

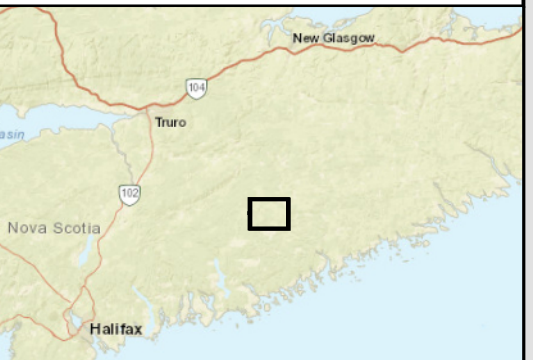
Prepared For:



FIGURE CEAA 2-48-1E

Primary Mitigation Measure
Proposed Bypass Roads

- Secondary Access Point
- Stop Sign and Crossing Location
- Proposed Trail End
- Haul Road Centerline
- ATVANS Active Trail
- Collector Road
- Local Road
- Seasonal Road
- Diveways (>300 m)
- Track
- Streams
- Proposed Multi-use Bypass
- Beaver Lake IR
- Wildlife Indirect Environmental Effects Zone
- Limited Firearms Zone
- Proposed Infrastructure
- Proposed Property Boundary
- Lakes



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

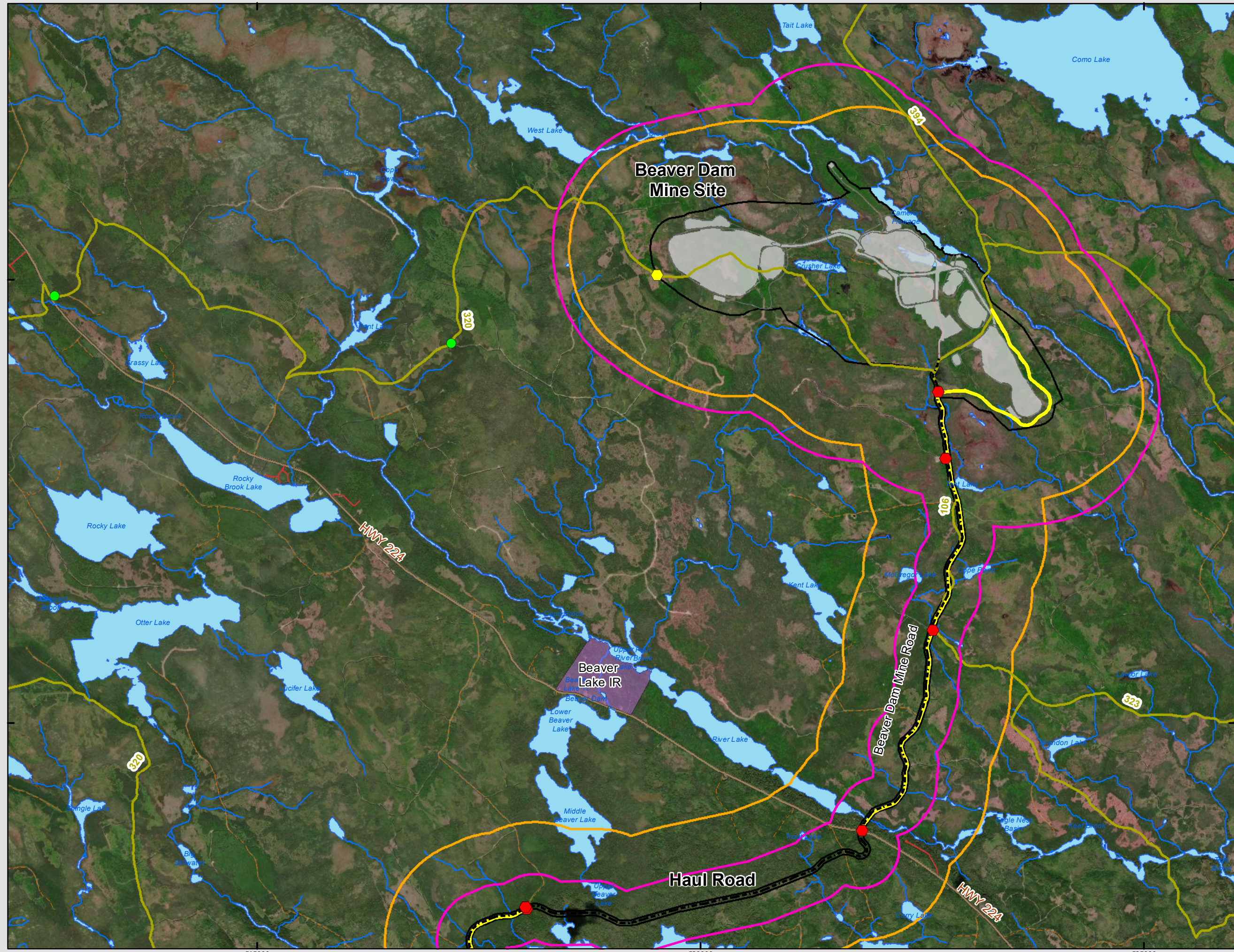
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Reviewed By: MM

Date: 2021-10-05



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FIGURE CEEA 2-48-1F

Primary Mitigation Measure
Proposed Bypass Roads

- Secondary Access Point
- Stop Sign and Crossing Location
- Proposed Trail End
- Haul Road Centerline
- ATVANS Active Trail
- Collector Road
- Local Road
- Seasonal Road
- Track
- Streams
- Proposed ATV connection
- Proposed Multi-use Bypass
- Wildlife Indirect Environmental Effects Zone
- Limited Firearms Zone
- Proposed Property Boundary
- Proposed Infrastructure
- Lakes



Coordinate System: NAD 1983 CSRS UTM Zone 20N
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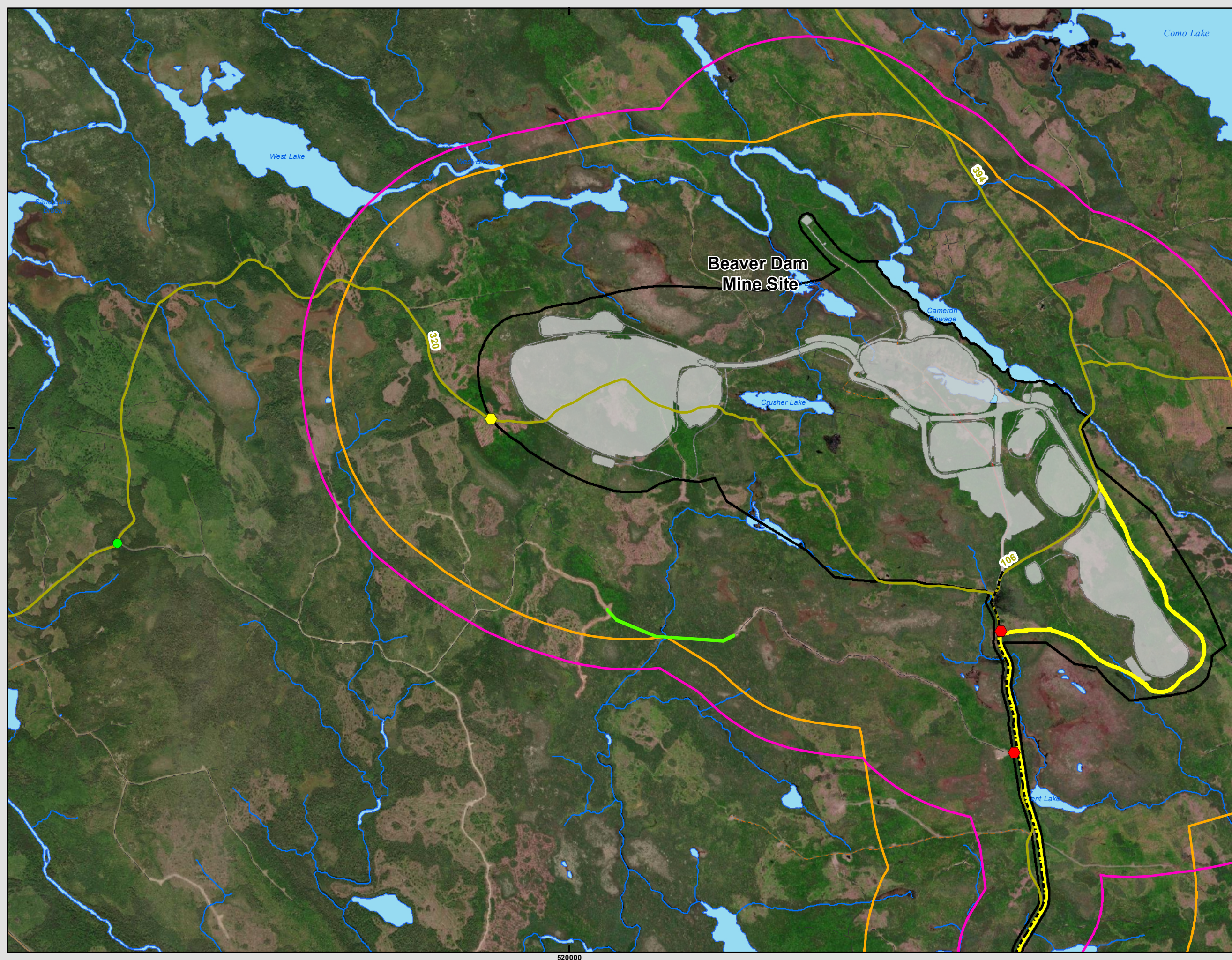
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**Beaver Dam Mine Project Environmental Impact Assessment
Information Request Responses, Round 2**

Round 2 Information Request Number:	CEAA-2-49
Regulatory Agency/Indigenous Community:	CEAA, Indigenous Groups
Topic/Discipline:	Current Use
EIS Guideline Reference:	6.1.4 Indigenous Peoples
Revised EIS (February 28, 2019) Reference:	Section 6.1.4

Context and Rationale

Section 6.1.4 of the revised EIS indicates that Millbrook First Nation significantly uses the Beaver Dam Mine site and its vicinity, and that there will be a loss of access to current-use lands for up to eight years. The revised EIS states that “local residents of the Beaver Dam, Sheet Harbour and Millbrook IRs frequently use the area (range of use from weekly to yearly, depending on availability of species) for hunting and rely on the wild harvest as an important food and dietary source. Equally, community members harvest berries when in season, and a number of plants that are also used for sustenance, as well as traditional medicines.”

The proponent acknowledges that this loss of land includes impeded access to flora and fauna, and that an exclusion zone for the use of firearms is in place that may affect hunting. However, no estimates have been provided for the amount of land lost for current-use purposes for the duration of the Project. Furthermore, the proponent states that there is sufficient and unrestricted adjacent access to similar lands to limit any impact on Indigenous peoples as a result of Project activities. However, a better understanding of whether nearby lands are suitable and immediately available (i.e. not private land) for Indigenous peoples to use and/or harvest is required.

The Proponent is Required to ...

Based on the information available, calculate and provide a figure depicting the total area lost for all VCs that may affect the current use of land by Indigenous peoples. The calculation is required to include the direct loss of land (i.e. the Project footprint), as well as indirect loss of land (e.g. visual or noise disturbances, and exclusion zones for the use of firearms, etc.). The direct and indirect loss of land is to be quantified as a surface area measure, and represented in plan view on the figure.

Explain how nearby lands would be a suitable alternative for Indigenous groups to practice current use, and how they are sufficient to limit potential impacts on Indigenous peoples. Include a description of the suitable alternative areas that may be used by Indigenous peoples for current-use practices (in consideration of other land uses, zoning and ownership) in the local and regional assessment area, and indicate the degree of access to these areas in realistic and quantifiable terms.

Provide a definition of the term “suitable alternative”, incorporating a consideration of Indigenous groups’ potential adaptability to transfer existing cultural, experiential and biophysical reliance on lands and resources to available alternate nearby areas. Include a discussion on whether and how these conclusions were informed by engagement with the affected Indigenous groups.

**Beaver Dam Mine Project Environmental Impact Assessment
 Information Request Responses, Round 2**
Response

There will be a reduction in area available for hunting, trapping, gathering, fishing, spiritual ceremonies and other Millbrook and broader Mi'kmaq traditional activities within the Beaver Dam Mine Site and Haul Road. The infrastructure footprint (mine site and haul road) will result in direct habitat loss and the Project will restrict access within a proposed property boundary/compliance boundary for a period of eight years. This infrastructure footprint and property boundary are shown on Figure CEAA2-49-1.

Additionally, due to the proximity of the Beaver Dam Mine Site and Haul Road to traditional harvesting areas as demonstrated through the Traditional Land and Resource Use Study (TLRUS) (MFC 2019 – Under Confidential Cover) and the Mi'kmaq of Nova Scotia Ecological Study (MEKS) (Appendix M.1 of the Updated 2021 EIS [AMNS 2021]), there will be a potential area adjacent to the Beaver Dam Mine Site and Haul Road where Millbrook community members and other Mi'kmaq hunters may observe a changed pattern of wildlife movement. This area has been identified by the Proponent as a potential wildlife environmental effects zone. Within close proximity to the proposed property boundaries of the Beaver Dam Mine Site and Haul Road, there is the potential for sensory disturbance to wildlife and birds from noise and light above background conditions resulting in potential changes to wildlife patterns and by extension, hunting practices for the Mi'kmaq of Nova Scotia. There are limited Project effects expected to hunting, gathering and trapping activities beyond the potential Wildlife Environmental Effects Zone. This wildlife environmental effects zone is shown on Figure CEAA 2-49-1.

Furthermore, the Mi'kmaq may experience hunting limitations in close proximity to the Beaver Dam Mine Site and Haul Road for the use of firearms. Participants in the TLRUS described how they might be displaced along the Haul Road and in proximity to the Beaver Dam Mine Site where they “may feel uncomfortable using their firearms for safety reasons” (MFC 2019 – Under Confidential Cover). This limited firearms zone is shown on Figure CEAA 2-49-1 and demonstrates a potential “loss of harvesting area for those individuals who do not feel comfortable shooting towards an active mine or haul road” (MFC 2019 – Under Confidential Cover).

These direct and indirect impact areas are described in Table CEAA-2-49-1.

Table CEAA-2-49-1: Beaver Dam Mine Project: Direct and Indirect Loss of Land Access for Mi'kmaq of Nova Scotia Traditional Practices

Direct or Indirect Impact Areas	Area (ha) ^(a)
Direct Infrastructure Footprint – associated habitat loss	243 (34 ha of which is Crown land)
Direct Access Loss – compliance boundary	727 (123 ha of which is Crown land)
Indirect Wildlife Environmental Effects Zone	2,784 (978 ha of which is Crown land)
Indirect Limited Firearms Zone	4,358 (1,411 ha of which is Crown land)

Note: ^(a) Area calculations were completed using available property boundaries from Government of Nova Scotia Geomatics Centre (not survey plans).

Through direct engagement with Millbrook community members and conclusions provided within the TLRUS and MEKS, the Proponent has been able to confirm areas of Mi'kmaq traditional use surrounding the Beaver Dam Mine Site and Haul Road. Mitigation measures described in Information Request, Round 2 (IR2) CEAA 2-48 will allow on-going access to the lands surrounding the Project where traditional use has been documented, during the eight years where direct access to the mine will be limited. However, after consideration of these mitigation measures, the Project is expected to limit traditional practices within the direct areas, and potentially affect traditional practices within the indirect areas described in Table CEAA-2-49-1. As a result, alternative areas have been described, where traditional practices may continue during the life of the Project.

**Beaver Dam Mine Project Environmental Impact Assessment
Information Request Responses, Round 2**

Tracts of crown land are present in close proximity to the Project (Figure CEAA 2-49-2). These tracts of land are adjacent to the Project Area and, in most cases, overlap with areas with documented traditional use (MFC 2019 – Under Confidential Cover). These areas of land are publicly owned, not limited by provincial or federal parks and protected areas, are all accessible and available with consideration of the mitigation measures described in IR2 response CEAA 2-48. These areas are presented as potential suitable alternative areas for traditional practices to continue, during the eight-year temporal scale of the Project.

The TLRUS (MFC 2019 – Under Confidential Cover), documents confirmed traditional use areas, and what uses these areas provide for community members of the Millbrook First Nation. This documentation of traditional land use areas extends beyond a physical description of quality of the land to support hunting, fishing, trapping and other traditional practices. Traditional areas are also described as “remote”, places where community members can experience “solitude and peace while conducting their TLRUS activities”, and where there is a generational connection to the specific locations where traditional practices take place (MFC 2019 – Under Confidential Cover). Community members describe their temporal connection to specific locations where they complete their traditional practices, with over 40 years returning to the same locations to fish and hunt (MFC 2019 – Under Confidential Cover). Also, Millbrook community members describe their generational connection to camp locations throughout the TLRUS (MFC 2019 – Under Confidential Cover), with their own memories of visiting a camp location as a youth in the 1950 to 1970, and then introducing these same camp locations to their grandchildren. These camp locations are “special because of the long history of use” and they bring back memories of their own childhood and uncles/father’s use of the same locations (MFC 2019 – Under Confidential Cover). Millbrook First Nation community members document their hunting and fishing practices in the same locations within the LAA over the last 50 years (MFC 2019 – Under Confidential Cover).

As part of the TLRUS, community members were asked about potentially having to go elsewhere to practice their traditional activities. One community member described that generational connectivity to the land. They said, “I would definitely be missing out on places... where my father fished, and my grandparents fished” (MFC 2019 – Under Confidential Cover).

The TLRUS offers a description of the conditions that support Millbrook First Nation traditional practices at a specific location: **“Ease of access, close to a camp, quietness/seclusion, long-term familial connection to the area, resource quality, and suitability for inter-generational knowledge transfer”** (MFC 2019 – Under Confidential Cover).

By extension, a “suitable alternative area” to practice, as requested in this IR2 (CEAA 2-49), will have similar characteristics to current traditional practice areas that are used by the Millbrook First Nation and other Mi’kmaq of Nova Scotia community members within and surrounding the proposed Project and that are described above (bolded) and in detail in the TLRUS.

The Proponent has proposed suitable alternative areas shown on Figure CEAA 2-49-2 and described below in Table CEAA 2-49-2 in the context of provision of similar characteristics to those described by the TLRUS. These areas are recommended as potential suitable alternative areas based on the Proponent review of the TLRUS, a review of available crown land surrounding the Project, on-going engagement with Millbrook First Nation and the Mi’kmaq of Nova Scotia, and predicted Project direct and indirect impact areas, as described in Table CEAA-2-49-1. These potential areas have been discussed and shared with Millbrook First Nation on February 16, 2021 (feedback requested on their suitability for continuation of traditional practices during the life of the mine, given the limited access to 123 ha of Crown land within the Beaver Dam Mine Site and Haul Road property boundaries, and given the potential for indirect impact to traditional practices with the Indirect Wildlife Environmental Effects Zone (978 ha of Crown Land) and the Limited Firearms Zone (1,411 ha of Crown land).

