

1 INTRODUCTION

1.1 Purpose of the Environmental Impact Statement 2021 Update

The Environmental Impact Statement (EIS) was submitted in 2017 (AGC 2017) and resubmitted as the Revised 2019 EIS (AMNS 2019) to address Information Requests (Round 1) from the Impact Assessment Agency of Canada (IAAC; formerly the Canadian Environmental Assessment Agency [formal change of name August 2019]) and Nova Scotia Environment (NSE) (CEAA 2017 and NSE 2017). This Updated 2021 EIS has been developed to support Round 2, Information Requests (IR2; CEAA 2019 and NSE 2019). The Updated 2021 EIS also addresses advances in the Project Descriptions as well as additional Regulatory, Public and Indigenous Peoples engagement that has been undertaken since the Revised 2019 EIS. The Project Description updates coupled with engagement has resulted in changes to Valued Component (VC) Sections (Section 6). Each section of the EIS includes a summary of changes before and after the 2021 updates.

The ownership of the company has also changed since the Revised 2019 EIS, which is presented in the Introduction (Section 1.4) as well as the Project Description (Section 2.2).

1.1.1 Summary of Updates to Introduction

Atlantic Mining NS Inc. (AMNS; the Proponent), a wholly owned subsidiary of St Barbara Limited (St Barbara), is a well-financed, growth-oriented gold development group with a long-term strategy to create a mid-tier gold production group focused on manageable, executable projects in mining-friendly jurisdictions. Its board and management team, with extensive experience in geology, mining and mine development, process and metallurgy and project financing, has been updated to reflect new company ownership and organizational structure. The Beaver Dam Mine Project (the Project) is proposing to construct (1 year), operate (5 years) and reclamation (active closure 2 years and post-closure monitoring 10+ years). The operation period has been extended from 3.5 years to 5 years, which is reflected in the ore production schedule and number of trucks needed to transport ore to Touquoy for processing. The Project layout has been altered to reflect more advanced engineering while ensuring that infrastructure avoids critical habitat (e.g., blue felt lichen). Additional engagement undertaken in 2020 to 2021 resulted in the need to allow for continued access along the haul road and around the Beaver Dam Mine site, which is addressed through the construction of bypass roads. Additional baseline data collection improved the overall assessment by reducing uncertainty and providing for improved clarity to address Round 2, Information Requests (IR2). Table 1.1-1 provides a summary of the Introduction subsections that have been updated from the Revised 2019 EIS.

Table 1.1-1: Updated Subsections from the 2019 Revised Environmental Impact Statement – Introduction

2019 Revised EIS Submission (February 28, 2019)	Updated in 2021	Corresponding 2021 EIS Update Section Number	Reason for Update
-	-	1.1 Purpose of the Environmental Impact Statement 2021 Update	<ul style="list-style-type: none"> New
1.1 Project Overview	Yes	1.2 Project Overview	<ul style="list-style-type: none"> Updates to reflect changes in the Project Description, Project Schedule, and Project Layout
1.2 Proponent Information	Yes	1.4 Proponent Information	<ul style="list-style-type: none"> Section moved for section layout organization Updates to reflect changes in ownership and organizational structure
1.3 Regulatory Framework and Role of Government	Yes	1.5 Regulatory Framework and Role of Government	<ul style="list-style-type: none"> Section moved for section layout organization Updates to reflect current regulatory regime

Table 1.1-1: Updated Subsections from the 2019 Revised Environmental Impact Statement – Introduction (continued)

2019 Revised EIS Submission (February 28, 2019)	Updated in 2021	Corresponding 2021 EIS Update Section Number	Reason for Update
1.4 Purpose of the Project	Yes	1.3 Purpose of the Project	<ul style="list-style-type: none"> Section moved for section layout organization Minor updates
1.5 Guiding Principals	Yes	1.6 Guiding Principals	<ul style="list-style-type: none"> Minor updates to include recent engagement with public and the Mi'kmaq of Nova Scotia
1.6 Benefits of the Project	Yes	1.7 Benefits of the Project	<ul style="list-style-type: none"> Updated to include bypass roads
-	-	1.8 Report Organization	<ul style="list-style-type: none"> New includes high-level tables summarizing changes of EIS sections and Appendices from 2017 to 2019 and to 2021

1.2 Project Overview

1.2.1 Name of Designated Project

The designated Project will be known as the “Beaver Dam Mine Project” (the Project).

1.2.2 Project Location

1.2.2.1 Beaver Dam Mine Site

The Beaver Dam Mine property is in Marinette, Regional Municipality of Halifax Area, Nova Scotia, which is approximately 85 km northeast of Halifax. The approximate centre point of the Beaver Dam Mine Site is 521319 E 4990700 N (UTM Zone 20 NAD83 CSRS).

1.2.2.2 Haul Road

The Haul Road extends from the Beaver Dam Mine Site to the Touquoy Mine site (Figure 1.2-1). By-pass roads to allow light truck traffic and recreational vehicles (e.g., ATV and snowmobiles) to maintain access during operations will be constructed adjacent and parallel to portions of the Haul Road. The approximate disturbance area of the Haul Roads is 25 ha and bypass roads are expected to disturb approximately 10 ha, with a total disturbance area of 35 ha, of which 10 ha is on crown land.

1.2.2.3 Touquoy Mine

The Touquoy property is located 60 km northeast of Halifax, Nova Scotia, which is centered on the former mining village of Moose River Gold Mines. The closest population centres are Middle Musquodoboit located 20 km to the northwest and approximately 12 km from the community of Mooseland which is located to the southeast. The approximate centre point of the Touquoy property is 505280.58E 505280.58N UTM Zone20 NAD83 CSRS.

1.2.3 Overview

The Beaver Dam Mine Project (the Project) proposed by Atlantic Mining NS Inc. (AMNS), a wholly owned subsidiary of St Barbara or the Proponent, will operate as a satellite open pit mine with total ore extracted over five years will range from 0.7 to 2.1 million tonnes per year (Mt/year). Ore from the Beaver Dam Mine Site will be transported by an average of 95 trucks (e.g., round/return trips or two-way trips) approximately 31 kilometers (km) to the existing and fully permitted Touquoy Mine. Processing of ore from the Beaver Dam gold deposit at the existing Touquoy plant will begin upon completion of mining activities from the Touquoy open pit. The Project is anticipated to begin construction in 2022, come into production in 2023, cease operations in 2027 and then be reclaimed. The Project timelines, however, is subject to environmental assessment and associated permitting approvals.

The Project is subject to both federal and provincial environmental assessment (EA) processes. This document forms both the Environmental Impact Statement (EIS) and EA Registration Document (EARD) under the federal and provincial processes.

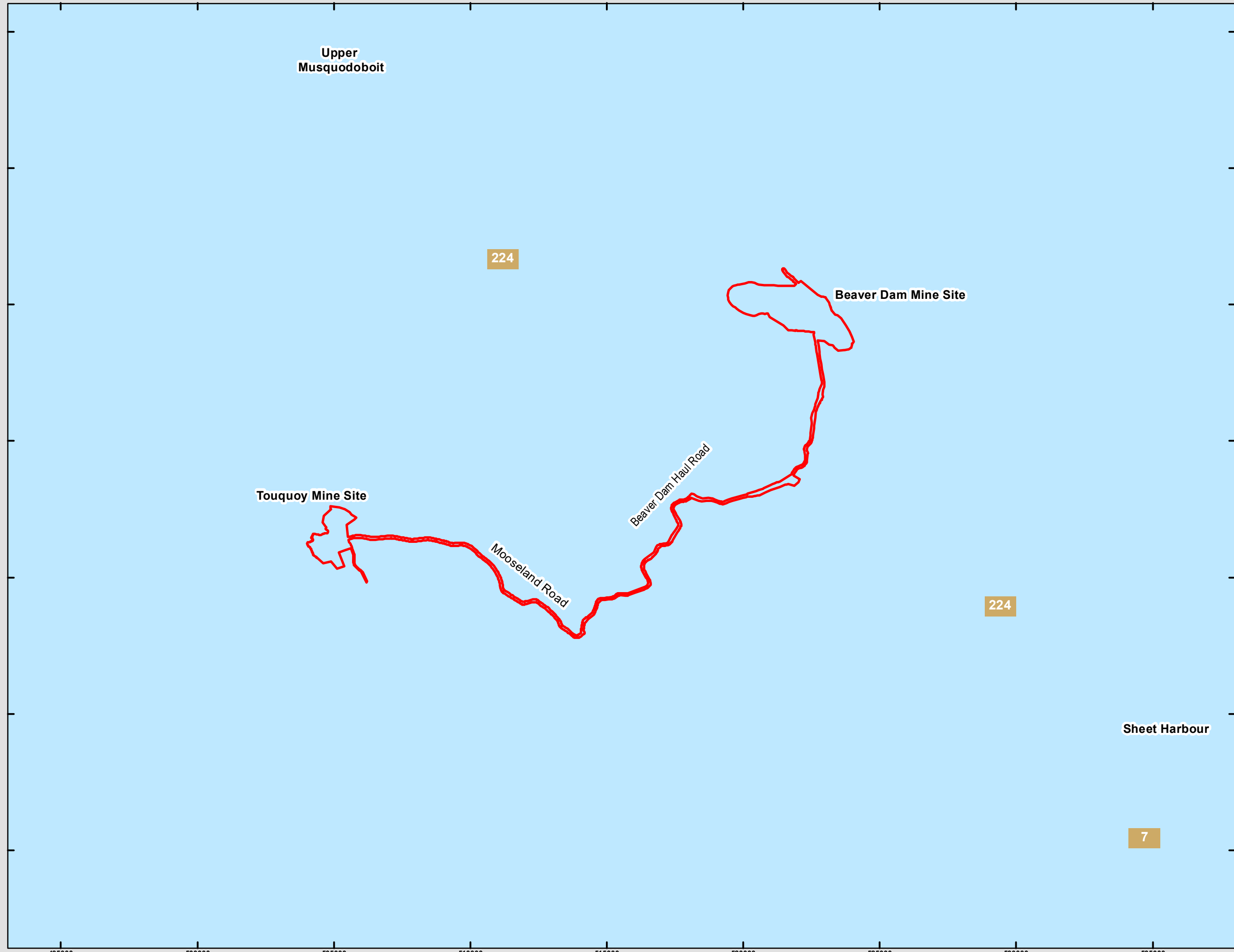
This EIS/EARD for the Project has been prepared to facilitate the approval of the Project in accordance with the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and Environmental Assessment Regulations made under the *Nova Scotia Environment Act*. The EIS Guidelines (CEAA 2016) prepared by Canadian Environmental Assessment Agency (CEAA) have provided a framework for the organization of this EIS. No public money is being sought to undertake the Project.

The Project consists of the **Beaver Dam Mine Property** (i.e., mining and storing of waste rock), an approximately 31-kilometre (km) **Haul Road** that connects to the two sites and the **Touquoy Property** (i.e., processing, and depositing tailings) (Figure 1.2-1). The Project is bound within a Project Area (PA). The Project will result in approximately 243 hectares (ha) of direct habitat disturbance from infrastructure placement, of which 34 ha, or 14% is on crown land. The Beaver Dam Mine site is shown on Figure 1.2-2 and Touquoy Mine site is shown on Figure 1.2-3.

1.2.4 Beaver Dam Mine

The Beaver Dam Mine is in Marinette, Regional Municipality of Halifax Area, Nova Scotia, which is approximately 85 km northeast of Halifax. The Beaver Lake IR 17 is located approximately 6 km of the Beaver Dam gold deposit and 5 km from the intersection of the Beaver Dam Mines Road and Highway 224. The community of Mooseland is approximate 1 km from the intersection of the Beaver Dam Haul Road and the Mooseland Road. The Beaver Dam mine footprint is approximately 208 ha with 26 ha or 14%, is on crown land. Physical activities specific to the operation of the Beaver Dam Mine will include mining of ore, earthworks, waste rock storage piles, and treatment of surface water runoff and mine discharge water through collection and settling ponds. No ore processing or tailings management will occur at the Beaver Dam Mine Site. Operational infrastructure will be minimal as those Project activities will use infrastructure at the Touquoy Mine. Electrical power demand required for the Beaver Dam Mine Site is not anticipated to be substantial and will be supplied by on site generators. Petroleum products will be stored on-site for use in generators, operational equipment, and haul trucks.

Beaver Dam Mine site will be reclaimed following operations, which will include two years of active closure (i.e., decommissioning and earthworks) and 10+ years of monitoring. The length of time of reclamation monitoring will be informed by successive reclamation plans as well as ongoing monitoring.



