for our review.	Please provide a shapefile for expected crossings (Figure 17.1), potential water withdrawal locations (Tables 5.7, 5.8), and the presence/absence of fish at those locations.
DFO 2: Edit	Volume 3: Section 17.1.1.1 last sentence	Please note that what was referred to as the "Fisheries Protection Program" of DFO is called "Fish and Fish Habitat Protection Program."	For future editing, as applicable.
DFO 3: Permafrost at culverts, insulation	Volume 3: Section 14, Table 14.5	Changes to terrain, soils, and permafrost are expected due to construction of borrow, quarries and culverts. Uneven temperatures can lead to decreased structural integrity. Table 14.5 notes that culvert design will include requirements for bedding materials and geotextile to protect surrounding permafrost from thaw. DFO would appreciate some additional information on whether this mitigation measure has proved to be effective in similar conditions, and whether other types of isolation (e.g., polystyrene) were considered.	Provide information (e.g., literature or lessons-learned from other roads) on the effectiveness of the use of geotextile membranes at culverts to maintain structural integrity, thus preventing fish passage issues. Provide information on whether other types of isolation (e.g., polystyrene) were considered and why they were not chosen.
DFO 4: Culvert Ice Blockages	Volume 3: Section 15.4.2.2 and Table 17.8	Mitigation measures to prevent barriers to fish passage due to ice blockages include thawing the ice by steaming, where needed to maintain flow.	Provide more information on how steaming will be conducted (e.g., will steam pipes be installed in the culverts?), and if steaming has been shown to be an effective method in other northern roads.
DFO 5: Permafrost at borrow locations	Volume 3: Section 15, Table 15.8	Table 15.8 notes that quarry operations will be located a minimum of 100 m from the ordinary high-water mark of any waterbody.	Provide information on whether quarry proximity to streams may impact permafrost at culvert locations and impact culvert integrity.
DFO 6: Fish passage issues due to permafrost thawing	Volume 3: Section 17, Table 17.12	Table 17.12. Thawing of permafrost was not included as an effect pathway and can lead to	DFO recognizes the proponent is aware of the potential impacts of thawing permafrost on culverts/fish passage, as they were included in

		fish passage issues by impacting structure integrity.	Chapter 14, in the draft Permafrost Protection Plan, and mitigation measures (i.e., isolation with geotextile) are proposed to be put in place. DFO recommends the Fish Section (Chapter 17) and Fish and Fish Habitat Protection Plan clearly note that permafrost degradation may impact fish migration, and include any baseline data on permafrost, mitigation measures to prevent thawing of permafrost, monitoring of permafrost and culvert structural integrity, and responses if permafrost thawing is observed at the stream crossing locations.
DFO 7: Geotechnical information	Volume 3: Section 14.4.1	The document states “As the design does not yet incorporate site-specific geotechnical information, the assessment of effects is based on the best available information. Additional geotechnical information to inform design will be collected once there is certainty of the alignment routing corridor (upon completion of the environmental assessment).”	Provide information on whether geotechnical information will be collected at crossings to inform culvert designs, and if not, then information on why.
DFO 8: Permafrost monitoring at culvert locations	Volume 3: Section 14.8 and Volume 5: Draft Permafrost Protection Plan	No information on permafrost monitoring at culverts was provided.	DFO suggests that temperature monitoring at culverts be conducted in stream crossings that are shown to comprise permafrost.
DFO 9: Culvert inspections and response	Volume 3: Section 17, Table 17.1 and Volume 5: Draft Fish and Fish Habitat Protection Plan	GNWT responded to community concerns about culverts that “Culverts will be periodically inspected to determine if they are functioning as per design (e.g., allow fish passage) and for evidence of erosion and sedimentation. If a barrier to fish passage or erosion and sedimentation issues are observed, corrective actions would be implemented to correct the problem."	Provide examples of which corrective measures would be implemented for different types of scenarios when culverts are found to not be functioning as intended (e.g., perched culvert).

DFO 10: Water withdrawal	Volume 3: Section 15.4.2.2 and Volume 3: Section 17, Table 17.2	DFO appreciates that the Proponent is committing to following DFO's under-ice and watercourse guidance for water withdrawal: -Cumulative water withdrawal shall not exceed 10% of the under-ice volume. -Cumulative flow alterations of less than +/- 10% of the magnitude of actual (instantaneous) flow in the river relative to a natural flow regime have a low probability of detectable negative effects on ecosystems. -Cumulative flow alterations that result in instantaneous flows less than 30% of the Mean Annual Discharge (MAD) have a heightened risk of effects on ecosystems that support fisheries 'highest risk'. Water availability data was calculated but there is no information on how flow data will be collected in-situ to determine how much water is available for collection.	Provide information on how flows will be measured in-situ prior to water withdrawal to ensure <10% of available flow is withdrawn and that withdrawal does not result in flows <30% MAD.
DFO 11: Water withdrawal guidelines	Volume 3: Section 17, Table 17.2	Table 17.2 states that "Water withdrawal for camp use and dust suppression from streams with low flow or withdrawal above 10% instantaneous flow or when below 30% mean annual discharge (MAD) may affect fish health or lead to stranding. DFO would like to clarify that the guidance is not to avoid withdrawing water when flows are <30% MAD, but when water withdrawal may result in flows <30% MAD (e.g., sometimes withdrawing when close to, but above 30% MAD can lead to impacts to fish).	Confirm water withdrawal guidelines were understood.
DFO 12: Water withdrawal – changes to fish habitat	Volume 3: Section 17, Table 17.2	Table 17.2 notes that winter water withdrawal from lakes and watercourses may impact fish habitat. DFO would like to add that water withdrawal year-round (not only in winter) can cause changes to fish habitat. Spawning,	Confirm that under measured parameters for fish habitat changes, water withdrawal from watercourses (year-round, not only in winter) shall be based on instantaneous flow (m^3/s) and mean annual discharge (MAD)(m^3/s).