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 Information Request Responses, Round 2**
Table CEAA-2-49-2: Description of Potential Suitable Alternative Areas

Suitable Alternative Area (named by major lake and shown on Figure 3)	Description of Known Characteristics ^(a)	Limitations
1: Otter Lake	Crown land Ease of access – no implication to access to this area from Project from Hwy 224, and accessible with mitigations (CEAA 2-48) from Haul Road/ATV Route 320 Close to camp locations Resource quality (outside of indirect areas of potential impact) Quietness/seclusion Based on review of TLRUS, long-term familial connection to the area and suitability for inter-generational knowledge transfer	
2: Kent Lake	Crown land Ease of access (through mitigation measures described in CEAA 2-48) Close to camp locations Resource quality (outside of indirect areas of potential impact) Based on review of TLRUS, long-term familial connection to the area and suitability for inter-generational knowledge transfer	There will be elevated noise and dust levels above background during the temporal scale of the Project. Expected sky glow from the Mine Site.
3: West Lake	Crown land Ease of access – no implication to access to this area from Project Resource quality (outside of indirect areas of potential impact)	There will be elevated noise and dust levels above background during the temporal scale of the Project. Expected sky glow from the Mine Site.
4: Como Lake	Crown land Ease of access (through mitigation measures described in CEAA 2-48) Close to camp locations Resource quality (outside of indirect areas of potential impact) Based on review of TLRUS, long-term familial connection to the area and suitability for inter-generational knowledge transfer	There will be elevated noise and dust levels above background during the temporal scale of the Project. Expected sky glow from the Mine Site.
5: Lake Mulgrave	Crown land Ease of access (through mitigation measures described in CEAA 2-48) Close to camp locations Quietness/seclusion Resource quality (outside of indirect areas of potential impact) Based on review of TLRUS, long-term familial connection to the area and suitability for inter-generational knowledge transfer	

Note: (a) Crown land, similar size to area of lost access from Project development, ease of access, close to a camp, quietness/seclusion, long-term familial connection to the area, resource quality, and suitability for inter-generational knowledge transfer.

On June 2, 2021, AMNS received the Beaver Dam Community Consultation Report (*Community Report*) from Millbrook First Nation (MFN) under confidential cover. AMNS reviewed this report and provided MFN a review and response letter dated June 7, 2021. The purpose of this letter was to respond to the MFN's *Community Report* by updating the AMNS approach, most notably additional mitigation measures and commitments, in an effort to address MFN's concerns. The proposed mitigation and commitments made in this letter have been included in the Updated 2021 EIS (AMNS 2021, Section 6.14.8, page 6-825). Feedback received from MFN relating to suitable alternative areas are provided herein.

**Beaver Dam Mine Project Environmental Impact Assessment
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Suitable Alternative Areas for Traditional Practice*Community Report Findings:*

- Areas 1 and 2 proposed by AMNS were deemed “acceptable” (*Community Report*) in the event that the Beaver Dam Mine Project is approved. MFN is already harvesting in these areas (regular to occasional use).
- MFN expressed concern that indirect impacts from the Project might affect these areas, beyond what was concluded in the EIS as the maximum extent of the indirect effect zones (wildlife and firearms).
- Areas 4 and 5 proposed by AMNS were deemed “too far away” and “inconvenient” (*Community Report*) for harvesting. The issue of travel time was particularly evident for Area 5.
- MFN community members like to harvest in their backyards and prefer access by foot, rather than driving.
- The main purposes of exercising their rights and harvesting traditional foods is to avoid issues of food insecurity. Access to meat and protein is a concern as funds are limited in many households and the price of meat at local grocers are inflated in nearby communities.
- Inter-generational loss and emotional loss caused by the proposed mine and its associated restrictions.

AMNS Response:

- AMNS commits to maintaining Areas 1 and 2 to support traditional practices, and facilitation of improved access if/as required.
- AMNS commits to working with MFN to review monitoring results (i.e., dust, noise, wildlife displacement) in technical workshops, to provide plain language summaries for human health risk assessments, and to develop other mechanisms for sharing information as determined through engagement with MFN community members.
- AMNS is committed to working with MFN to identify additional suitable areas for traditional practice and to develop a mechanism to mitigate travel concerns by means of compensation and benefits.

AMNS acknowledges the importance of MFN harvesting activities and that the community members are exercising their inherent rights as the Mi'kmaq of Nova Scotia. AMNS has heard, and is listening to, community concerns about potentially losing their livelihoods and ways of life. AMNS commits to working closely with the Millbrook community to avoid Project impacts, wherever possible, and to continue to evaluate additional mitigation measures (i.e., adaptive management) to reduce Project impacts throughout the life of the Project.

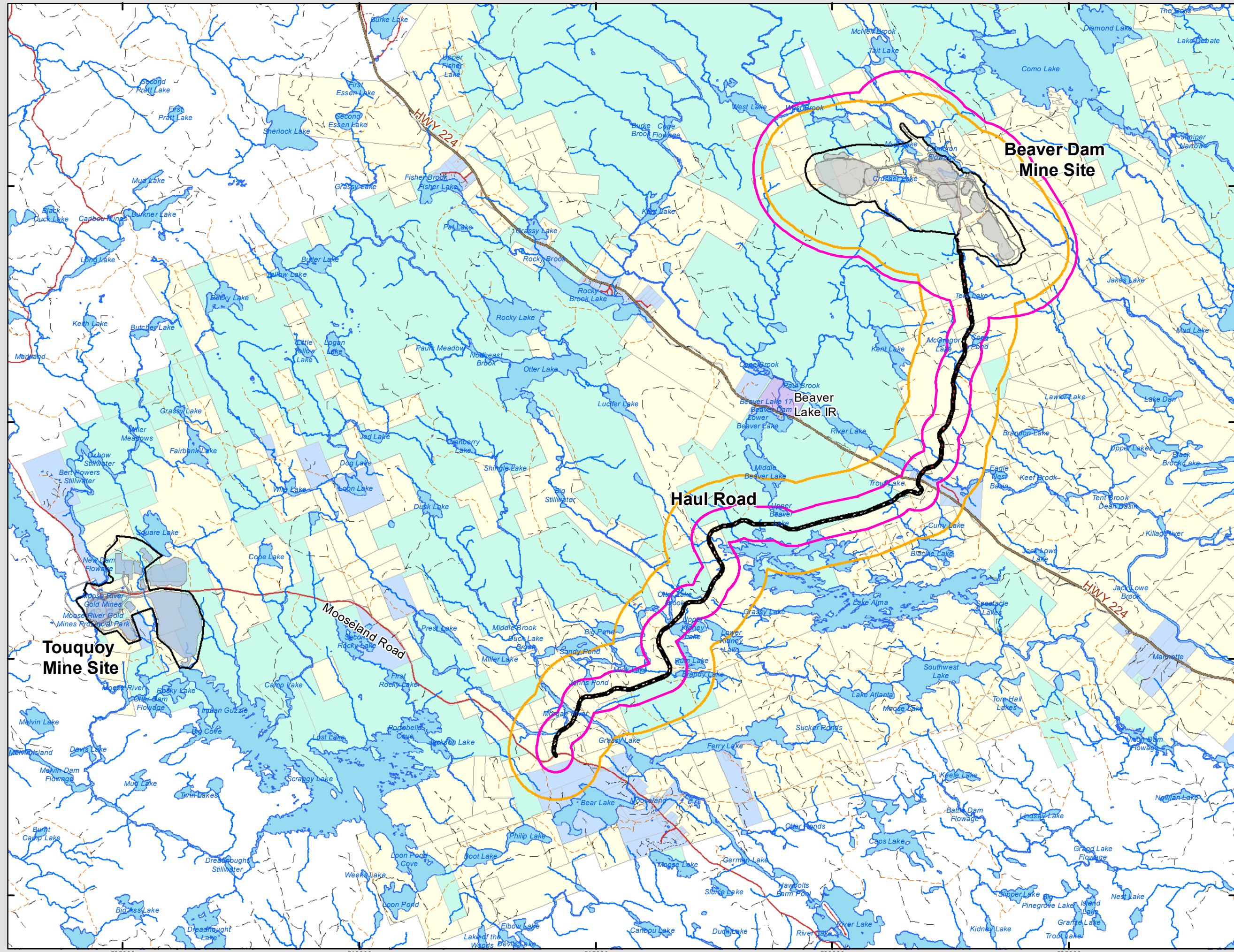
References





















AMNS (Atlantic Mining NS Inc.). 2021. Updated Environmental Impact Statement. Beaver Dam Mine Project. Submitted to the Impact Assessment Agency of Canada and Nova Scotia Environment. October 2021. Middle Musquodoboit, NS.

MFC (Moccasin Flower Consulting Inc.). 2019 – Under Confidential Cover. Atlantic Gold Corporation's Proposed Beaver Dam Mine: Traditional Land and Resource Use Study. Prepared for Millbrook First Nation. pp. 71.

FIGURE CEA 2-49-1

Review of Direct/Indirect Impacts to Millbrook First Nation



-  Collector Road
-  Local Road
-  Seasonal Road
-  Diveways (>300 m)
-  Track
-  Trail
-  Streams
-  Haul Road Centerline
-  Beaver Lake IR
-  Wildlife Indirect Environmental Effects Zone
-  Limited Firearms Zone
-  Proposed Infrastructure
-  Proposed Infrastructure Layout
-  Proposed Property Boundary
-  Lakes
-  Corporate Lands
-  Crown Lands
-  Private Lands
-  Unknown
-  Roads



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 0.75 1.5 3 Kilometers

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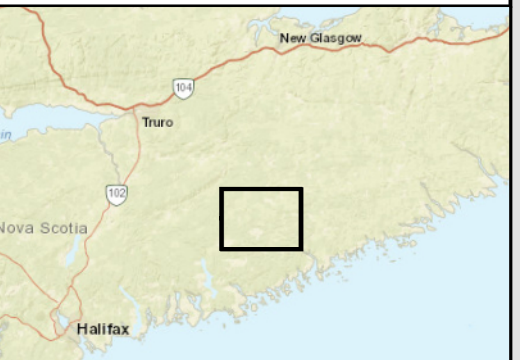


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FIGURE CEEA 2-49-2

Possible Alternative Areas for Millbrook Community Use

-  Collector Road
-  Local Road
-  Seasonal Road
-  Diveways (>300 m)
-  Track
-  Trail
-  Haul Road Centerline
-  Beaver Lake IR
-  1 Mitigation Potential on Crown
-  Wildlife Indirect Environmental Effects Zone
-  Limited Firearms Zone
-  Proposed Infrastructure
-  Touquoy Infrastructure Layout
-  Proposed Property Boundary
-  Lakes
-  Streams
-  Corporate Lands
-  Crown Lands
-  Private Lands
-  Unknown
-  Roads



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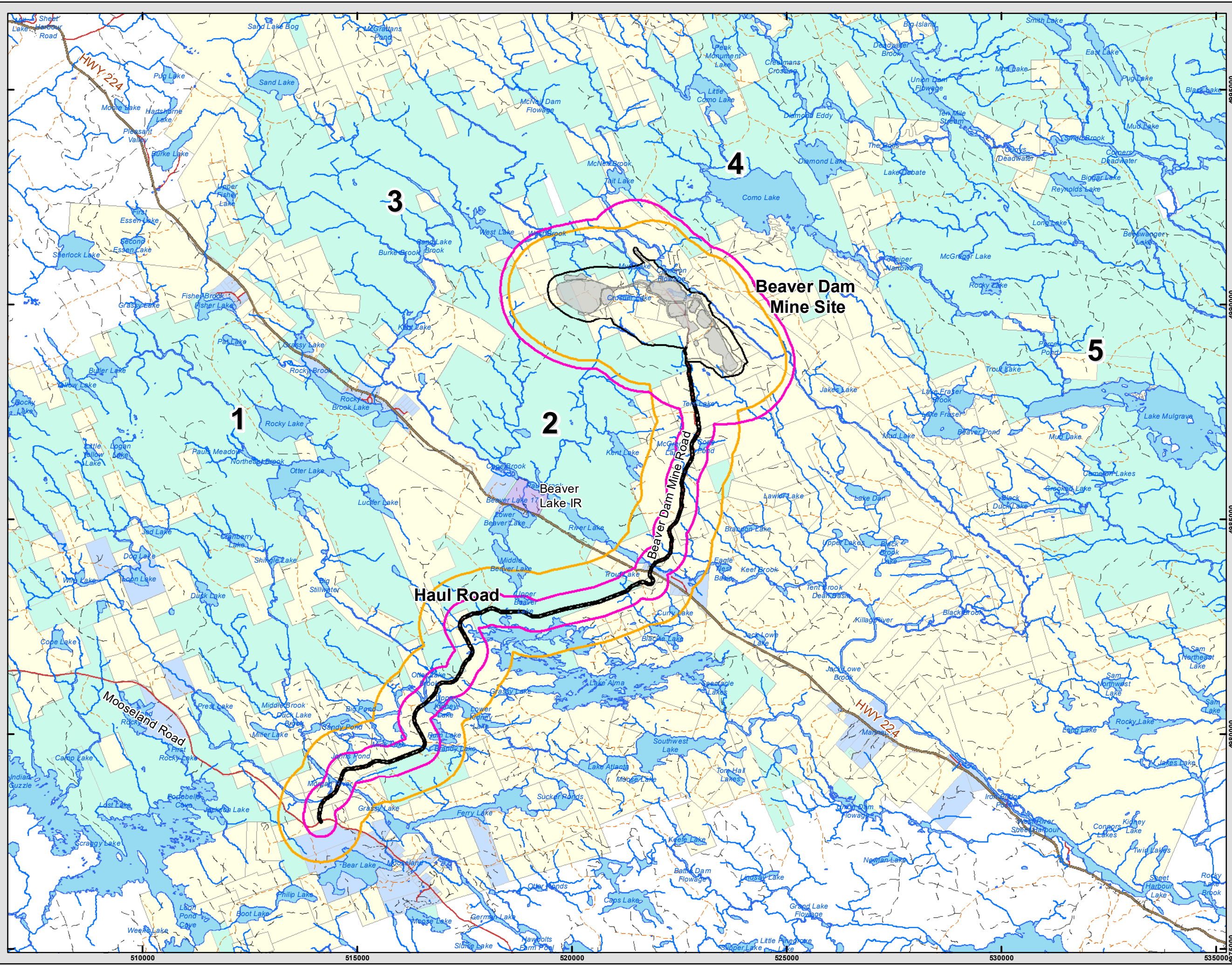


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**Beaver Dam Mine Project Environmental Impact Assessment
Information Request Responses, Round 2**

Round 2 Information Request Number:	CEAA-2-50
Regulatory Agency/Indigenous Community:	CEAA, Indigenous Groups
Topic/Discipline:	Current Use
EIS Guideline Reference:	6.1.4 Indigenous Peoples
Revised EIS (February 28, 2019) Reference:	Section 6.14.5.2

Context and Rationale

In response to CEAA 1-48, the revised EIS (section 6.14.5.2) states that “a significant adverse residual effect on Indigenous peoples as a Project-related environmental effect [is one] that results in one or more of the following outcomes:

- Long-term loss of the availability of, or access to, land and resources currently relied on for traditional use practices or the permanent loss of traditional use areas within a large portion of the project area.
- Effects on health and/or socio-economic conditions of affected Indigenous communities to the extent that there are associated detectable and sustained decreases in the quality of life of a community.”

Table 5.10-1 of the revised EIS defines the definition of “long term” as an effect that extends beyond three years. The proposed life of the Beaver Dam Mine Project extends beyond three years. As such, in consideration of the threshold highlighted above, the effects predicted by the proponent to the Mi’kmaq of Nova Scotia would be significant.

The Proponent is Required to ...

Provide additional rationale for the conclusion that potential effects to Indigenous peoples are not significant based on the threshold identified in section 6.11.5.2 of the revised EIS.

Response

The Updated EIS (AMNS 2021) has updated the significance threshold for the Mi’kmaq of Nova Scotia. The threshold has been adjusted to provide more clarity on the definition of long-term loss of the availability of, or access to, land and resources currently relied on for traditional use practices. The updated significance threshold and associated magnitude definitions are described below:

A significant adverse residual effect on the Mi’kmaq of Nova Scotia is defined as a Project-related environmental effect that results in one or more of the following outcomes:

- Long-term (greater than 20 years) or permanent loss of the availability of, or access to, land and resources currently relied on for traditional use practices; or if long-term or permanent loss is expected, no allowance for agreed-upon compensation with the affected Mi’kmaq community(s). A twenty-year temporal scale was chosen to represent a generational loss of access to an area.
- Human health risk assessments are inherently conservative, and hence, development of a threshold of significance for human health is complicated, since risk estimates tend to be biased high, based on the degree of conservatism included in

**Beaver Dam Mine Project Environmental Impact Assessment
Information Request Responses, Round 2**

any given risk assessment. The threshold for a significant residual effect has been defined as a potential adverse effect to health, identified through the conclusions presented in the HHRA.

- An unmitigated loss of a physical or cultural structure, site or thing that is of historical, archaeological, paleontological or architectural significance to the Mi'kmaq.

Short-term (less than 20 years) loss of availability of land and resources caused by displacement due to Project activities are not considered to be significant.

The significance of potential effects on potential or established Aboriginal or treaty rights is a matter of consideration by the Crown and Mi'kmaq representatives (Assembly of Nova Scotia Chiefs and the Governments of Canada and Nova Scotia).

For the Mi'kmaq of Nova Scotia, the following logic was applied to assess the magnitude of a predicted change (one or more of these aspects):

- Negligible
 - no loss of a structure, site or thing that is of historical, archaeological, paleontological or architectural significance to the Mi'kmaq of Nova Scotia as a result of Project development;
 - no observable change in the availability and baseline condition of lands and resources for traditional purposes; and
 - no change in baseline socio-economic condition of the affected Mi'kmaq communities from Project activities.
- Low
 - loss of a structure, site or thing that is of historical, archaeological, paleontological or architectural significance to the Mi'kmaq of Nova Scotia as a result of Project development, but only after a comprehensive evaluation by Mi'kmaq archaeological teams determines the loss is considered appropriate and mitigation measures are employed;
 - an observable change availability and baseline condition of the lands and resources for traditional purposes for a short temporal window (less than 20 years) and with commitment to appropriate and negotiated accommodation and compensation with the affected Mi'kmaq community(s);
 - elevated risk of non-carcinogenic or carcinogenic health risk that do not exceed Risk Quotients and where Incremental Lifetime Cancer Risks (ILCR) related to the Project were not predicted to exceed the benchmark cancer risk level of 1 in 100,000; and
 - a positive potential change in baseline socio-economic condition of the affected Mi'kmaq communities from Project activities.
- Moderate
 - loss of a structure, site or thing that is of historical, archaeological, paleontological or architectural significance to the Mi'kmaq of Nova Scotia as a result of Project development, with mitigation measures;
 - an observable change in the availability and baseline condition of the lands and resources for traditional purposes for a short temporal window (less than 20 years) with no consideration of appropriate and negotiated accommodation and compensation with the affected Mi'kmaq community(s); and

**Beaver Dam Mine Project Environmental Impact Assessment
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- elevated risk of non-carcinogenic or carcinogenic health risk that do not exceed Risk Quotients and where Incremental Lifetime Cancer Risks (ILCR) related to the Project were not predicted to exceed the benchmark cancer risk level of 1 in 100,000.
- High
 - loss of a structure, site or thing that is of historical, archaeological, paleontological or architectural significance to the Mi'kmaq of Nova Scotia as a result of Project development, without mitigation measures;
 - an observable change in the availability and baseline condition of the lands and resources for traditional purposes for a long-term temporal window (greater than 20 years);
 - elevated risk of non-carcinogenic or carcinogenic health risk that exceed Risk Quotients and/or where Incremental Lifetime Cancer Risks (ILCR) related to the Project were predicted to exceed the benchmark cancer risk level of 1 in 100,000; and
 - a negative potential change in baseline socio-economic condition of the affected Mi'kmaq communities from Project activities.

