# SD 01

## Environmental Protection Plan

**Environmental Protection Plan – Proposed Plan Updates (July 2021)**

| REPORT SECTION | UPDATE | RATIONALE |
|---|---|---|
| 1.0 Introduction | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 1.1 Purpose of Environmental Protection Plan | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 1.2 Environmental Commitment | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 1.3 Environmental Approvals | Update Table 1.3.1 with new approvals as applicable. | Update to incorporate approvals updates. |
| 1.4 Responsibilities | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.0 Operational Environmental Standards | N/A | |
| 2.1 Cultural Historical and Archaeological Resources | Update Section 2.1.1 to acknowledge 2021 archaeological resource impact assessment (ARIA) and 2.1.2 to incorporate buffer zones. Reference 2021 ARIA in Section 2.1.4. | Update based on recent archaeological investigation at the Mine Site. |
| 2.2 Avoiding Impacts to Local Land Users and Communities | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.3 Land Disturbance and Water Course/Waterbody Alterations | Minor update to Section 2.3.2 to reflect redirection of stormwater to the Open Pit. Update list of Related Documents to include latest environmental approvals. | Minor updates required for the Project. |
| 2.4 Water Withdrawal/Use | Updates may be required to reflect potential water withdrawal from Scraggy Lake (if applicable) for Open Pit filling. | Minor update required to reflect updated water withdrawal needs (if applicable). |
| 2.5 Drilling Operations | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.6 Fugitive Dust Management | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.7 Fuel Storage and Handling | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.8 Erosion and Sediment Control | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.9 Wildlife Sightings | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.10 Black Bear Encounters | N/A | No need for updates due to proposed modifications to the Approved Project. |

**Environmental Protection Plan – Proposed Plan Updates (July 2021)**

| REPORT SECTION | UPDATE | RATIONALE |
|---|---|---|
| 2.11 Moose Protection Measures | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.12. Snapping Turtle Protection Measures | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.13 Bird Protection Measures | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.14 Solid Waste Management | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.15 Wastewater Management | Minor update to reflect direction of process water to the Open Pit as applicable. | Minor update to reflect redirection of water to the Open Pit. |
| 2.16 Hazardous Materials and Hazardous Waste Management | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.17 Road Traffic Management | Updates to Section 2.17.2 to reflect new Plant Access Road. | New Plant Access Road will change road network for Mine Site and different intersection. |
| 2.18 Blasting | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.19 Mine Contact Water, Facility Runoff, Process Water and Effluent | Update to reflect changes in water management at site due to proposed modifications to the Approved Project. | Expansion of Waste Rock Storage Area and Clay Borrow Area, and use of Open Pit for tailings disposal will change surface water management at the site. |
| 2.20 Waste Rock Management | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.21 Air Quality, and Noise and Vibration | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 2.22 Wetland Crossings, Alterations and Management | Update to reflect proposed wetland alterations and associated approval amendments due to proposed modifications to the Approved Project. | Project will result in new wetland alterations and updates to the Wetland Protection Plan. |
| 2.23 Spill Response and Reporting | N/A | No need for updates due to proposed modifications to the Approved Project. |
| 3.0 Documentation Logs & Forms | Update Table 3.0 to reflect updates to other management plans and regulatory approvals associated with proposed modifications to the Approved Project.. | Update to keep Documentation Log and Forms current. |
| 4.0 Key Figures | Figures to be updated as applicable to account for modifications to the Approved Project (e.g., updated infrastructure footprints, wetland alterations, monitoring sites). | Figures to be updated to reflect changes in Mine Site layout and monitoring locations. |
| | | |

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## ATLANTIC GOLD

# Environmental Protection Plan

AGC–PLN–ENV-002

**RELEASE DATE**

**June 10, 2020**

# DOCUMENT REVISION RECORD

Pages affected by the current revision are listed in the table below and are identified by hash marks (lines) on the right side of the affected pages.