		nesting, cover, migration, feeding can be impacted by inadequate flows.	
DFO 13: Water withdrawal - monitoring	Volume 3: Section 15.4.2.2 and Volume 3: Section 17	DFO did not see in the DAR if any monitoring of water withdrawal locations is planned. Monitoring is recommended to ensure downstream habitat, littoral habitat and inlets/outlets of lakes are not affected by water withdrawal.	DFO recommends including monitoring of water withdrawal locations in the Fish and Fish Habitat Protection Plan.
DFO 14: Culvert crossings rationale	Volume 3: Section 17 and Appendix 17A	Watercourse crossing widths seem to range from <1 m to more than 37 m (Site 919.9) Bridges generally are more protective of fish and their habitat. Culverts, even if initially installed properly, are more at risk of shifting and causing fish passage issues.	Provide a rationale on why bridges are not proposed to be installed, especially in larger watercourses.
DFO 15: Culvert crossings number	Volume 3: Section 17, Figure 17.1 and Appendix 5A	A total of 92 crossings have been identified along the project alignment. It is unclear if culverts will be used during access road construction, and if their number has been included in the calculation.	Confirm that the total number of culvert crossings includes those potentially needed during access road (to borrow pit/quarries) construction.
DFO 16: Fish and Fish Habitat Baseline	Volume 3: Section 17.2.2 and Appendix 17A: Sections 4.3.1 and 4.3.2	Four watercourses were not assessed for fish and fish habitat and another 22 watercourses were determined to be unlikely to provide fish habitat due to no defined channels and lack of presence or only isolated ponding of water. A non-defined channel can be fish habitat if it is used by fish at any point during their life history (e.g., if it provides food or shelter). For Example, Northern Pike spawn in flooded vegetation, sometimes outside of defined waterbodies.	Clarify if the fish and fish habitat baseline data from the 4 missing water courses will be collected, and that fish sampling will be conducted to confirm lack of presence of fish.
DFO 17: Loss or Alteration of Riparian Vegetation	Volume 3: Section 17.4.2.1	Section 17.4.2.1 discusses the alteration or loss of riparian vegetation due to the development activity during all project phases. The information is difficult to follow and visualize without a diagram. The following mitigation measure (Table 17.8) is	Provide clarity of the alteration or loss of riparian vegetation during all project phases, and what the 30 m buffer zone entails. DFO suggests the use of a visual diagram of the alteration or loss of riparian vegetation.

		also difficult to understand: “a buffer strip of undisturbed vegetation of at least 30 m wide will be maintained between the highway ROW and other areas to be cleared.”	
DFO 18: Watercourse crossing details	Volume 3, Appendix 7A: Tables 4.2 & 4.3	Tables are appreciated but additional information is needed to help with our review.	Please provide modified Appendix Tables 7A: 4.2 and 4.3 that include channel width and wetted width for each watercourse crossing. This will help us visualize the size of culverts that will be needed. If multiple culverts may be necessary, provide this information as well.
Environment and Climate Change Canada (ECCC)			
ECCC 1: Assessment of Residual Effects on Air Quality	Volume 3: Section 12.4	The Proponent has provided information on greenhouse gas (GHG) emissions in Section 12.4, however they are included in the section on air quality. Climate change and GHG emissions should be considered separately from air quality.	Environment and Climate Change Canada (ECCC) recommends the Proponent consider GHGs and climate change in a separate section from air quality. In doing so, ECCC recommends the Proponent follow the Strategic Assessment of Climate Change (SACC, www.strategicassessmentclimatechange.ca) for guidance on the consideration of climate change and GHG emissions. The SACC provides guidance on the quantification of GHG emissions, consideration of carbon sinks, mitigation measures (Best Available Technologies [BAT] / Best Environmental Practices [BEP]) and net-zero plans.
ECCC 2: Residual Effects	Volume 3: Section 12.4.3.3	The Proponent has provided a GHG emission estimate in Table 12.9, however the Proponent has not provided details, methods, or assumptions associated with these GHG emission values.	Please include details for the GHG emission calculations, including all data, methods, and assumptions associated with the GHG emission calculation.
ECCC 3: Residual Effects and Climate Resilience Assessment	Volume 3: Section 12.4.3.3 and Appendix 24A	There are discrepancies between GHG emissions presented in Section 12.4.3.3 and those in the Climate Resilience Assessment (Appendix 24A). Table 12.9 states GHG emissions during operations will be 3,633 t/yr.,	Can the Proponent confirm which of the GHG emission estimates are accurate and ensure that GHG emissions presented in the report are consistent?

		while Appendix 24A states emissions will be 3,809 t/y.	
ECCC 4: Residual Effects and Climate Resilience Assessment	Volume 3: Section 12.4.3.3 and Appendix 24A	It does not appear that the Proponent included the GHG emissions from land use change in their GHG emissions calculation. This would result in an underestimation of GHG emissions for both construction and operational emissions. The project activities will result in land use change, so this GHG emission source should be included.	ECCC recommends the Proponent include an estimate of the GHG emissions from land use change for construction and operational activities including the clearing and burning of vegetation.
ECCC 5: Effects Pathways and Climate Resilience Assessment	Volume 3: Section 12.4.2.1 and Appendix 24A	Carbon sink impacts should be evaluated separately from land use change GHG emissions. Land use change impacts result in immediate emissions (ie. from land clearing and burning), while carbon sinks represent a loss in carbon storage. These should be two separate evaluations. The Proponent did not evaluate the project's impacts on carbon sinks, despite having a Project Development Area of 2315.2 ha. Appendix 24A mentions the consideration of carbon sink emissions, however this value is included only for operations and not for construction.	ECCC recommends the Proponent perform a qualitative and quantitative assessment of the project's impacts on carbon sinks. ECCC recommends the Proponent calculate the natural carbon sink capacity of the project footprint, and calculate the sum of this lost carbon sink capacity, measured as carbon emissions or removals. The Proponent should include the methods used, data, and all assumptions made for both construction and operations.
ECCC 6: Assessment of Residual Air Quality, Climate Resilience Assessment, and GHG Mitigation Actions	Volume 3: Section 12.4 Table 12.7 and Appendix 24A Section 3.5	Section 12.4 Table 12.7 and Appendix 24A Section 3.5 lists mitigation measures for GHG emissions, however the Proponent did not evaluate the impact these potential mitigation measures would have on GHG emissions.	ECCC recommends the Proponent perform a BAT/BEP determination for the project, by evaluating the mitigation measures and determining their impact on the Project's GHG emissions.
ECCC 7: Assessment of Potential Effects on Air Quality, and Use of Tier 4 off-road	Volume 3: Section 12, and Table 12.7	In reference to Table 12.7 of Section 12 of the Developer's Assessment Report, ECCC supports the mitigation measures for dust control, regular maintenance of vehicles and equipment, and limiting of equipment idling to	ECCC strongly recommends that the Proponent uses Tier 4 off-road engines.

