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Submitted via email: sasha.mcleod@ontario.ca and shannon.gauthier@ontario.ca

RE: Terms of Reference for Marten Falls First Nation Community Access Road Project

Dear Ms. McLeod and Ms. Gauthier,

We are writing as scientists from Wildlife Conservation Society (WCS) Canada to provide comments on the Terms of Reference (TOR) for the Marten Falls First Nation Community Access Road Project (MFCARP)[1] submitted to the Ministry of Environment, Conservation and Parks (MECP).

We are submitting this feedback in our capacities as WCS Canada scientists conducting research on species and ecosystems to inform conservation decisions. WCS Canada is a national non-government organization that has been engaged in Ontario since 2004, with research and conservation priorities in Ontario largely focused on the far north region. We are some of the few scientists with continuous presence in the region. We lead ongoing field-based research programs that are currently focused on wolverine and freshwater fish; we support and collaborate with First Nations on community-based research and monitoring projects; and we support and collaborate with academic, government researchers, and First Nations conducting ecological studies in the region. WCS Canada has a long-term and consistent engagement around impact assessment at the federal and provincial level, particularly for projects in northern Ontario[2].

We provide four overarching concerns and recommendations based on the TOR. In Section 2, we provide specific comments on sections of the TOR.

Recommendation 1. The TOR should describe Ontario's role as a proponent of the Project as per Section 5.2.1 in MECP's Code of Practice for Preparing and reviewing terms of reference for environmental assessments in Ontario

The current TOR does not clarify Ontario's role as a proponent of the Project. Ontario is providing funding to Marten Falls First Nation to conduct the impact assessment and is also funding road construction. In addition to funding this initiative, Ontario is also serving as the regulator for the permitting and impact assessment regime, suggesting a conflict of interest that must be publicly acknowledged. As such, the TOR is misleading and, in order to serve the public interest, must explain the

[1] http://www.martenfallsaccessroad.ca/wp-content/uploads/2020/10/NOT_2020-10-08-NoticeOfSubmission-ToR_60593122.pdf
[2]https://www.wcscanada.org/Policy-Comments/Environmental-Assessment.aspx

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relationships between the Project, Ontario, and First Nations. Despite the consultant's efforts within the TOR to describe the Project as a community access road, it is clear that it is Ontario is an unnamed proponent in the impact assessment process and should be included in the Proponent Description more explicitly.

Recommendation 2. The TOR should be revised to address the actual purpose and scope of the Project, which is to build a road that is capable of being an industry supply road for mining industries in the Ring of Fire as per Ontario's vision for economic development in the far north (e.g., Ministry of Finance 2019).

The Project Description includes a stated intention to facilitate additional development in the region beyond the current scope of the Project ("Phase 1") as described, including multi-metal and chromite mining. It is not in the public interest to consider a TOR that does not anticipate and include the infrastructure and development that it is intended to stimulate. We are referring specifically to the Northern Link Road ("Phase 2") and Painter Road extension as well as the Webequie Supply Road and Noront's Eagles Nest Project, which also includes potential associated infrastructure such as the smelter. The TOR description of the Project is misleading to both the public and First Nations in terms of risks associated with the Project and the need for the undertaking. Finally, much of the material associated with Ontario's discussions and negotiations with Marten Falls about the "community access road" is neither public nor available for external review.

Related to this recommendation, the Project is framed as being of benefit to the community yet there is little or no information to show that an industry supply road to access mining projects for minerals, including chromite, can also be a community access road. The TOR needs to be more explicit and test this very important assumption directly in the impact assessment by considering multiple future scenarios of the Ring of Fire development and the road use demands of each.

Recommendation 3. The TOR should be revised to address alternatives in a more comprehensive way including "functionally different ways" of meeting Project need and purpose as well as the null alternative.