References

AMNS (Atlantic Mining NS Inc.). 2021. Updated Environmental Impact Statement. Beaver Dam Mine Project. Submitted to the Impact Assessment Agency of Canada and Nova Scotia Environment. October 2021. Middle Musquodoboit, NS.

**Beaver Dam Mine Project Environmental Impact Assessment
Information Request Responses, Round 2**

Round 2 Information Request Number:	CEAA-2-51
Regulatory Agency/Indigenous Community:	CEAA, Indigenous Groups
Topic/Discipline:	Current Use
EIS Guideline Reference:	6.1.4 Indigenous Peoples
Revised EIS (February 28, 2019) Reference:	Section 8.5.7

Context and Rationale

During consultation, Indigenous groups expressed concern regarding the potential for the Beaver Dam Mine Project and other regional projects to affect access to and current use of lands and resources. While the Agency is of the view that identifying projects within a 35 km radius may be appropriate for the cumulative effects assessment of some VCs (e.g. fish and fish habitat, air quality, habitat and fauna, etc.), it considers the buffer to be limiting for the Indigenous peoples' VC. As suggested during consultation with Indigenous groups, the Agency requires the proponent to broaden the spatial boundaries of the current use of lands to the Eskikewa'kik for their consideration of cumulative environmental effects of existing and future physical activities that are certain or foreseeable (Figure 6.14-4 in the revised EIS).

Additionally, the proponent is required to provide a complete analysis of the cumulative effects assessment in relation to Indigenous peoples. For example, although Table 8.4-2 in the revised EIS identifies that the residual effects of many certain or foreseeable projects may interact with the residual effects of the Project (section 8.5.7), the proponent's discussion is limited to forestry, Touquoy Mine and the Beaver Dam to Touquoy Haul Road. Other projects within the 35 km buffer, and noted in Table 8.4-2, are not part of the proponent's analysis. For example, despite only being 20 km away, Fifteen Mile Stream Gold Project is only considered in the context of Haul Road traffic and does not address the decrease of available land within the region that may affect the ability of Indigenous peoples to practice traditional and current-use activities.

In the context of this information requirement, note that specific concerns of Indigenous peoples expressed throughout consultation include, but are not limited to: direct loss of land; contamination of water and soil; decreased quality of harvested wildlife, fish, berries and medicinal plants; increased noise; decreased air quality; removal of access to areas for traditional practices; and introduction of new access to areas (which may open access to hunting by non-Indigenous peoples), etc.

The Proponent is Required to ...

Revise the spatial scope for the cumulative effects analysis of VCs related to Indigenous peoples.

Provide an updated cumulative effects analysis and significance determination for VCs related to Indigenous peoples (e.g. current use of lands, health and socioeconomics) within the Eskikewa'kik territory.

**Beaver Dam Mine Project Environmental Impact Assessment
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Response

The spatial scope for the cumulative effects analysis for the Mi'kmaq of Nova Scotia has been updated to consider the established RAA (Eskikewa'kik territory) and the cumulative effects analysis and significance determination has been updated accordingly in the Updated EIS (AMNS 2021). This analysis is provided below.

The cumulative effect of all projects within the RAA combined that may result in direct or indirect losses to Mi'kmaq traditional land uses including a loss of potential access to lands are listed in Table CEAA 2-51-1. A total of 37 projects were identified the RAA that range from, mining, quarries, oil and gas, wind hydro, timber mills and other infrastructure. The projects included in this assessment include:

- Existing – projects that have been constructed and are in operations (e.g., Touquoy, Port of Sheet Harbour, Sable Wind Power etc.);
- Approved – projects that have received environmental and regulatory approval but have not been constructed and are not operating (e.g., Goldboro LNG, Canso Spaceport Facility, etc.); and
- Proposed – projects that are being considered and have either filed environmental and regulatory approvals and/or are in the process of filing and or amending. (e.g., Cochrane Hill Gold Project, Anaconda Gold Mine Aerotech Connector, etc.)

The total area of the 37 identified projects in the RAA has been calculated to quantify the area of land (for the purposes of this exercise, limited to crown land only), which may be lost for traditional purposes. The total estimated project footprint was calculated for each individual project (Table 1), using publicly available study area boundaries where available, property boundaries, and aerial photo interpretation of project infrastructure if a study area boundary was not publicly available. As the calculations are based on each project's study area or property boundary rather than actual infrastructure, this method is considered likely an overestimate of potential land lost for traditional purposes. Furthermore, all projects are considered to be operating at the same time which represents a worst-case scenario although an unlikely scenario. The Goldboro LNG project, for example, received environment and regulatory approval to proceed in 2014 (CEAA 2014) but there has been limited clearing and construction and no public information is available on when this project will likely proceed, if at all.

Two projects have been excluded from this spatial land use exercise. The Nova Scotia Salmon Association's Acid Mitigation Project in the West River Sheet Harbour was not considered as removing land available for traditional or spiritual purposes. These habitats are still available, but work has been completed to mitigate the effects of acid rain on the watercourses. Secondly, timber harvesting was not considered as a loss of access to land for traditional purposes. Reliable, accurate data quantifying the area of timber harvesting which occurs on private land and crown land is not available. Timber harvesting changes the habitat type for some time, but it does not result in permanent change in the capacity of the forest to support habitats and species (i.e., natural succession will, in time, allow forest habitat to regenerate), and it does not result in loss of access to the land on any time frame, with the exception of during active cutting periods. As such, these two projects were not quantified for the cumulative effects assessment.

The total area of projects within the RAA, and the proportion of crown land is presented in Tables CEAA 2-51-1 and CEAA 2-51-2. All projects quantified within the RAA account for 6,282 ha of total area, 3,148 ha of which is crown land. The loss of access to a maximum area of 3,148 ha from all identified projects in the RAA accounts for 0.32% of all land within the RAA, and 0.88% of available crown land within the RAA. The maximum project footprints used for this calculation are presented on Figure CEAA 2-51-1A through Figure CEAA 2-51-1E (attached). Figure CEAA 2-51-2 shows the proportion of industrial

**Beaver Dam Mine Project Environmental Impact Assessment
 Information Request Responses, Round 2**

development in the RAA, which accounts for less than 1% of the region (0.6%). The proposed Beaver Dam Mine Project, as well as all other AMNS projects, account for only 0.4% of the RAA (Figure CEAA-2-51-1A).

Table CEAA-2-51-1: Cumulative Projects in the Regional Assessment Area

Development Type	Industrial Developments	Area (ha)
Existing		
Mine	Touquoy Mine	219.99
Mine	Dufferin Gold Mine	46.41
Mine	Tangier Gold Mine	29.90
Mine	ScoZinc Ltd Mine	236.14
Quarry	Chedabucto Aggregates	22.55
Quarry	Black Point Quarry	371.53
Quarry	Porcupine Mountain Quarry	278.36
Quarry	Mosher Lake Limestone	3.44
Quarry	Murphyville Gypsum Mine	11.61
Quarry	Cook's Brook Sand Gravel	13.80
Quarry	National Gypsum Quarry	475.94
Quarry	Goff's Quarry Expansion	69.16
Quarry	Loch Katrine Quarry	47.51
Wind	Chebucto Terence Bay Wind	1.39
Wind	Gaetz Brook Wind Farm	1.21
Wind	Chebucto Pockwock Wind	9.54
Wind	Sable Wind Power	5.91
Wind	Mulgrave Wind Power	3.80
Hydro	Lake Major Dam Replace	0.09
Timber Mill	Great Northern Timber (Sheet Harbour)	42.80
Timber Mill	Great Northern Timber (Musquodoboit)	37.83
Timber Mill	Taylor Lumber Co. Mill	7.42
Infrastructure	Port of Sheet Harbour	25.70
Infrastructure	Highway 107	110.68
Infrastructure	Liquid Asphalt Storage	1.13
Infrastructure	Waste Dangerous and Non Dangerous Goods	3.94
Subtotal		2077.78

**Beaver Dam Mine Project Environmental Impact Assessment
 Information Request Responses, Round 2**
Table CEEA-2-51-1: Cumulative Projects in the Regional Assessment Area (continued)

Development Type	Industrial Developments	Area (ha)
Approved		
Quarry	Sheet Harbour Quarry	156.54
Oil and Gas	Goldboro LNG Facility	136.31
Oil and Gas	Goldboro Gas Plant	36.11
Infrastructure	Canso Spaceport Facility	21.82
Subtotal		350.78
Proposed		
Mine	Beaver Dam Mine	470.65
Mine	Haul Road Study Area (including existing Mooseland Road Corridor)	295.97
Mine	Fifteen Mile Stream Study Area	1,139.60
Mine	Cochrane Hill Gold	1,410.22
Mine	Anaconda Gold Mine	283.54
Oil and Gas	Bearpaw Pipeline Project	183.06
Infrastructure	Aerotech Connector	70.66
Subtotal		3,853.70
Total		6,282.22

Table CEEA-2-51-2: Analysis of Cumulative Effect on Access to Crown Land within the Mi'kmaq of Nova Scotia Regional Assessment Area

	Total Area (ha)	Total Area of Crown Land
RAA	974,571	357,647
CEA Projects within RAA	6,282	3,148

References

AMNS (Atlantic Mining NS Inc.). 2021. Updated Environmental Impact Statement. Beaver Dam Mine Project. Submitted to the Impact Assessment Agency of Canada and Nova Scotia Environment. October 2021. Middle Musquodoboit, NS.

Prepared For:



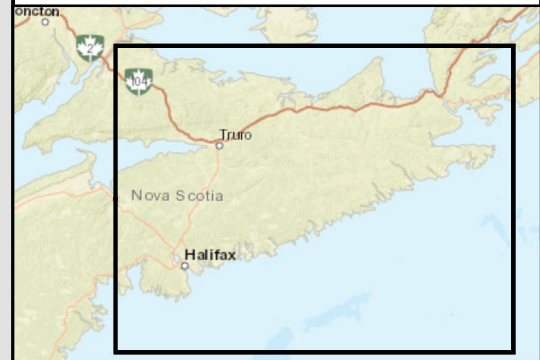
FIGURE CEAA 2-51-1A

Beaver Dam Mine Project

Cumulative Effects Assessment: Mi'kmaq of Nova Scotia

- Category**
- Forestry and Associated
 - Mining
 - Other
 - Other Industries
 - Pits and Quarries
 - Wind Power Projects
- Project Area
- Mi'kmaq Regional Assessment Area

Note: Forestry operations occur throughout the RAA and are not displayed on this figure



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 10 20 40 km

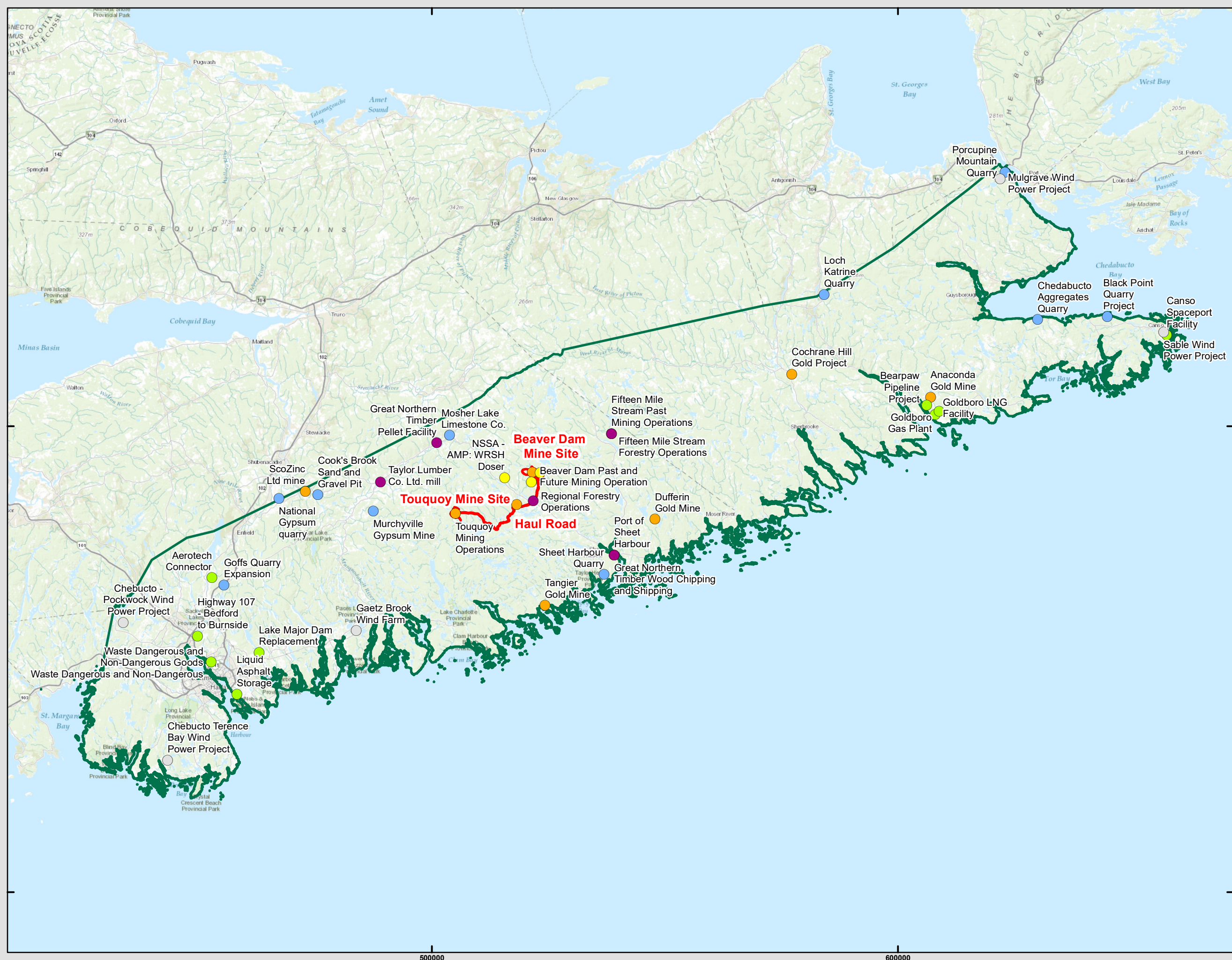
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Drawn By: EP Date: 2/25/2021
 Reviewed By: KR

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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FIGURE CEA 2-51-1B

Beaver Dam Mine Project

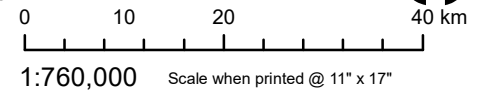
Cumulative Effects Assessment: Mi'kmaq of Nova Scotia

- Projects
- Crown Land
- Project
- Mi'kmaq Regional Assessment Area

Note: Forestry operations occur throughout the RAA and are not displayed on this figure



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

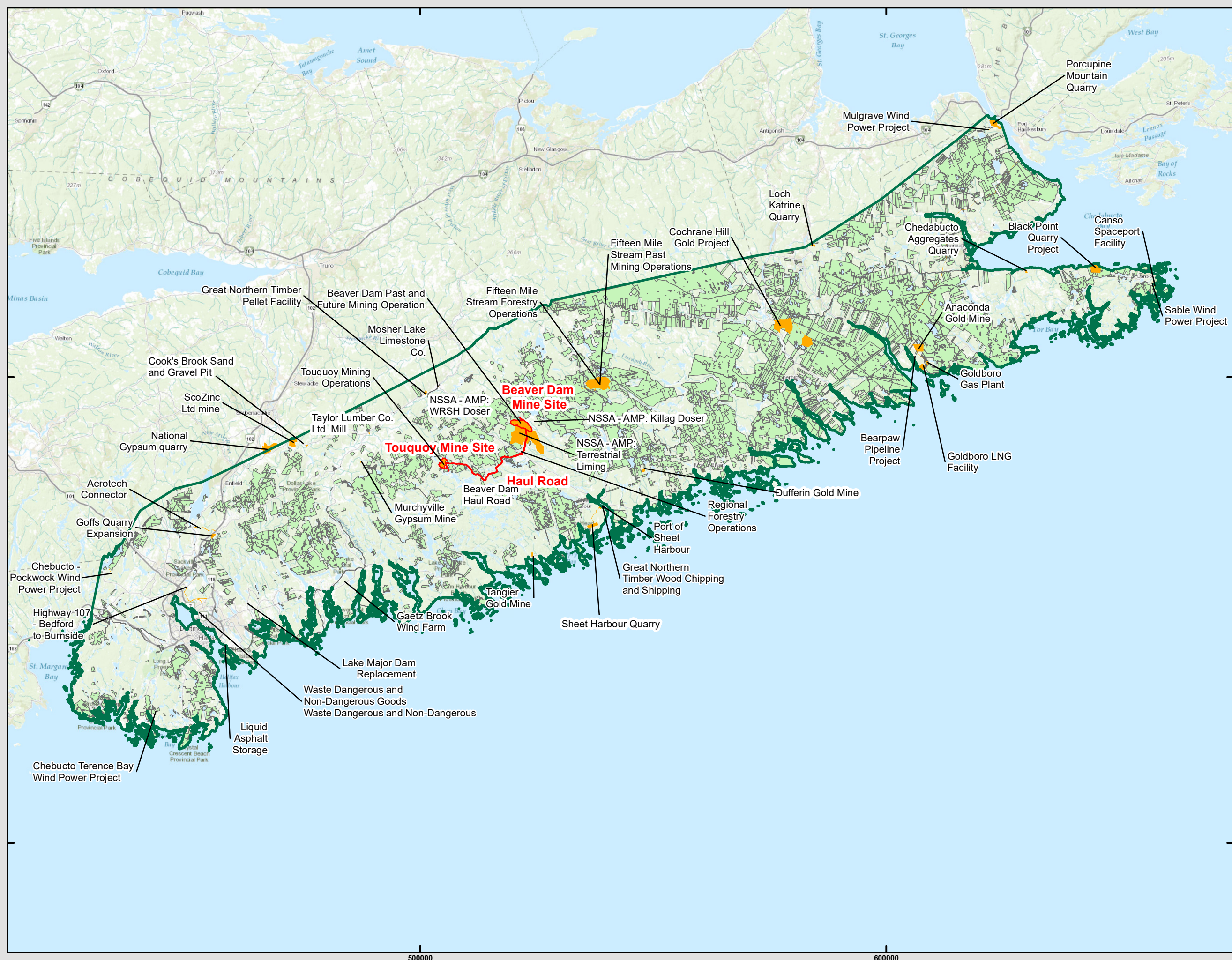


Drawn By: EP Date: 2/25/2021
 Reviewed By: KR

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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Prepared For:



FIGURE CEAA 2-51-1C

Beaver Dam Mine Project

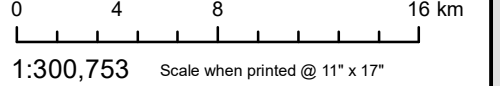
Cumulative Effects Assessment: Access to Crown Land within the Mi'kmaq Regional Assessment Area Eastern

- Projects
- Crown Land
- Mi'kmaq Regional Assessment Area

Note: Forestry operations occur throughout the RAA and are not displayed on this figure



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter



Drawn By: EP Date: 2/25/2021
 Reviewed By: KR

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



McCallum Environmental Ltd.