engines to lower CAC emissions		reduce GHG and criteria air contaminants (CAC) emissions. ECCC also supports the mitigation measure of encouraging the contractor to use modern equipment that has lower GHG emissions, and ECCC would appreciate a similar mitigation measure targeting CAC emissions. For example, the use of off-road engines certified to the Tier 4 emission standard reduces emissions of particulate matter (PM) and nitrogen oxides (NOx) by 90% relative to older engines.	
ECCC 8: Assessment of Potential Effects on Air Quality, GHG and CAC emissions estimates	Volume 3: Section 12, Table 12.8 and Table 12.9	ECCC appreciates that the Proponent has provided CAC emission estimates (Section 12, Table 12.8) and GHG emission estimates (Section 12, Table 12.9) for each project phase or activity, as well as overall annual Project GHG emission estimates (Appendix 24A, Table 4). However, the calculations performed to obtain these emissions estimates are unclear. The calculations used and how they were used will have an effect on the accuracy of the GHG and CAC predictions for each project component and the project as a whole.	ECCC recommends the Proponent provide more information on the calculations performed to obtain the CAC and GHG emissions estimates. ECCC also recommends the Proponent provide emissions estimates for machines and engines to be used in the project.
ECCC 9: Assessment of Potential Effects on Air Quality, Inventories of final machines and engines	Volume 3: Section 12 and Appendix 24A ,Table 7 to Table 14	In reference to Tables 7 to 14 of Appendix 24A of the Developer's Assessment Report, ECCC appreciates that the Proponent has provided inventories of potential machines and engines to be used in the Project. Once finalized, updated inventories of the final machines and engines to be used in the project should be provided and, accordingly, GHG and CAC emissions estimates updated (e.g., in Section 12, Tables 12.8 and 12.9; in Appendix 24A, Table 4).	ECCC requests that the Proponent provides updated inventories of the final machines and engines to be used in the project and as requested in ECCC 8 updated GHG and CAC emissions estimates.

ECCC 10: Analytical Assessment Techniques, CAC and GHG emission factors	Volume 3: Section 12.4.1	Although the Proponent has provided the sources of CAC and GHG emission factors (Section 12.4.1), the values of the emission factors that have been used to calculate the CAC and GHG emissions estimates in the Developer's Assessment Report are unclear.	ECCC recommends that the Proponent list the values of the emission factors that have been used to calculate the CAC and GHG emissions estimates.
ECCC 11: Quarrying	Volume 1: Section 5.5.5	The Proponent indicated that approximately nine of the borrow sources and quarries used for construction will remain open as material sources for maintenance of the highway. The candidate permanent borrow and quarry sources are listed in Table 5.10. These borrow sources and quarries will have permanent access roads and may be operated year-round, or intermittently. Activities to occur at these locations include annual blasting, crushing, sorting, and stockpiling of granular material, primarily during summer. Despite the rock geochemical investigations at borrow/quarry sources to prove material volumes, quality, and acid rock drainage (ARD)/metal leaching (ML) potential (sections: 5.4.5.1 Material Requirements and 5.4.5.2 Material Geochemistry – Acid-Rock Drainage and Metal Leaching Potential), ECCC noted that there is no indication that the Proponent has any plan to monitor seepage from the stockpile in the permanent borrow and quarries that will have borrow material stockpiled. The monitoring is to ensure that any seepage from the stockpile does not cause adverse effects to the environment.	ECCC recommends that the Proponent develop a monitoring program to monitor seepage from the stockpiles in the permanent borrow and quarries that will be operated year-round to ensure that any seepage from the stockpiles does not contain deleterious substances.
ECCC 12: Assessment of Potential Effects on	Volume 3: Section 12 , Table 12.6,	Table 12.6 explains the timing of physical activities and indicates borrow source and quarry development and operations, as well as	Mindful of technical and logistical limitations as well as other environmental impacts, ECCC recommends that an additional mitigation

Air Quality, Project-Environment Interactions with Air Quality, Potential Effects and Mitigation Measures for Air Quality, and Residual Effects Likely to Interact Cumulatively	Table 12.7, and Section 12.5.1	material haul, is planned to take place year-round. Table 12.7 shows mitigation measures planned for air quality, and ECCC appreciates the inclusion of these measures. However, there is strong seasonality for the impacts of project emissions, especially for sections of the road in the valley near the river. During the late autumn and early winter, frequent strong surface-based temperature inversions occur throughout the region that vertically trap emissions, and diurnal variations are very weak due to brief and minimal solar insolation. The inversion is deepest over the valley bottom where the coldest temperatures occur. Additionally, the sides of the valley inhibit lateral dispersion of emissions, and the along-river elevation gradient is too weak for dispersion by drainage. Furthermore, Section 12.5.1 indicates additional emissions from traffic using the Mackenzie Valley Winter Road commencing in mid-winter.	measure be adopted whereby construction activities during the winter months be focused on sections of the highway that will be located away from the river and higher up the valley sides. This would result in improved dispersion of project emissions, and would not impact users of the winter road.
ECCC 13: Assessment of Potential Effects of Accidents or Malfunctions	Volume 4: Section 25	The Proponent states "To reduce the chance of accidents happening, and to then reduce potential harm if they do happen, the GNWT will have several important management plans like a Spill Contingency Plan and Emergency Response Plan in place." This does not address what will be included in those plans. Providing this information will allow ECCC and other parties to understand the contingencies in place and any potential gaps that might exist. Risk assessment, especially in relation to the chemical and physical properties of toxic and hazardous substances, plays an integral part in	ECCC recommends that the Proponent consider worst-case and alternative accident scenarios that could be caused by the Project. ECCC recommends proponents document their complete inventory lists of emergency spill response equipment, including their strategic locations relative to likely accident and malfunction sites and/or to likely pathways to sensitive environmental receptors such as aquatic areas and waters frequented by fish and migratory birds. Detailed spill response strategies for each spill scenario type are also recommended.