We do not support the Proponent's rationale described in the TOR for why the impact assessment will not include a null alternative of no community access road nor do we support the narrow scoping of alternatives to the community access road and the selection of the two alternative routes without more critical and transparent evaluation of criteria for route selection beyond cost and current engineering. It is in the public interest that the assessment considers the null option (as described below) as well as alternative ways of achieving the societal benefits purported by the Proponent, particularly economic ones. Accordingly, alternative analyses are the only way to determine whether the Project's inevitable negative impacts on the environment and First Nations are acceptable given the lack of commitment by Ontario to addressing cumulative effects at relevant social and ecological scales and the region-opening development the Project is anticipated to enable.

The null option is not whether there should be no community access road, but whether an industry supply road should be used to provide community access to Marten Falls. The null option for these two different types of roads (a community access road vs. an industry supply road that can accommodate community traffic) is not the same and this needs to be made clear in the impact assessment.

The community should have a strong say on their road alternatives. The TOR suggests the only all-season route available to Marten Falls for community access is the current Alternative 1 and Alternative

4. It is profoundly disturbing to read in section 6.3 in the TOR that Ontario's role as funders for the EA process was used by the province to scope the proposed preferred Alternative routes for the current Project. If the road is really about community access, the current winter road route would also be considered in an alternatives analysis and would not have been scoped out at the TOR stage. The impact assessment needs to consider all the options for a community access road and not just the preferred industry supply routes as proposed in the TOR. Fundamentally, the content of the draft TOR demonstrates Ontario's colonial and patriarchal relationship in its relationship with First Nations under Treaty No. 9. As such Ontario's promotional statements of "community-led" and commitments to Indigenous Knowledge programs as examples of impact assessment practice that are "outside the box" appear tokenistic and wholly inadequate in the context of reconciliation and commitments to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).

Finally, alternative routes must also consider future scenarios for mineral exploration, mining, forestry, and hydroelectric potential under climate change as well as access needs for Marten Falls. Alternatives for roads must explicitly include identify where aggregate may be coming from eskers and/or other glacial deposits as well as the impacts to permafrost and hydrology in the region. Aggregate coming from areas beyond currently proposed spatial boundaries needs to also be identified, including access routes, given the fact that the proposed road will not be decommissioned in the future. In addition, alternatives must be guided by explicit criteria covering a suite of sustainability considerations associated with the goal of "betterment" under the EAA. The TOR should include the criteria for determining technical and economic feasibility.

Recommendation 4. MECP should develop the TOR to the same standards as the federal assessment for the road and be more explicit about coordination both with the federal government and First Nations engagement.

We remain concerned and skeptical about the ability of Ontario, specifically MECP, to manage up to 3 individual road segment projects in coordination with the federal government to develop one north-south industry supply road to the Ring of Fire. Given Ontario's efforts to reduce red tape and be more efficient, we see the current piecemeal approach to impact assessment of roads to the Ring of Fire as an excessive yet inadequate approach to enhance so-called community access. The TOR should describe how the six disparate assessment processes will be coordinated, i.e., between Ontario and the Canadian Impact Assessment Agency, including between the different road segment "projects", and between the federal regional assessment and this project. A starting point would be to develop the TOR to the same standard as the federal process, which is an objectively higher bar, in terms of cumulative effects, etc.

We remain particularly concerned about the ability of Marten Falls and other First Nations to manage the challenges of engaging with Ontario (and Canada) on multiple development projects during current social and community crises across First Nations in the far north, including being able to respond to COVID-19.

WCS Canada is on the public record regarding concerns about the piecemeal approach that Ontario is taking with respect to planning in the Ring of Fire through our comments to the federal government on

this Project[3,4]. WCS Canada has also made a case for a regional strategic assessment in the Ring of Fire[5,6]. We are also on the public record outlining our concerns about Ontario's failed approach to enabling coordination of regional impacts (i.e., infrastructure, impact assessment) and benefits (i.e., revenues, monitoring) through the Regional Framework Agreement[7] between nine First Nations (Matawa) and Ontario as well as the limitations of Ontario's environmental assessment program, particularly the inability of Ontario to address cumulative effects.