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FIGURE 1.2-1

**Beaver Dam Mine Project
Project Location**

 Project Area

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

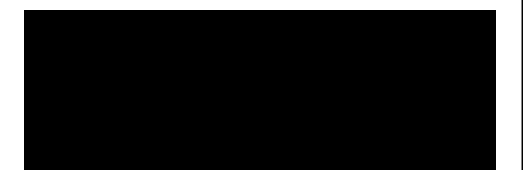


0 1.25 2.5 5 km

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Drawn By: EP Date: 2021-03-01
 Reviewed by: XX

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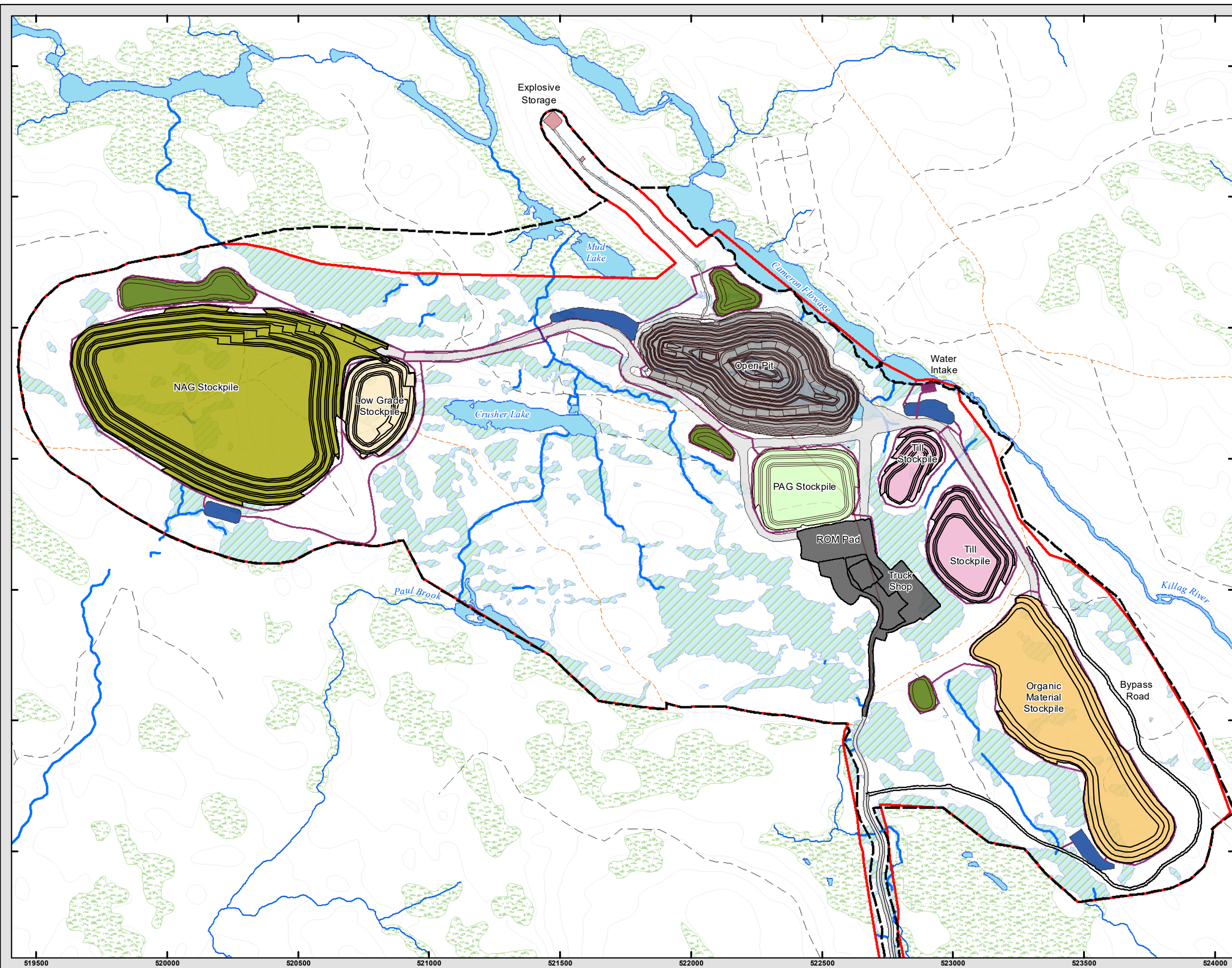


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FIGURE 1.2-2

Beaver Dam Mine Site General Mine Layout



Proposed Infrastructure

- Crusher Pad
- Open Pit
- Low Grade Stockpile
- NAG Stockpile
- PAG Stockpile
- Organic Material Stockpile
- Topsail Stockpile
- Till Stockpile
- Explosive Storage
- Road
- Settling Pond
- Water Management
- Topo Line - 5m contour
- Local Road
- Dry Weather / Seasonal Road
- Track
- NSTDB Mapped
- Watercourses outside PA
- Field Delineated Watercourses within PA
- Open Water / Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Preliminary Property Boundary
- Project Area Boundary



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

0 125 250 500 m

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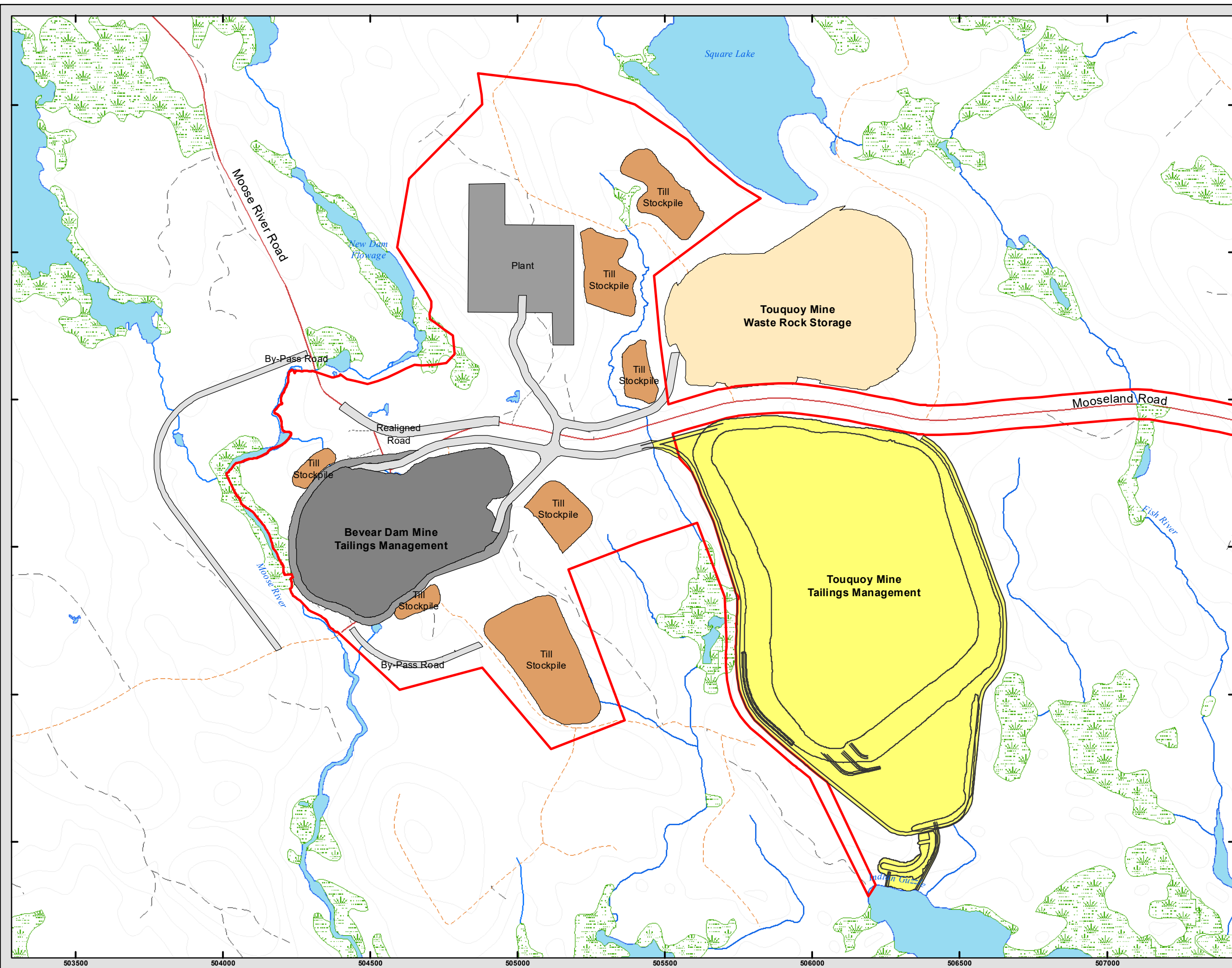
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FIGURE 1.2-3

Touquoy Mine Site

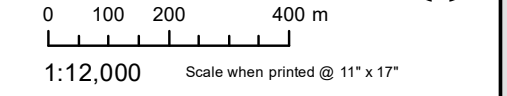
General Arrangement for Beaver Dam Ore Processing



- Project Area
- Touquoy Mine Infrastructure**
- Site Roads
- Tailings Management
- Waste Rock Storage
- Pit
- Plant
- Till Stockpile
- Pit Berm
- Realigned Road
- By-Pass Road
- NSE Wetlands
- Lake
- Local Roads
- Dry Weather / Seasonal Roads
- Diveways (>300 m)
- Track
- NSTDB Mapped Watercourses



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



Drawn By: XX Date: 2021-03-01
 Reviewed By: XX

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1.2.5 Haul Road

The Haul Road extends from the Beaver Dam Mine Site to the Touquoy Mine site (Figure 1.2-1). Transporting ore from the Beaver Dam Mine Site to the existing Touquoy Mine facilities is required for processing the ore and managing tailings in the exhausted Touquoy pit. Portions of the Haul Road route (approximately 16 km) will be upgraded to a dual lane road to facilitate the safe passage of two-way truck traffic at a maximum speed of 70 kilometres per hour (km/h). By-pass roads to allow light truck traffic and recreational vehicles (e.g., ATV and snowmobiles) to maintain continued access during operations will be constructed adjacent and parallel to portions of the Haul Road. The approximate disturbance area of the Haul Road is 25 ha and bypass roads are expected to disturb approximately 10 ha, with a total disturbance area of 35 ha, of which 10 ha is on crown land. Where possible, the upgrades will follow the course of the existing roadway; however, some adjustments to existing road alignment will be required to fulfill safe design standards.

The Haul Road consists of the following four main segments:

- 7.2 km existing Beaver Dam Mines road, that extends east from the proposed mine site to highway 224, which will be upgraded to support ore transport and will include bypass road.
- 4 km of new constructed road west of Highway 224 to connect the Haul road to an existing forestry road, this section will not include bypass road.
- 8.2 km existing forestry road that extends east to the Mooseland Road, referred to locally as the Dump Road, will be upgraded to support ore transport truck and will include bypass road.
- 10.7 km Mooseland Road that will be upgraded by Department of Transportation and Infrastructure Renewal (TIR) extends north along the Mooseland Road to the existing Touquoy Mine. Bypass roads crossing and parking area is currently being considered in the design to address safety concerns by local residents.

1.2.6 Touquoy Gold Mine

The Touquoy Mine, is centered in former mining village of Moose River Gold Mines, will process ore and manage tailings in the exhausted or mined-out pit at the Touquoy facilities currently operating as part of the fully permitted Touquoy Mine.

The Touquoy Gold Project underwent a review in 2007 to determine if an EA was required under the existing provincial and federal legislation. It was determined by Nova Scotia Environment (NSE) and the CEA Agency that only a provincial EA was required in accordance with the Nova Scotia Environmental Assessment Regulations. Under the *Canadian Environmental Assessment Act* (1992) and its pursuant regulations, there were no triggers for a federal EA when the Touquoy Gold Project was reviewed in 2007. The CEA Agency file number for the review is 10700-40. The Touquoy Gold Project obtained EA approval in 2008 and has since obtained additional approvals through the applicable provincial regulatory processes, including the Industrial Approval (IA); the Touquoy Gold Mine has been in in operation as per the associated approvals since 2018.

Changes to the Touquoy Gold Mine as a result of the Project will be assessed through this EIS. They include: an increase in the duration of ore processing (approximately four additional years); minor adjustments to the ore processing facility; and disposal of Beaver Dam Mine tailings in the exhausted Touquoy Mine open pit. There is not anticipated disturbance to the exiting Touquoy Mine site that will result from processing Beaver Dam ore.