		the development of ECCC's recommendations to proponents. Within this area of expertise, ECCC scientists analyze worst-case and alternative accident scenarios, which allows them to formulate comments and recommendations with the view to minimizing unlikely but still possible environmental and human health risks."	
Health Canada (HC)			
HC 1: Clarifying references to seasons and timing of activities	General Volume 3: Section 12.3, Table 12.6, Section 13.3, Table 13.4, and Section 15.3, Table 15.7	Several occurrences in the Developer's Assessment Report (DAR; e.g., Tables 12.6, 13.4, and 15.7) describe the timing of physical activities using seasons (e.g., summer and winter). Given the Project location, the local seasons and seasonal conditions do not necessarily align with calendar definitions for each. Use of calendar months instead could help ensure a shared understanding of specific timing of potential interactions between the planned physical activities and valued environmental components.	Health Canada (HC) recommends that the DAR specify the approximate months during which physical activities (construction and operation/maintenance) are planned.
HC 2: Location of human receptors for assessment of potential effects on air quality, noise, and human health; Assessment of Residual effects on air quality, and Mitigation	Volume 1: Section 1.4.4, Volume 3: Section 12.1, Figure 12.1.4.1, Figure 12.1, Section 13.1.4.1, Figures 13.1 to 13.4, Section 12.4, Section	In the DAR, locations of communities are presented on maps of the Project Area and study areas, but it is unclear whether there are other specific locations where human receptors might be present within the Local Assessment Area (LAA) or Regional Assessment Area (RAA). For example, on pg. 12 of the "What We Heard Report", there is mention of local cabins, but it is unclear where those are located. Also, the DAR concluded low potential for adverse residual effects from dust emissions due to sufficient distance separating dust sources from nearby residential receptors, but it is unclear whether this conclusion holds for all human receptors. For HC to understand how the Project	HC recommends that the DAR includes information about any additional potential locations for human receptors, including cabin or traditional land use locations. The characterization of potential receptors would typically include the distance to the project's LAA and RAA for each receptor, information about the type of receptor (e.g., permanent or seasonal residence, traditional land user), and any associated assumptions or limitations.

	14.2.2, and Section 12.1, p.12-3 to 12-8.	might impact human health, it is necessary to understand where people are located in the area and how they might interact with the Project during different project phases.	
HC 3: Noise assessment for all potentially impacted communities, and Assessment of Potential Effects on Noise	Volume 3: Section 13.4.2.2, Figure 13.5, and Section 13.4.2.3, Table 13.6.	In Figure 13.5 and Table 13.6, the location and noise exposure levels are depicted for the most impacted receptors in Wrigley for the construction and operations/maintenance phases. It is not clear whether the noise assessment also considered other receptors/communities along the linear infrastructure pathway (e.g., Tulita) which could also be exposed to project-related noise.	HC recommends confirming whether receptors in communities other than Wrigley were considered for the noise assessment. If so, HC recommends that modelled noise levels from the project at these receptor locations be presented in a table or on a map. If not, provide a justification as to how the selected receptors shown in Figure 13.5 would be representative and protective of all local receptors.
HC 4: Noise complaint tracking and response system, Assessment of Potential Effects on Noise, and Follow-up and Monitoring	Volume 3: Section 13.8	Section 13.8 indicates that a system to track complaints and responses to public feedback regarding noise will be developed. HC supports this approach and provides recommendations in the next column for development of the noise complaint resolution plan. Once a complaint resolution program has been developed, HC could provide further comments.	HC recommends that the complaint resolution plan include: 1. A description of the noise complaint resolution process for all project phases, including how information related to the complaint investigation process will be provided to potentially impacted residents and communities; 2. A commitment to address Project impacts on a case-by-case basis through community consultation, including possible additional noise monitoring; and 3. A commitment to implement noise mitigation measures at specific receptor locations, if all other forms of mitigation have proven ineffective.

February 28, 2024

JoAnne Deneron
Chair
Mackenzie Valley Environmental Impact Review Board
Yellowknife, NT

Via: Online Review System

Government of Canada's Comments on the Mackenzie Valley Highway Project Developer's Assessment Report

Dear Ms. Deneron,

To support the Review Board's intentions to allow back and forth comments and questions that all parties can benefit from, the Government of Canada is providing this second set of comments and recommendations (attached) on the Government of the Northwest Territories (GNWT) Department of Infrastructure's (INF) Mackenzie Valley Highway (MVH) Project Developer's Assessment Report (DAR).

As provided in the Online Review System's Item for Review of the MVH Project DAR, it is understood that the Review Board is encouraging reviewers and the developer to provide and respond to comments and questions as soon as possible, to support an efficient process. In response, the Northern Projects Management Office (NPMO) is submitting the attached comments on behalf of Fisheries and Oceans Canada (DFO), Environment and Climate Change Canada (ECCC), and Health Canada (HC). Crown-Indigenous Relations and Northern Affairs Canada, Natural Resources Canada, and Transport Canada have reviewed the DAR but do not have any comments at this time.

It is understood that there will continue to be opportunities to provide comments and recommendations on the proposed project as the environmental assessment (EA) proceeds. The Government of Canada appreciates the opportunity to provide these early comments on the DAR.

If you have any questions related to this correspondence, please contact Shannon Allerston at Shannon.Allerston@cannor.gc.ca or 867-445-7230.

Sincerely,

Adrian Paradis
Projects Director
Northern Projects Management Office
Canadian Northern Economic Development Agency

Topic	Reference	Comment	Recommendation
Fisheries and Oceans Canada (DFO)			
DFO 19: Bull Trout/SARA	Volume 3, Sub-section 17.2.2 and Appendix 17A, Sub-section 4.2.1.5	Please note that Bull Trout (Western and Arctic populations) are currently under reassessment by COSEWIC and may be listed as Threatened after the assessment (potentially as early as 2025). If the listing of Bull Trout is changed, species at risk permits and a reassessment of fish and fish habitat would be required for the project. Bull Trout populations have declined in Alberta and become threatened due to anthropogenic impacts of linear development (i.e., roads, pipelines, etc.). Bull Trout protections must be implemented early to insure Bull Trout populations do not decline in the Mackenzie Valley. In addition, DFO must consider the application of a precautionary approach when making a decision under the *Fisheries Act.* The precautionary principle recognizes that in the absence of scientific certainty, conservation measures can and should be taken when there is knowledge of a risk of serious or irreversible harm to the environment and/or resources using best available information.	DFO recommends the proponent use a precautionary approach in regards to Bull Trout to ensure their protection. This could include increased monitoring and protections in the absence of definitive baseline studies.
DFO 20: Bull Trout	Volume 3, Sub-section 17.2.2 and Appendix 17A, Sub-section 4.2.1.5	It is stated in the DAR that “it has been suggested bull trout in the eastern tributaries of the Mackenzie River, such as those within the RSA are individuals from tributaries on the west side of the Mackenzie River in search of feeding or overwintering areas.” However, the DAR also states that “Bull Trout are not expected to occur	DFO recommends the proponent provide information on why the habitat at the proposed crossings is unsuitable for Bull Trout, including for feeding and cover. DFO recommends the proponent use a precautionary approach and not exclude the