Section 2. Specific Comments on section of the TOR

In general, the Project together with mineral and other industrial development in the Ring of Fire together with climate change has the potential to cause significant regional environmental impacts, which tend to be just as important as the more direct and local impacts with which current project-level assessments of these projects is preoccupied, albeit superficially at this point (e.g., Johnson et al., 2019).

7.1.1 Preliminary Study Area

- The width of corridor established is currently too narrow (5 km) for assessing baseline and impacts on any mobile or fluid ecological component. Attention to larger spatial extents to consider impacts is important for addressing the wider-ranging effects of roads. For example, it is known that declines in species abundance range from: 40 and 2800 m from the road for birds, between 250 m and 1000 m (and possibly more) for amphibians, and up to 17 km for mammals (Benítez-López et al. 2010).
- Specific recommendations for species include the following:
    - Birds: the extent of BCR 8 including habitats that are already impacted by industrial forestry.
    - Caribou and wolverine: The Proponent should provide relevant spatial boundaries for assessing impacts of the Project on caribou ranges and other relevant scales. Wolverine winter home ranges for Ontario are at the high end of published ranges for North America, with those of males averaging 2,563 km^2 and females 428 km^2 (Dawson et al. 2010).
    - For lake sturgeon: The project must be considered at the scale of the secondary watersheds. As a linear feature, the project crosses three secondary watersheds (Ekwan, Attawapiskat, Winusk) and has the potential to impact lake sturgeon populations in these watersheds. Haxton and Cano (2006) highlight the significance of these intact watersheds and relatively unperturbed populations. We stress the fact that project is located within the headwaters with likely impacts downstream, which are best considered at the watershed scale. We suggest this scale would also enable better consideration of impacts to other fish species that are ecologically and culturally important, but not considered species at risk by Ontario or Canada (e.g., migratory lake whitefish, walleye, pike, suckers, etc.).
- With respect to study area boundaries, we encourage a zone-of-influence analytical approach (e.g., Boulanger et al. 2012, Plante et al. 2018), including consideration of this Project as well as the larger

[3] Marten Falls Community Access Road Project (https://iaac-aeic.gc.ca/050/evaluations/proj/80184/contributions/id/22813): Summary of the Initial Project Description (August 26, 2019)

[4] Marten Falls Community Access Road Project (https://iaac-aeic.gc.ca/050/evaluations/proj/80184/contributions/id/46891): Tailored Impact Statement Guidelines and Public Participation Plan (January 28, 2020)

[5] Chetkiewicz, C. & Lintner, A.M. (2014) Getting it Right in Ontario's Far North: The Need for a Regional Strategic Environmental Assessment in the Ring of Fire [*Wawangajing*]. WCS Canada and Ecojustice, Toronto, ON. Retrieved from http://wcscanada.org/Portals/96/Documents/RSEA_Report_WCSCanada_Ecojustice_FINAL.pdf

[6] Formal Request for a Regional Assessment with respect to the Marten Falls Community Access Road Project (Reference Number: 80184) and Webequie Supply Road (Reference Number: 80183) (https://iaac-aeic.gc.ca/050/evaluations/proj/80184/contributions/id/23629) (November 12, 2020)

[7] https://www.mndm.gov.on.ca/sites/default/files/rof_regional_framework_agreement_2014.pdf

North-South road that will be eventually developed. To this end, Dr. Len Hunt and colleagues of the Centre for Northern Forest Ecosystem Research (CNFER) in the Ontario Ministry of Natural Resources and Forestry (MNRF) investigated this for the Pickle Lake road in the same general region, and will have unpublished results to inform such an analysis for caribou.

7.1.4.4 Physiography, Geology, Terrain and Soils

- The TOR and impact assessment should describe the historical land use (e.g., forestry, mineral exploration) and the potential for contamination of soils and sediments and describe any known or suspected soil contamination with the study area that could be re-suspended, released or otherwise disturbed as a result of the Project.
- The TOR and impact assessment should identify ecosystems that are sensitive or vulnerable to acidification resulting from the deposition of atmospheric contaminants.
- The TOR and impact assessment should describe permafrost conditions including distribution of frozen and unfrozen ground and the potential for thaw settlement and terrain instability associated with ground thawing in permafrost areas.
- Impacts to permafrost must be considered in the cumulative effects assessment.