Due to the timing of the Beaver Dam Mine ore being processed at the Touquoy Mine site, the Beaver Dam tailings will not be stored in the Touquoy tailings management facility, but instead would be permanently stored in the pit after the Touquoy gold deposit has been mined. This allows the Touquoy Mine Site footprint to be maintained as permitted and no tailings management

facility will need to be constructed at the Beaver Dam Mine Site (Section 2). Other aspects of the Touquoy Gold Mine will remain as assessed and approved through the Nova Scotia EA process in 2008 (NSE 2008) and/or currently being assessed as part of the Touquoy Mine Expansion that is currently planned to be submitted in June 2021.

Updates to the current reclamation plan for the Touquoy Mine, as a result of the Project, would require approval by the Province of Nova Scotia as a condition of Mineral Lease (MLE11-1) and Industrial Approval (#2012-084244-08).

1.3 Purpose of the Project

The implementation of the Project will provide additional ore to the existing Touquoy Mine processing plant. This will extend the life of the Touquoy Mine Site to continue to provide economic and social benefits with minimal additional infrastructure. Completing the Project with safe production, environmental stewardship and community engagement is key for the Proponent to ensure that the Province, the community, and the Mi'kmaq of Nova Scotia receive optimum benefit.

Worldwide annual gold production is about 3,200 tonnes (NRCan 2019). Gold is used primarily for jewelry and as a storage form of wealth with China and India forming the majority of the demand. Canada produced about 5% of the world total in past years. With the Proponent's four gold development projects in Nova Scotia, there is much opportunity to supply gold with existing and expected future demand.

The Proponent has recognized that the quantity and unusual style of gold mineralization at the Beaver Dam Mine Site will support a commercially viable surface mining operation with on-site crushing and off-site processing of ore. The amount of gold expected to be recovered will represent more than one-third of the gold produced from the historic goldfields of Nova Scotia since the 1860s.

The Proponent is proposing to develop this resource in line with all applicable regulatory requirements and recognizes the significant potential benefits to the local economy, the Province of Nova Scotia, the Mi'kmaq of Nova Scotia and the AMNS in completing this Project. The Proponent has designed a project that is in line with the intent of NSL&F for efficient use of mineral resources and to *"promote the concepts of environmental responsibility and sustainable development, stewardship of the mineral resource sector, and integrated resource planning."*

All phases of the Project will provide employment opportunities for local residents and Indigenous Peoples, as well as provide tax revenue for the municipal, provincial, and federal levels of government. It is anticipated that additional labour force will be required during construction and a smaller, but still significant, labour force will be required during operation. Indirect employment will be generated by the Project through the use of external contractors and suppliers. Tax revenue in the millions of dollars per year will be generated through corporate income taxes paid by the Proponent, as well as its contractors and suppliers. Socio-economic benefits that will occur as a result of the Project are discussed further in Section 1.7.2.

1.4 Proponent Information

1.4.1 Proponent Profile

Atlantic Mining NS Inc. (AMNS), a wholly owned subsidiary of St Barbara Limited (St Barbara, the Proponent), is a well-financed, growth-oriented gold development group with a long-term strategy to create a mid-tier gold production group focused on manageable, executable projects in mining-friendly jurisdictions. Its board and management team, with extensive experience in geology, mining and mine development, process and metallurgy and project financing, are currently focused on the development of its project portfolio of advanced gold development properties located in Nova Scotia, Canada.

Currently, the Proponent holds four gold development projects in Nova Scotia: the Touquoy Gold Project, the Beaver Dam gold deposit, the Fifteen Mile Stream gold deposit and, the Cochrane Hill gold deposit. The Touquoy Gold Project has been in operation since October 2017. The Beaver Dam Mine Project Environmental Impact Statement has been submitted to IAAC and is in the information request phase.

Environmental data collection for the Project commenced in November 2016 when exploration drilling began to clearly define the gold resource. In January 2018, Ausenco Engineering Canada Inc. (Ausenco) was commissioned by the Proponent to complete a Project Pre-Feasibility Study and the NI 43-101 Technical Report for the development of the Moose River Consolidated Project Phase I (Touquoy and Beaver Dam deposits), and Phase II expansion (Fifteen Mile Stream and Cochrane Hill deposits) (Ausenco 2019). A Feasibility Report is currently being updated for the Beaver Dam Mine by Ausenco that included updates to the Project Description including the Project Layout (Figure 1.2-2 and 1.2-3).

Regulatory consultation on the Beaver Dam Mine Project began in October 2014 with a Provincial "One Window Process: Mineral Development in Nova Scotia" meeting to present the planned Project and to receive feedback on the regulatory regime and regional expertise. The EIS was submitted to CEA Agency in June 2017 and a Revised EIS was submitted in February 2019 to address Round 1 of Information Requests. This Updated 2021 Beaver Dam Mine Project EIS along with responses to IR2s forms the next step in the permitting process. The Fifteen Mile Stream Project EIS was submitted in February 2021 and is currently in the information request phase. The Cochrane Hill Gold Project is in the pre-submission phase of the EIS/EARD review process.

Mineral exploration and mining licences are issued by the Nova Scotia Department of Energy and Mines (NSDEM) under the *Mineral Resources Act* of 2016 (amended in 2018). Exploration licences are granted for two-year terms, and are renewable indefinitely, provided certain annual conditions are met. Exploration licences can contain a maximum of 80 bordering mineral claims. Mining licences are granted for 20-year terms and can be renewed an indefinite number of times at the discretion of the Minister for Natural Resources.

The Beaver Dam property is held under two exploration license EL50421 and EL51852. The EL EL50421 comprises 76 contiguous claims that cover an area of approximately 1,230 ha and EL51852 comprises 7 claims and covers 113 ha. Exploration Licence 50421 is an amalgamation of EL 05920 and EL 06175 which was reissued as EL 50421 in August 2014. Exploration Licence 05920 represented the amalgamation of three pre-existing Exploration Licences 00047, 04790 and 04516. The Exploration Licences were regrouped in 2003 as EL 05920 and reissued by the NSDEM in 2005.

Mineral rights to the Touquoy Property are wholly owned by AMNS and consist of one mineral lease (MLE11-1) comprising 49 claims and covering 793 ha, and one adjoining Exploration License (EL10377) comprising 64 claims and covering 1,036 ha.

1.4.2 Corporate Governance and Management Structure

The Proponent is committed to the highest practical standards of corporate governance and to being a responsible corporate citizen. Safe production and environmental stewardship are keys to the Proponent's organization. The guiding principles, including the purpose, commitments, and core values of St Barbara, are detailed on their company website: <https://stbarbara.com.au/our-company/our-purpose-vision-values-and-commitments/>.

The company relies upon its senior management team and Board of Directors who have extensive experience with past mining developments worldwide.

The current senior management team of St Barbara:

- Craig Jetson – Managing Director and Chief Executive Officer (CEO);
- Lucas Welsh – Chief Financial Officer (CFO);
- Sarah Standish – General Counsel and Company Secretary;
- Meryl Jones – President Americas
- Laird Brownlie – Head of External Affairs;
- Craig Hudson – Head of Permitting and Projects;
- Andrew Taylor – General Manager, Atlantic Operations; and
- Neil Schofield – Consulting Resource Geologist.

The CEO reports to the six-member Board of Directors:

- Craig Jetson – Managing Director and CEO;
- Tim Netscher – Independent Non-Executive Chairman;
- Kerry Gleenson – Independent Non-Executive Director;
- David Moroney – Independent Non-Executive Director;
- Stef Loader – Independent Non-Executive Director; and
- Steven Dean – Independent Non-Executive Director.

Traded on the Australian Securities Exchange (ASX) as SBM, St Barbara is committed to maintaining high standards of ethics, integrity and statutory compliance in all Company dealings and conformance with the ASX Corporate Governance Principles and Recommendations (3rd Edition). The Proponent has a Nominating and Corporate Governance Committee, an Audit Committee and a Compensation Committee, as well as policies and codes, such as Code of Conduct which includes obligations regarding environmental standards, health and safety, contributions to local communities, and respect and tolerance. Any breaches of this Code must be immediately reported to the Chair of the Nominating and Corporate Governance Committee.

As part of its commitment to corporate responsibility and incorporation of best practices, the proponent has established a Geotechnical and Tailings Dam Review Board (Review Board) for design, construction, and operation phases of the AMNS projects. This includes tailings management, waste rock storage and open pit mining activities. Reporting to AMNS's General Manager Atlantic Operations, the Review Board is established to provide ongoing, independent confirmation to the proponent by internationally-recognized experts that the design, construction, operation and closure of the AMNS projects conform with international best practice and to minimize impact in compliance with its permits and licenses. The Review Board is independent, and its scope includes reviewing, commenting, questioning, critiquing and advising on all aspects of including, but not limited to:

- Engineering design;
- Construction practices;
- Operation and maintenance practices;
- Closure and post-closure requirements;
- Stability;
- Water management and treatment, including both surface and ground water;
- Geochemical considerations;
- Management systems;

- Budget and staffing;
- Emergency preparedness and response planning; and
- Community interaction.

AMNS intends to maintain suitable insurance and bonding to ensure its commitments are met. This includes maintaining financial bonding to ensure that adequate reclamation security is in place at all times during the construction, development and operational phases of the Company's mining projects, as well as appropriate environmental impairment liability insurance. As part of the existing Touquoy Gold Project, both reclamation security and environmental liability insurance are maintained as per requirements of the Province of Nova Scotia.

Further AMNS commits to completing its operations in adherence with best available practices (BAPs) and industry standards as per guides developed by Mining Association of Canada, such as the Towards Sustainable Mining initiative, and the Canadian Dam Association.

1.4.3 Proponent Personnel Details

A corporate office in Melbourne, Victoria, Australia and a local office in Moose River Gold Mines, Nova Scotia are maintained in support of the AMNS projects. Key management and technical staff will be located in both locations for the duration of the Beaver Dam Mine Project. The addresses for both office locations are provided in Table 1.4-1.

Table 1.4-1: Office Locations

Corporate Office	Local Office
Level 10, 432 St Kilda Road, Melbourne, VIC 3004 Locked Bag 9, Collins Street East, VIC 8003 Tel: +61 (3) 8660 1900 Fax: +61 (3) 8660 1999	409 Billybell Way, Mooseland Middle Musquodoboit, Nova Scotia Canada B0N 1X0 Phone: (902) 384-2772

All communications regarding the EA for the Project should be sent to the Head of Permitting and Projects as directed by the CEO. The contact information for these two roles is outlined in Table 1.4-2.

Table 1.4-2: Proponent Contacts

Position	Proponent
Environment Permitting Project Manager	Barb Bryden Middle Musquodoboit, Nova Scotia Phone: (902) 384-2772 Email: Barb.Bryden@stbarbara.ca.ca
Head of Permitting and Projects	Craig Hudson Middle Musquodoboit, Nova Scotia Phone: (902) 384-2772 Email: Craig.Hudson@stbarbara.ca
General Manager Atlantic Operations	Andrew Taylor Middle Musquodoboit, Nova Scotia Phone: (902) 384-2772 Email: Andrew.Taylor@stbarbara.ca

1.4.4 Environmental Assessment Consulting Team

The EIS was prepared by a consulting team that is provided in Table 1.4-3.