		in the watercourses assessed during this study due to the lack of suitable habitat." No rationale was provided to support the statement that watercourses are not expected to support Bull Trout. All life-stages of Bull Trout and/or potential habitat should be protected unless current local evidence confirms the absence of the species. This should include smaller streams and tributaries that may provide rearing habitat for smaller fish and cover for fish during higher flows in the Mackenzie River. A precautionary approach should provide protection for habitats that may not have robust sampling to determine the use by fish that may be present.	possibility that some of these streams may support Bull Trout.
DFO 21: Existing Structures	Volume 1, Sub-section 5.1	The project description states "Operations and maintenance of the Mackenzie Valley Winter Road (MVWR) as required for public safety, including repair or upgrades of existing watercourse crossing structures, until such time that segments of the Mackenzie Valley Highway (the Project) are opened to traffic and replace the MVWR. All existing watercourse crossing structures (bridges and culverts) along the MVWR as well as the Great Bear River Bridge (after it is constructed) will be integrated into the operations and maintenance of the Project". As the operation and maintenance of the existing crossing structures will eventually be integrated into the current scope, information on the existing crossing structures should be provided in the DAR. At a minimum,	DFO recommends the proponent provide information on existing structures, including photographs, construction dates, crossing width, and when maintenance/upgrades are expected to be required.

		photographs, crossing width, construction dates, and expected maintenance/upgrades should be provided.	
DFO 22: Community Engagement	Volume 3, Sub-section 17.9, Table 17.1	Community engagement participants reported that erosion and sedimentation are changing the water, which is affecting fish, including fish migration; participants reported that Arctic grayling are declining because there is a lack of silt fencing. There is no information on whether these concerns were investigated.	Please provide information on whether these concerns were investigated, and any result from this investigation.
DFO 23: Culvert Inspections	Volume 3, Section 17 and Volume 5, Section 3.	The section notes “During operations, monitoring will include routine periodic inspection of culverts to determine if they are functioning as per design (e.g., allow fish passage) and for evidence of erosion and sedimentation.” In the Fish and Fish Habitat Protection Plan, post-construction monitoring is only proposed pre-freshet. To determine if culverts are functioning as designed, inspections/monitoring should also be conducted periodically during freshet, during low flows, and in frozen conditions.	DFO recommends inspections/monitoring be conducted periodically pre-freshet, and also during freshet, low flows, and in frozen conditions.
DFO 24: Sahtu crossings numbers	Volume 3, Section 17 and Appendix 17A.	Section 17 states that there are 41 crossings in Sahtu Region while 43 are stated in Appendix 17A. Please confirm how many crossings are expected in the Sahtu Region.	Please confirm how many crossings are expected in the Sahtu Region.
DFO 25: Mitigations	Volume 3, Sub-section 17.4.4.3	Permafrost protection is not included as key mitigation measures used to avoid or reduce potential effects on fish and fish habitat.	Include permafrost protection as key mitigation measure used to avoid or reduce potential effects on fish and fish habitat.

		Permafrost degradation at the culverts can impact structural integrity.	
DFO 26: Baseline Sampling	Volume 3, Section 17 and Appendix 17	Field sampling was conducted in September 2021. Habitat and fish use can change during higher flows. Please advise if sampling will be conducted in spring to inform culvert designs and improve knowledge of fish use/presence.	Please confirm if fish sampling will be conducted in spring to inform culvert designs and improve knowledge of fish use/presence.
DFO 27: Sahtu Crossings photographs	Volume 3, Appendix 17	No photographs were provided of the 2021 assessment of the Sahtu Region crossings.	Please provide photographs of the Sahtu Region crossings assessed in 2021.
DFO 28: Photographs	Volume 3, Appendix 17	Only photographs of the Dehcho Region crossings assessed in 2021 are provided. DFO would appreciate photographs of every crossing, even the ones not assessed in 2021.	Please provide photographs of every proposed crossing.
DFO 29: Table change	Volume 3, Appendix 17, Table 4.2	In addition to stream width (As requested in Round 1 of comments), DFO would appreciate a column be added in this table that identifies what year/month assessments were conducted at each crossing.	Please add a column in this table that identifies what year/month assessments were conducted at each crossing.
Environment and Climate Change Canada (ECCC)			
ECCC 14: Mitigation of Nitrogen Loading Due to Use of Explosives	Volume 3: Section 16, Sub-section 16.4.2.2.4	Sub-section 16.4.2.2.4 of Volume 3 in the Assessment Report highlights four pathways through which nitrogen compounds from blast residue can enter waterbodies and the fourth is "by leaching of undetonated explosive from the blast rubble and quarry materials." Given that the quarried material will be spread over the length of the proposed highway, preventing nitrogen-rich runoff into the environment and water will be critical and proposed mitigation measures must be effective over extended areas. The list of mitigation measures proposed focus on activities at the quarry, with the exception of a proposed Explosive Management	ECCC recommends the Proponent discuss proposed mitigation measures to prevent leaching of undetonated explosives from quarried materials that would be effective over the extended area over which the materials will be spread.

		Plan, of unknown content since it has yet to be developed.	
ECCC 15: Water Quality Boundaries	Volume 3: Section 16, Sub-sections 16.1.4.1, 16.2.3, and 16.4.3.1.1	Sub-section 16.1.4.1 of Volume 3 in the Assessment Report defines assessment area spatial boundaries for both water and sediment quality, and groundwater quality. The area boundaries are smaller for groundwater than for water quality. It is not clear how and why these restricted boundaries were chosen for groundwater. Possible influences of excavations with groundwater chemistry are discussed in sub-section 16.4.3.1.1 and "Borrow source excavations target glaciofluvial and fluvial materials for construction fill that also tend to be high permeability and well drained." Groundwater flow velocity in high permeability materials can be high under sufficient hydrological gradient, so impacts of excavations on groundwater could potentially be further reaching.	ECCC recommends the Proponent explain how they determined 0.5 and 5 km buffers from the road were appropriate local and regional assessment areas for groundwater quality.
ECCC 16: Water Quantity, Water and Sediment Quality	Volume 3: Section 15 and Section 16	Several places in the document note insufficient data to characterize existing conditions, which makes it impossible to estimate the potential impact of the project or monitor for changes to reference conditions caused by the project. Water is a dynamic component of the environment with important seasonal and interannual changes, which means that elements like active layer thickness, water flow and levels, and water chemistry need to be monitored over extended periods. The long timelines of this project suggest that there is sufficient time to collect the missing data.	ECCC recommends the Proponent explain how they will address the current shortage of data necessary to establish existing conditions for quality of water, groundwater and sediment, and quantity of water and groundwater.