7.1.4.5 Surface Water and 7.1.4.6 Groundwater

- Surface water description needs to explicitly indicate what primary, secondary, tertiary and quaternary watersheds the Project will impact. These should be mapped more explicitly on figures describing the project study area in the impact assessment.
- Surface water hydrology and flows, including for intermittent or ephemeral streams and wetlands, should be included in a figure and map of the study area and watersheds in the impact assessment.
- The impact assessment must include flow hydrographs for nearby streams and rivers showing the full range of seasonal and inter-annual variations; they may be based on data from nearby gauging stations or from gauging stations on site.
- The impact assessment must include stage hydrographs for nearby lakes showing the full range of seasonal and interannual water level variations particularly for major water crossings.
- The impact assessment should include a conceptual model of the hydrogeological environment, including a discussion of geomorphic, hydrostratigraphic, hydrologic, climatic, and anthropogenic controls on groundwater flow.
- In general, the TOR is inadequately scoped to consider ecosystem services, which should be addressed in relevant sections in the impact assessment. Discussion of wetlands in the TOR and impact assessment needs to include stored carbon and its continued sequestration benefits within the second largest peatland complex in the world (Hudson Bay Lowlands). The TOR should direct the Proponent to develop a carbon budget for the Project in the impact assessment and ensure wetlands in the study area also consider the wetland context within the watershed as well as adjacent land use with a focus on hydrological and other functions. Impacts to carbon should be considered in the cumulative effects assessment.

7.1.4.7 Vegetation

- The impact assessment must quantify, delineate and describe wetlands (fens, marshes, peat lands, bogs, etc.) within the study area potentially directly, indirectly and/or cumulatively affected by the project including:
    - wetland class, ecological community type and conservation status;
    - biodiversity with respect to both flora and fauna;
    - abundance at local, regional and provincial scales;

    - distribution; and
    - current level of disturbance.
- The impact assessment must provide a carbon budget of wetlands to identify and describe capacity to act as a carbon sink vs. source. Include rates of uptake and emission, and estimates of carbon pools in the wetlands that may be released when removed or altered during construction and operation.
- A description of the current natural disturbance regimes needs to be included. Historical and current fire disturbances should be considered at the largest spatial scale. Fires result in plant communities with age class distributions that fluctuate over time; yet most impact assessments do not address the implications of forest fires resulting in an under-estimate of the total overall disturbance to the land-based and the implications of this disturbance on social and ecological values such as wildlife habitat. Any proximate activities that have resulted in changes to fire regimes should also be described (e.g., fire suppression, flooding, insect infestations). We recommend using Ontario's Far North Land Cover product rather than PLC2000 given how dated the latter product is.
- The current level disturbance associated with vegetation due to human activities, including the level of habitat fragmentation and the amount, merchantability and location of any merchantable timber to be removed during project construction.

7.1.4.8 Wildlife

Biodiversity

- The impact assessment should describe Ontario's commitment to biodiversity and identify the biodiversity metrics, biotic and abiotic indicators that are used to characterize the baseline biodiversity for terrestrial wildlife and discuss the rationale for their selection.
- Data associated with Ontario's Far North Biodiversity Project including information on plants, invertebrates, bats, birds, amphibians, reptiles, fishes, and some mammals should be included in the impact assessment (http://sobr.ca/the-far-north-biodiversity-project/).
- The impact assessment should describe the levels of disturbance currently affecting wildlife and wildlife habitat, such as habitat fragmentation and the extent of human access and use.
- The impact assessment should include any key biodiversity areas (http://www.keybiodiversityareas.org/home), including Important Bird Areas (https://www.ibacanada.com/explore_how.jsp?lang=en) which will be transitioning to KBAs in the next year given the anticipated timeline of the project (3-10 years); and any sensitive habitat areas within the study area.