| Revision Level | Revised By | Date MM/DD/YYYY | DC Approved | DC Release Date | Pages Affected |
|---|---|---|---|---|---|
| 00 | Initial Plan prepared by JA/BB/DFB | 01/30/2020 | MN/JM | 01/30/2020 | all |
| 01 | JA | 06/10/2020 | MN | 06/10/2020 | 14, 23, 30, 33, 42, 45, 53, Fig. 2.23.1.1, 64, Fig. 5, |
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# ABBREVIATIONS

| ACRONYM | DESCRIPTION |
|---|---|
| AMNS | Atlantic Mining NS Corp |
| CLC | Community Liaison Committee |
| CRM | Cultural Resource Management Group |
| DFO | Department of Fisheries and Oceans |
| DNR | Department of Natural Resources |
| ECCC | Environment and Climate Change Canada |
| EPP | Environmental Protection Plan |
| EPRP | Emergency Preparedness and Response Plan |
| ERP | Emergency Response Plan |
| The Company | Atlantic Mining NS Corp |
| The Project | Touquoy Gold Mine |
| ML / ARD | Metal Leaching /Acid Rock Drainage |
| NSE | Nova Scotia Environment |
| OES | Operational Environmental Standards |
| OPRP | Operational Preparedness and Response Plan |
| SOP | Standard Operating Procedure |
| TMF | Tailings Management Facility |
| WRSA | Waste Rock Storage Area |

# 1 INTRODUCTION

The Touquoy Gold Project (the Project) is an open pit gold mining and milling operation developed by Atlantic Mining NS Corp (AMNS), a wholly owned subsidiary of St Barbara Limited, (the Company) in Moose River Gold Mines, Nova Scotia.

## 1.1 PURPOSE OF THE ENVIRONMENTAL PROTECTION PLAN

The Environmental Protection Plan (EPP) is a key part of the Project Environmental Management System. It has been developed to provide a single reference document to facilitate field implementation of permit and regulatory requirements and minimize the impact of the Project on the environment and surrounding communities. This document includes Operational Environmental Standards (OES) which identify and address environmental issues and concerns relevant for the construction and operation of the Project. It provides guidance and measures to ensure potential adverse environmental effects are avoided, minimized or mitigated to the greatest extent practicable. The OES are not comprehensive. They provide cross-references to other relevant documents such as Standard Operation Procedure (SOPs), environmental permits, approvals, agreements, management plans, licenses, and regulations.

The EPP is a working document for use by Project personnel (including contractors and consultants). The EPP provides a quick reference for Project personnel to monitor for compliance and to ensure a high level of importance and effort is placed on the protection of the environment. This EPP provides general protection measures for routine and unplanned activities associated with the Project, developed in recognition of applicable permits, approvals, and regulations. The EPP will be updated as necessary based on management reviews, incident investigations, regulatory changes or other Project-related changes.

The objectives of the EPP are as follows:

- Document and identify relevant environmental and community concerns and provide appropriate protection measures.
- Ensure the Company commitments to minimize adverse environmental effects.
- Integrate environmental issues and regulation with Project design/engineering.
- Provide a clear and concise guide for Project personnel regarding the implementation of appropriate standards for protecting the environment and minimizing adverse environmental effects.
- Provide a reference and training document for Project personnel when planning and/or conducting specific activities and working in specific areas.

- Communicate changes in the environmental program through the document revision process.
- Provide a reference to relevant documents such as legislative requirements, guidelines, permits, environmental management plans, SOPs, etc.

The EPP is a fundamental component of the Environmental Management System implemented for this Project. Project personnel are expected to understand and implement the environmental protection measures provided within the EPP. If, at any time, Project personnel are unclear in their understanding of how to implement an environmental protection measure, the Environmental Department must be contacted to obtain clarification.

### 1.2 ENVIRONMENTAL COMMITMENT

The Company recognizes that we are a part of a global community and as such we are committed to operating our business responsibly while contributing to the global pursuit of sustainability. Our success depends on our ability to establish a safe workplace for our people, to minimize potential environmental impacts and to establish collaborative relationships with local communities.

The Company seeks to ensure that its operational procedures and construction methods meet these commitments and regulatory requirements, and that, the commitments and requirements are understood, implemented and maintained by personnel at all levels involved with the Project.

The Company has developed the EPP to help ensure a high level of environmental protection throughout the Project lifecycle. It is the objective of the Company to apply appropriate and effective management practices to advance environmental management to all facets of its operations related to the Project. Management, employees and contractors of the Company are all responsible for the incorporation of environmental protection measures into their work activities.