Table 1.4-3: Environmental Assessment Consultant Team Contributions

Consultant	Contributing Role
Allnorth Engineering, Consulting, Project Management, and Surveying	<ul style="list-style-type: none"> Reviewed the engineering feasibility of the new construction portion of the Haul Road, 2019 Moose River Consolidated NI 43-101 (Ausenco 2019)
Ausenco Engineering Canada Incorporated	<ul style="list-style-type: none"> Preparation of the 2021 feasibility study for the Project (In Progress)
Brighter Community Planning & Consulting	<ul style="list-style-type: none"> Public Engagement and Socio-Economic (Section 3, Section 6.16 and Appendix A.6 [draft Public Engagement Plan])
Confederacy of Mainland Mi'kmaq – Mainland Mi'kmaq Development inc.	<ul style="list-style-type: none"> Prepared a Mi'kmaq Ecological Knowledge Study report for the Project (Appendix M.1)
Cultural Resource Management Group Limited	<ul style="list-style-type: none"> Prepared archaeological screening and reconnaissance reports for the Project (Appendices N.1 to N.7)
GHD	<ul style="list-style-type: none"> Noise environmental effects assessment and Noise Impact Assessment Technical Report (operations) and Memorandum (construction) (Section 6.1 and Appendices B.1 and B.2) Air environmental effects assessment and Air Emissions Technical Report (Section 6.2 and Appendix C.1) Light environmental effects assessment and Light Impact Assessment (Section 6.3 and Appendix D.1) Surface Water Quantity and Quality environmental effects assessment, additional water quality modelling, water balance analysis, stormwater management, erosion and sediment control plan, predictive water quality, water treatment assessments, and baseflow mitigation assessment (Section 6.7 and Appendices G.1, G.3, G.4 and P.4) Groundwater Quality and Quantity environmental effects assessment, field activities, baseline groundwater program, hydrogeological modelling report, and potential impacts from metals COCs to groundwater and surface water from dust deposition along the Haul Road (Section 6.6 and Appendices F.3, F.4, F.5 and F.9)
Golder Associates Ltd.	<ul style="list-style-type: none"> Mine Waste Stockpile Geotechnical Design and Geotechnical Investigation: Data Report (Appendices A.2a and A.2c) Preparation of a Geotechnical Assessment of the Beaver Dam Mine Open Pit (In Progress)
Intrinsic	<ul style="list-style-type: none"> Prepared an evaluation of exposure and risks related to emissions from the Project onto recreational water usage and country foods and an aquatic effects assessment (reassessment) for the Killag and Moose rivers (Appendices C.2 and G.2)
KPMG	<ul style="list-style-type: none"> Economic Impact Assessment Reports for the Project and the Moose River Consolidated Project (Appendices O.1 and O.2)
Lorax Environmental	<ul style="list-style-type: none"> Prepared geochemical source term predictions and an ML/ARD assessment report, geochemical source terms update, kinetic test update and a draft ML/ARD management plan and nitrogen source control monitoring plan for Touquoy Mine (Appendices E.2 to E.5 and E.10)

Table 1.4-3: Environmental Assessment Consultants (continued)

Consultant	Contributing Role
McCallum Environmental Ltd.	<ul style="list-style-type: none"> • Wetlands environmental effects assessment, wetlands functional assessment, characterization and preliminary Wetlands Compensation Plan (Section 6.8 and Appendices H.1 to H.3) • Fish and Fish Habitat environmental effects assessment, photographic log, and Fish and Fish Habitat baseline (2015 to 2017 and 2019 to 2020) (Section 6.9 and Appendices J.1, J.2, and J.4) • Habitat and Flora environmental effects assessment, master species list, preliminary Lichen Mitigation and Management Plan, (Section 6.10 and Appendices K.1 and P.6) • Terrestrial Fauna environmental effects assessment, draft Wildlife Mitigation and Monitoring Plan and Landbird SAR Mitigation and Monitoring Plan (Section 6.11 and Appendix P.7) • Avifauna environmental effects assessment, relative abundance of avian species and Landbird SAR Mitigation and Monitoring Plan (Section 6.12, Appendix L.2 and Appendix A of Appendix P.7 [draft Wildlife Mitigation and Monitoring Plan]) • Species of Conservation Interest and Species at Risk environmental effects assessment (Section 6.13) • Mi'kmaq of Nova Scotia engagement and environmental effects assessment (Section 4 and Appendix A.5 [Mi'kmaq of Nova Scotia engagement log], and Section 6.14) • Review and update of physical and cultural heritage environmental effects assessment and assessment of valued components within Federal jurisdiction (Sections 6.15 and 6.17) • Cumulative effects assessment (Section 8)
Moose Mountain Technical Services	<ul style="list-style-type: none"> • Preparation of Beaver Dam Mine Planning component of the Feasibility for the Project 2019 Moose River Consolidated NI 43-101 (Ausenco 2019) and 2021 Feasibility Study NI 43-101 2021 (In Progress)
Nortek Resource Solutions Inc.	<ul style="list-style-type: none"> • Prepared the visual simulations (zone of influence) for the Project (Appendix M.2)
Wood Environment & Infrastructure Solutions	<ul style="list-style-type: none"> • Senior review of Fish and Fish Habitat environmental effects assessments (Section 6.9), review of Air (Section 6.2), Geology, Soils and Sediment Quality (Section 6.5) and Surface Water Quantity and Quality (Section 6.7) environmental effects assessments and development of the draft Fish Habitat Offset Plan (Appendix J.3) • Review and contribution of the draft Aquatic Effects Monitoring Program (Appendix P.5)
Stantec	<ul style="list-style-type: none"> • Prepared Phase I and Phase II's (limited and extended) environmental site assessments for the Project (Appendices E.6 to E.8) • Review of Geology, Soil, and Sediment Quality environmental effects assessment (Section 6.5) • Prepared the following studies at the Touquoy Mine Site; a water and tailings management plan, groundwater flow and solute transport model, an assimilative capacity study of Moose River, and a simulation of cumulative effects of deposition of tailings (Appendices F.6 to F.8, and F.10) • Prepared assessment of water quality downstream of tailings facility and water balance report (Rev. 2) for tailing management – Touquoy Mine (Appendices G.5a and G.5b)
WSP	<ul style="list-style-type: none"> • Preliminary Design of Haul Road including By-pass Roads (2021 Feasibility Study NI 43-101 2021[In Progress])

1.5 Regulatory Framework and Role of Government

The federal, provincial, and municipal regulatory framework outlines requirements for the EA process, the permits required for construction, operation and reclamation, and the conditions under which the Project will be operated. General legislation that may be applicable to the Project is outlined in Table 1.5-1, while key legislation which directly drives the development of the EIS is explained in more detail in the coming sections.

Table 1.5-1: Legislation Potential Applicable to the Beaver Dam Mine Project

Legislation	Physical Activity and/or Trigger	Regulatory Authority
Federal		
<i>CEAA 2012</i>	Assessment due to the construction, operation, decommissioning of a gold mine with an ore production capacity greater than 600 tonnes per day.	IAAC
<i>Fisheries Act</i>	Authorization and compensation due to physical activities in wetlands, watercourses, and waterbodies.	DFO
<i>Fisheries Act – Metal and Diamond Mining Effluent Regulations</i>	Environmental Effects Monitoring program due to mining effluent discharge to aquatic habitat.	ECCC
<i>Migratory Birds Convention Act – Migratory Bird Regulations</i>	Potential authorization due to physical activities potentially relocating birds and altering their habitat.	ECCC
<i>Species at Risk Act</i>	Potential authorization due to physical activities destroying SARA listed species and/or their habitat.	DFO/ECCC
<i>Canadian Navigable Waters Act</i>	Potential authorization due to physical activities diverting water or activities that may interfere with navigation of non-scheduled waterways. Requirements to be ascertained following submission of a Notice of Work.	TC
<i>Canadian Environmental Protection Act</i>	Promotes sustainable development through pollution prevention and the protection of the environment and human health from risks associated with toxic substances.	ECCC
<i>Transportation of Dangerous Goods Act</i>	The movement of dangerous goods to, from, and within the site must comply with applicable regulations.	TC
Provincial		
<i>Environment Act – EA Regulations – Schedule A</i>	Assessment due to the construction, operation, decommissioning of a facility that extracts or processes metallic or non-metallic minerals.	NSE
<i>Environment Act – Activities Designation Regulations</i>	Industrial Approval for the construction, operation, or reclamation of a surface mine using explosives and procuring mineral bearing ore.	NSE
<i>Environment Act – Activities Designation Regulations</i>	Water approval and/or notification for water withdrawal, alteration of waterbodies, watercourses, and/or wetlands.	NSE
<i>Environment Act – Air Quality Regulations</i>	Ambient air quality standards for baseline environmental conditions discussion.	NSE
<i>Special Places Protection Act and Regulations</i>	Authorization required prior to conducting intrusive archaeological work.	NSCCH
<i>Wildlife Act</i>	Prohibits taking, hunting, killing, or possessing eagles, osprey, falcons, hawks, owls, and any other protected wildlife.	NSL&F
<i>Endangered Species Act</i>	Prohibits killing, injuring, disturbing, taking or interfering with endangered or threatened species and/or their habitat.	NSL&F
<i>Crown Lands Act</i>	Crown Lands Lease due to exploration and/or construction occurring on Crown Lands.	NSL&F
<i>Municipal Government Act</i>	Authorizes municipalities to develop Municipal Planning Strategies and Land Use By-laws.	NSDMA
Municipal		
National Building Code of Canada	Approval for construction and occupation of buildings.	HRM

Source: Atlantic Gold 2017 and 2019.

Note: SARA = *Species at Risk Act*; NPA = *Navigation Protection Act*; NWPA = *Navigable Waters Protection Act*; CEA Agency = Canadian Environmental Assessment Agency; DFO = Fisheries and Oceans Canada; ECCC = Environment and Climate Change Canada; TC = Transport Canada; NSE = Nova Scotia Environment; NSCCH = Nova Scotia Communities, Culture and Heritage; NSDNR = Nova Scotia Department of Natural Resources; NSL&F = Nova Scotia Department of Lands and Forestry; NSDMA = Nova Scotia Department of Municipal Affairs and Housing; HRM = Halifax Regional Municipality.

The Project is also driven by guidelines, policies, and standards that may be applicable during design, construction, operation, and reclamation. Those that may potentially be applicable to the Project are listed below, while key guidance documents which are directly applicable to the development of the EIS are listed in the coming sections.

- Federal
 - Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (FWAL) (CCME 1999a);
 - CCME Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (CCME 1999b);
 - CCME Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (CCME 2001);
 - CCME Canada Wide Standards for Particulate Matter (PM) and Ozone (CCME 2010);
 - Environmental Codes of Practice for Metal Mines (EC 2012c);
 - Guidelines for the Assessment of Alternatives for Mine Waste Disposal (EC 2011);
 - Streamlining the Approvals Process for Metal Mines with Tailings Impoundment Areas (EC 2012a);
 - Guidance Document for Flow Measurement of Metal Mining Effluents (EC 2001);
 - Guidance Document for Sampling and Analysis of Metal Mining Effluents (EC 2002);
 - Federal Environmental Quality Guideline (FEQG): Cobalt. May 2017. (ECCC 2017a);
 - Fisheries Protection Policy Statement (DFO 2013a);
 - Fisheries Productivity Investment Policy: A Proponent's Guide to Offsetting (DFO 2013b);
 - Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act, 2012*: Interim Technical Guidance (CEAA 2018);
 - Guide for Reporting to the National Pollutant Release Inventory (NPRI) 2016 and 2017 (ECCC 2016a); and
 - Federal Policy on Wetland Conservation (EC 1991).
- Provincial
 - Guidelines for Environmental Noise Measurement and Assessment (NSE 1990);
 - Toward a Greener Future: Nova Scotia's Climate Change Action Plan (NSE 2009a);
 - Guide to Consider Climate Change in Project Development in Nova Scotia (NSE 2011a);
 - Nova Scotia Wetland Conservation Policy (NSE 2019);
 - The Path We Share: A Natural Resource Strategy for Nova Scotia 2011-2020 (NSDNR 2011);
 - Water for Life: Nova Scotia's Water Resource Management Strategy (NSE 2010a);
 - Environmental Quality Standards (NSEQS) for Contaminated Sites (Tier 1) for Groundwater, Surface Water (fresh water), Soils and Sediment (NSE 2013b);
 - Remediation Levels Protocol. Table 3, Pathway Specific Standards for Groundwater (NSE 2013a);
 - Nova Scotia Standard Specifications: Highway Construction and Maintenance (NSTIR 1997);

- Erosion and Sediment Control Handbook for Construction Sites (NSE 1988);
- Guide to Altering Watercourses (NSE 2015a);
- Nova Scotia Watercourse Alterations Standard (NSE 2015b);
- Generic Environmental Protection Plan for Construction of 100 Series Highways (NSTIR 2007);
- Storm Drainage Works Approval Policy (NSE 2002a);
- Pit and Quarry Guidelines (NSEL 1999);
- Guidelines for Environmental Noise Measurement and Assessment (NSEL 1990);
- Blasting Safety Regulations made under Section 82 of the *Occupational Health and Safety Act* S.N.S. 1996, c. 7 O.I.C. 2008-65 (February 26, 2008, effective April 1, 2008), N.S. Reg. 89/2008 as amended by O.I.C. 2013-65 (March 12, 2013, effective June 12, 2013), N.S. Reg. 54/2013;
- Air Quality Regulations (Government of Nova Scotia 2005); and
- Greenhouse Gas Emissions Regulations (NSE 2018).
- Municipal
 - Musquodoboit Valley/Dutch Settlement Municipal Planning Strategy (HRM 1996a);
 - Musquodoboit Valley/Dutch Settlement Land Use By-law (HRM 1996b);
 - Eastern Shore (East) Municipal Planning Strategy (HRM 1996c); and
 - Eastern Shore (East) Land Use By-law (HRM 1996d).