Bats

- Field surveys for bats should result in a species inventory (species present/not detected) and quantify baseline bat activity in different habitats or features in the project area and to help support and evaluate project siting decisions and impact predictions
- Surveys should also attempt to locate and confirm use of high value habitat features such as roosts (including cavity trees and buildings with potential for roosting) and hibernacula as well as any migration and site-specific travel corridors
- Acoustic surveys should be continuous throughout the night (at least 30 minutes before sunset to 30 minutes after sunrise recommended) during the active season

Birds

- Field surveys for birds need to include nocturnal surveys as standardized point count surveys are biased towards diurnal breeding songbirds. Nocturnal owls and cryptic species including but not limited to Eastern Whip-poor-will and Common Nighthawk need to be included in assessment and monitoring programs for these species at risk (NABCIC 2019). First Nation communities should be included in the monitoring of species.
- The impact assessment should describe any concentrations of migratory birds, including sites used for migration, staging, breeding, feeding and resting and these should be included in surveys and monitoring programs.
- Table 7-4 the habitat descriptions for Eastern Whip-poor-will and Common Nighthawk should include empirical research highlighting that the two species were found to equally occupy clearcuts, burned stands, and wetlands (Farrell et al. 2017) and their presence in a landscape is strongly related to the amount of wetlands available in the landscape (English et al. 2017; Farrell et al. 2019). Impacts of the Project on wetlands will impact these species given the value of wetland habitats for these and other insectivores.
- Field surveys for at-risk wildlife species note that acoustic monitoring will be used for Eastern Whip-poor-will. We suggest that this effort should also be allocated for other species-at-risk like Common Nighthawk as well as other species that are identifiable by call (e.g., amphibians). Timing of acoustic monitoring should be specified since research has shown that the timing of recordings can significantly affect whether or not a species is detected, particularly for crepuscular species like Eastern Whip-poor-will and Common Nighthawk (Farrell et al. 2017; Farrell et al. 2019).
- The impact assessment should provide an estimate of year-round bird use by species and group (e.g., water birds) of the study area.

Large mammals

- Field surveys based on remote cameras should specify the timing of the surveys and cameras should be in the field all year, particularly in winter. First Nation communities should be involved in field monitoring.
- The TOR and impact assessment should acknowledge that MNRF dataset for caribou remains the best available scientific data for the region. More attention to monitoring of the impacted ranges (Missisa, Nipigon and Pagwachuan) by Ontario is required to address range assessments and cumulative range disturbance and should be required at the range level as part of the Project. The impact assessment should also address impacts on critical habitat for caribou as identified by MNRF.
- Caribou exhibit different ecotypes defined in part by movement behaviours (e.g., Pond et al. 2014, Berglund et al. 2014). The impact assessment should be more detailed with respect to scales of selection by caribou in the far north (Hornseth and Rempel 2016), include models developed by MNRF (e.g., Fryxell et al. 2020), and consider alternatives and cumulative effects of disturbance on caribou, particularly given established thresholds for disturbance e.g., 30% (Environment Canada 2012).
- Wolverine should be addressed more thoroughly in the TOR and the impact assessment. The status and scientific knowledge of wolverine in Ontario is well described in the Ontario Wolverine Recovery Strategy (2013) and the Government Response Statement as well as Ray et al. (2018).
- Wolves should be addressed more explicitly in the TOR and impact assessment, given the ability of linear disturbance to facilitate predators and access to ungulates like caribou and moose.

Kittle et al. (2017) conducted research on wolves in areas that overlap the Project and their models should be included.

- Moose need to be considered more explicitly in the TOR and the impact assessment. Rempel (2010) and Street et al. (2015) describe studies and models that should be included in the impact assessment.
- Poley et al. (2014) describe occupancy of caribou, wolves, and moose in the far north. Occupancy models should be included in the cumulative effects assessment and the impact assessment.