To this end, the Company has developed this EPP to demonstrate its commitment to environmental protection. In implementing the EPP, the Company is committed to continuous environmental improvement during the development and operation of the Project. This is expressed in St Barbara's Environmental Policy Statement.

## 1.3 ENVIRONMENTAL APPROVALS

The Company has been issued or applied for the environmental approvals found in Table 1.3.1: Environmental Approvals, below.

**TABLE 1.3.1 – CURRENT ENVIRONMENTAL APPROVALS (JANUARY 2020)**

| Permit ID | Type of Permit | Regulatory Agency | Effective Date | Expiry |
|---|---|---|---|---|
| ***Active Approvals*** | | | | |
| 2012-084244-06 | Industrial Approval | NSE | 19-Jul-18 | 28-Mar-24 |
| - | Environmental Assessment Approval | NSE | 01-Feb-08 | NA |
| 2794371 | Crown Land Lease Agreement | DNR | 10-Feb-16 | 07-Feb-26 |
| 2017-103502-01 | Water Approval - Water Withdrawal | NSE | 03-May-19 | 02-Jul-27 |
| 2016-095967-03 | Water Approval - Wetland Alteration (58.86 ha) | NSE | 30-Jan-2020 | 11-Mar-26 |
| **2016-095811* | *Wetland Alteration Infill (WL20/21)* | *NSE* | *15-Apr-16* | *22-Mar-17* |
| **2016-097587* | *Approval to Alter Wetland 22 and 40* | *NSE* | *28-Jul-16* | *12-Jul-26* |
| **2017-105447* | *Water Approval - Wetland Alteration* | *NSE* | *26-Jun-17* | *22-Jun-27* |
| **Italicized Approvals were incorporated into Approval 2016-095967-02 as of April 02, 2019* | | | | |

### 1.4 RESPONSIBILITIES

| Position | Responsibility |
|---|---|
| **General Manager** | • Provide corporate resources and support for the implementation of the EPP. |
| **Manager Environment and Community** | • Provide technical guidance and final review and approval of revised versions of EPP.<br>• Support the Environmental Superintendent in the development, implementation, training, and revision of the EPP. |
| **Environment Superintendent** | • Ensure the EPP is properly communicated to departmental Managers and Superintendents and ensure adequate training is being provided to all site Supervisors.<br>• Conduct reviews and revisions of the EPP as needed, or at the request of the Environment Manager.<br>• Ensure revisions are distributed to Managers and Superintendents. |
| **Site Managers and Superintendents (including Contractors)** | • Implement the EPP in daily operations.<br>• Maintain a current copy of the EPP.<br>• Provide training and support to ensure successful implementation of the EPP.<br>• Initiate changes to improve and update the plan as needed. |
| **Site Personnel** | • Familiarization with the relevant sections of the EPP as related to the tasks at hand.<br>• Have knowledge of reporting procedures. |

# 2 OPERATIONAL ENVIRONMENT STANDARDS

## 2.1 CULTURAL HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Archaeological and historical resources are defined as any physical remnants recovered from the ground surface or below its surface which show evidence of manufacture, alteration, or use by humans. If present, these resources provide information on past human use of, and interaction with, the physical environment in the area. They can include both Pre-Contact (i.e., up to the settlement of the area by Europeans) resources and Historic Period (i.e., from European settlement to the mid-20th Century) resources. These resources may be from the earliest times of human occupation to the more recent past (e.g., 100 years before present).

The Moose River Gold Mines area has been occupied since the 1860's for logging and forestry activities. Gold was discovered in 1866 and active mining began in the 1870's. Mining was undertaken intermittently until a mine collapse occurred in 1936. The gold mining community had a peak population of up to 5,000 during its most productive period in the late 1800s.

### 2.1.1 Environmental Concern

Historical buildings and artifacts are common throughout the Project area, including a stamp mill at a provincial park located near the mine site and underground workings in the Open Pit area. The original church steps of the Moose River Gold Mines United Church were preserved and are located along Moose River Road across from the provincial park, adjacent to the current Open Pit viewing platform. A stone monument marks the location of these steps. The potential exists to encounter undiscovered cultural historical resources when conducting construction activities such as blasting, excavating and site clearing.