1.5.1 Federal Regulatory Framework

1.5.1.1 Canadian Environmental Assessment Act, 2012

The *Impact Assessment Act* 2019 (IAA) and its [regulations](#) establish the current legislative basis for the federal impact assessment process. CEAA 2012 regulates the Government of Canada's EA process and the Regulations Designating Physical Activities (amended December 31, 2014) specify the physical activities to which CEAA 2012 applies. The Project is a designated project in accordance with Section 16(c) of these Regulations, as it is a project which states:

The construction, operation, decommissioning, and abandonment of a new rare earth element mine or gold mine, other than a placer mine, with an ore production capacity of 600 t/day or more.

Key regulatory events in accordance with CEAA 2012 which have given rise to the completion of this EIS are provided in Table 1.5-2. Additional details for all of these events can be found on the Canadian Environmental Assessment Registry (CEAR).

Table 1.5-2: Timeline of Events in Accordance with Canadian Environmental Assessment Agency 2012

Date	Event
October 16, 2015	AMNS and GHD submit a Project Description document to CEAA in order to initiate the EA determination process (GHD 2015)
October 19, 2015	CEAA releases a public notice inviting comments on the Project Description document in order to acquire assistance in the EA determination process. The public has 20 days to comment
December 3, 2015	CEAA releases the Notice of EA Determination indicating that a federal EA is required for the Beaver Dam Mine Project
December 7, 2015	CEAA releases the Notice of Commencement of an EA.
December 7, 2015	CEAA releases the draft EIS Guidelines and a public notice inviting comments on the guidelines in order to ensure they reflect which aspects of the environment may be affected and should be examined during the EA. The public has 37 days to comment
January 19, 2016	CEAA releases the final EIS Guidelines specific to the Beaver Dam Mine Project.
January 25, 2016	CEAA releases a public notice inviting eligible individuals and groups to apply for federal funding in order to enable their participation in the upcoming steps of the environmental assessment
April 29, 2016	CEAA releases the results of funding allocation for participation in the upcoming steps of the environmental assessment.
Project Initiation to March 2017	Baseline data collection, engagement with regulators, stakeholders, and Mi'kmaq, and drafting of the EIS
March 27, 2017	AMNS submits the Beaver Dam Mine Project EIS for conformity review
April 27, 2017	CEAA issues a letter providing the outcome of the Beaver Dam Mine Project EIS conformity review
June 2, 2017	AMNS re-submits the Beaver Dam Mine Project EIS for conformity review
June 28, 2017	Beaver Dam Mine Project meets conformity and commences formal review process under CEAA
August 9 and 21, 2017	CEAA provided Round 1, Information Requests to AMNS (CEAA 2017 and NSE 2017)
February 28, 2019	AMNS submits the Beaver Dam Mine Project Revised 2019 EIS
March 31, 2019	Beaver Dam Mine Project meets conformity and commences formal review process under CEAA
May 8 and June 12, 2019	CEAA provided Round 2, Information Requests to AMNS (CEAA 2019 and NSE 2019)
June 4, 2021	AMNS submits Responses to Round 2, Information Requests
June 11, 2021	AMNS submits Updated 2021 EIS to support Responses to Round 2, Information Requests
July 15, 2021	IAAC issues a letter providing the outcome of completeness check of the responses provided by AMNS to Round 2 of the Information Requirements on the Updated 2021 EIS
October 2021	AMNS submits Updated 2021 EIS (October 2021 version) and non-conformity response updates to Round 2, Information Requests (October 2021 version)

Following submission of this EIS to IAAC, another public notice will be released inviting public comment. The provincial and federal government reviews will be completed in conjunction with this public review period. The IAAC will then prepare and publish a draft EA report which considers all public and government comments, and detail conclusions regarding the potential for environmental effects from the Project. The Project is contingent upon receipt of an approved EA decision statement.

1.5.1.2 Fisheries Act, 1985

The *Fisheries Act* is administered by Fisheries and Oceans Canada (DFO) and generally protects the sustainability and productivity of recreational, commercial, and indigenous fisheries in Canada.

Under Section 35(1) The Minister may designate, as a work, undertaking, or activity that is associated with a designated project, any work, undertaking or activity, that the Minister considers likely to result in the death of fish or the harmful alteration, disruption or destruction [HADD] of fish habitat unless authorized by or carried on in accordance with regulations issued in accordance with the *Fisheries Act*. In addition, Section 36(3) prohibits the discharge or deposition of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter such water unless authorized or carried on in accordance with those same regulations.

As a result of anticipated physical activities potentially occurring in wetlands, watercourses, and waterbodies, authorization in accordance with Section 35(2) of the *Fisheries Act* may be required.

1.5.1.2.1 Metal and Diamond Mining Effluent Regulations

The Metal and Diamond Mining Effluent Regulations (MDMER) are made under the *Fisheries Act* and apply to mines that exceed an effluent flow rate of 50 m³ per day, based on effluent deposited from all final discharge points of the mine and deposit a deleterious substance in any water or place referred to in subsection 36(3) of the *Fisheries Act*.

As a result of anticipated collection and discharge of surface water runoff and mine discharge water through water management ponds, effluent monitoring in accordance with the Section 2(1) of the MDMER may be required.

In addition to likely residual impacts that constitute a HADD, any fish and fish habitat that may be subject to a MDMER Schedule 2 designation and accordingly a fish habitat compensation process for these residual impacts has also been included in the draft Fish Habitat Offset Plan (Appendix J.3).

1.5.1.3 Migratory Birds Convention Act, 1994

Section 5 of the Migratory Birds Convention Act (MBCA) protects migratory birds, their nests, and their eggs from hunting, trafficking, and commercialization. A permit is required to disturb, destroy, or take a nest, egg, nest shelter, eider duck shelter, or duck box of a migratory bird.

In addition, Section 5.3 of the MCBA prohibits the discharge or deposition of a substance harmful to migratory birds in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area. The discharge or deposition of a substance that may combine with a substance already present to create a harmful substance is also prohibited in Section 5.3.

1.5.1.3.1 Migratory Birds Regulations

The Migratory Birds Regulations (MBR) is made under the *MBCA* and may apply to the Project as a result of anticipated physical activities potentially relocating birds and destroying their habitat. An authorization in accordance with Section 4(1) of the MBR may be required.

1.5.1.3.2 *Species at Risk Act, 2002*

The *Species at Risk Act* (SARA) protects wildlife species from becoming extinct through prohibitions against killing, harming, harassing, capturing or taking species at risk (SAR), and against destroying their critical habitats. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) identifies species of special concern that may then qualify for legal protection and recovery in accordance with SARA. SARA's mandate is to provide for the recovery of SAR and to ensure through sound management that species of concern do not require SARA listing. DFO is responsible for aquatic SAR, while ECCC is responsible for terrestrial SAR.

As a result of anticipated physical activities potentially occurring in wetlands, watercourses, and waterbodies, as well as the potential destruction of sensitive terrestrial habitat, authorization in accordance with SARA may be required.

1.5.1.4 *Navigation Protection Act, 1985*

The *Navigation Protection Act* (NPA), formerly the *Navigable Waters Protection Act* (NWPA), was amended in April 2014 and effectively changed the definition of navigable waters under this legislation. Prior to the last amendment of the NPA, navigable waters included all bodies or courses of water that were capable of being navigated by any type of floating vessel for transportation, recreation, or commerce. This definition created the need for works in, on, under, or over any waterbody or watercourse to obtain a Navigable Waters Protection Approval.

The last amendment added a schedule to the NPA that listed scheduled waters for which regulatory approval is required for works that risk a substantial interference with navigation. The schedule listed three oceans, 62 rivers, and 97 lakes, none of which are located in the area of the Project.

The federal government recently made changes to these regulations and the *Canadian Navigable Waters Act* (CNWA) that replaced the *Navigation Protection Act* came into effect August 28, 2019. There is potential that, under this new regulation, waterways within the Project Area could require permitting. Further consultation with Transport Canada (TC) will be required as permitting proceeds. The Proponent has consulted with TC and confirmed that no pre-existing permits are in place within the PA under the repealed NWPA or the schedule of waterways that has been retained from the NPA in the new CNWA. Based upon the absence of any designations of local waterways, the requirement of permits for navigable waters is not anticipated for the Project under the CNWA. However, the Project involves diverting water and upgrades or construction of new works that may restrict navigation of a non-scheduled waterway (e.g., installation or upgrades of bridges, culverts, etc.). This requirement can only be ascertained once the Proponent submits a Notice of Work to TC.

AMNS will identify to TC the existing crossings on which alterations/work are being proposed and will opt out of the NPA regime as required. A full list of watercourses and waterbodies located within the Beaver Dam Mine Site and Haul Road are discussed in Section 6.7 (Surface Water Quantity and Quality) and Appendix G.4 (Physical Characterization of Watercourses and Waterbodies).

1.5.1.5 Federal Guidance Applicable to the Project

In addition to the EIS Guidelines developed for the Project (CEAA 2016), other guidance documents from CEAA that have been consulted include but are not limited to:

- Operational Policy Statement Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2013a);

- Operational Policy Statement Addressing "Purpose of" and "Alternative Means" under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2013b);
- Operational Policy Statement Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2015a);
- Draft Technical Guidance for Assessing Cumulative Environmental Effects Under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2014a); and
- Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2014b).

1.5.2 Provincial Regulatory Framework

1.5.2.1 Nova Scotia Environment Act, 1995

1.5.2.1.1 *Environmental Assessment Regulations*

The Environmental Assessment Regulations made under Section 49 of the *Nova Scotia Environment Act* regulates the Government of Nova Scotia's EA process. Projects that trigger the EA process are sub-divided into two classes - Class I and Class II. The Project triggers a Class I EA in accordance with Schedule A, Section B(1a) of these regulations, as it is a project which involves:

- A facility that extracts or processes metallic or non-metallic minerals.

This EIS will substitute and fulfill all the requirements of a provincial EARD.

1.5.2.1.2 *Activities Designation Regulations*

Many of the provincial permits anticipated to be required for the Project are regulated in accordance with the Activities Designation Regulations made under Section 66 of the *Nova Scotia Environment Act*. An Industrial Approval (IA) will be required in accordance with Section 16(2d) of these regulations, as it is a project that involves:

- A surface mine where an opening or excavation is made in the ground from the surface which may require the use of explosives for the purpose of procuring any mineral bearing ore, including coal, and any associated infrastructure.

The IA process, known as Part V of the *Nova Scotia Environment Act* seeks to guide the proponent in determining the way in which a project, after EA Approval, is to be monitored for compliance targets, objectives set through the EA process, and commitments made by proponents through various means such as public and Indigenous Peoples engagement. It is a well understood process by the Proponent, having been part of the process for the existing Touquoy operation that has an IA.

Activities required to facilitate the Project, including wetland and watercourse alteration and groundwater and surface water withdrawals, may require approvals in accordance with these regulations as well. These permitting requirements will be initiated once EA approval has been received from the province.

1.5.2.2 Nova Scotia Endangered Species Act, 1999

The Nova Scotia Endangered Species Act (NSESA) prohibits the killing or disturbing species at risk, destroying or disturbing its residence, and destroying or disturbing of core habitat.

As a result of anticipated physical activities potentially occurring in wetlands, watercourses, and waterbodies, as well as the potential destruction of sensitive terrestrial habitat, authorization in accordance with NSESA may be required.

1.5.2.3 Provincial Guidance Applicable to the Project

Provincial guidance documents that have been consulted in preparation of this EIS include:

- A Proponents Guide to Environmental Assessment (NSE 2001);
- Guide to Preparing an EA Registration Document for Mining Developments in Nova Scotia (NSE 2002b);
- Guide to Considering Climate Change in Environmental Assessment in Nova Scotia (NSE 2011c); and
- Guide to Addressing Wildlife Species and Habitat in an EA Registration Document (NSE 2005).

1.5.3 Municipal Regulatory Framework

The Halifax Regional Municipality is divided into 21 community plan areas that have their own set of land use strategies and by-laws. The Project straddles the boundary of the Musquodoboit Valley/Dutch Settlement Plan Area and the Eastern Shore (East) Plan Area.