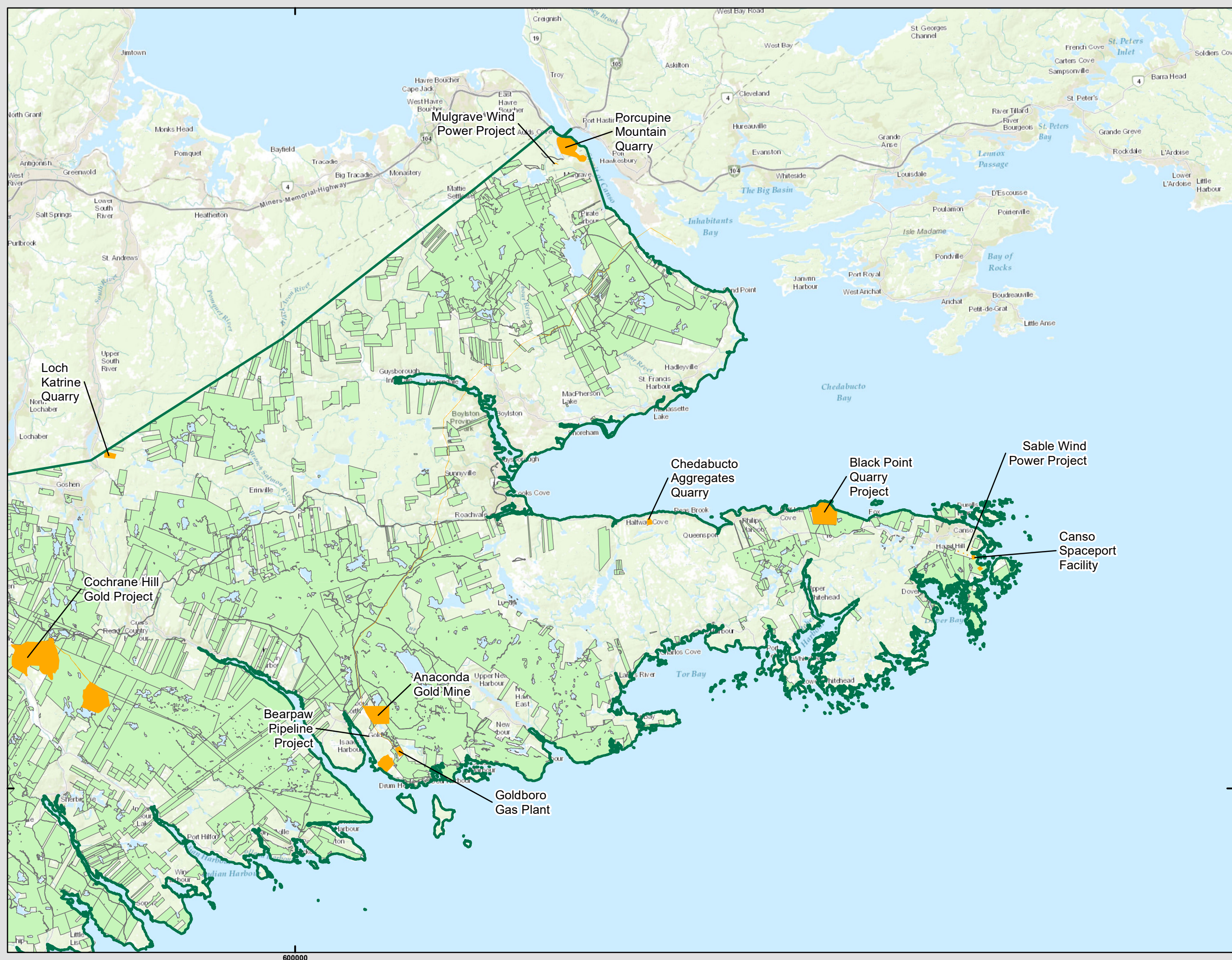


FIGURE CEA 2-51-1D

Beaver Dam Mine Project

Cumulative Effects Assessment: Access to Crown Land within the Mi'kmaq Regional Assessment Area Central

- Projects
- Crown Land
- Project
- Mi'kmaq Regional Assessment Area

Note: Forestry operations occur throughout the RAA and are not displayed on this figure

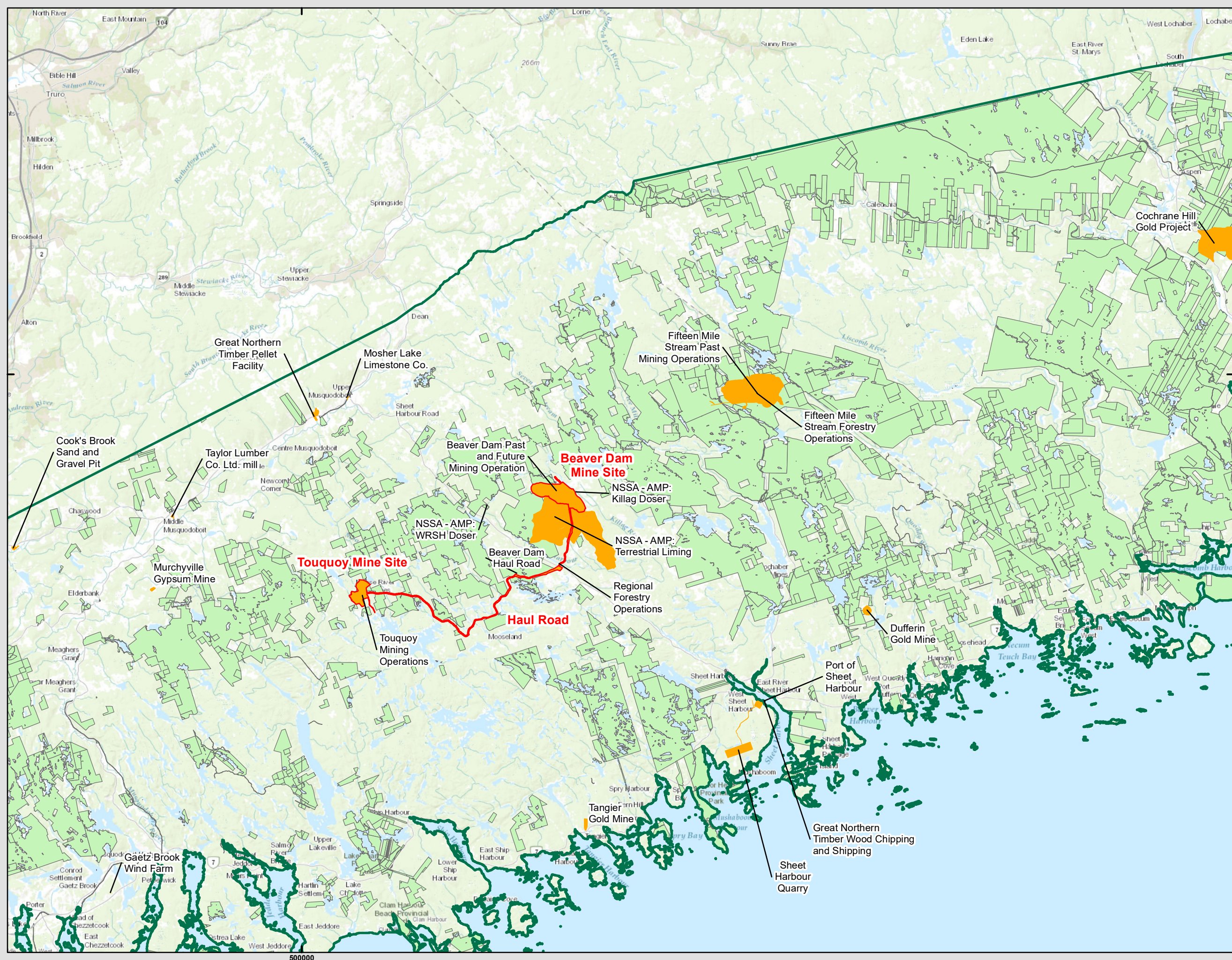


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 Units: Meter

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


Drawn By: EP Date: 2/25/2021
Reviewed By: KR

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



Beaver Dam Mine Project

**Cumulative Effects
Assessment: Access to
Crown Land within the
Mi'kmaq Regional
Assessment Area Western**

-  Projects
-  Crown Land
-  Project
-  Mi'kmaq Regional Assessment Area

Note: Forestry operations occur throughout the RAA and are not displayed on this figure



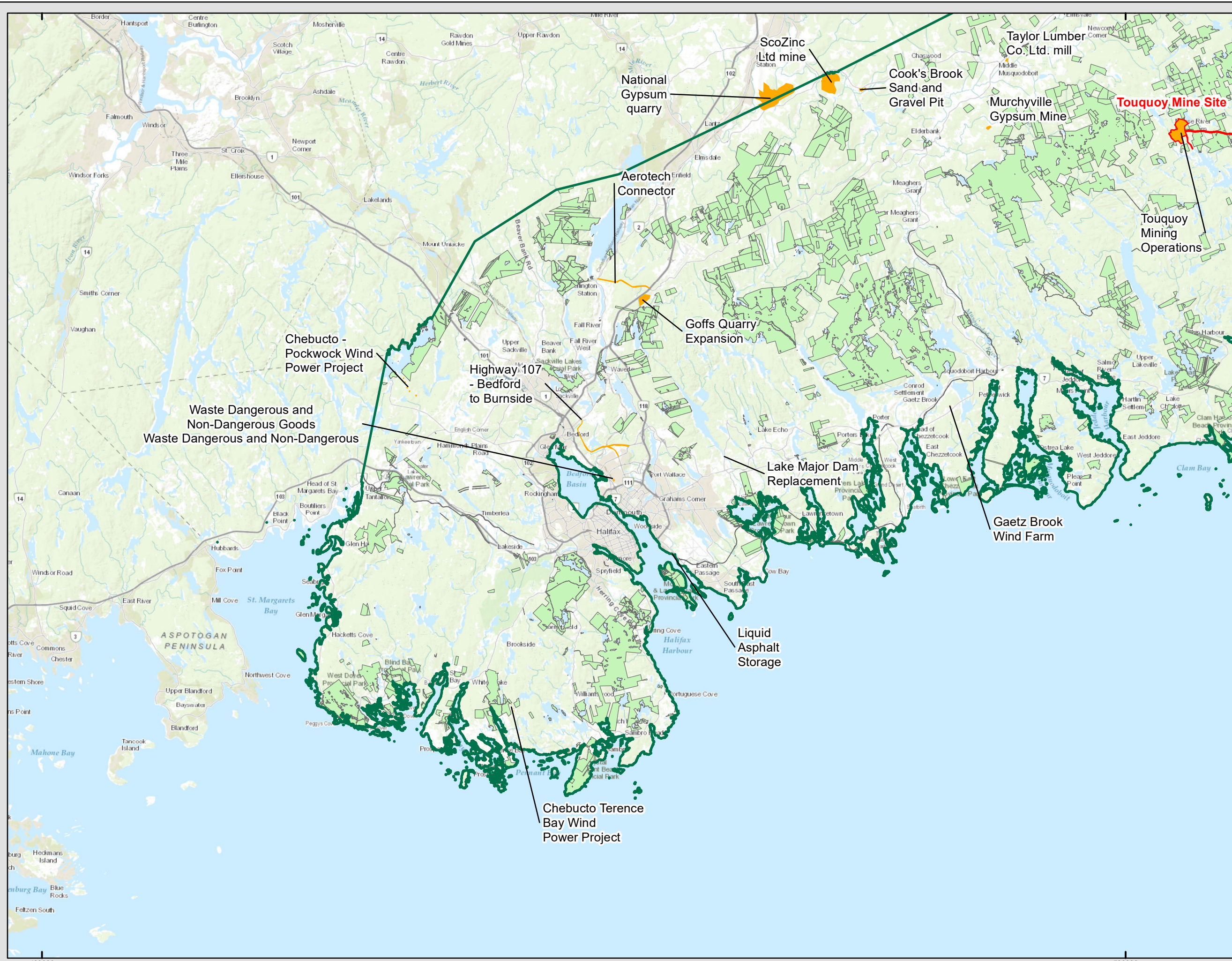
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Projection: Transverse Mercator
Datum: North American 1983 CSRS
Units: Meter

0 4.25 8.5 17 km

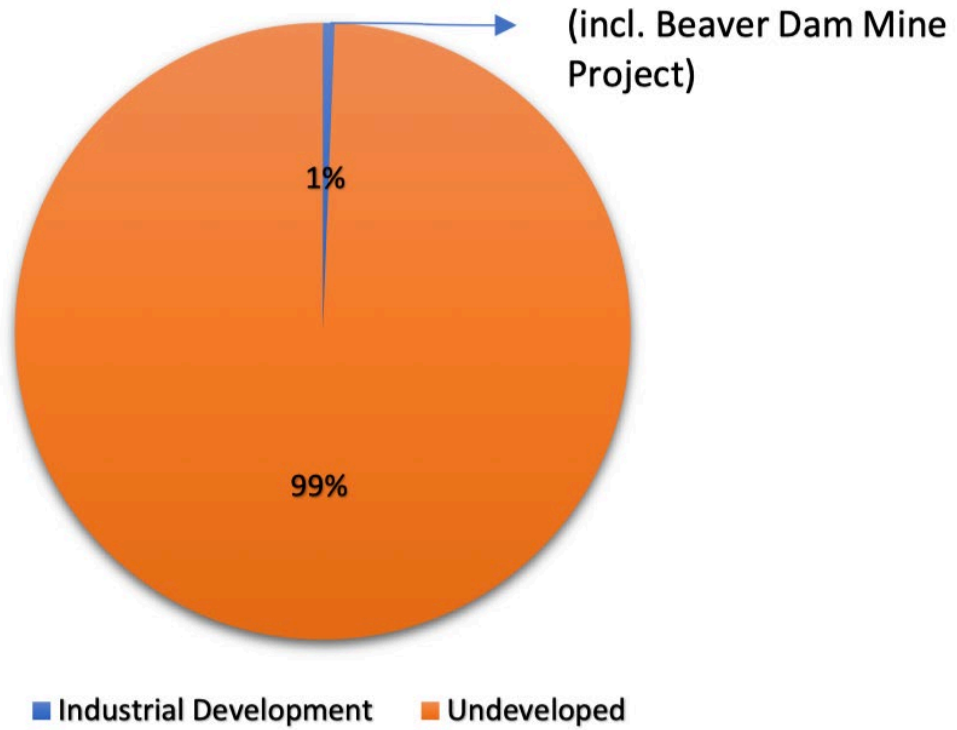
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Drawn By: EP Date: 2/25/2021
Reviewed By: KR

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Figure CEAA-2-51-2: Percent Regional Industrial Development in the Regional Assessment Area

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Round 2 Information Request Number:	CEAA-2-52
Regulatory Agency/Indigenous Community:	CEAA, Indigenous Groups
Topic/Discipline:	Current Use
EIS Guideline Reference:	6.1.4 Indigenous Peoples
Revised EIS (February 28, 2019) Reference:	Appendix C.2

Context and Rationale

With respect to the report Evaluation of Exposure Potential Related to Dust Deposition from Haul Road Traffic onto Soils, Berries, and Vegetation (Intrinsik, 2019) provided in Appendix C.2 of the revised EIS, KMKNO requested that a rationale for the berry and leaf samples used in Intrinsik's analysis be provided.

In particular, KMKNO noted that Labrador tea is omitted from the berry and leaf samples used in the evaluation, despite Labrador tea being commonly consumed. KMKNO also notes that velvetleafed blueberry (*Vaccinium myrtilloides*) was selected, while the more common late low blueberry (*Vaccinium angustifolium*), which is the usual wild species harvested for human consumption within the province, was not.

Further, KMKNO requests a discussion of laboratory methods and results to gain a better understanding of Intrinsik's evaluation. For example, it is unclear whether the berries and leaves were analyzed separately by species or by composite.

The Proponent is Required to ...

Provide a rationale for the sample set of berries and leaves used in Evaluation of Exposure Potential Related to Dust Deposition from Haul Road Traffic onto Soils, Berries, and Vegetation (Intrinsik, 2019).

Provide laboratory methods and results used to support the report Evaluation of Exposure Potential Related to Dust Deposition from Haul Road Traffic onto Soils, Berries, and Vegetation (Intrinsik, 2019).

Response

The sampling of berries and leaves was conducted in late August and early September of 2019. The objective of the sampling was to collect edible berries that could be harvested and consumed in the area of the Haul Road, as well as leaves that could be used in some consumable fashion, or for tea. The collected samples are meant to represent possible berry and vegetation types that could be used by local people in their harvesting and foraging activities. It is recognized that vegetation and berry types for all consumed species are not captured in this sampling effort, but the species included can be used as surrogates for other species. At the time the sampling was conducted, specific consumable berries or leaves types that are preferred by people harvesting in the area were not identified, and as such, the field crew sampled the available consumable species that were found along the haul road. The collected samples provide a sample of the fruits of blueberry, raspberry, cranberry, blackberry, bunch berry and black huckle berry for the berry samples, and the leaves of blueberry, raspberry, blackberry, black huckle berry and sweet gale plants for the vegetation samples (see Table 201; Intrinsik, 2019). It is recognized that Labrador tea was not specifically sampled in this sampling exercise. The First Nations Food Environment and Nutrition Study (FNFENS; Chan et al, 2017) for the Atlantic region did analyze two samples of Labrador Tea in the Atlantic region, and the reported results for arsenic, cadmium, and lead and

**Beaver Dam Mine Project Environmental Impact Assessment
 Information Request Responses, Round 2**

mercury in that study (Table 26; Chan et al, 2017) are lower than the leaf results for these same chemicals of potential concern in Intrinsic (2019), Table 2-4. This indicates that the values used for vegetation in the Intrinsic study are conservative (ie, higher), relative to the measured concentrations for these 4 inorganic compounds in Labrador tea in the FNFNES study. A table outlining the comparison of these datasets is provided below:

Table CEAA-2-52-1: Labrador Tea and Berry Leaves Metal Concentrations

Chemical of Potential Concern	FNFNES ^(a) Labrador Tea Data (µg/g fresh weight)		Intrinsic ^(b) Berry Leaves (µg/g fresh weight)	
	Maximum	Mean	Maximum	Mean
Arsenic	0.001	0.0003	0.04	0.013
Cadmium	0.0001	0.0001	0.0765	0.0274
Lead	0.0003	0.0002	0.327	0.048
Mercury	0.0001	0.00003	<0.01	Not calculated

Notes: ^(a) Chan et al. 2017, Table 26.

^(b) Intrinsic 2019, Table 2-4.

FNFNES = First Nations Food Environment and Nutrition Study; µg/g = micrograms per gram; < = less than.

With regard to the laboratory methods used for the metals analysis of vegetation, the collected samples were shipped to RPC Analytical in Fredericton NB for processing and analysis. The samples were not washed prior to analysis. As reported in the analytical sheets provided in Appendix C.2 of the Updated 2021 EIS (AMNS 2021, Appendix C.2 [Intrinsic 2021]), the samples were homogenized and portions were prepared by Microwave Assisted Digestion in nitric acid (SOP 4.M26). The resulting solutions were analyzed for trace elements by ICP-MS (SOP 4.M01). Mercury was analyzed by Cold Vapour AAS (SOP 4.M52 & SOP 4.M53). Results were reported on an "as received" (wet weight) basis. The laboratory analytical sheets are provided in Appendix A of the Intrinsic (2019) report. The samples were analyzed as individual species. In Intrinsic (2021), Table 2-1 provides a summary of the berry types, and vegetation types. Therefore, results for site 1 are results for blueberries (the fruit) sampled at that location, and the vegetation sampled is Blueberry leaves. The results for site 2 are for raspberries (fruit), and the vegetation sampled is raspberry leaves. No composite berry (fruit) or composite leaf samples were analyzed – all samples analyzed were for single species. The results of all samples were then statistically analyzed in Table 2-3 of Intrinsic (2021) for berries (minimum; maximum; average and 90th percentile), and in Table 2-4 for vegetation (leaves).