An archaeological screening was conducted by the Cultural Resource Management Group (CRM) in 2005 to evaluate the archaeological potential within the proposed development limits. The results of the study indicated that there is a low archaeological potential ascribed to the area. With that said, traditional land use patterns made use of water ways as travel-ways, resource bases and a home. The 2005 study also referred to local place names that are indicative of Mi'kmaq heritage.

### 2.1.2 Environmental Protection Measures

I. Historical Resources

The following measures will be implemented to minimize the potential for impacting historical resources:

- Project Personnel shall not deviate from already disturbed areas or established routes (existing roads and trails).
- Historical resources related to European occupation unintentionally discovered during project activities shall be provided to the Moose River Museum for curating.

II. Archaeological Resources

In the event that an archaeological or paleontological site is encountered or suspected in the course of work, the following measures will be taken to protect the feature(s) from damage:

a) Stop all work in the area.
b) Do not disturb the site.
c) Report your discovery to your supervisor and the Environment Department.
d) Note the location and leave all discoveries in place.
e) Isolate and protect the area.
f) The Environment Department will contact the Special Places Program (Sean Weseloh-McKeane: 902-424-6475), the Union of Nova Scotia Mi'kmaq (https://www.unsm.org/contact-us ) and the Confederacy of Mainland Mi'kmaq (http://cmmns.com/) or other relevant groups.
g) Work at the site will not be recommence until permission to proceed has been granted by the Nova Scotia Museum

In the event that human remains are encountered, work will immediately stop and the RCMP and Nova Scotia Museum shall be notified.

### 2.1.3 FORMS

- N/A

### 2.1.4 RELATED DOCUMENTS

- 2005 Archaeological Screening Report with Appendix for 2006 Screening – Cultural Resource Management Group (November 2005)
- Mi'kmaq Knowledge Study (December 2005)

## 2.2 AVOIDING IMPACTS TO LOCAL LAND USERS AND COMMUNITIES

### 2.2.1 Environmental/Community Concern

The Project area is located near Crown and private lands used for hunting, fishing, camping and boating. In addition, the Project is located near the Ship Harbour Long Lake Wilderness Area of Nova Scotia. The Company is committed to minimizing disturbance to other land users to the extent possible.

### 2.2.2 Environmental/Community Protection Measures

Measures will be implemented to minimize disturbance to current land use patterns for the duration of the Project. These measures include:

- Any complaints reported by local land users or community members will be addressed by the Security department by means of the Complaint Resolution Plan and internal Security SOP procedures. The Environment Department and Communication Manager will monitor this process, provide advice to the Security Department, and report to regulatory authorities as warranted. The lessons learned from community complaints may inform ongoing project management.
- Project personnel will communicate any changes in land use or land disturbance with Community Liaison Committee (CLC) members. The CLC will also bring to the Company's attention any issues regarding project complaints or concerns they are aware of within the communities. The Company commits to addressing community issues that are brought forward by the CLC on a timely basis.
- No work activities can occur within 30 m of the Project's property boundaries unless proper approvals from NSE are obtained. See the Key Figure section (4.0) for map showing project property boundaries.
- Progressive reclamation will be implemented to reclaim disturbed areas to their natural condition throughout the lifetime of the Project
- The Project's blasting schedule will be posted at either end of the Project area to notify local land users of upcoming road closures. This schedule will be updated regularly with any changes.
- Any trap lines or snares discovered during site operations will be left intact, flagged and communicated to other staff.

- Activities along Scraggy Lake will be restricted. No disturbance activities will occur within 30 m of Scraggy Lake unless proper approvals are obtained from NSE. All recreational features, such as camp sites, will be left undisturbed.
- Road traffic will operate in accordance with guidelines outlined in the Road Traffic Management Operational Environment Standard (Section 2.17).
- Access to public roadways and logging trails must not be disturbed or restricted by project activities.