The Beaver Dam Mine Site and Touquoy Mine Site are located in the Musquodoboit Valley and Dutch Settlement Plan Area. The Land Use By-law and Municipal Planning Strategy for this area were last amended in October 2014. The area is zoned mixed use, and extractive facilities, of which mining related infrastructure is one, are permitted within this zoning designation. The by-law for mixed use land use prescribes minimum separation distances from features such as lot lines, dwellings, watercourses, domestic wells, and residential zones. The physical activity of mining or extraction is not specified in the by-law as it is governed in the provincial and federal regulatory regime. The Municipal Planning Strategy (HRM MPS 2014) describes mining as an important land use within the Plan Area from an economic perspective; however, extractive operations can potentially create harmful environmental effects. The Municipal Planning Strategy also states these concerns are addressed by the provincial Department of Environment through their permitting process (HRM MPS 2014).

The majority of the Haul Road is located in the Eastern Shore (East) Plan Area, while a minor portion is located in the Musquodoboit Valley and Dutch Settlement Plan Area. The Municipal Planning Strategies describe extraction as an important land use within the Plan Area from an economic perspective; but also acknowledge that extractive operations can potentially create harmful environmental effects.

1.5.4 Indigenous Peoples

In 2004 and 2005, the Supreme Court of Canada decided the Crown (provincial and federal) has a duty to consult with Indigenous Peoples when contemplating decisions or actions that may adversely affect their established or potential Indigenous rights and treaty rights. The provincial government typically delegates certain procedural aspects of this consultation to the Proponent of a project. The federal government always acts as the consultation coordinator to integrate the Government of Canada's indigenous consultation activities into the EA process. This duty cannot be delegated to proponents.

The Made-in-Nova Scotia Process is the forum for the Mi'kmaq, Nova Scotia and Canada to resolve issues related to Mi'kmaq treaty rights, Aboriginal rights, including Aboriginal title, and Mi'kmaq governance. The process involves the Mi'kmaq of Nova Scotia as represented by the Assembly of Nova Scotia Mi'kmaq Chiefs and the provincial and federal governments.

Through the provincial Indigenous Peoples engagement process, AMNS and the consulting team undertook engagement. This engagement with the Mi'kmaq of Nova Scotia by AMNS referenced two key guidance documents which have influenced the EA process for the Project:

- Proponents' Guide: The Role of Proponents in Crown Consultation with the Mi'kmaq of Nova Scotia (Province of Nova Scotia 2012); and
- Mi'kmaq Ecological Knowledge Study Protocol, 2nd Edition (KMKNO 2007).

Other pertinent guidance in the federal regulatory framework which has influenced the EA process for the Project includes:

- Aboriginal Consultation and Accommodation – Updated Guidelines for Federal Officials to Fulfill the Duty to Consult (AANDC 2011);
- Technical Guidance for Assessing the Current Use of Lands and Resources for Traditional Purposes under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2015b);
- Reference Guide Considering Aboriginal Traditional Knowledge in Environmental Assessments Conducted Under the *Canadian Environmental Assessment Act*, 2012 (CEAA 2014c); and
- In Nova Scotia, treaty rights following the 1999 decision in the Donald Marshall Jr. case confirms the right of the Mi'kmaq to hunt, fish, and gather to earn a moderate livelihood. These are protected under Section 35 of the *Constitution Act*, 1982.

1.6 Guiding Principles

1.6.1 Planning Tool

At its foundation, EA is a planning tool used to ensure that projects are carefully planned to avoid or mitigate possible negative environmental effects and to maximize potential benefits. Use of the EA process early in a project's planning phase can be used to encourage proponents to develop their projects in the most sustainable manner. The use of the EIS Guidelines (CEAA 2016) required the Proponent to carefully review and consider the Project, including its alternatives, and the potential effects on valued components

1.6.2 Public Participation

The EIS Guidelines require that the Proponent provide current information about the Project to the general public and especially the communities likely to be most affected by Project activities (CEAA 2016). Within the provincial and federal EA processes, there are distinct public comment periods, including the opportunity to comment on the EIS. To maximize public participation, proponents are required engage the public directly and early on in the EA process.

The Proponent has been engaging stakeholders, including the local community, non-governmental organizations, governmental departments, and the local community since planning and permitting began on the Touquoy Mine over a decade ago. More specific to the Project, specific engagement activities occurred in past year to facilitate public participation. This included open houses in May 2016, presentations and meeting with community organizations and expansion of the existing Community Liaison Committee (CLC). Additional engagement was undertaken in 2020 to 2021 with residents, key stakeholders, and members of the public,

which is described in Section 3. It should be noted that concerns related to access are addressed through the construction of bypass roads that will allow for continued access during operations.

Comments from the public were considered in the development of the EIS in terms of planning the Project and its assessment for each Valued Component (VC); responses from the Proponent are documented in this EIS. Additional public engagement details are discussed in Section 3 and Appendix A.4a.

1.6.3 Mi'kmaq of Nova Scotia Engagement

The EIS Guidelines require that the Proponent engage with Indigenous Groups, Mi'kmaq of Nova Scotia, that may be affected by the Project (CEAA 2016).

Within the provincial and federal EA processes and as part of the Made-in-Nova Scotia Process, there are distinct consultation processes completed by the Crown. To maximize engagement of Indigenous Peoples in the EA process, proponents are required to engage Indigenous Peoples directly and early on in the EA process (CEAA 2016).

The Proponent engaged with the Mi'kmaq of Nova Scotia to obtain views on:

- Effects of changes to the environment on the Mi'kmaq of Nova Scotia, specifically: health and socio- economic conditions; physical and cultural heritage, including any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, and current use of lands and resources for traditional purposes; and
- Potential adverse impacts of the Project on potential or established Indigenous Peoples rights or Treaty rights, title and related interests, in respect of the Crown's duty to consult, and where appropriate, accommodate the Mi'kmaq of Nova Scotia.

The information gathered by AMNS during engagement with the Mi'kmaq of Nova Scotia helps to contribute to the Crown's understanding of any potential adverse impacts of the Project on potential or established Aboriginal or treaty rights, title and related interests, and the effectiveness of measures proposed to avoid or minimize those impacts.

AMNS has been engaging the Mi'kmaq of Nova Scotia since planning and permitting began on the Touquoy Mine over a decade ago. More specific to the Project, specific engagement activities occurred in past year to engage the Mi'kmaq of Nova Scotia. This included open houses in May 2016, many presentations and meetings with different Mi'kmaq groups, and expansion of the existing CLC to include representatives of the two nearest Mi'kmaq communities, Millbrook First Nation and Sipekne'katik First Nation. Recent engagement efforts through 2018 to 2021 have taken place with Millbrook, Sipekne'katik and KMKNO relating to project technical updates, mitigation and monitoring plans, changes to Project infrastructure including waste rock stockpiles and the Preferred Alternative Haul Road, and discussions relating to thresholds of significance with Millbrook First Nation.

Additional engagement has been undertaken since the 2019 Revised EIS, which are documented in Section 4. Comments from the Mi'kmaq of Nova Scotia were considered in the development of the EIS in terms of planning the Project and the assessment for each VC; responses from the Proponent are documented in this EIS (Section 4 and Appendix A.5).

1.6.4 Precautionary Approach Application

The EIS Guidelines require that the Proponent demonstrate how all aspects of the Project have been examined and planned in a precautionary manner to avoid serious or irreversible environmental effects (CEAA 2016). This EIS applies the precautionary approach through the following assessment methodologies:

- provide extensive detail about the existing environment and develop mitigation measures to eliminate, reduce, or control the effect Project activities have on the environment;
- consider project designs that will minimize disturbance to the existing environment;
- outline contingency plans that address worst-case accidents and malfunctions;
- outline follow-up and monitoring programs to verify project activity related impact predictions; and
- anticipate other projects in the area in an effort to assess cumulative effects.

The application of a precautionary approach in developing this EIS will allow the EA to act as a planning tool which will be used to ensure the Project avoids or mitigates potential environment effects and promotes sustainable development.

1.7 Benefits of the Project

1.7.1 Environmental Benefits

The environmental benefits of the Project to Nova Scotia are numerous to correct past practices with respect to the environment. Given the area has been subjected to extensive exploration, mining, and logging activity over several decades, baseline conditions show obvious effects from these historic activities (Section 6.5 Geology, Soil, and Sediment Quality). The current condition at the Beaver Dam Mine Site is disturbed, and fragmented habitat based on significant timber harvesting, associated road building and yarding areas and historic exploration/mining activity. The PA contains a diversity of habitat types and landscape features but has experienced a considerable amount of disturbance and habitat fragmentation as a result of these activities. The level of disturbance within the Beaver Dam Mine Site disproportionately affects uplands, over wetlands. The level of new fragmentation associated with the Project is anticipated to be moderate, given the existing disturbance. Historic tailings are planned to be removed from the Beaver Dam Site and disposed of at the Touquoy Mine. Historic waste rock will be placed in the PAG waste rock storage area at the Beaver Dam Mine Site. Water will be treated during construction to remove metals associated with historic tailings.

The poor condition of the majority of existing Haul Road culvert crossings directly contributes to poor surface water quality and fish passage in watercourses and wetlands along the Beaver Dam Mines Road and the Moose River Cross Road (Figure 1.2-1). Upgrades to this existing Haul Road will include culvert replacements at over 20 locations and 3 new bridges, where determined to be necessary (Section 2.9.1.2 and Section 6.9.7.3.1). It is expected that correctly installed culverts will increase fish passage and positively affect fish habitat through improved surface water quality.

All environmental baseline investigations for the Project have added to the scientific understanding of the area and improved background data held by the province. Background data helps increase the knowledge base of its users and increases public ecological awareness and promotes conservation of natural ecosystems.

At closure, reclamation will occur at the Project Site and Touquoy Mine Site. The reclamation plan will be secured with a bond held by the Province of Nova Scotia to ensure there are sufficient funds to reclaim the site at any point during the Project. The plan for reclamation requires approval of the Nova Scotia Department of Lands and Forests.

1.7.2 Socio-economic Benefits

KPMG International completed an Economic Impact Assessment of the Moose River Consolidated (MRC) Project to evaluate the economic benefits stemming from the Proponent's mining projects in Nova Scotia (KPMG 2015). This assessment considered the Touquoy and Beaver Dam Mine Projects together and found that socio-economic benefits will stem primarily from the construction and operation phases of the Project.

Construction activities will involve preparing the Project Site, setting up infrastructure and facilities, and purchasing mining processing equipment to enable the MRC Project to reach full production. Much of the spending associated with these activities will be incurred in Nova Scotia and Canada. As per the KPMG report, it was projected that construction costs will be approximately \$146 million, with approximately \$97.6 million, or 67%, being spent in Nova Scotia, and approximately \$111.9 million, or 77%, being spent in Canada. As a result of this spending, it is anticipated that 391 full time equivalent jobs will be created in Nova Scotia per year during construction. For Canada as a whole, the construction phase will create 437 full time equivalent jobs per year. Tax revenues stemming from the construction phase are expected to be \$4.1 million for the Government of Nova Scotia and \$5.5 million for the Government of Canada. This is a conservative estimate as corporate income taxes paid by contractors and suppliers cannot be estimated.

Operational mining and processing activities will involve the deployment and operation of new mining production capacity. Similar to the construction phase, much of the spending associated with operation of the MRC Project will be incurred in Nova Scotia and Canada. As per the KPMG report, it was projected that annual operating costs will be approximately \$52.3 million, with approximately \$38.1 million, or 73%, being spent in Nova Scotia, and approximately \$39.4 million, or 75%, being spent in Canada. The costs include several spending components, the most important being:

- salaries and benefits for 27% of total annual operating costs;
- cyanide, lime, and reagents for 24% of total annual operating costs;
- diesel for 22% of total annual operating costs;
- wear parts and spare parts for 15% of total annual operating costs; and
- electricity (Touquoy only) for 7% of total annual operating costs.

As a result of this spending, it was anticipated in the KPMG report that 228 yearly and recurrent full-time equivalent jobs will be created in Nova Scotia during operation. For Canada as a whole, the operation phase will create 278 yearly and recurrent full-time equivalent jobs during operation. Tax revenues stemming from the operation phase are expected to be \$10.2 million annually for the Government of Nova Scotia and \$8.1 million annually for the Government of Canada. These represent conservative estimates as corporate income taxes paid by suppliers cannot be estimated.

The Province of Nova Scotia's unemployment rate is higher than the national average (8.8% >6.9%) and its gross domestic product (GDP) growth was the slowest of all Canadian provinces the last few years. In addition, the GDP per capita is the second lowest in Canada. The MRC Project would greatly benefit the Province of Nova Scotia due to substantial upfront investments and significant annual operation costs contributing to job creation and government tax revenue.

AMNS is committed to working with local communities and the Mi'kmaq of Nova Scotia to maximize socio-economic benefits as the Company develops its projects in the Province, including the Beaver Dam Mine Project.