References

AMNS (Atlantic Mining NS Inc.). 2021. Updated Environmental Impact Statement. Beaver Dam Mine Project. Submitted to the Impact Assessment Agency of Canada and Nova Scotia Environment. October 2021. Middle Musquodoboit, NS.

Chan, L., Olivier Receveur, Malek Batal, William David, Harold Schwartz, Amy Ing, Karen Fedruk and Constantine Tikhonov. First Nations Food, Nutrition and Environment Study (FNFNES): Results from the Atlantic. Ottawa: University of Ottawa, 2017.

Intrinsic, 2019. Evaluation of Exposure Potential related to Dust Deposition from Haul Road traffic on to soils, berries and vegetation. Atlantic Mining NS Beaver Dam Mine Project Final Report January 15, 2019.

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Round 2 Information Request Number:	CEAA-2-53
Regulatory Agency/Indigenous Community:	CEAA, Indigenous Groups
Topic/Discipline:	Current Use
EIS Guideline Reference:	6.1.4 Indigenous Peoples
Revised EIS (February 28, 2019) Reference:	Section 6.1.4

Context and Rationale

Section 6.14 of the revised EIS includes an assessment of how the health of Indigenous peoples may be affected by the Project. Health Canada indicated that there is insufficient justification in the revised EIS (based on the consideration of air quality, noise, drinking water and country foods assessment) to conclude that effects on human health are not significant. Round 2, Part 1 IRs CEAA-2-29 to CEAA-2-39 require the proponent to update their assessment of air quality and noise, and to further consider drinking water, while CEAA-2-38 requires that the proponent conduct a Human Health Risk Assessment (or sufficient justification if one is not required). Based on the outcomes of the aforementioned IRs, the proponent's environmental effects and cumulative effects assessments (i.e. analysis and significance determination) of the health of Indigenous peoples requires an update.

Guidance on the assessment of effects on human health is provided in the following Health Canada publications:

- Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: NOISE;
- Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: AIR QUALITY;
- Health Canada. 2018. Guidance for Evaluating Human Health Impacts in Environmental Assessment: COUNTRY FOODS;
- Health Canada. 2012. Federal Contaminated Site Risk Assessment in Canada: Supplemental Guidance on Human Health Risk Assessment for Country Foods (HHRA Foods).

The Proponent is Required to ...

Update environmental effects and cumulative effects analysis and significance determination on the health of Indigenous peoples, including the consideration of air, noise, drinking water and country foods.

Response

The noise and air assessments and the Human Health Risk Assessment (HHRA) for the Beaver Dam Mine Project were updated due to changes in the Project Description and in response to this Information Request, Round 2 (IR2; CEAA 2-53) and IR2 CEAA 2-29 to CEAA 2-39. The updated noise assessment can be found in the Updated 2021 EIS [AMNS 2021] in Section 6.1, page 6-1 and Appendix B.2 (Updated Noise Impact Assessment Technical Report), and the updated air assessment is provided in the Updated 2021 EIS [AMNS 2021] Section 6.2, page 6-32 and Appendix C.1 (Air Emissions Assessment Technical Report) and the updated HHRA (IR2 response CEAA 2-38) is provided in Appendix C.2 (Evaluation of Potential Human Exposures and Risks Related to Emissions from the Beaver Dam Mine Project) (AMNS 2021).

The adjustments to the project description and mitigation commitments (Table CEAA-2-53-1) reduced the potential health impacts to the Mi'kmaq of Nova Scotia. The Updated 2021 EIS (AMNS 2021) has also evaluated the potential exposure pathway from dust

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deposition and dust suppression on the Haul Road to domestic water supplies (potable wells and potential use of surface water for potable purposes at Ferry Lake [Appendix F.9]) (IR2 responses to CEAA 2-36 and CEAA 2-37).

Technical conclusions for Valued Components (VCs), mitigation measures, and resulting potential pathways for inclusion into the HHRA are provided in Section 6.14.7 (Project Activities/Interactions with Mi'kmaq of Nova Scotia), Table 6.14-5, page 6-806 and presented below in Table CEAA-2-53-1. The HHRA considered potential exposure pathways based on predicted Project impacts to the health of the Mi'kmaq of Nova Scotia as shown in Figure CEAA-2-53-1 below.

The conclusions of the HHRA confirm a low magnitude of risk relating to human health, defined as elevated risk of non-carcinogenic or carcinogenic health risk do not exceed Risk Quotients and Incremental Lifetime Cancer Risks (ILCR) related to the Project and were not predicted to exceed the benchmark cancer risk level of 1 in 100,000. Based on the assessment conducted, risks from exposure to soil and dust, the consumption of country foods harvested near the Beaver Dam Mine Site, and recreational water use (i.e., swimming), are considered to be negligible, which means they are too small to be measured.

The significance threshold for the Mi'kmaq of Nova Scotia has been updated to consider the health of the Mi'kmaq of Nova Scotia, and is provided in Section 6.14.6.2, page 6-799 of the Updated 2021 EIS (AMNS 2021) presented in IR2 response CEAA 2-39 and detailed below.

A significant adverse residual effect on the Mi'kmaq of Nova Scotia is defined as a Project-related environmental effect that results in one or more of the following outcomes:

- Long-term (greater than 20 years) or permanent loss of the availability of, or access to, land and resources currently relied on for traditional use practices; or if long-term or permanent loss is expected, no allowance for agreed-upon compensation with the affected Mi'kmaq community(s). A twenty-year temporal scale was chosen to represent a generational loss of access to an area.
- Human health risk assessments are inherently conservative, and hence, development of a threshold of significance for human health is complicated, since risk estimates tend to be biased high, based on the degree of conservatism included in any given risk assessment. The threshold for a significant residual effect has been defined as a potential adverse effect to health, identified through the conclusions presented in the HHRA.
- An unmitigated loss of a physical or cultural structure, site or thing that is of historical, archaeological, paleontological or architectural significance to the Mi'kmaq.
- Short-term (less than 20 years) loss of availability of land and resources caused by displacement due to Project activities are not considered to be significant.

The significance of potential effects on potential or established Aboriginal or treaty rights is a matter of consideration by the Crown and Mi'kmaq representatives (Assembly of Nova Scotia Chiefs and the Governments of Canada and Nova Scotia).

**Beaver Dam Mine Project Environmental Impact Assessment
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For the Mi'kmaq of Nova Scotia, the following was applied to assess the magnitude of a predicted change (one or more of these aspects):

- Negligible
 - no loss of a structure, site or thing that is of historical, archaeological, paleontological or architectural significance to the Mi'kmaq of Nova Scotia as a result of Project development;
 - no observable change in the availability and baseline condition of lands and resources for traditional purposes; and
 - no change in baseline socio-economic condition of the affected Mi'kmaq communities from Project activities.
- Low
 - loss of a structure, site or thing that is of historical, archaeological, paleontological or architectural significance to the Mi'kmaq of Nova Scotia as a result of Project development, but only after a comprehensive evaluation by Mi'kmaq archaeological teams determines the loss is considered appropriate and mitigation measures are employed;
 - an observable change in the availability and baseline condition of the lands and resources for traditional purposes for a short temporal window (greater than 20 years) and with commitment to appropriate and negotiated accommodation and compensation with the affected Mi'kmaq community(s);
 - elevated risk of non-carcinogenic or carcinogenic health risk that do not exceed Risk Quotients and where Incremental Lifetime Cancer Risks (ILCR) related to the Project were not predicted to exceed the benchmark cancer risk level of 1 in 100,000; and
 - a positive potential change in baseline socio-economic condition of the affected Mi'kmaq communities from Project activities.
- Moderate
 - loss of a structure, site or thing that is of historical, archaeological, paleontological or architectural significance to the Mi'kmaq of Nova Scotia as a result of Project development, with mitigation measures;
 - an observable change in the availability and baseline condition of the lands and resources for traditional purposes for a short temporal window (less than 20 years) with no consideration of appropriate and negotiated accommodation and compensation with the affected Mi'kmaq community(s); and
 - elevated risk of non-carcinogenic or carcinogenic health risk that do not exceed Risk Quotients and where Incremental Lifetime Cancer Risks (ILCR) related to the Project were not predicted to exceed the benchmark cancer risk level of 1 in 100,000.
- High
 - loss of a structure, site or thing that is of historical, archaeological, paleontological or architectural significance to the Mi'kmaq of Nova Scotia as a result of Project development, without mitigation measures;
 - an observable change in the availability and baseline condition of the lands and resources for traditional purposes for a long-term temporal window (>20 years);

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- elevated risk of non-carcinogenic or carcinogenic health risk that exceed Risk Quotients and/or where Incremental Lifetime Cancer Risks (ILCR) related to the Project were predicted to exceed the benchmark cancer risk level of 1 in 100,000; and
- a negative potential change in baseline socio-economic condition of the affected Mi'kmaq communities from Project activities.

References

AMNS (Atlantic Mining NS Inc.). 2021. Updated Environmental Impact Statement. Beaver Dam Mine Project. Submitted to the Impact Assessment Agency of Canada and Nova Scotia Environment. October 2021. Middle Musquodoboit, NS.

CCME (Canadian Council of Ministers of the Environment). 2020. Canadian Ambient Air Quality Standards (CAAQS).
<https://ccme.ca/en/air-quality-report#slide-7>

Government of Nova Scotia. 2005. Nova Scotia Environment Ambient Air Quality Data: Air Quality Regulations N.S. Reg. 28/2005 amended January 21, 2020 (N.S. 8/2020) made under Section 25 and 112 of the Environment Act, 1994-95. Halifax, Nova Scotia. <https://novascotia.ca/nse/airdata/>

ECCC (Environment and Climate Change Canada). 2015. General Nesting Periods of Migratory Birds in Canada. Retrieved from <https://www.canada.ca/en/environmentclimate-change/services/avoiding-harm-migratory-birds/general-nesting-periods.html>

EC 2012c. Metal Mining Technical Guidance for Environmental Effects Monitoring. Government of Canada. ISBN 978-1-10020496-3, Cat. no.: En14-61/2012E-PDF.

Government of Nova Scotia. 2005. Nova Scotia Environment Ambient Air Quality Data: Air Quality Regulations N.S. Reg. 28/2005 amended January 21, 2020 (N.S. 8/2020) made under Section 25 and 112 of the Environment Act, 1994-95. Halifax, Nova Scotia. <https://novascotia.ca/nse/airdata/>

NSEL (Nova Scotia Environment and Labour). 1999. Pit and Quarry Guidelines. https://novascotia.ca/nse/issues/docs/Pit_and_Quarry_Guidelines.pdf, accessed November 2017.

Beaver Dam Mine Project Environmental Impact Assessment
 Information Request Responses, Round 2

Table CEAA 2-53-1: Project Interactions and Summaries for each VC and Potential Effect to Mi'kmaq of Nova Scotia

Valued Component	Summary of Key Mitigation Measures relating to Mi'kmaq of Nova Scotia (refer to individual VC sections for details)	Summary of Residual Effect	Potential Interaction with, and Effect to the Mi'kmaq of Nova Scotia (health and socio-economic conditions, current use, physical and cultural heritage)	Consideration in HHRA
Noise	<ul style="list-style-type: none"> The pit entrance/exit has been relocated to the west side of the pit, farther from the northeast property boundary. No more than four drills will operate concurrently during any day, evening, or nighttime hour. Increase the height of the safety berm along the north boundary of the pit. Operating hours for trucking on the Haul Road will be restricted to the day and evening periods only (7AM to 11PM) Noise-reduction as criteria in equipment selection Site design to reduce need for reversing and vehicle reversing alarms use of large haul vehicles to minimize trips 	<p>Beaver Dam Mine Site will be in compliance with the nighttime Pit and Quarry Guidelines (55 dBa). The Haul Road will operate from 7am-11pm and will be in compliance with the evening Pit and Quarry Guidelines (60 dBa).</p> <p>Predicted blasting noise will meet the Nova Scotia Pit and Quarry Guidelines (NSEL 1999) criteria of 128 dBA at approximately 100+ m from the blast location.</p>	<p>Noise levels are predicted to meet the Pit and Quarry Guidelines (NSEL 1999) at the proposed property boundary at the Beaver Dam Mine Site and Haul Road and thus, there is limited noise exposure to the Mi'kmaq of Nova Scotia outside of the Project property boundaries.</p> <p>Elevated noise above background concentrations near the Beaver Dam Mine Site and Haul Road may affect wildlife patterns and as a result, affect traditional hunting practices by the Mi'kmaq of Nova Scotia within 400 m (S, W, E) to 1,100m (N) of the Beaver Dam Mine Site and approximately 360 m on either side of the Haul Road, based on the most conservative guideline (nighttime value of 45 dBA) identified for potential broad wildlife effects (Environmental Code of Practice for Metals Mines EC 2012c).</p> <p>Elevated noise is not expected to affect plant gathering or fishing activities or other recreational/commercial uses of the area directly surrounding the Project. Summary effects of noise on fauna are described below.</p>	No
Air	<ul style="list-style-type: none"> Apply dust suppressants, when and where practicable, to target 80% effectiveness Speed reduction The crushed ore stockpile at the Touquoy Mine Site will be covered to minimize wind and rain erosion In the event that the monitoring program identifies the need for additional dust mitigation measures for the Haul Road, options exist for further reduction in particulates including: <ul style="list-style-type: none"> an enhanced dust suppression application schedule; use of other suppressants that are biodegradable; road re-surfacing or treatments to reduce silt content; and paving portions of the Haul Road. 	<p>Maximum predicted concentrations of parameters (i.e., TSP, PM10, and PM2.5) meet the assessment criteria for ambient air quality standards (Government of Nova Scotia 2005 and CCME 2020) at the proposed Beaver Dam Mine Site and the Haul Road property boundaries. At the Haul Road property boundaries, these assessment criteria are met with applied mitigation of 80% chemical dust suppressants.</p>	<p>Elevated particulate levels above background concentrations outside of the Beaver Dam Mine Site and Haul Road property boundaries could be present on vegetation and berries and as a result, affect traditional gathering and food consumption practices and human health by the Mi'kmaq of Nova Scotia.</p>	Yes
Light	<ul style="list-style-type: none"> Use of only downward-facing lights on site infrastructure and Mine Site roads Install motion-sensing lights, where practicable Only use direct and focused light when needed for worker safety All floodlights will employ full horizontal cutoff, as appropriate Lighting not in use will be turned off, whenever practicable Site perimeter lighting will be directed to minimize light offsite light trespass 	<p>Direct line of sight is possible up to 5 km from the Beaver Dam Mine Site property boundary where topography favors light propagation.</p> <p>Light intrusion into the forested habitat along the Haul Road up to 279m from the Haul Road property boundary.</p>	<p>Increased light levels above background levels near the Beaver Dam Mine Site could affect wildlife patterns and as a result, affect traditional hunting practices by the Mi'kmaq of Nova Scotia. While effects of light on wildlife are documented, it is still an emerging area of research. This is discussed in Fauna section of the revised EIS (AMNS 2021). below. Increased light levels are not expected to affect plant gathering or fishing activities or other recreational/commercial uses of the area directly surrounding the Project. There is no pathway for effect to human health from light.</p>	No

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Table CEAA 2-53-1: Project Interactions and Summaries for each VC and Potential Effect to Mi'kmaq of Nova Scotia (continued)

Valued Component	Summary of Key Mitigation Measures relating to Mi'kmaq of Nova Scotia (refer to individual VC sections for details)	Summary of Residual Effect	Potential Interaction with, and Effect to the Mi'kmaq of Nova Scotia (health and socio-economic conditions, current use, physical and cultural heritage)	Consideration in HHRA
Geology, Soils and Sediment	<ul style="list-style-type: none"> Segregate and manage waste rock with the potential for acid generation 	<p>There is a potential for acid rock drainage based on 70 static tests and 5 humidity cell tests of mine rock materials</p> <p>Based on a number of conservative assumptions, the results indicate that there is very low potential for acidic conditions to occur during operations.</p> <p>During closure phase, there is potential for acidic conditions to occur (i.e., 50% of PAG is predicted to be acidic within 10 years); however, through mitigations (e.g., engineered cover and water management) these conditions can be mitigated.</p> <p>Monitoring will be undertaken during operations and closure to validate the geochemical source terms and impact predictions. If necessary additional mitigations will be applied.</p>	<p>Acidic conditions in predicted surface water quality from the Project could affect fishing practices in Cameron Flowage (Killag River) (receiving environment for mine discharge). This potential pathway for exposure is considered in the Surface Water VC.</p> <p>Mine rock will be tested during construction and operations as described in Metal Leaching/Acid Rock Drainage Plan (Appendix E.5). Material considered to have the potential for acid rock drainage will be stored in a designated area (i.e., PAG stockpile) located adjacent to the pit. Although water quality models indicate that there is a very low potential for acid conditions to occur during operations diversion ditches will be constructed around the PAG Stockpile so that water can be directed to the North Settling Pond for treatment, as necessary, prior to discharge.</p> <p>At closure, an engineered cover will be placed over the PAG to reduce infiltration of water into the pile. The area will be covered with soil and revegetated. Water from the PAG stockpile will be directed towards the pit. Monitoring will be undertaken throughout construction and operations to confirm impact predictions (i.e. geochemical characterization and water quality) and to adaptively manage PAG mitigations prior to closure. Monitoring will continue during active and post closure.</p>	<p>No*</p> <p>* Human exposure to soils outside the proposed property boundaries, which could be potentially influenced by atmospheric deposition from mining activities is described in the air VC and is included in the HHRA (dust deposition onto soils)</p>
	<ul style="list-style-type: none"> fulsome discussion of proposed mitigation and management measures are presented Surface Water (Section 6.7.9), Wetlands (Section 6.8.8), and Fish and Fish Habitat (Section 6.9.8). 	<p>Historical tailings present at Beaver Dam Mine Site will be fully delineated, tested and managed during construction. Disposal of historic tailings will be off-site at the Touquoy tailings management facility.</p>	<p>The applied monitoring and mitigation will limit potential impacts to Mi'kmaq human health, harvesting/gathering practices and/or recreation and other cultural pursuits. Release of sediment and contaminants associated with historical tailings could also affect downstream water quality in surface water systems (Cameron Flowage (Killag River), Mud Lake, Crusher Lake, Tent Lake watershed).</p> <p>An assessment was undertaken in 2019 and 2020 (Appendix E.6, E.7 and E.8 of AMNS 2021) to identify historical tailings within the Beaver Dam Mine Site. AMNS is committed to managing historic tailings encountered during construction and operations. Historic tailings will be stored in a designated area until it can either be shipped off-site to the Touquoy Tailings Management Facility (TMS) or in the exhausted pit. Water originating from historic tailings will be directed to the North Settling Pond for treatment prior to release to the environment. Water treatment is designed to meet water quality objectives, and compliance as described in Surface Water VC.</p> <p>Human exposure to historic tailings will be limited because they are either going to be removed and managed/disposed of, to enable mining to occur, or left in their current stable condition (Appendix E.9). Furthermore, there will be no access for general public in the active mining area.</p>	
	<ul style="list-style-type: none"> Implement Erosion and Sediment Control Plan Secure overburden stockpiles using a combination of mulching, hydroseeding, and slope stabilization Limit exposed soil 	<p>There is the potential for release of sediment from the road surface to be released to water bodies, especially at stream crossings.</p>	<p>Lessons learned from Touquoy sediment release incidents will be incorporated into the engineered designs of roads near water bodies and during road maintenance and snow clearing activities. These lessons include careful control of road height and drainage gradients near water bodies, as well as specialized sediment control measures near stream crossings that incorporate filter cloth into the road base design and application of specialized surface stabilizers on the road surface near water bodies. In addition, specialized ditching, check dams and sumps will be utilized as required. A monitoring plan for sediment in water bodies near the road will be implemented during and after construction to ensure control measures are and continue to be effective.</p>	