7.1.4.9 Fish and Fish Habitat

- Longnose dace (*Rhinichthys cataractae*) needs to be added to the species list on page 55 as per Eakins 2018.
- The description of lake sturgeon in Table 7-5 needs to explicitly include the fact that lake sturgeon is a migratory species that depend on intact watersheds and functional habitat connectivity as per COSEWIC 2017.
- Field sampling as described is inadequate and Ontario should provide funding to enable the Proponent to sample all major water crossings, and at a minimum, two representative types for each watershed size for the minor crossings.
- Ephemeral streams and ponds can be extremely important for spawning for some fish species, and for amphibians. The TOR and field sampling and monitoring programs need to include ephemeral streams and other annual variations in water levels and water flow. The TOR should specify what time of year sampling will be conducted and how ephemeral aquatic habitat will be assessed and monitored. The impact assessment should specify how the Project will document, monitor, and assess impacts on connectivity between important ephemeral fish habitat and main course rivers and streams.
- Provide a map of sites (e.g., waterbodies) of past and current recreational and commercial fishing (Marshall & Jones 2011).
- Provide current underwater soundscape and vibration descriptions from various sources based on acoustic measurements and provide information on vibration and sound sources, geographic extent and spatial and temporal variations within the water column of the major and minor water crossings.
- Provide biodiversity metrics, biotic and abiotic indicators that are used to characterize the baseline biodiversity for fish in the study area.

7.4.1.10 Social, Economic and Built Environment

- Provide a figure including approximate locations of permanent residences, temporary land uses (e.g., cabins and traditional sites) and known locations of sensitive areas (e.g., schools, hospitals, community centres, retirement complexes or assisted care homes).
- The impact assessment should identify all springs and any other potable surface water resources and describe their current use, potential for future use, and whether their consumption has Indigenous cultural importance.

7.2. Potential Effects

- The impact assessment must address cumulative effects. While the MECP Code of Practice[8] "encourages" proponents to provide information about potential cumulative effects in the EA, a project of this scale, complexity, and potential impacts should not be left to the discretion of the

[8] https://www.ontario.ca/page/preparing-and-reviewing-terms-reference-environmental-assessments-ontario

proponent. We expect the cumulative effects assessment to include the projects identified in Recommendation 3 above. We also recommend MECP develop guidance for proponents on cumulative effects assessment to improve transparency, consistency, and standards for impact assessment processes in Ontario.

7.2.1 Indigenous Peoples Rights and Interests

- The TOR and impact assessment must address food sovereignty and food security of First Nations. As presented, the TOR suggests the Project will enhance access to "modern" foods yet a substantial literature on First Nations health and well-being suggest "modern" foods contribute to a number of diseases impacting First Nations. Similarly, the use of "food consumption" under *Indigenous Cultural Sites, Features and Practices* on pg. 41 is better described as Indigenous Food Systems relevant to food sovereignty. The relationships between "modern" foods and the ability of First Nations to access and consume healthy and abundant fish and wildlife populations as promised by Treaty No. 9 deserves more explicit treatment in the impact assessment as manifestations of rights as well as health and cultural values.
- The impact assessment should describe the use of local vegetation for medicinal purposes or as a source of country foods including any other plant species of concern for consumption or where use has any Indigenous cultural importance. The assessment should also describe any herbicide use on country foods, animal browse, and surface waters as well as mitigation given the project activities.
- The impact assessment should describe the use of (magnitude, timing) migratory and non-migratory birds as a source of country foods (traditional foods) and whether consumption has Indigenous cultural importance.
- The impact assessment should describe the use of terrestrial wildlife as a source of country foods (traditional foods) and whether its consumption has Indigenous cultural use and value.
- The TOR and impact assessment should include Indigenous names for plants, fish and wildlife that are important to First Nations affected by the Project.

7.2.2 Atmospheric Environment

- The Project should be more precautionary about the contaminants that may be mobilized during construction and associated with dust. For example, chromite mining may mobilize both forms of chromium, with trivalent chromium in the ore and waste rock potentially oxidizing to harmful hexavalent chromium as dust (Beukes et al. 2017). In a dust form, hexavalent chromium may be more broadly distributed than the Project study area.