		In some of the instances where insufficient data was documented, collection of further data was included as an activity, though there are few details. The timing proposed is not always appropriate, since data need to be collected prior to construction activities in order to establish reference conditions. A strategy to collect the missing data would help the proponent plan the work and allow reviewers evaluate if all important elements were included. Elements for which more data is necessary include water quality (sub-sections 16.2.2, 16.6.3 & 16.7.2), groundwater quality (sub-section 16.5.3.3), sediment quality (sub-section 16.6.3), water quantity (sub-sections 15.2.2 & 15.7.2) and groundwater quantity (sub-section 15.5.4.3). Without knowing the existing conditions, effects cannot be assessed. Data is required to establish the existing conditions and assess effects of the project, but also to identify changes to the environment in the future.	
ECCC 17: Construction Timing and Potential Effects on Air Quality	Volume 3: Section 12.0, Table 12.6, Table 12.7, and Sub-section 12.5.1	Table 12.6 explains the timing of physical activities and indicates borrow source and quarry development and operations, as well as material haul, is planned to take place year-round. Table 12.7 shows mitigation measures planned for air quality, and ECCC appreciates the inclusion of these measures. However, there is strong seasonality for the impacts of project emissions. During the late autumn and early winter, frequent strong surface-based temperature inversions occur throughout the	ECCC recommends that additional mitigation measures be adopted that take into account seasonal variability of construction impacts being mindful of technical and logistical limitations as well as other environmental impacts. This may include focusing construction activities during the winter months on sections of the highway that will be located away from the river and higher up the valley sides, and focusing construction activities during the summer months away from

		region that vertically trap emissions, and diurnal variations are very weak due to brief and minimal solar insolation. The inversion is deepest over the valley bottom where the coldest temperatures occur. Additionally, the sides of the valley inhibit lateral dispersion of emissions, and the along-river elevation gradient is too weak for dispersion by drainage. Furthermore, sub-section 12.5.1 indicates additional emissions from traffic using the Mackenzie Valley Winter Road commencing in mid-winter. The impact of construction emissions near the river is lessened during the warmer months when vertical dispersion is improved. Conversely, construction-related fugitive dust emissions near communities is likely to be greater during the warmer months owing to drier conditions. Mitigation measures should consider seasonal variability to reduce impacts of project emissions on the various receptors.	communities thereby reducing fugitive dust impacts on residents.
ECCC 18: Proactive Air Quality Monitoring	Volume 3: Section 12.0, Sub-section 12.4.2.3	The proponent mentions that "monitoring will also be initiated on a case-by-case basis should any complaints related to air quality occur from Indigenous Governments, Indigenous Organizations or other affected parties as a result of project activities." Given that construction activities are expected to extend for up to 10 years and that sensitive receptors may be in close proximity to these activities, proactive monitoring could prove to be prudent.	ECCC recommends that, where feasible, suitable proactive monitoring of impactful criteria air contaminants be performed near sensitive receptors during the construction phase to enable prompt adjustments in mitigation measures.
ECCC 19: Government Department Roles	General Comment	The Government of the Northwest Territories (GNWT) department of Infrastructure is the proponent for the project and has received guidance and advice from various other internal	ECCC recommends the proponent clarify the roles of both the department of Infrastructure as well as the expert departments at GNWT, including how these expert departments will

		departments on the development of the Mackenzie Valley Highway Project Developers Assessment Report. Expert departments like Environment and Climate Change hold regional data and expertise that may be important in determining the impacts of the project on various Valued Components.	participate in the EA, such as providing advice and information within their possession and oversight.
ECCC 20: Application of SARA	Volume 2: Sub-section 8.3 and Section 10 Volume 3: Section 20, Appendix 20A, and 20C	Based on ECCC's review of the proposed route, it is unclear if the proposed route crosses federal lands, or just passes close to them. A permit may be required from ECCC (section 73 of the Species at Risk Act [SARA]) for activities that affect a listed terrestrial wildlife species, the residences of its individuals or any part of its critical habitat where those prohibitions are in place. Such permits may only be issued: if all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted; all feasible measures will be taken to minimize the impact of the activity on the species, the residences of its individuals or its critical habitat; and if the activity will not jeopardize the survival or recovery of the species. SARA prohibits against the killing, harming, harassing, capturing, taking, possessing, collecting, buying, selling or trading of individuals of endangered, threatened and extirpated species listed in Schedule 1 of the Act. The Act also contains a prohibition against the damage or destruction of their residences (e.g. nest or den). These prohibitions apply to:	ECCC recommends that the Proponent: - identify if any federal lands fall within or close to the current project routing, and if present, where they are located; - provide information on any associated SARA permit application that may be required; and - provide a timeline for finalizing the routing.

		• all endangered, threatened and extirpated species listed in Schedule 1 of SARA when found on federal lands in a province, or lands under the authority of the Minister of the Environment or the Parks Canada Agency in a territory • all endangered, threatened and extirpated migratory birds listed in Schedule 1 of SARA and protected by the Migratory Birds Convention Act, 1994, anywhere they occur, including private lands, provincial lands and lands within a territory; and • all endangered, threatened and extirpated aquatic species listed in Schedule 1 of SARA, anywhere they occur, including private lands, provincial lands and lands within a territory. SARA also prohibits destroying any part of critical habitat. Critical habitat is identified in species recovery strategies and/or action plans. The Act requires that critical habitat on federal lands, or for aquatic species anywhere, be legally protected by stewardship agreements under SARA, by other legal means under SARA, by other federal legislation or by the SARA prohibition within six months after it is identified. Furthermore, prohibitions may be in force on land other than federal land pursuant to other orders or regulations under SARA. It is possible that additional prohibitions may come into force in the future through Orders in Council for individuals, residences, and critical habitat on non-federal lands and/or through a Ministerial Order for critical habitat on federal lands. It is	