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Table CEAA 2-53-1: Project Interactions and Summaries for each VC and Potential Effect to Mi'kmaq of Nova Scotia (continued)

Valued Component	Summary of Key Mitigation Measures relating to Mi'kmaq of Nova Scotia (refer to individual VC sections for details)	Summary of Residual Effect	Potential Interaction with, and Effect to the Mi'kmaq of Nova Scotia (health and socio-economic conditions, current use, physical and cultural heritage)	Consideration in HHRA
Groundwater	<ul style="list-style-type: none"> Conduct pre-construction well survey at Beaver Lake IR 17 Implement a groundwater interceptor trench on the west side of the PAG stockpile, if necessary 	<p>Maximum radius of influence (groundwater drawdown) is predicted at a maximum of 1000 m (to the south) from the pit during operations, and less that this during closure, when the pit is re-filling with water. The nearest potable well is 5 km south of the Beaver Dam Mine Site (drilled well Beaver Lake IR 17).</p> <p>Groundwater seepage has been predicted through modelling efforts and these seepage rates have been included in operational and closure surface water modelling efforts to understand potential effect of groundwater seepage on surrounding surface water features.</p>	<p>At the end of mine operations, there is no significant impact to the reasonable use of groundwater at the Beaver Dam Mine Site property boundary. No impacts to groundwater quality and quantity are predicted approaching the regional assessment area, or at key receptors including Beaver Lake IR 17 or the nearest domestic well located along Hwy 224.</p> <p>Groundwater seepage was considered as part of the surface water quality modelling efforts.</p> <p>Due to the distance of Mi'kmaq communities and residences, and proposed surface water treatment, if required, during Closure Phase of the Project, predicted groundwater changes and groundwater seepage are not expected to affect the traditional practices or residences of the Mi'kmaq of Nova Scotia.</p>	No
Surface Water	<ul style="list-style-type: none"> Ensure pit water meets applicable regulatory quality criteria for discharge – otherwise treat water prior to discharge Construct drainage ditches and ponds to maintain natural flow directions when practical Control release of settling ponds to mimic natural hydrograph, where practicable 	<p>During construction, water will be directed to the North Settling Pond and treated (i.e., modular effluent treatment plant), as necessary, for elevated metals, originating from historic tailings, as well as sediments. Water will be monitored and tested prior to discharge to confirm it meets discharge criteria. The modular effluent treatment plant will remain as contingency during operations.</p> <p>During operations, mine contact water will be directed to the North Settling Pond where it will be tested and, if necessary, treated before release. Water from the topsoil and organic stockpiles will be directed to the East and South Settling Ponds where it will be treated for TSS before release. There is contingency to direct water from the East Settling Pond to the North Settling Pond if additional water treatment is necessary. Water quality modelling predicts elevated nitrite originating from the WRSA will require treatment in aeration ponds before release. Water quality monitoring will be undertaken a compliance points to confirm impact predictions and inform adaptive management as necessary. Water at the 100 m mixing zone in the Cameron Flowage/Killag River will be monitored to ensure meets water quality objectives.</p> <p>At closure, an engineered cover will be installed to encapsulate the PAG stockpile and reduce infiltration. Water from the site include the PAG stockpile will be directed to the pit to facilitate refilling. Water quality modeling predicts elevated levels of zinc and cobalt for the upper case only (i.e., most conservative case) for two months. Water will be treated at closure, as necessary, to ensure it meets discharge criteria. Geochemical characterization of waste rock and water quality monitoring will be undertaken throughout construction and operations to confirm impact predictions and inform adaptive management.</p>	<p>Due to the distance of Mi'kmaq communities and residences, and proposed surface water treatment, as/if required, during operations and during Closure Phase of the Project, surface water quality and quantity predictions are not expected to affect the traditional practices or residences of the Mi'kmaq of Nova Scotia outside of the Beaver Dam Mine Site property boundary during operations and closure phases of the Project.</p> <p>No known locations where Mi'kmaq residents draw directly from lakes or rivers for potable purposes (permanent or seasonal/temporary) have been identified, through direct engagement with Mi'kmaq communities or through the TLRUS and MEKS, in close proximity to the Beaver Dam Mine Site. In the absence of such locations being identified to the Proponent, no evaluation of surface potable water sources was considered in the HHRA. However, evaluation of the predicted concentrations at the North Settling Pond and East Pond discharge (Cameron Flowage) have been compared to Canadian Drinking Water Guidelines within the HHRA. These locations are considered the worst-case scenario and these predictions demonstrate there is no concern associated with occasional consumption of surface water surrounding the Beaver Dam Mine Site.</p> <p>The potential for adverse health effects from recreational water use (i.e. swimming) in Cameron Flowage/Killag River have been considered in the HHRA. Swimming in the Moose River has been excluded from HHRA consideration due to low water levels in this river.</p>	Yes
Wetlands	<ul style="list-style-type: none"> Maintain pre-construction hydrological flows through wetland habitats and partially altered wetlands, wherever practicable Complete detailed design of Haul Road and micro-siting of Beaver Dam Mine Site infrastructure to avoid or minimize impacts to wetlands Implement construction methods that reduce the potential to drain or flood surrounding wetlands Compensate for permanent loss of wetland function through implementation of the Preliminary Wetland Compensation Plan 	<p>Of the 236 wetlands identified within the Beaver Dam Mine Project Area, 128 (54%) will be avoided by Project design. A total of 108 wetlands are proposed for alteration, 74 of which will require only partial alteration.</p> <p>Indirect wetland impacts are expected from changes to local catchment areas and groundwater drawdown (open pit dewatering).</p> <p>Wetland compensation will be required to off-set the loss of wetland habitat from the Project. A preliminary Wetland Compensation Plan is attached as Appendix H.3.</p>	<p>Loss of wetland habitat is limited to the area directly surrounding the pit and associated infrastructure development for the proposed mine.</p> <p>Management of historical tailings will improve wetland quality in the local area and improve water quality, and overall watershed health.</p> <p>Wetland restoration opportunities will be identified in consultation with the Mi'kmaq of Nova Scotia with the goal to identify projects that would benefit the Mi'kmaq and local watersheds where wetland restoration would benefit traditional Mi'kmaq practices.</p>	No

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Table CEAA 2-53-1: Project Interactions and Summaries for each VC and Potential Effect to Mi'kmaq of Nova Scotia (continued)

Valued Component	Summary of Key Mitigation Measures relating to Mi'kmaq of Nova Scotia (refer to individual VC sections for details)	Summary of Residual Effect	Potential Interaction with, and Effect to the Mi'kmaq of Nova Scotia (health and socio-economic conditions, current use, physical and cultural heritage)	Consideration in HHRA
Fish and Fish Habitat	<ul style="list-style-type: none"> Complete fish rescue within all fish bearing streams to be impacted by the Project, prior to commencement of mine development, with DFO approval if required Install groundwater pumps to supplement baseflow in Cameron Flowage, if necessary Implement a groundwater interceptor trench on the west side of the PAG stockpile, if necessary Use an emulsion-type explosive that will minimize nitrogen release to surface water and groundwater Adhere to applicable timing windows, as directed by DFO, for construction where infilling has been approved in wetlands and watercourses where fish habitat is present Complete offsetting for HADD including for permanent loss of fish habitat through fish habitat restoration activities, subject to DFO approval, as required under the Fisheries Act 	<p>Spawning habitat for species known or expected is limited in the Beaver Dam Mine Site and Haul Road.</p> <p>Development of the Beaver Dam pit and associated mine infrastructure will require the alteration of Wetland 59 (open water marsh habitat with fish and fish habitat) and several smaller tributaries. Indirect impacts to fish and fish habitat have also been described.</p> <p>A draft Fish Habitat Offset Plan (Appendix J.3) has been developed to compensate for loss of fish habitat required for Project development.</p> <p>Site infrastructure has been micro-sited for fish habitat avoidance wherever practicable.</p> <p>A Fisheries Authorization will be required for the Project, and a draft Fish Habitat Offset Plan for fish habitat offsetting is included in the EIS</p>	<p>The development of the pit will manage the containment/disposal of historical tailings.</p> <p>Areas where Mi'kmaq fishing activities are known or expected to take place surrounding the Beaver Dam Mine Site and Haul Road will not be affected by Project development. Access will be maintained to fishing locations throughout the LAA through a constructed bypass access road for Mi'kmaq and local people who want continued access to fish in the LAA.</p> <p>Evaluation of the potential exposure pathway of uptake of metals from surface water into fish and subsequent consumption by humans was considered in the HHRA.</p>	Yes
Flora and Habitat	<ul style="list-style-type: none"> Intact forest stands and wetlands will be avoided wherever practicable during detailed Project planning and design in favor of previously disturbed areas (e.g., stands disturbed by timber harvesting, roads, or other development). Topsoil will be salvaged and stored for use in site restoration where possible. Upland and wetland soils should be stockpiled separately. Monitor dust conditions and implement dust suppression mitigation (refer to air mitigation) when normal precipitation levels are not enough to suppress fugitive dust. In addition to water suppression, provincially approvable chemical dust suppressants will be used along the Haul Road. Haul trucks will be equipped with spill kits and instructed on their use and spill prevention and appropriate site personnel will be trained in spill isolation, containment, and recovery. Alternatives to traditional hydroseeding methods will be reviewed to advance vegetation re-establishment and reclamation methods. Consideration will be given to native species with Indigenous significance. 	<p>Ecosites are predominantly poor to medium nutrient regimes with acidic soils and dominated by mixedwood and conifer forest stands.</p> <p>Historical mining and impacts from timber harvesting have historically affected the habitat and flora communities with the Beaver Dam Mine Site and Haul Road.</p> <p>A total of 295 species of vascular plants were observed. Of these, six a SOCI. No SAR vascular plant species were observed.</p> <p>Twenty-three species of lichens were observed within the FMS Study Area. One of these, eight are SOCI and three are SAR.</p>	<p>A total of 14 occurrences of lichen and/or vascular plant SAR and SOCI will be expected to be directly impacted by the Project.</p> <p>The loss of these individual plants and lichens is not expected to have a significant impact on the Mi'kmaq of Nova Scotia and their traditional practices. New habitat loss to support Project development is minimized by active historical timber harvesting activities in this area and historical mining activities.</p> <p>Reclamation will involve revegetation of the disturbed areas with an approved mix of native seeds and potentially shrubs/seedlings. This Reclamation Plan will be developed in consultation with Mi'kmaq of Nova Scotia.</p>	No

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Table CEAA 2-53-1: Project Interactions and Summaries for each VC and Potential Effect to Mi'kmaq of Nova Scotia (continued)

Valued Component	Summary of Key Mitigation Measures relating to Mi'kmaq of Nova Scotia (refer to individual VC sections for details)	Summary of Residual Effect	Potential Interaction with, and Effect to the Mi'kmaq of Nova Scotia (health and socio-economic conditions, current use, physical and cultural heritage)	Consideration in HHRA
Fauna	<ul style="list-style-type: none"> Intact forest stands and wetlands will be avoided wherever practicable during detailed Project planning and design in favor of previously disturbed areas (e.g., stands disturbed by timber harvesting, roads, or other development). Micro-site Haul Road and mine infrastructure to avoid major fauna habitat. Habitat fragmentation will be reduced by limiting the area of new roads, favoring upgrading of existing roads where possible instead. Site infrastructure will be fenced in, where practical, to reduce interactions between Project infrastructure and wildlife. A speed limit of 40 km/hr within the Beaver Dam Mine Site and 70 km/hr along the Haul Road (or not exceeding posted speed limits) will be implemented to reduce likelihood of collisions with fauna. Haul Road will be operational from 7 am to 11pm daily Consider limiting use of lights that emit more blue shortwave light (e.g., LEDs, metal halides) which have greater impacts to wildlife at night, where practicable and considering operational safety. 	<p>A common assemblage of fauna was observed within the Beaver Dam Mine Site and Haul Road.</p> <p>The Beaver Dam Mine Site and Haul Road were evaluated for bat hibernacula potential through both desktop and field evaluations. No evidence of bat usage or suitable hibernacula habitat were observed.</p> <p>Three set of mainland moose (ACDC S1; NSESA E) tracks were observed incidentally and during targeted moose surveys within, or in proximity to, the Beaver Dam Mine Site.</p> <p>Snapping turtle (SAR) uses portions of the Beaver Dam Mine Site, with documented turtle sightings adjacent to Wetland 59 and along roadsides near the Touquoy Mine Site, including the Haul Road.</p> <p>The Project will result in a loss of habitat for Fauna, increased habitat fragmentation, and potential sensory disturbance (noise and light) to wildlife in close proximity to the Beaver Dam Mine Site and Haul Road property boundaries.</p>	<p>Project activities are likely to result in localized avoidance of the Beaver Dam Mine Site and Haul Road and directly surrounding areas by some species. This potential avoidance would be due to changes in ambient noise levels and light levels in close proximity to the property boundaries, direct habitat loss, potential indirect habitat loss, and increased fragmentation.</p> <p>This potential change in wildlife patterns may affect the traditional practices of the Mi'kmaq of Nova Scotia in close proximity to the Beaver Dam Mine Site and Haul Road. This disturbance is limited spatially, and temporary in nature, with construction, operation and active reclamation of the Project resulting in up to eight years of potential local disruption to wildlife patterns.</p> <p>Evaluation of the potential exposure pathway of uptake of metals from soil or vegetation, uptake of metals in game species, and subsequent consumption by humans was considered in the HHRA.</p>	Yes
Avifauna	<ul style="list-style-type: none"> Avoid construction on native vegetation during the regional breeding season for migratory avifauna where practicable (beginning of April to end of August for migratory avifauna; ECCC 2015). Where this is not practicable, an avifauna nest mitigation plan will be developed If a raptor nest is found within the forested areas to be cleared, a buffer zone appropriate to the species (as determined in consultation with NSL&F) would be placed around the nest Discourage ground-nesting or burrow-nesting species (such as common nighthawk and bank swallows), by limiting large piles or patches of bare soil during the breeding season, wherever practicable 	<p>Abundance and diversity of avian species observed was moderate to high based on observer experience in the geographic area. A common species assemblage of forest birds was observed, along with many priority species.</p> <p>Nine SAR and 23 SOCI avifauna species were observed in the Beaver Dam Mine Site and Haul Road.</p> <p>The Project will result in a loss of habitat for Fauna, increased habitat fragmentation, and potential sensory disturbance (noise and light) to avifauna in close proximity to the Beaver Dam Mine Site and Haul Road property boundaries.</p>	<p>Project activities are likely to result in localized avoidance of the Beaver Dam Mine Site and Haul Road and directly surrounding areas by some bird species. This potential avoidance would be due to changes in ambient noise levels, light levels, direct and indirect habitat loss and increased fragmentation.</p> <p>This potential change in bird usage patterns may affect the traditional practices of the Mi'kmaq of Nova Scotia in close proximity to the Beaver Dam Mine Site and Haul Road. This disturbance is temporary in nature, with construction, operation and active reclamation of the Mine resulting in up to eight years of potential local disruption to bird usage patterns.</p>	No

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Table CEAA 2-53-1: Project Interactions and Summaries for each VC and Potential Effect to Mi'kmaq of Nova Scotia (continued)

Valued Component	Summary of Key Mitigation Measures relating to Mi'kmaq of Nova Scotia (refer to individual VC sections for details)	Summary of Residual Effect	Potential Interaction with, and Effect to the Mi'kmaq of Nova Scotia (health and socio-economic conditions, current use, physical and cultural heritage)	Consideration in HHRA
Species at Risk	<ul style="list-style-type: none"> Potential indirect impacts to Atlantic salmon to be monitored as part of Aquatic Effects Monitoring Plan (AEMP) A map of all priority vascular and non-vascular flora will be provided to site personnel during site orientation, and the locations of all priority flora species that will be avoided during Project construction will be clearly flagged in the field. AMNS will transplant priority vascular species, where deemed reasonable and appropriate in consultation with regulators, that are located within the direct footprint of the Beaver Dam Mine Site infrastructure or Haul Road to nearby areas where suitable habitat is present. Where avoidance or transplanting is not possible, the Project Team will collect vascular flora SOCI from areas proposed for direct impact for herbarium records or for preservation of seeds in a seed bank through Acadia University. Wherever avoidance of lichen SAR is not possible, the Project Team will implement the Preliminary Lichen Mitigation and Monitoring Plan (Appendix P.6), developed in consultation with lichen specialists and regulators. Where avoidance and transplantation is not possible, the Project Team will collect specimens for submission to Frances Anderson or equivalent contact at time of construction (Lichen Specialist, Research Associate, and Nova Scotia Museum). Impacts to snapping turtles will be reduced by implementing a 30 m buffer on aquatic habitat deemed suitable for snapping turtles, wherever practicable. Where avoidance of potential turtle hibernation habitat is not possible, construction in these habitats should be limited to the growing season when hibernating turtles are not likely to be impacted (October through April). AMNS encourages the public to report mainland moose sightings to the province at https://novascotia.ca/natr/wildlife/sustainable/msform.asp. Implement signage on the Haul Road during operations adjacent to major stream crossings or waterbodies, preferably signage that is installed only seasonally during turtles' active period as drivers are more likely to pay attention to new signs when they are erected prior to nesting season, for example, than if signs remain all year. Increase dust suppression on roads to improve visibility during nesting season and hatchling emergence. Assess findings from the Landbird SAR Mitigation and Monitoring Plan and Wildlife Management Plan, and implement adaptive management measure as needed To avoid nesting activity of the greater yellowlegs, bird deterrents will be implemented within Wetland 64, as this is the only location where probably breeding was observed, following best-management-practices used in the mining industry. 	<p>Mainland moose (ACDC S1; NSESA E) tracks were observed surveys within, or in proximity to, the Beaver Dam Mine Site.</p> <p>Snapping turtle (SAR) was observed within the Beaver Dam Mine Site, the Touquoy Mine Site, and the Haul Road.</p> <p>Six SOCI vascular plant species were observed.</p> <p>Three SAR and eight SOCI lichen species were observed.</p> <p>Eight SAR and 17 SOCI avifauna species were observe.</p> <p>Three SOCI fish species were observed.</p> <p>Direct habitat loss is expected as a result of the Project. SOCI vascular plant loss includes one occurrence of southern twayblade. SOCI and SAR lichen loss includes blue felt lichen, salted shell lichen, eastern candlewax lichen, and slender monk's hood lichen.</p>	<p>Mobile species (birds, fish, moose) are expected to occupy adjacent suitable habitat for the eight years that the Project is being developed, operated and completion of active reclamation. The Beaver Dam Mine Site and Haul Road is located in a rural area, with limited development pressures in close proximity to the Beaver Dam Mine Site and Haul Road.</p> <p>This potential change in wildlife patterns, including SAR, may affect the traditional practices of the Mi'kmaq of Nova Scotia in close proximity to the Beaver Dam Mine Site and Haul Road.</p>	No