### 2.2.3 FORMS

- AGC - ENV FRM - 002 Environmental Incident Report
- Record of Public Complaints and Company Response Form (Version 1)

### 2.2.4 RELATED DOCUMENTS

- OES 2.3 – Land Disturbance
- OES 2.17 – Road Traffic Management
- AGC-PRO-MINE-012 Mobile Equipment and Light Vehicles Operation SOP
- AMNS Complaint Resolution Plan, December 2016

## 2.3 LAND DISTURBANCE AND WATERCOURSE/WATERBODY ALTERATIONS

Many aspects of the Project's construction activities involve potential ground disturbances or disturbance of water bodies, including road construction, water course crossings, pit development, quarry and borrow activities, and site facility construction.

### 2.3.1 Environmental Concern

Ground disturbance shall be minimized to protect wildlife habitats, aquatic habitats, and prevent erosion and the movement of sediment into watercourses, wetlands, and water bodies. Various permits, licenses and approvals issued to the Company contain specific conditions regarding ground disturbances and watercourse/waterbody alteration as well as necessary protection measures to minimize environmental impact.

### 2.3.2 Environmental Protection Measures

The following generalized measures shall be implemented to minimize impact caused by Project disturbances:

- Any new disturbance must be approved by the Environment Department before any work is started. Approval from NSE may be required if the area is outside of the current IA approval limits.
- No work is to be done within 30 m of a watercourse or wetland without the necessary permits.
- No work is to be done within 30 m of the Project's property boundaries without the necessary permits.
- The limits for all approved clearing, grubbing and topsoil overburden removal shall be clearly identified (flagging/survey stakes) in the field prior to the commencement of any work.
- Areas to be cleared shall have sediment and erosion control measures implemented prior to the initiation of any clearing activities. The sediment and erosion control measures shall be adapted to suit the field conditions associated with the specific construction activities as construction proceeds.
- Construction dewatering or runoff diversion activities are not permitted to be discharged outside of engineered water containment structures without the approval of the Environmental Department.
- All tree clearing/grubbing activities should be scheduled outside of the bird breeding window (generally between May 1 and September 30) whenever possible. Activities

occurring inside the bird breeding window can be permitted under certain circumstances and with the approval of the Environment Department. At minimum, one or more bird nesting surveys will be required.

- All work on leased crown land must be conducted in accordance with the Company's Crown Lease Agreement.
- All permanent installations are to be constructed to direct stormwater runoff to the Tailings Management Facility (TMF) catchment area (see Mine Contact Water - Section 2.19)
- Project Personnel and equipment shall travel only on existing roads and trails unless otherwise approved by the Environment Department.
- Rutting (furrow creation) shall be minimized on ground surfaces where possible.
- Equipment storage areas shall be located on gravel, sand and/or other durable land. These areas to be located such that surface runoff is directed to the TMF.
- No material shall be removed from any stream or water body without the required watercourse alteration permits. No restriction, diversion, or any other alteration to a watercourse or waterbody is allowed without the necessary permits.
- No debris or any other construction material shall be allowed to enter any water body.
- All construction material must be comprised of non-potentially acid generating rock in accordance with the Waste Rock Management Plan.
- Measures shall be undertaken to prevent and control erosion on banks of any body of water.

### 2.3.3 FORMS

- AGC - ENV FRM - 002 Environmental Incident Report

### 2.3.4 RELATED DOCUMENTS

- OES 2.8 – Erosion and Sediment Control
- OES 2.13 – Bird Protection Measures
- OES 2.19 – Mine Contact Water (TMF Wastewater Management)
- OES 2.20 – Waste Rock Management
- AMNS Crown Land Lease Agreement
- AMNS Industrial Approval 2012-084244-06
- AMNS Environmental Assessment Approval February 1, 2008
- AMNS Water Management Plan
- AMNS Erosion and Sediment Control Plan
- AMNS ML/ARD Management Plan (Draft)

## 2.4 WATER WITHDRAWAL/USE

### 2.4.1 Environmental Concern

Water is an important resource that must be protected. The use of water for the Project is currently governed by a Water Withdrawal Permit (2017-103502-01) issued to the Company by NSE to allow for water withdrawal from Scraggy Lake.