		also possible that, over the course of the assessment or after the assessment, additional species could be listed under SARA; permits may be required for project activities that affect these additional species. Proponents are advised to monitor for such developments on the SARA Registry https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html Further information on permits under SARA is available here: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/permits-agreements-exceptions.html It is the Proponent's responsibility to identify any land under federal responsibility within the project routing.	
ECCC 21: Guiding Principles for Mitigation approaches, Including Offsetting.	Volume 2: Sub-section 8.3 and Section 10 Volume 3: Section 20 and Section 21	In mitigation of potential impacts to biodiversity and species at risk, ECCC has outlined guiding principles for mitigation approaches, including offsetting. Refer to the Operational Framework for Use of Conservation Allowances for further details https://www.canada.ca/en/environment-climate-change/services/sustainable-development/publications/operational-framework-use-conservation-allowances.html.	ECCC recommends that the Proponent describe if the Operational Framework for Use of Conservation Allowances and general principles were considered during the development of the DAR. If so, provide details on how they were used or why the framework's principles were not incorporated in the DAR.
ECCC 22: Migratory Bird Data	Volume 2: Section 20, Appendix 20A, and 20C.	ECCC-Canadian Wildlife Service (CWS) has access to more recent data collected from the Mackenzie Valley Winter Road corridor on migratory birds than what appears to be present/referenced in the DAR. There may also be more recent data available from other	ECCC recommends that the Proponent: - incorporate the most up-to-date and available migratory bird data into the assessment of the proposed project, to increase confidence in their conclusions on residual impacts to migratory bird species.

		management authorities (such as the Sahtu Renewable Resources Board).	- clarify which data sets were used and when that data was collected. If the most up-to-date data was not used, the Proponent should provide details on how the data will be obtained and incorporated in the revised DAR. - include a list of parties engaged and what data will be incorporated.
Health Canada (HC)			
HC 5: Baseline air quality information	Volume 3, Sub-section 12.1.3.1, p. 12-7 and Table 12.2. Volume 3, Appendix 12A, Sub-section 4.1, p.9. Volume 3, Sub-section 12.4, Table 12.7, p. 12-19.	The selection of contaminants of potential concern (COPCs) provided in the air quality baseline technical data report (Appendix 12A) appears to be based on the COPCs included in the Northwest Territories Ambient Air Quality Standards (NWT AAQS). A more expansive consideration of COPCs may be warranted as diesel heavy equipment will be used during all phases of the project, diesel powered generators will be used on-site, and vehicle traffic will likely contribute to diesel emissions. Considering carcinogenic COPCs such as diesel particulate matter (DPM) and polycyclic aromatic hydrocarbons (PAHs) for all phases of the project could also serve to address concerns raised by community members about dust, including ‘’how far it will spread and whether there will be chemicals and carcinogens in the dust’’(Table 12.2). Emissions from a potential incinerator mentioned in Table 12.7 have not been included in the assessment. Volatile organic compounds (VOCs) were excluded from the list of criteria air contaminants	Health Canada (HC) recommends to: 1) Include an inventory of all emissions and COPCs resulting from the proposed project (including, but not limited to, DPM and PAHs) in an air quality assessment. Consider all sources, including project-related processes, on-site vehicle usage, fugitive emissions, and the potential incinerator for all phases of the proposed project (e.g., construction, operation, and modification). 2) Provide, an evidence-based rationale for the exclusion of the COPC when a specific COPC is not carried forward for further assessment (e.g., VOCs). Note that the absence of an applicable screening guideline is not sufficient rationale for excluding a COPC from further assessment.

		considered for the project because the ‘’Project is not expected to generate substantial amounts of VOCs (p. 12-7).’’ Additional rationale to support this exclusion would strengthen the conclusions of the assessment.	
HC 6: Air quality assessment for human health impacts	Volume 3, Sub-section 12.1.5, p. 12-12. Volume 2, Sub-section 9.5, Table 9.10, p. 9-61. Volume 3, Sub-section 12.4.2.3, p.12-24	HC does not support the methodology used to assess changes in air quality and potential health impacts. This is based on quantifying air quality emissions for each project activity for each phase and summing up for the period of one calendar year. The total yearly emissions for each phase were then compared against the National Pollutant Release Inventory (NPRI) reporting thresholds (tonnes/year). HC cannot comment on potential health effects due to project-related changes in air quality with the information provided. To estimate changes in air quality and assess the risks to human health, refer to HC's Guidance for Evaluating Human Health Effects in Impact Assessment: Air Quality.[1] If predicted concentrations or levels of COPCs and particulate matter remain well below the CAAQS or applicable criteria or guidelines, then generally no further assessment is necessary, but it should be clearly documented in the DAR.	To assess changes in air quality and potential health impacts, HC recommends to: 1) Provide the predicted or estimated COPC concentrations: a) for the maximally exposed population, b) for the most sensitive receptors, and, c) at the point of maximum impingement.[2] 2) Report data in concentrations (µg/m^3) that are determined or predicted for time periods corresponding to the applicable health-based standards, guidelines, or objectives (e.g., 30-minute, 8-hour, 24- hour, and annual intervals). 3) Compare baseline concentrations with the predicted concentrations as a screening step to assess health effects. Where professional judgment is used, HC recommends providing data that support assumptions and inform that judgment (e.g., reference to assessments of similar projects).

[1] Health Canada. 2023. Guidance for Evaluating Human Health Effects in Impact Assessment: Air Quality. Publication can be accessed at https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-1-2023-eng.pdf

[2] A point of impingement is a technical term used in dispersion modelling of air pollutants - it is the pollutant concentration measured when the plume from a source reaches the ground or a building. Maximum point of impingement concentrations are the maximum level projected by the air quality model. Point of impingement concentrations are used in provincial regulations of industrial sources (rather than top-of-stack levels).

		HC relies on the expertise of Environment and Climate Change Canada (ECCC) in the areas of emissions, dispersion and atmospheric modelling.	
HC 7: Adaptive management plan for air quality	Volume 3, Sub-section 12.8, p. 12-44	The DAR refers to an adaptive management plan for follow-up and monitoring mitigation measures, but the plan is not provided for air quality. Providing the adaptive management plan for air quality during the technical review of the DAR will allow HC to review and provide comments on the mitigation measures proposed to reduce project-related changes and/or health impacts.	HC recommends providing the adaptive management plan for air quality at this stage of the assessment.
HC 8: Evaluation of residual health effects	Volume 2, Sub-section 9.5.7.3, p. 9-109 to 9-110.	The DAR discusses Potential Effects on Human Health in sub-section 9.5. To characterize residual effects associated with changes to air and noise, the following parameters are considered: Direction, Likelihood, Magnitude, Geographic Extent, Timing, Duration, Frequency, and Reversibility. The characterization of Residual Effects on Air and Noise (as physical components) cannot be directly transposed to a health impact assessment. Here are some reasons: • Health-based criteria may already have considered some of these parameters in their derivation; • Magnitude assessment as it is presented in the DAR does not take into	HC recommends evaluating the potential residual effects on health from changes to air and noise using health-based parameters and considerations. To estimate changes in air quality and noise and assess the risks to human health using health-based parameters, refer to HC's Guidance for Evaluating Human Health Effects in Impact Assessment: Air Quality[3] and Guidelines for Evaluating Human Health Effects in Impact Assessment: Noise.[4]