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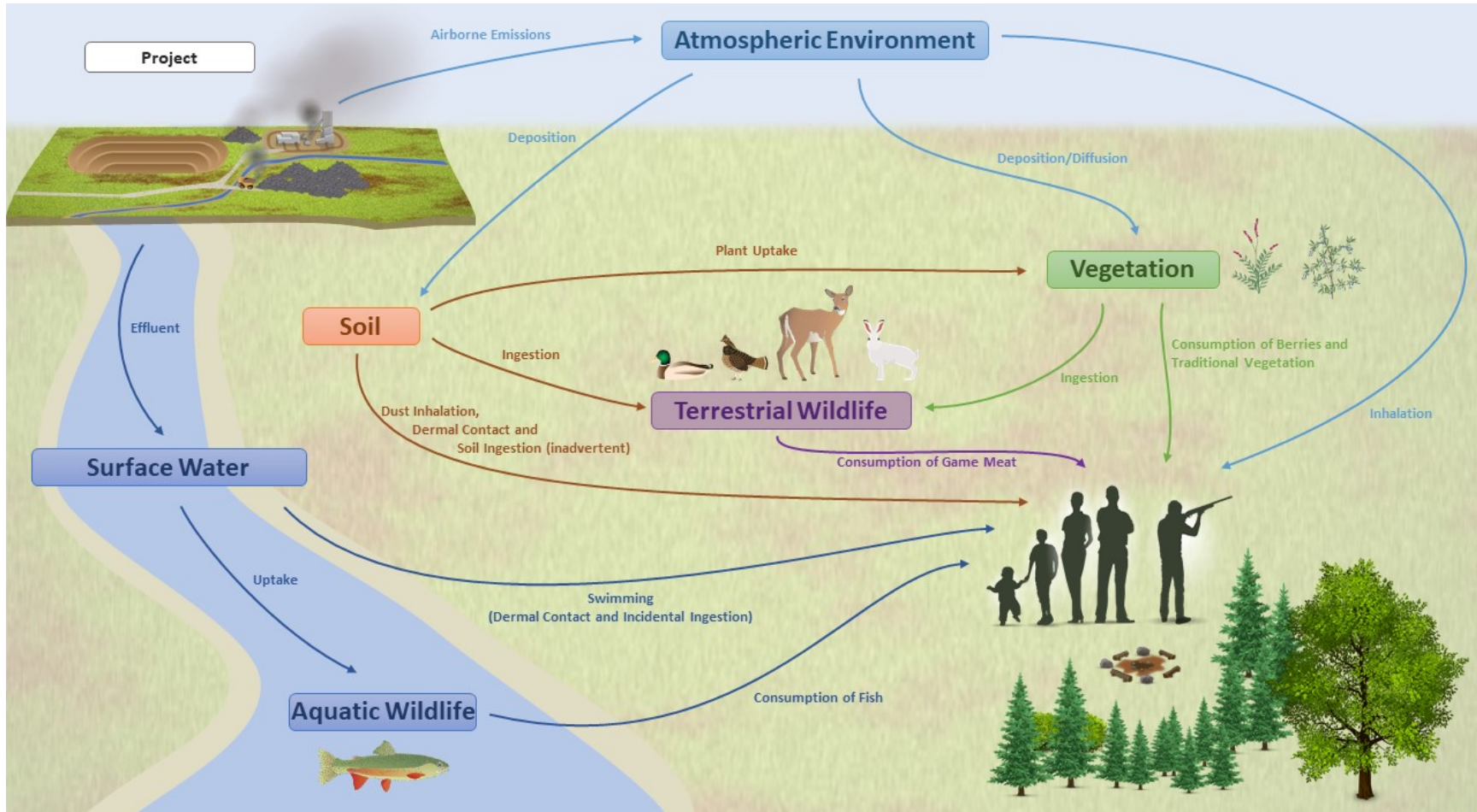
Table CEAA 2-53-1: Project Interactions and Summaries for each VC and Potential Effect to Mi'kmaq of Nova Scotia (continued)

Valued Component	Summary of Key Mitigation Measures relating to Mi'kmaq of Nova Scotia (refer to individual VC sections for details)	Summary of Residual Effect	Potential Interaction with, and Effect to the Mi'kmaq of Nova Scotia (health and socio-economic conditions, current use, physical and cultural heritage)	Consideration in HHRA
Physical and Cultural Heritage	<ul style="list-style-type: none"> If any development is to occur within 100 metres of Crusher Lake, intensified reconnaissance (i.e., shovel testing) should be conducted to identify any additional features. If any development is to occur specifically around the historic features identified during the 2014, 2015, 2016, 2018 and 2019 reconnaissance, intensified historical research and archaeological shovel testing should be conducted in advance of disturbance. Any further changes in the layout of the mine and associated facilities be evaluated as to potential impacts to archaeological resources. In the event that archaeological resources or human remains are encountered during ground disturbance activities, it is required that all activity stop, and the Coordinator of Special Places, Nova Scotia Communities, Culture, & Heritage Department be contacted. 	<p>Thirteen sites/areas with elevated archaeological potential were identified with the Beaver Dam Mine Site. Most sites are associated with historical mining activities and Euro-Canadian archaeological resources.</p> <p>Three sites (Areas 1, 2 and 3) were identified as having elevated potential for historic Mi'kmaq archeological resources based on their proximity to a water source and terrain suitable for settlement/encampment.</p> <p>Three sites will be impacted by the Project:</p> <p>Site 6 is located in an area identified as "Forge Hill". The features are identified as having moderate to high potential for historic Euro-Canadian archaeological resources related to historical mining activities.</p> <p>Areas 2 and 3 are located along the western shore of Cameron Flowage. Area 2 will be impacted by a topsoil stockpile north of the pit, and Area 3 will be impacted by the pit and an adjacent access road.</p> <p>Additional shovel tests were completed in these areas in Fall 2020. No direct or indirect impacts to Mi'kmaq archaeological features are expected.</p>	<p>Identified archaeological sites that will be affected by the Project are not Mi'kmaq resources. Identified areas of Mi'kmaq elevated potential within the Beaver Dam Mine Site for archaeological resources will be avoided. Identified and known Mi'kmaq archaeological features are outside of the proposed development footprint of the Project and thus will not be affected by Project development. Additional shovel tests were completed in Fall 2020.</p> <p>In the event that archaeological deposits or human remains are encountered during construction/operation activities associated with the Beaver Dam Mine Project, all work in the associated area(s) should be halted and immediate contact made with the Nova Scotia Special Places Program, and with the KMKNO Archaeological Division.</p>	No

Source: AMNS 2021.

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Figure CEAA-2-53-1: Human Health Conceptual Site Visual Model



Graphics courtesy of the Integration and Application Network, University of Maryland Center for Environmental Science (ian.umces.edu/imageibrary/) and the Health Canada conceptual site model builder tool.

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Round 2 Information Request Number:	CEAA-2-54
Regulatory Agency/Indigenous Community:	CEAA, Indigenous Groups
Topic/Discipline:	Current Use
EIS Guideline Reference:	1.1.1. Aboriginal Peoples; Part 2, 6.3.1 Fish and Fish Habitat
Revised EIS (February 28, 2019) Reference:	Section 6.9; 6.9.6

Context and Rationale

Section 1.1.1 of the EIS Guidelines requires a description and analysis of how changes to the environment caused by the Project will affect Aboriginal groups' current use of land and resources for traditional purposes. This assessment characterizes any changes to resources (fish, wildlife, birds, plants or other natural resources) used for traditional purposes (e.g. hunting, fishing, trapping, collection of medicinal plants, use of sacred sites).

In KMKNO's comments on the revised EIS, gaps were identified regarding the characterization of fish and fish habitat in relation to the Aboriginal fishery. The revised EIS does not clearly confirm the quality of Aboriginal fishery species habitat within the proposed mine footprint and does not identify Atlantic salmon as a fish species that supports Aboriginal fisheries.

The proponent's responses to CEAA-2-06 through 2-23 will address many of KMKNO's questions regarding the characterization of fish habitat in the project area, as well as quantify potential losses/modifications. In addition, CEAA-2-33 requests a Human Health Risk Assessment that will help to determine potential risks to humans in consuming fish that may be affected by metals. However, a discussion regarding how potential impacts to fish and fish habitat from the Project may affect the Aboriginal fishery is required. The discussion should include, but not be limited to, an overview of how the Aboriginal fishery may be affected during the Project's lifespan, particularly for species in the Killag River (a known salmon-bearing watercourse).

The Proponent is Required to ...

Provide an overview of Aboriginal fisheries activity in the local and regional assessment areas, including, but not limited to, species harvested and known harvesting locations.

Discuss how the proposed Project may affect the Aboriginal fishery of the Mi'kmaq of Nova Scotia, particularly for species in the Killag River.

Response

An overview of the Millbrook First Nation local fisheries activity within their identified Local Study Area (LSA) was provided in the Traditional Land and Resource Use Study (TLRUS) (MFC 2019 – Under Confidential Cover) for the proposed Beaver Dam Mine Project. The defined LSA is equivalent to the Local Assessment Area (LAA) for the Mi'kmaq of Nova Scotia provided in the Updated EIS (AMNS 2021). Additional information relating to the local Mi'kmaq fisheries was also reported in the Mi'kmaq Ecological Knowledge Study (MEKS) (Appendix M.1) and through direct engagement with the Mi'kmaq of Nova Scotia (Section 4 – Indigenous Peoples Engagement, page 4-1, and Appendix A.5 of the Updated 2021 EIS [AMNS 2021]) which supports the conclusions presented in the TLRUS (MFC 2019 – Under Confidential Cover).

**Beaver Dam Mine Project Environmental Impact Assessment
 Information Request Responses, Round 2**

Fishing is generally for sustenance/subsistence, as well as for recreational purposes. Trout is the key fish species described in the TLRUS (MFC 2019 – Under Confidential Cover) with additional species including brook and rainbow trout, sea trout, American eel, Atlantic salmon, herring, mackerel, gaspereau, various groundfish species, smelt, striped bass and sucker. Shellfish within the LAA include clams, lobster, mussels, snowcrab, and scallop (MFC 2019 – Under Confidential Cover). Fishing practices are completed across the LAA in most major rivers and lakes, as documented in the TLRUS and MEKS (Appendix M.1 of AMNS 2021).

Details relating to Millbrook First Nation and Mi'kmaq of Nova Scotia fish harvesting locations are provided within the TLRUS and MEKS. In summary, fishing practice has been documented across the LAA and adjacent to the proposed Beaver Dam Mine Site and Haul Road. No fishing lakes or rivers are documented within the proposed 4 km of new construction for the Haul Road; however, fishing has been documented within the Beaver Dam Mine Site (i.e., trout fishing) within the Killag River and possibly also within Mud and Crusher Lakes.

These fishing locations have, in part, informed proposed mitigation measures, as described in the Mi'kmaq of Nova Scotia assessment in Section 6.14.8, page 6-825 in the Updated 2021 EIS (AMNS 2021) and detailed in IR2 response CEAA 2-48. Proposed suitable alternative areas for traditional practices are described below in Table CEAA 2-54-1. Access to the lakes and rivers surrounding the Beaver Dam Mine Site and Haul Road will be maintained (Section 6.14.8 [Mitigation], page 6-825); however, direct access to Crusher and Mud Lakes will be limited during the temporal scale of the Project (eight years).

Table CEAA-2-54-1: Description of Potential Suitable Alternative Areas

Suitable Alternative Area (named by major lake and shown on Figure 3)	Description of Known Characteristics ^(a)	Limitations
1: Otter Lake	Crown land Ease of access – no implication to access to this area from Project from Hwy 224, and accessible with mitigations (CEAA 2-48) from Haul Road/ATV Route 320 Close to camp locations Resource quality (outside of indirect areas of potential impact) Quietness/seclusion Based on review of TLRUS, long-term familial connection to the area and suitability for inter-generational knowledge transfer	
2: Kent Lake	Crown land Ease of access (through mitigation measures described in CEAA 2-48) Close to camp locations Resource quality (outside of indirect areas of potential impact) Based on review of TLRUS, long-term familial connection to the area and suitability for inter-generational knowledge transfer	There will be elevated noise and dust levels above background during the temporal scale of the Project. Expected sky glow from the Mine Site.
3: West Lake	Crown land Ease of access – no implication to access to this area from Project Resource quality (outside of indirect areas of potential impact)	There will be elevated noise and dust levels above background during the temporal scale of the Project. Expected sky glow from the Mine Site.

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 Information Request Responses, Round 2**
Table CEAA-2-54-1: Description of Potential Suitable Alternative Areas (continued)

Suitable Alternative Area (named by major lake and shown on Figure 3)	Description of Known Characteristics ^(a)	Limitations
4: Como Lake	Crown land Ease of access (through mitigation measures described in CEAA 2-48) Close to camp locations Resource quality (outside of indirect areas of potential impact) Based on review of TLRUS, long-term familial connection to the area and suitability for inter-generational knowledge transfer	There will be elevated noise and dust levels above background during the temporal scale of the Project. Expected sky glow from the Mine Site.
5: Lake Mulgrave	Crown land Ease of access (through mitigation measures described in CEAA 2-48) Close to camp locations Quietness/seclusion Resource quality (outside of indirect areas of potential impact) Based on review of TLRUS, long-term familial connection to the area and suitability for inter-generational knowledge transfer	

Note: ^(a) Crown land, similar size to area of lost access from Project development, ease of access, close to a camp, quietness/seclusion, long-term familial connection to the area, resource quality, and suitability for inter-generational knowledge transfer.

Areas where Mi'kmaq fishing activities are known or expected to take place surrounding the Beaver Dam Mine Site and Haul Road, including the Killag River, will not be affected by Project development. Fishing practices for the Mi'kmaq of Nova Scotia within lakes and rivers surrounding the Project will be maintained during Project construction and operations. All site water will be collected, managed and discharged to the receiving environment (Cameron Flowage/Killag River) in accordance with all regulatory requirements and in a manner which ensures protection of aquatic life and thus, will have limited, if any, impact to Mi'kmaq fishery in the Killag River or more broadly through the LAA. Site operations along the Haul Road will ensure that discharge of surface water into the aquatic environment meet regulatory requirements (TSS), which are protective of aquatic health, and thus the Mi'kmaq fishery.

At the Beaver Dam Mine Site, during construction, water will be directed to the North Settling Pond and treated (i.e., modular effluent treatment plant), as necessary, for elevated metals, originating from historic tailings, as well as sediments. Water will be monitored and tested prior to discharge to confirm it meets discharge criteria, which are protective of aquatic health. The modular effluent treatment plant will remain as contingency during operations.

At the Beaver Dam Mine Site, during operations, mine contact water will be directed to the North Settling Pond where it will be tested and, if necessary, treated before release. Water from the topsoil and organic stockpiles will be directed to the East and South Settling Ponds where it will be treated for TSS before release. There is contingency to direct water from the East Settling Pond to the North Settling Pond if additional water treatment is necessary. Water quality modelling predicts elevated nitrite originating from the waste rock storage area (WRSAs) will require treatment in aeration ponds before release. Water quality monitoring will be undertaken at compliance points to confirm impact predictions and inform adaptive management as necessary. Water at the 100 m mixing zone in the Cameron Flowage/Killag River will be monitored to ensure meets water quality objectives, which are protective of aquatic health, and thus protective of the Mi'kmaq fishery.

**Beaver Dam Mine Project Environmental Impact Assessment
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At the Beaver Dam Mine Site, at closure, an engineered cover will be installed to encapsulate the potentially acid generating (PAG) stockpile and reduce infiltration. Water from the site include the PAG stockpile will be directed to the pit to facilitate refilling. Water quality modeling predicts elevated levels of zinc and cobalt for the upper case only (i.e., most conservative case) for two months of the year. Water will be treated at closure, as necessary, to ensure it meets discharge criteria. Geochemical characterization of waste rock and water quality monitoring will be undertaken throughout construction and operations to confirm impact predictions and inform adaptive management.

As a result of the proposed mine plan (Beaver Dam Mine Site and Haul Road), site wide water collection and proposed surface water treatment, as/if required, during operations and post closure phases of the Project, surface water quality and quantity predictions are not expected to affect the traditional practices including the Mi'kmaq fishery or residences of the Mi'kmaq of Nova Scotia outside of the Beaver Dam Mine Site and Haul Road property boundary during construction, operations and closure phases of the Project.

Access will be maintained to fishing locations throughout the LAA through a constructed bypass access road for Mi'kmaq and local people who want continued access to fish in the LAA. Evaluation of the potential exposure pathway of uptake of metals from surface water into fish and subsequent consumption by humans was considered in the HHRA. Monitoring programs will be designed and implemented to confirm these conclusions for the life of the Project.

Details relating to Project effects on fish can be found in the Fish and Fish Habitat assessment in Section 6.9.7, page 6-485 of the Updated EIS (AMNS 2021).

References

AMNS (Atlantic Mining NS Inc.). 2021. Updated Environmental Impact Statement. Beaver Dam Mine Project. Submitted to the Impact Assessment Agency of Canada and Nova Scotia Environment. October 2021. Middle Musquodoboit, NS.

MFC (Moccasin Flower Consulting Inc.). 2019 – Under Confidential Cover. Atlantic Gold Corporation's Proposed Beaver Dam Mine: Traditional Land and Resource Use Study. Prepared for Millbrook First Nation. pp. 71.

**Beaver Dam Mine Project Environmental Impact Assessment
Information Request Responses, Round 2**

Round 2 Information Request Number:	NSE-2-01
Regulatory Agency/Indigenous Community:	NSE-Lands and Forestry–Regional Services
Topic/Discipline:	Wetlands
EIS Guideline Reference:	Not listed
Revised EIS (February 28, 2019) Reference:	Section 6.8.3.1 – Page 379

Context and Rationale

The report defines Wetlands of Special Significance (WSS). However, it does not identify any WSS that have Species at Risk (SAR) within or in close proximity to it. The report also does not address the fact that wildlife are mobile and can use Wetlands of Special Significance throughout their various life stages.

The Proponent is Required to ...

It is recommended that the proponent provide:

1. Maps of the WSS that identify this area now, the project footprint and changes to the area after restoration.
2. Conduct more baseline surveys. Surveys should include a complete list of all species observed in the site area including amphibians and migratory wildlife species. The description should also include dates when the surveys were conducted and locations so that it is clear what types of non-migratory and migratory wildlife species are currently using the WSS.

Response

1. Section 6.8 (Wetlands), Figure 6.8-2A to E, page 6-371 to 6-375 in the Updated 2021 EIS (AMNS 2021) illustrates the identified and Potential Wetlands of Special Significance (WSS) as presented in Section 6.8.4.1.11 – Summary of Functional Assessment, page 6-370, in relation to project infrastructure. This figure has been revised for the Updated 2021 EIS (AMNS 2021) and included here as Figure NSE 2-01-1A to E. Figure NSE 2-01-2 presents wetlands and WSS locations and anticipated interactions with the Project's closure plan.
2. Additional baseline field surveys were conducted throughout the Project Area (PA) to assess the suitability of wetland habitat for wetland specific species, especially Species at Risk (SAR) and/or Species of Conservation Interest (SOCI). All surveys conducted for SAR and SOCI were completed in suitable habitat throughout the PA according to species-specific methodologies. This included, for instance, both early and late season botany surveys, dedicated lichen surveys, dedicated moose surveys, and avian migration, breeding and overwintering surveys. Priority species were noted by the Project Team during all field programs and therefore, these species were assessed during all surveys conducted on the landscape across all seasons from 2014 to 2020.

A representative list of all observed species has been included as Appendix K.1, Masters Species List including the observation time/date, and will be added to the Updated 2021 EIS (AMNS 2021). This list includes species observed during dedicated surveys (e.g., avifauna point counts, lichen surveys, moose surveys, etc.) and incidental observations. A list of all species observed within the identified WSS is provided in Table NSE-2-02-1, including migratory status.