1.8 Environmental Impact Statement Organization

The Updated 2021 EIS for the Project has retained most of the primary structure of the Revised 2019 EIS (AMNS 2019) (i.e., most major headings match between the two documents). An overview of the contents of each section of the Updated 2021 EIS are provided in the following text:

- Section 1 Introduction introduces the Project and the 2021 EIS Update. It provides summary information and updates, where relevant, to details provided in Section 1 of the 2017 EIS (AGC 2017) and the Revised 2019 EIS (AMNS 2019) relating to the Proponent, Project Overview, and Regulatory Process.
- Section 2 Project Description has been updated to include changes to the Project Layout, Mine Infrastructure Layout, Project Production Schedule, inclusion of bypass roads due to advances in project engineering and resulting from recent engagement regarding land use access. The effects of Project Description Updates are documented in Sections 6 through 10 of the EIS.
- Section 3 Public Engagement has been updated to include engagement activities post the Revised 2019 EIS submission. A public engagement log and supporting documentation are included in Appendices A.4a to A.4c.
- Section 4 Indigenous Peoples Engagement has been expanded to include Mi'kmaq of Nova Scotia engagement activities post the Revised 2019 EIS submission. The engagement log is presented in Appendix A.5.
- Section 5 Environmental Effects Assessment Methodology provides a summary of the environmental assessment methodology used for the EIS. The methodology has been updated for clarification on significance thresholds (i.e., magnitude and significance).
- Section 6 Environmental Effects Assessment – Updates to each of the Valued Component sections are based on changes to infrastructure and Project Description for the Beaver Dam Mine Site and in response to IR2s.
- Section 7 Effects of the Environment on the Project has been updated with relevant climate data sets.
- Section 8 Cumulative Effects Assessment has been updated to reflect existing developments/projects, current future developments/projects, changes to infrastructure and Project Description for the Beaver Dam Mine Site and in response to IR2s.
- Section 9 Summary of Environmental Effects Assessment has been updated to reflect changes to infrastructure and Project Description for the Beaver Dam Mine Site and in response to IR2s.
- Section 10 Summary of Proposed Follow-up Monitoring Programs has been updated to reflect changes to infrastructure and Project Description for the Beaver Dam Mine Site and in response to IR2s.
- Section 11 References has been updated to reflect any additional cited information.
- Section 12 Acronyms, Abbreviations, Units and Glossary has been updated to reflect additional terms.

Table 1.8-1 identifies the sections of the 2017 EIS (AGC 2017) and specifies whether they are unchanged or updated within the 2019 Revised EIS (AMNS 2019) and/or this 2021 EIS Update. If they are unchanged, the text will reflect what was presented in the 2019 Revised EIS (AMNS 2019). If the text in the subsection required updates, the changes will be highlighted in yellow.

Table 1.8-1: Summary of Updates to Sections from the 2017 Environmental Impact Statement through to the Updated 2021 Environmental Impact Statement

Section from the 2017 EIS		Updated in 2019	Updated in 2021	Nature of Update in 2021
1	Introduction	Yes	Yes	Updated to reflect changes in the Project Description and Regulatory changes since previous submission
2	Project Description	Yes	Yes	Updated to reflect changes in the Project Description (i.e., infrastructure and layout)
3	Public Engagement Program	No	Yes	Updated to reflect engagement undertaken since 2019
4	Indigenous Peoples Engagement Program	Yes	Yes	Updated to reflect engagement undertaken since 2019
5	Environmental Effects Assessment Methodology	No	Yes	Updated based on clarification on significance thresholds and related indices
6	Environmental Effects Assessment	Yes	Yes	Updated based on changes in Project Description, Beaver Dam Mine Layout, additional baseline information, and in response to Information Requests
6.1	Noise	Yes	Yes	Updated modelling based on changes to Project Description and in response to Information Requests
6.2	Air	Yes	Yes	Updated modelling based on changes to Project Description and in response to Information Requests
6.3	Light	Yes	Yes	Updated modelling based on changes to Project Description and in response to Information Requests
6.4	Greenhouse Gases	Yes	Yes	Updated modelling based on changes to Project Description and in response to Information Requests
6.5	Geology, Soil, and Sediment Quality	Yes	Yes	Updated modelling based on changes to Project Description/project layout. Additional baseline information collected on source terms, and historic mining activities including additional information on sediments.
6.6	Ground Water Quality and Quantity	Yes	Yes	Updated modelling based on changes in Project Descriptions/project layout including details additional details on water management structures. Updated modelling was undertaken to document as inputs to surface water quantity and wetlands. Mitigation and Monitoring updates.
6.7	Surface Water Quality	Yes	Yes	Updated modelling based on changes in Project Descriptions/project layout including details additional details on water management structures. Additional water modelling was undertaken to document changes in baseflow and water quality. Mitigation and Monitoring updates.
6.8	Wetlands	Yes	Yes	Updates based on changes in Project Descriptions/project layout. Updates to Air, Surface Water and Groundwater Section resulted in changes to indirect impacts. Mitigation and Monitoring updates.
6.9	Fish and Fish Habitat	Yes	Yes	Updates based on changes in Project Descriptions/project layout. Updated baseline data. Updates to Air, Surface Water and Groundwater Section resulted in changes to indirect impacts. Mitigation and Monitoring updates
6.10	Habitat and Flora	Yes	Yes	Updates based on changes in Project Descriptions/project layout. Updates to Air, Surface Water and Groundwater Section resulted in changes to indirect impacts. Mitigation and Monitoring updates

Table 1.8-1: Summary of Updates to Sections from the 2017 Environmental Impact Statement through to the Updated 2021 Environmental Impact Statement (continued)

Section from the 2017 EIS		Updated in 2019	Updated in 2021	Nature of Update in 2021
6.11	Terrestrial Fauna	Yes	Yes	Updates based on changes in Project Descriptions/project layout. Updates to Air, Surface Water and Groundwater Section resulted in changes to indirect impacts. Mitigation and Monitoring updates
6.12	Birds	Yes	Yes	Section title change to Avifauna Updates based on changes in Project Descriptions/project layout. Updates to Air, Surface Water and Groundwater Section resulted in changes to indirect impacts. Mitigation and Monitoring updates
6.13	Species of Conservation Interest and Species at Risk	Yes	Yes	Updates based on changes in Project Descriptions/project layout. Updates to Air, Surface Water and Groundwater Section resulted in changes to indirect impacts. Mitigation and Monitoring updates
6.14	Indigenous Peoples	Yes	Yes	Section title change to Mi'kmaq of Nova Scotia Updates based on additional engagement and feedback received since the Revised 2019 EIS.
6.15	Physical and Cultural Heritage	Yes	Yes	Updates based on Project Descriptions additional baseline reporting
6.16	Socio-economic Conditions	Yes	Yes	Updates based on Project Descriptions, additional linkages key Provincial Socio-Economic Policies and Documents as well as AMNS policies
6.17	Assessment of Valued Components within Federal Jurisdiction	Yes	Yes	Minor Updates to reflect changes in legislation and regulations
6.18	Accidents and Malfunctions	Yes	Yes	Updates to address Information Requests (Round 2)
7	Effects of the Environment on the Project	Yes	Yes	Updated to reflect current data sets and additional available information
8	Cumulative Effects Assessment	Yes	Yes	Updated based changes to Project Description/project layout as well as additional corresponding changes to VCs
9	Summary of Compliance and Effects Monitoring Programs	Yes	Yes	Updated based on changes to VC
10	Environmental Impact Statement Summary and Conclusions	Yes	Yes	Updates based on outcomes from VC sections
11	References	No	Yes	Expanded
12	Acronyms, Abbreviations, Units and Glossary	No	Yes	Expanded acronym, abbreviation and unit lists and included Glossary

Appendices associated with the 2017 EIS (AGC 2017) are summarized in Table 1.8-2, together with cross-references to those appendices revised and presented within the 2019 Revised EIS (AMNS 2019) and this submission (Updated 2021 EIS). Appendices that are new in the 2021 EIS Update have also been identified (e.g., Appendix P.4 Mine Water Management Plan) in Table 1.8-2.

Table 1.8-2: Original, Updated, and New Appendices (2017 to 2021)

Appendices from the 2017 EIS		Updated in 2019	Appendices from 2019 Revised EIS		Updated in 2021	Appendix Number within the 2021 EIS Update	
Appendix A	Community Liaison Committee draft Terms of Reference	Yes	Appendix A.1	Terms of Reference for the Community Liaison Committee (CLC)	Yes	A.1	Plain Language Summary Beaver Dam Mine Project
Appendix B	Summary of Stakeholder and Mi'kmaq Engagement	Yes	Appendix A.2	Summary of Stakeholder and Mi'kmaq Engagement as Completed for the Project as of January 2018	New	A.2a	Mine Waste Stockpile Geotechnical Design – April 1, 2021
Appendix C	Sediment Baseline Analytical Results	New	Appendix B.1	Noise Impact Study Beaver Dam Mine Project	New	A.2b	Beaver Dam Project – Conceptual PAG Closure Options – December 1, 2021
Appendix D	Surface Water Balance Analytical Results	New	Appendix C.1	Air Dispersion Modelling and Air Emission Estimate Technical Memorandum	New	A.2c	Geotechnical Investigation: Data Report - Beaver Dam Mine – January 15, 2021
Appendix E	Hydrogeological Reports	New	Appendix C.2	Evaluation of Exposure Potential Related to Dust Deposition from Haul Road Traffic onto Soils, Berries, and Vegetation	No	A.3	Terms of Reference for the Community Liaison Committee (CLC)
Appendix F	Wetland Functional Assessment Summary Table	New	Appendix C.3	Dust Control Plan	New	A.4a	Summary of Public and Stakeholder Engagement Completed for the Project as of 2021
Appendix G	Wetland Characterization Table	New	Appendix D.1	Light Impact Assessment	New	A.4b	NSSA letter March 21, 2021, notes from Sept 9 meeting and presentation
Appendix H	Photographic Log of Watercourses and Fish Habitat	Yes	Appendix E.1	Sediment Baseline Analytical Results	New	A.4c	Community Bulletins
Appendix I	Priority Species List	New	Appendix E.2	Beaver Dam Project - ML/ARD Assessment Report	New	A.5	Summary of Mi'kmaq and Indigenous Peoples Engagement Completed for the Project as of 2021
Appendix J	Documented Priority Species (ACDC and NS Communities, Culture, and Heritage)	New	Appendix E.3	Beaver Dam Project - Geochemical Source Term Predictions for Waste Rock, Low-Grade Ore, Tailings and Overburden	New	A.6	draft Public Engagement Plan – May 2021 Appendix 1 St Barbara Limited (Atlantic Mining NS Inc.) Corporate Policies Appendix 2 draft Complaint Resolution Plan
Appendix K	Master Plant List	New	Appendix F.1	Assessment of Potential Open Pit Groundwater Inflows - Beaver Dam Gold Project	New	B.1	Beaver Dam Mine Construction Noise Assessment Atlantic Mining NS Inc., Beaver Dam Mine Project, Nova Scotia – January 25, 2021
Appendix L	Maritime Breeding Bird Atlas Data Summaries	New	Appendix F.2	Hydrogeologic Investigation - Beaver Dam Mine	Yes	B.2	Updated Noise Impact Assessment Technical Report – October 12, 2021
Appendix M	Relative Abundance of Avian Species	New	Appendix F.3	Field Activities Report Beaver Dam Mine Project	Yes	C.1	Air Emissions Assessment Technical Report – February 16, 2021
Appendix N	Mi'kmaq Ecological Knowledge Study	New	Appendix F.4	Groundwater Quality Data	Yes – Updated/New	C.2	Evaluation of Potential Human Exposures and Risks related to Emissions from the Beaver Dam Mine Project (Dust deposition; Recreational water usage; and country foods) – April 22, 2020
Appendix O	Archaeological Reconnaissance Reports and Nova Scotia Communities, Culture, and Heritage Communications	New	Appendix F.5	Hydrogeologic Model Development and Application	Yes	C.3	Draft Fugitive Dust Control Plan – May 2021
-	-	New	Appendix F.6	Groundwater Flow and Solute Transport Modelling to Evaluate Disposal of Beaver Dam Tailings in Touquoy Open Pit - Beaver Dam Gold Project	Yes	D.1	Light Impact Assessment Beaver Dam Mine Project – January 28, 2021
-	-	Yes	Appendix G.1	Surface Water Baseline Analytical Results	No	E.1	Sediment Baseline Analytical Results
-	-	New	Appendix G.2	Touquoy Integrated Water and Tailings Management Plan	Yes	E.2	Beaver Dam Project - ML/ARD Assessment Report – December 20, 2018
-	-	New	Appendix G.3	Predictive Water Quality Assessment - Beaver Dam Gold Mine	Yes	E.3	Beaver Dam Project - Geochemical Source Term Update – January 20, 2021
-	-	New	Appendix G.4	Evaluation of Potential for Aquatic Effects as a Result of Effluent Releases Related to Beaver Dam Mine	New	E.4	DRAFT Beaver Dam Project: 2020 Kinetic Test Update (IR NSE 2-74) – June 11, 2020
-	-	New	Appendix G.5	Water Balance Analysis - Beaver Dam Mine Site	New	E.5	DRAFT Beaver Dam Mine ML/ARD Management Plan – August 8, 2019
-	-	New	Appendix G.6	Assimilative Capacity Study of Moose River. Touquoy Open Pit Discharge	New	E.6	Phase I - Environmental Site Assessment (Beaver Dam), - August 6, 2019
-	-	New	Appendix G.7	Beaver Dam Conceptual Treatment Approach	New	E.7	Limited Phase II - Environmental Site Assessment (Beaver Dam Property) - August 23, 2019
-	-	Yes	Appendix H.1	Wetland Functional Assessment Summary Table	New	E.8	Final (Revised) – Extended Phase II Environmental Site Assessment Beaver Dam Project Property - March 8, 2021