[3] Health Canada. 2023. Guidance for Evaluating Human Health Effects in Impact Assessment: Air Quality. Publication can be accessed at https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-1-2023-eng.pdf

[4] Health Canada. 2023. Guidance for Evaluating Human Health Effects in Impact Assessment: Noise. Publication can be accessed at https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-3-2023-eng.pdf

		consideration substances with threshold vs non-threshold effects; and • The reversibility of a health impact and its intensity is not associated with the project duration. E.g., even if sound levels or concentrations of air quality COPCs return to baseline levels, health effects can have occurred.	
HC 9: Clarify project effects on drinking water quality	Volume 2, Sub-section 9.5.8.1.1, p.9-111 Volume 3, Sub-section 16.1.1.1, p.16-2. Volume 3, Sub-section 16.4.1, p.16-25.	The DAR concludes that ‘’For both changes in surface water and sediment quality and groundwater quality, the residual effects of the Project are anticipated to be not significant. It is therefore anticipated that the Project effects will also be minimal on drinking water and recreational water quality’’ (sub-section 9.5.8.1.1). Sub-section 16.1.1.1 presents a list of water quality guidelines (standards) that “have been applied” but no comparative tables (predicted concentrations vs. guidelines) seem to have been provided. Sub-section 16.4.1 mentions that ‘’residual effects followed a qualitative approach that relies on professional judgement to evaluate potential project-related changes to water and sediment quality.” Further information is needed to understand how the above lines of evidence were used to conclude that there would be no significant effects of the project on drinking water and recreational water quality (sub-section 9.5.8.1.1).	HC recommends providing more information on how the guidelines in sub-section 16.1.1.1 were applied (e.g., identify locations and present results in a comparative table). Where professional judgment is used, HC recommends providing data that support assumptions and inform that judgment (e.g., reference to assessments of similar projects), and documenting any rationale in the reports for transparency.
HC 10: General – Sensitive populations	General	In addition to HC-02-Air comment submitted for the Online Review System (ORS) Phase/Round	HC recommends providing maps showing the location of potential permanent, temporary, and

		1 (human receptors) on Jan 19, 2024, HC recommends identifying all sensitive people (e.g., in schools, hospitals, retirement complexes or assisted care homes). For HC, ‘’sensitive people’’ means individuals that are more susceptible to contamination exposure due to the following: • Physiology (e.g., newborns, children, pregnant or breastfeeding people, elderly people); • Health status (e.g., immune-compromised persons, and persons suffering from heart disease, respiratory conditions or allergies); • Behaviour (e.g., amount of time spent outdoors); and • Lifestyle (e.g., smoking, Body Mass Index (BMI), and exercise status).	seasonal human receptors (including sensitive people) and their distance from project components that could affect them.
HC-11-Consultation and engagement	Volume 1, Sub-section 2.1.1, p. 2-3 Volume 2, Sub-section 9.4, p. 9-56	The DAR Volume 1, sub-section 2.1.1 refers to ”local residents” in a footnote, defining the term as “community members in Tulita (Tulít’a), hereafter referred to as Tulita; Dél̨ı̨nę; Fort Good Hope (K’asho Got’ine), hereafter referred to as Fort Good Hope; Colville Lake (K’áhbamítúé), hereafter referred to as Colville Lake; Norman Wells (Tłegǫ́ hłı̨), hereafter referred to as Norman Wells; Fort Simpson (Łíídlıı Kų̨ę), hereafter referred to as Fort Simpson; and Wrigley (Pehdzéh Kı̨ N’deh), hereafter referred to as Wrigley.” The DAR includes these “local residents” in the broader term “affected parties” which is the term used throughout the entire document. It is not	HC recommends providing more specific information when referring to “affected parties” throughout the document. This could include community-specific information throughout sub-section 9.4 about potential effects of the Project, particularly for Déline, K’asho Got’ine, and K’áhbamítúé.

		clear if local residents are considered in the same way in the consultation and engagement process as other affected parties. For example, sub-section 9.4 mentions that communities without access to the all-season road and not located on the proposed route of the Project may have different effects that occur as a result of the Project.	
HC 12: General - Updated HC guidance documents	General	HC has updated its series of guidance documents for assessing risks to human health from major resource and infrastructure projects in Canada. These documents present the principles, current practices, and information HC looks for when it reviews the environmental impact statement or other reports submitted by project proponents. HC's guidance has been prepared for the benefit of proponents and their consultants and to support an efficient and transparent project review process. 1. Guidance for Evaluating Human Health Effects in Impact Assessment: Air Quality.[5] 2. Guidance for Evaluating Human Health Effects in Impact Assessment: Noise.[6]	HC recommends that the updated guidance documents (2023) be used to assess the potential health effects due to Project activities for any modifications to the DAR during technical review and when implementing future monitoring and adaptive management plans.

[5] Health Canada. 2023. Guidance for Evaluating Human Health Effects in Impact Assessment: Air Quality. Publication can be accessed at https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-1-2023-eng.pdf
[6] Health Canada. 2023. Guidance for Evaluating Human Health Effects in Impact Assessment: Noise. Publication can be accessed at https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-3-2023-eng.pdf

		3. Guidance for Evaluating Human Health Effects in Impact Assessment: Country Foods.[7] 4. Guidance for Evaluating Human Health Effects in Impact Assessment: Drinking and Recreational Water Quality.[8] 5. Guidance for Evaluating Human Health Effects in Impact Assessment: Human Health Risk Assessment.[9]	

[7] Health Canada. 2023. Guidance for Evaluating Human Health Effects in Impact Assessment: Country Foods. Publication can be accessed at https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-5-2023-eng.pdf

[8] Health Canada. 2023. Guidance for Evaluating Human Health Effects in Impact Assessment: Drinking and Recreational Water Quality. Publication can be accessed at https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-2-2023-eng.pdf

[9] Health Canada. 2023. Guidance for Evaluating Human Health Effects in Impact Assessment: Human Health Risk Assessment. Publication can be accessed at https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-6-2023-eng.pdf