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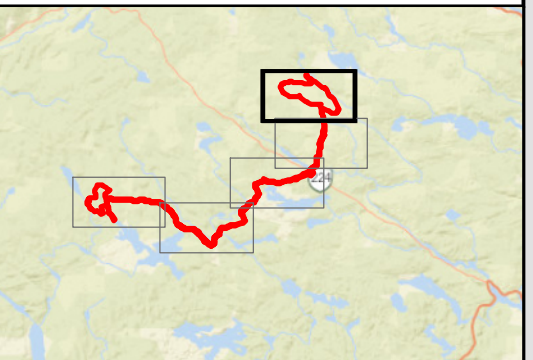


FIGURE NSE-2-01-1a


Beaver Dam Mine Project

Potential Wetlands of Special Significance

- Local Road
- Dry Weather / Seasonal Road
- Track
- Field Delineated Watercourses
- NSTDB Mapped Watercourses
- Field Identified Wetlands of Special Significance
- Potential Wetlands of Special Significance
- Other Wetlands with Multiple SFs
- NSE Predicted Wetlands of Special Significance
- Field Delineated Wetlands
- Open Water
- NSE Wetlands
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
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 Units: Meter



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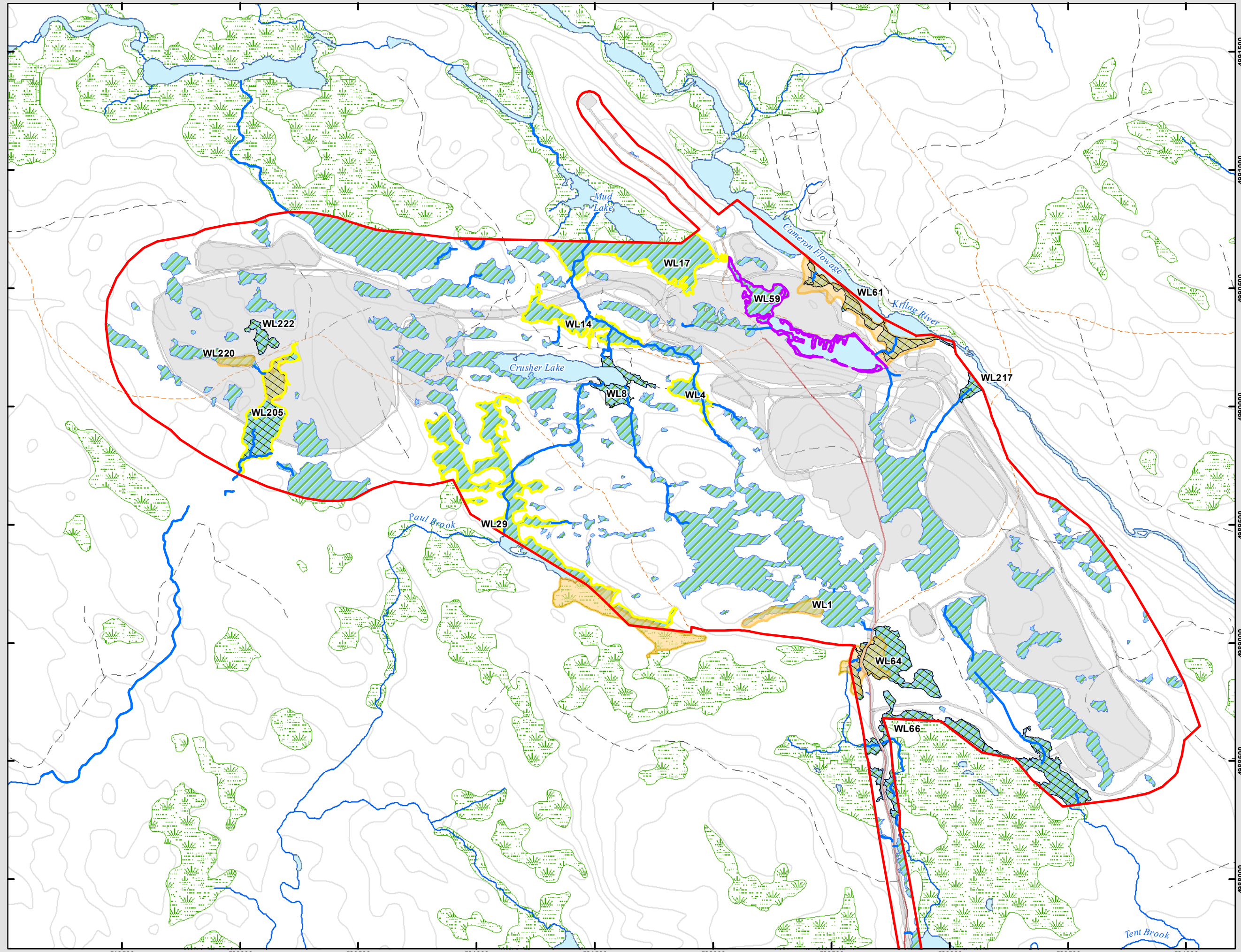
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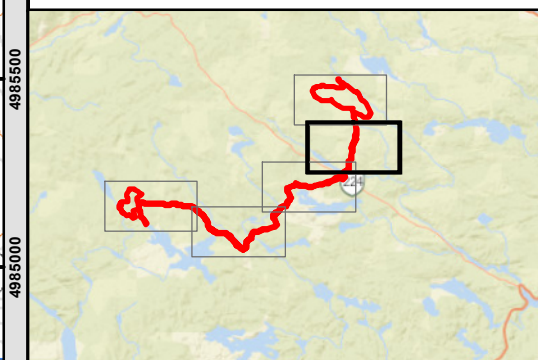
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FIGURE NSE-2-01-1b

Beaver Dam Mine Project Potential Wetlands of Special Significance

- Collector Road
- Local Road
- Dry Weather / Seasonal Road
- Diveways (>300 m)
- Track
- Field Delineated Watercourses
- NSTDB Mapped Watercourses
- Other Wetlands with Multiple SFs
- Field Delineated Wetlands
- Open Water
- NSE Wetlands
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
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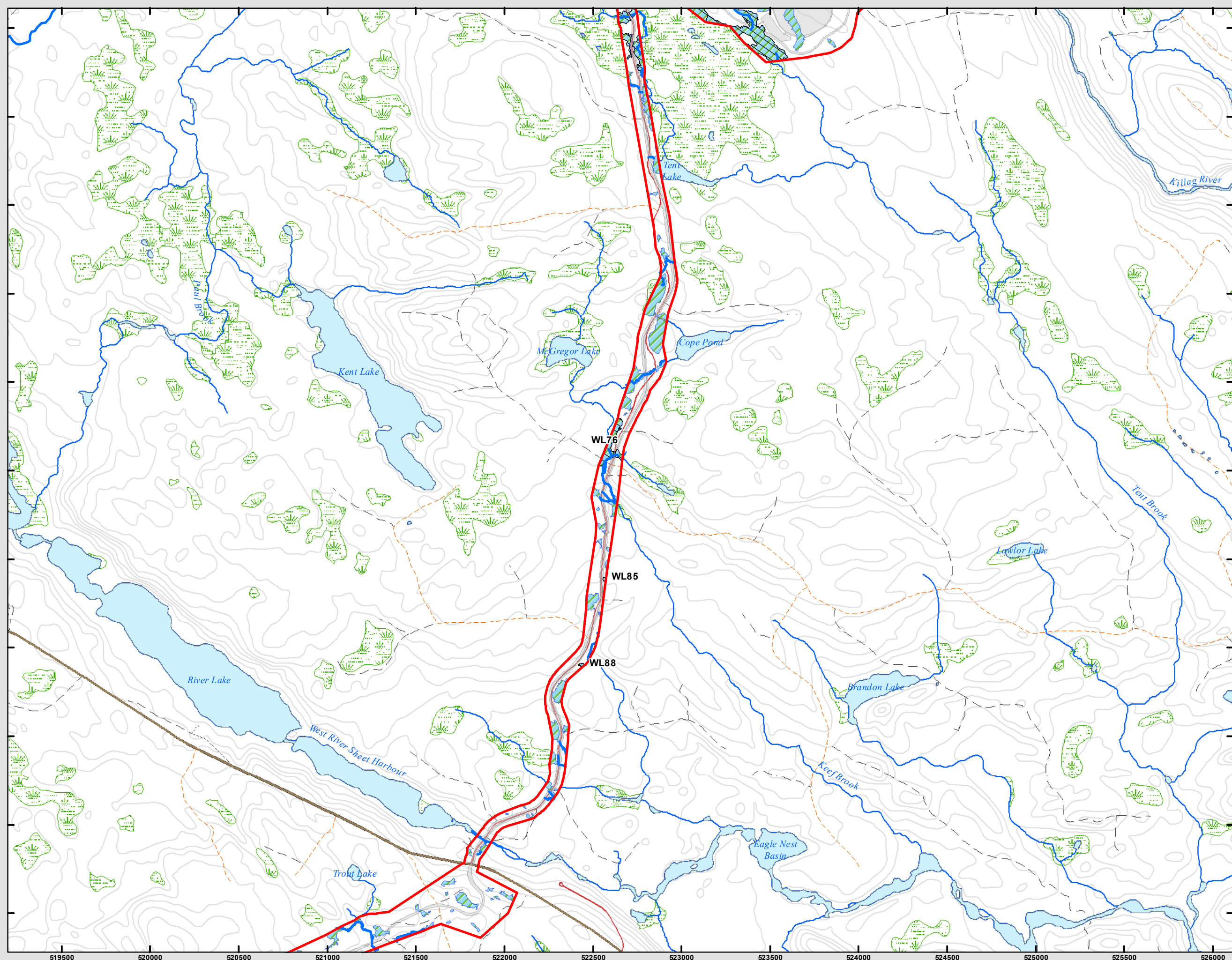
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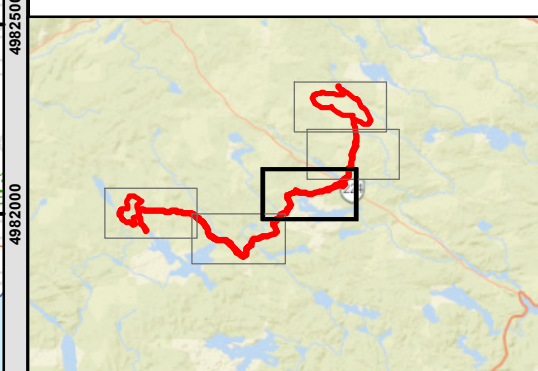


FIGURE NSE-2-01-1c

Beaver Dam Mine Project

Potential Wetlands of Special Significance

- Collector Road
- Local Road
- Dry Weather / Seasonal Road
- Diveways (>300 m)
- Track
- Field Delineated Watercourses
- NSTDB Mapped Watercourses
- Other Wetlands with Multiple SFs
- Field Delineated Wetlands
- Open Water
- NSE Wetlands
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
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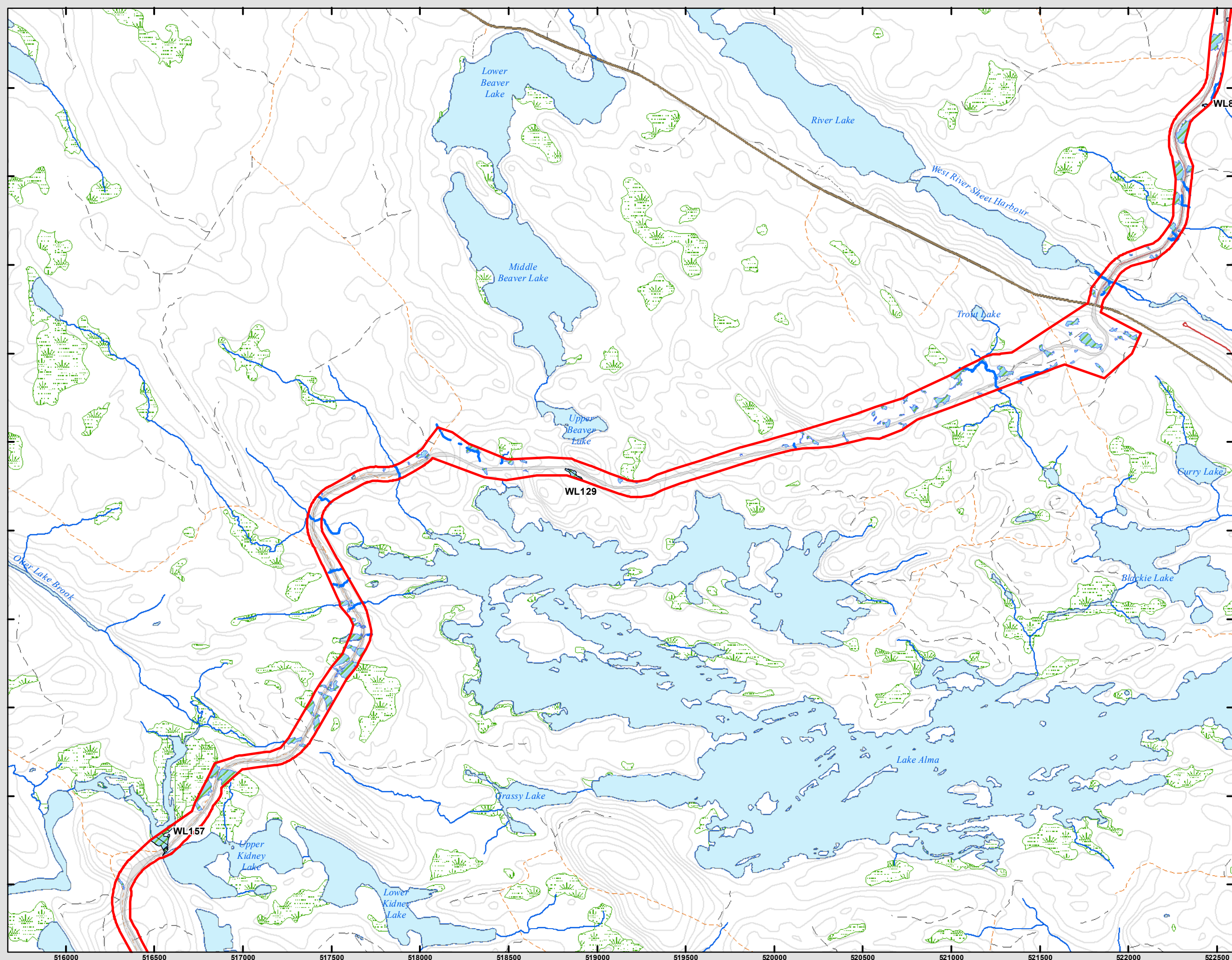
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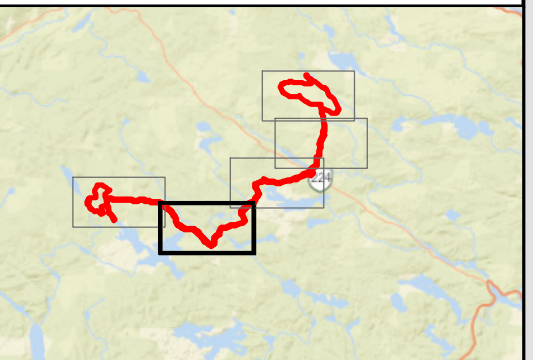


FIGURE NSE-2-01-1d


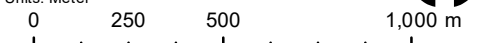
Beaver Dam Mine Project

Potential Wetlands of Special Significance

- Local Road
- Dry Weather / Seasonal Road
- Diveways (>300 m)
- Track
- Field Delineated Watercourses
- NSTDB Mapped Watercourses
- Other Wetlands with Multiple SFs
- NSE Predicted Wetlands of Special Significance
- Field Delineated Wetlands
- Open Water
- NSE Wetlands
- Proposed Infrastructure
- Wilderness Area
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
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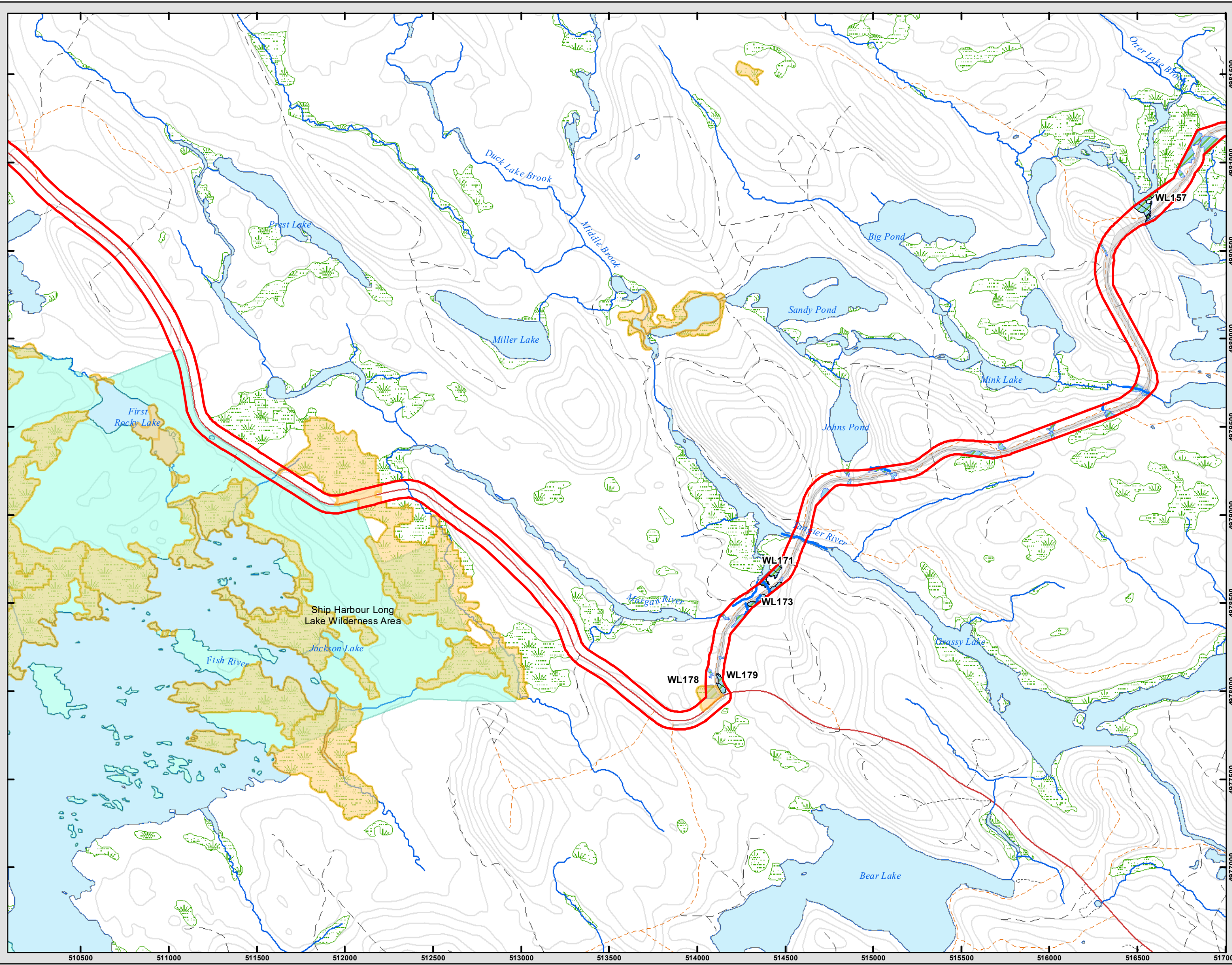
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