7.2.5.3 Quarries, Borrow Areas, and Aggregate Source Areas

- The TOR should identify eskers both as part of the physiography, geology, terrain and soils (7.1.4) and include potential impacts to eskers for the purposes of road building. Figure 7-3 while not complete is misleading as mapped and eskers should be included as context for additional sites proximate to the Project study area. We suspect that aggregate related to eskers will require a larger study area than currently proposed in the TOR.

7.2.5 Potential Environmental Effects: Surface Water

- The TOR should also acknowledge direct impacts including the creation of physical barriers to animal movement, habitat fragmentation of stream habitats that are critical for spawning and movement, alteration of soil properties leading to sedimentation and erosion as well as surface water flows, and impacts due to increased access for invasive freshwater species (including plants) and Indigenous and non-Indigenous hunters, fishers, and trappers. These changes in turn

alter interspecies dynamics and affect the abundance and distribution of species affecting Aboriginal and Treaty rights.

- The TOR should also acknowledge contaminants more explicitly. Changes to the water table through road building and other developments anticipated with the Project can directly or indirectly alter methylmercury formation and accumulation in the water as well as in fish (Webster et al. 2015). Gravel and soil extraction and sedimentation in the building of roads can have potential indirect effects on existing mercury (including mercury mobilization and/or methylation) and must be considered in impact assessment as well as monitored since methylmercury contamination is already an issue throughout northern Ontario, including in fish and lake sediments (Tang et al. 2013, Brazeau et al. 2013, Lescord et al. 2019). Finally, the use of eskers or other glacial deposits used as locally-source gravel is suspected to be a source of chromium and, potentially, other metals naturally abundant in the region, to northern rivers and lakes (Dyer & Handley 2013).
- In the longer term, both construction of roads and anticipated mines will generate tailings and waste rock piles that may discharge metals and other contaminants into water bodies and through runoff and leachate seepage.

7.2.8 Potential Environmental Effects: Wildlife

- Eskers are ecologically important (Far North Science Advisory Panel Report 2010: 57). Eskers need to be mapped and included as values for wildlife since they contribute substantially to regional biodiversity, for instance as travel routes for caribou, and as den sites for wolves in a landscape dominated by exposed bedrock and permafrost (Johnson et al. 2005). Any modeling of impacts on large mammals associated with road development must explicitly include the aggregate sources as well as access.
- The ecological significance of intact boreal forest needs to be emphasized in the TOR and impact assessment (Far North Science Advisory Panel 2010).
- Birds: The TOR should be revised to address the removal of upland habitats for birds for quarries, borrow areas, and aggregate source areas for the roads. The impact assessment should address the removal of upland habitat for breeding birds through the clearing of upland habitat given the scale anticipated as well as the need for aggregate given the road will not be decommissioned and will become an industrial route to the Ring of Fire. We suspect the development of quarries, borrow areas, and aggregate source areas for the Project will remove as much upland habitat as the road itself.
- Birds: The TOR should be revised to consider the direct impacts of forest clearing on groundnesting species, Eastern Whip-poor-will and Common Nighthawk (Farrell et al. 2019), and the avoidance of edges once previously intact forest has been destroyed (e.g., Machtans 2006).

7.2.9 Potential Environmental Effects: Fish and Fish Habitat

- The TOR needs to address contaminants more explicitly and the baseline and monitoring of contaminants needs to be part of the impact assessment. For example, metals such as arsenic and chromium in fish (Lescord et al. 2020) as well as methylmercury contamination (Tang et al. 2013, Brazeau et al. 2013, Lescord et al. 2019).

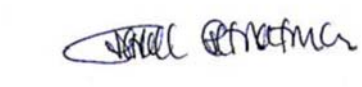
7.2.11 Archaeology and Cultural Heritage

- Eskers are important in understanding past and current Indigenous land use. Specifically, eskers contain micro-habitats of food and medicines in contrast to other areas. As such, these features

are important and valued components for addressing First Nation values and should be considered in the impact assessment.

Thank you for your consideration of our recommendations and concerns. We welcome opportunities to engage in any discussion regarding our submission.

Sincerely,



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