Table 1.8-2: Original, Updated, and New Appendices (2017 to 2021) (continued)

Appendices from the 2017 EIS		Updated in 2019	Appendices from 2019 Revised EIS		Updated in 2021	Appendix Number within the 2021 EIS Update	
-	-	No	Appendix H.2	Wetland Characterization Table	New	E.9	Draft Historic Tailings and Waste Rock Management Plan - May 2021
-	-	New	Appendix H.3	Preliminary Wetland Compensation Plan	New	E.10	Nitrogen Source Control Monitoring Plan for Touquoy Mine - March 14, 2021
-	-	New	Appendix I.1	ACCDC Report Beaver Dam Mine Site (Data Report 5262: Marinette, NS)	No	F.1	Assessment of Potential Open Pit Groundwater Inflows Beaver Dam Gold Project Nova Scotia – April 2015
-	-	New	Appendix I.2	ACCDC Report Haul Road (Data Report 5559: Mooseland, NS)	No	F.2	Hydrogeologic Investigation - Beaver Dam Mine – July 30, 1986
-	-	New	Appendix I.3	ACCDC Report Touquoy Mine Site (Data Report 5433: Moose River Mines, NS)	No	F.3	Field Activities Report Beaver Dam Mine Project – November 8, 2018
-	-	New	Appendix I.4	Environmental Screening Beaver Dam Mine Site - Nova Scotia Communities, Culture, & Heritage	New	F.4	Baseline Groundwater Program, Beaver Dam – March 20, 2021
-	-	No	Appendix I.5	Priority Species List	Yes	F.5	Hydrogeologic Modelling Report – April 2021
-	-	Yes	Appendix J.1	Photographic Log of Watercourses and Fish Habitat	Yes	F.6	Groundwater Flow and Solute Transport Modelling to Evaluate Disposal of Beaver Dam Tailings in Touquoy Open Pit - Beaver Dam Gold Project – April 12, 2021
-	-	No	Appendix K.1	Master Plant List	Yes	F.7	Touquoy Integrated Water and Tailings Management Plan - Beaver Dam Gold Project - April 15, 2021
-	-	No	Appendix L.1	Maritime Breeding Bird (MBBA) Atlas Data Summaries	Yes	F.8	Beaver Dam Gold Project Assimilative Capacity Study of Moose River – Touquoy Pit Discharge – April 12, 2021
-	-	No	Appendix L.2	Relative Abundance of Avian Species	New	F.9	Response to Information Request Nos. CEAA 2-36, CEAA 2-37, and NSE 2-130 Evaluation of Potential Impacts from Metals COCs to Groundwater and Surface Water from Dust Deposition along the Haul Road Beaver Dam Mine Project Marinette, Nova Scotia - April 14, 2021
-	-	No	Appendix M.1	Mi'kmaq Ecological Knowledge Study (MEKS)	New	F.10	Simulating the Cumulative Effects of Deposition of Tailings to the Touquoy Pit – April 8, 2021
-	-	New	Appendix N.1	Archaeological Assessment - Beaver Dam Mine Site	Yes	G.1	Surface Water Baseline Analytical Results
-	-	New	Appendix N.2	Archaeological Assessment - Beaver Dam Mine Site (WRSP West)	Yes	G.2	Beaver Dam Mine: Killag River and Moose River Water Quality Predictions and Aquatic Effects Assessment – Reassessment of Killag River based on February 2021 Update (GHD modelling Provided February 12, 2021); Reassessment of Moose River based on March 2021 Update (Stantec modelling of March 11, 2021) – October 13, 2021
-	-	New	Appendix N.3	Archaeological Assessment - Haul Road	New	G.3	Additional Water Quality Modelling Mine Water Management Plan, Beaver Dam Gold Mine – February 12, 2021
-	-	New	Appendix N.4	Archaeological Assessment - Haul Road Option 2	New	G.4	Physical Characterization of Watercourses – May 2021
-	-	New	Appendix N.5	Archaeological Assessment - Preferred Alternative Haul Road (Haul Road West)	New	G.5a	Assessment of Water Quality Downstream of Tailings Management Facility, Touquoy Gold Project – November 25, 2015
-	-	New	Appendix O.1	Preliminary Environmental Effects Monitoring Plan	New	G.5b	Water Balance Report Revision 2.0, Atlantic Gold Tailings Management Facility - November 25, 2016
-	-	-	-	-	Yes	H.1	Wetland Functional Assessment Summary Table
-	-	-	-	-	Yes	H.2	Wetland Characterization Table
-	-	-	-	-	Yes	H.3	Preliminary Wetland Compensation Plan – April 2021
-	-	-	-	-	Yes	I.1	ACCDC Report Beaver Dam Mine Site and Haul Road (DATA REPORT 6749: Marinette, NS) – January 4, 2021
-	-	-	-	-	No	I.2	ACCDC Report Touquoy Mine Site (Data Report 5433: Moose River Mines, NS) – September 10, 2015
-	-	-	-	-	No	I.3	Environmental Screening Beaver Dam Mine Site - Nova Scotia Communities, Culture, & Heritage – April 21, 2015

Table 1.8-2: Original, Updated, and New Appendices (2017 to 2021) (continued)

Appendices from the 2017 EIS		Updated in 2019	Appendices from 2019 Revised EIS		Updated in 2021	Appendix Number within the 2021 EIS Update	
-	-	-	-	-	New	I.4	Maritimes Butterfly Atlas Results – Beaver Dam Mine Project
-	-	-	-	-	No	J.1	Photographic Log of Watercourses and Fish Habitat – December 14, 2018
-	-	-	-	-	New	J.2	Baseline Fish and Fish Habitat 2019-2020 Technical Report – January 2021
-	-	-	-	-	New		Appendix A Figures
-	-	-	-	-	New		Appendix B Standard Operating Procedures
-	-	-	-	-	New		Appendix C Photograph Log
-	-	-	-	-	New		Appendix D Laboratory Results
-	-	-	-	-	New		Appendix E Trapping Efforts & Results
-	-	-	-	-	New		Appendix F Individual Fish Data
-	-	-	-	-	New		Appendix G Detailed Fish Habitat Assessment Data
-	-	-	-	-	New		Appendix H Baseline Fish and Fish Habitat 2015-2017 Technical Report – January 2021 Appendix A Figures Appendix B Photograph Log Appendix C Individual Fish Data Appendix D Benthic Invertebrate Community Data
-	-	-	-	-	New	J.3	draft Fish Habitat Offset Plan – May 2021
-	-	-	-	-	New	J.4	Detailed Figures (as referenced in Fish and Fish Habitat EA [Section 6.9]) – May 2021
-	-	-	-	-	Yes	K.1	Master Species List – March 22, 2021
-	-	-	-	-	Yes	L.1	Maritime Breeding Bird (MBBA) Atlas Data Summaries – November 20, 2020
-	-	-	-	-	Yes	L.2	Relative Abundance of Avian Species – March 2021
-	-	-	-	-	No	M.1	Mi'kmaq Ecological Knowledge Study (MEKS) – 2016
-	-	-	-	-	Yes	M.2	Visual Simulations – November 2020 and May 2021
-	-	-	-	-	No	N.1	Beaver Dam Development Archaeological Screening & Reconnaissance Halifax Regional Municipality, Nova Scotia – March 2009
-	-	-	-	-	No	N.2	Beaver Dam Gold Project Archaeological Assessment Halifax Regional Municipality, Nova Scotia – March 2015
-	-	-	-	-	No	N.3	Beaver Dam Gold - WRSP West Archaeological Screening & Reconnaissance 2018 Beaver Dam, Nova Scotia – January 2019
-	-	-	-	-	No	N.4	Beaver Dam Gold Project - Haul Road Archaeological Reconnaissance Halifax Regional Municipality, Nova Scotia – March 2016
-	-	-	-	-	No	N.5	Beaver Dam Gold Project - Haul Road Option 2 Archaeological Reconnaissance Halifax Regional Municipality, Nova Scotia – March 2017
-	-	-	-	-	New	N.6	Beaver Dam Gold - Archaeological Screening & Reconnaissance 2019 Beaver Dam, Nova Scotia – August 2020
-	-	-	-	-	New	N.7	Beaver Dam Archaeological Shovel Testing 2020 Halifax County, Nova Scotia – February 2021
-	-	-	-	-	New	O.1	KPMG Atlantic Gold Corporation Economic Impact Assessment of the Beaver Dam Mining Project – November 2020
-	-	-	-	-	New	O.2	KPMG MRC Economic Impact Assessment – February 2020

Table 1.8-2: Original, Updated, and New Appendices (2017 to 2021) (continued)

Appendices from the 2017 EIS		Updated in 2019	Appendices from 2019 Revised EIS		Updated in 2021	Appendix Number within the 2021 EIS Update	
-	-	-	-	-	New	P	Management Plans and Monitoring Programs – May 2021
-	-	-	-	-	New	P.1	draft Emergency Response Plan
-	-	-	-	-	New		Appendix A Emergency Event Notification Appendix A-1 Stakeholder Contacts Appendix A-2 Emergency Command Structure Appendix A-3 Responsibilities & Accountabilities during Critical Events
-	-	-	-	-	New		Appendix B High Level Procedure – Site Emergencies
-	-	-	-	-	New		Appendix C Maps
-	-	-	-	-	New		Appendix D Emergency Supplies
-	-	-	-	-	New		Appendix E Emergency Call Process
-	-	-	-	-	New		Appendix F Emergency Response Plan - Propane
-	-	-	-	-	New		Appendix G draft Spill Contingency Plan
-	-	-	-	-	New	P.2	draft Reclamation and Closure Plan
-	-	-	-	-	New	P.3	draft Nitrogen Management Plan
-	-	-	-	-	New	P.4	Mine Water Management Plan:
-	-	-	-	-	New		Appendix A Water Balance Analysis
-	-	-	-	-	New		Appendix B Stormwater Management Assessment – Hydrologic Modelling
-	-	-	-	-	New		Appendix C Erosion and Sediment Control Plan
-	-	-	-	-	New		Appendix D Predictive Water Quality Assessment
-	-	-	-	-	New		Appendix E Hydrogeological Modelling Report
-	-	-	-	-	New		Appendix F Water Treatment Assessments
-	-	-	-	-	New		Appendix F.1 Construction Phases
-	-	-	-	-	New		Appendix F.2 Operation Phase
-	-	-	-	-	New		Appendix F.3 Post-closure Phase
-	-	-	-	-	New		Appendix G Proposed Groundwater Monitoring Plan
-	-	-	-	-	New		Appendix H Baseflow Mitigation Assessment
-	-	-	-	-	New	P.5	draft Aquatic Effects Monitoring Program
-	-	-	-	-	New		Appendix A Beaver Dam Mine: 2020 Baseline Aquatic Environment Technical Report (Stantec 2021)
-	-	-	-	-	New		Appendix B Summary of Effects Assessment Mitigations
-	-	-	-	-	New	P.6	Preliminary Lichen Mitigation and Monitoring Plan
-	-	-	-	-	New	P.7	draft Wildlife Mitigation and Monitoring Plan
-	-	-	-	-	New		Appendix A Landbird SAR Mitigation and Monitoring Plan