### 2.4.2 Environmental Protection Measures

- Surface and groundwater at the Project site is not considered potable. Drinking water is supplied to the site by bottled water.
- Watercourses cannot be used as a water source for project activities unless authorized and approved by NSE. This includes but is not limited to water use for dust suppression, drilling, and other industrial uses.
- The Water Withdrawal Approval for Scraggy Lake outlines conditions relating to the rate and volume to which water is withdrawn from the lake. The rates and volumes shall not be exceeded and are outlined in Table 2.4. All other conditions of the Water Withdrawal Approval are to be carried out as necessary.
- To conserve freshwater, mill processes will re-use process water wherever possible. Process water (or reclaim water) is utilized from the TMF via the decant barge. Freshwater from Scraggy Lake is to be used for fire suppression, domestic uses and Mill circuits where required.
- Total volumes and water withdrawal rates from any water body by the Company will be recorded and provided to the Environment Department upon request.
- Work shall be performed in such a way as to ensure that materials such as sediment, fuel or any other hazardous materials do not enter watercourses and waterbodies through the implementation of sediment control measures and proper hazardous materials management practices. In the event of a release to the environment, the Company's Spill Contingency Plan shall be implemented. For more information, refer to Section 2.8 Erosion and Sediment Control and/or Section 2.23 Spill Control Measures and Reporting.
- Monitoring of site groundwater and surface water is undertaken by the Environment Department to meet the requirements of the project Industrial Approval. Monitoring data is reviewed in a timely manner and mitigative actions taken if required as outlined by the Project Groundwater Contingency Plan. Surface water and groundwater monitoring locations can be found in the Key Figures section (4.0) attached to this document.

- Open pit dewatering activities are monitored to protect surrounding waterbodies. Sudden inflow of water into the pit must be immediately reported to the Mine Supervisor and Environment Department in accordance with the Project Groundwater Contingency Plan. All work in the vicinity of the inflow must cease until a hydrogeological assessment is completed.
- Equipment shall not be washed in any watercourse or waterbody.
- No fuelling and/or servicing of equipment shall occur within 30 metres of any water body unless controls are approved by the Environment Department.
- All water intake hoses shall be equipped with a screen of an appropriate mesh size (as approved by the Department of Fisheries and Oceans (DFO)) to ensure that fish are not entrained. Additionally, operators will ensure the water intake hoses withdraw water at such a rate that fish do not become impinged on the screen.

**Table 2.4: Water Withdrawal Limits Scraggy Lake Permit (2017-103502-01)**

| Period of withdrawal | Year round |
|---|---|
| Daily duration of withdrawal | 14.4 hours |
| Frequency of withdrawal | Daily |
| Average daily withdrawal rate | 720,000 litres per day |
| Maximum daily withdrawal rate# | 720,000 litres per day |
| Maximum instantaneous withdrawal rate | 13.89 litres per second |
| Maximum volume of withdrawal (annual) | 262,800,000 litres |

*# Maximum daily withdrawal rate is based on each 24 hours*

### 2.4.3 FORMS

- AGC - ENV FRM - 002 Environmental Incident Report

### 2.4.4 RELATED DOCUMENTS

- OES 2.8 – Erosion and Sediment Control
- OES 2.23 – Spill Control Measures and Reporting
- Scraggy Lake Water Withdrawal Permit 2017-103502-01
- AMNS Spill Contingency Plan
- AMNS Erosion and Sediment Control Plan
- AMNS Groundwater Contingency Plan
- Nova Scotia Guide to Surface Water Withdrawal Approvals (https://novascotia.ca/nse/water/docs/guideToSurfaceWaterWithdrawalApprovals.pdf)

## 2.5 DRILLING OPERATIONS

### 2.5.1 Environmental Concern

Environmental concerns associated with drilling include surface disturbances, drilling fluid and cutting disposal, impacts on dust, noise, water quality, and habitat encroachment.

### 2.5.2 Environmental Protection Measures

The following protection measures for drilling management shall be implemented:

- Prior to the commencement of a drill program, pre-drilling preparation is required which includes obtaining the required permits for land access, line cutting, wetland alteration and water withdrawal approvals.
- For exploration drilling, a Pre-Startup Drill Site Inspection Form shall be completed by the acting supervisor before drilling activities commence.
- Sediment and erosion control measures will be implemented prior to the commencement of drilling operations and will be maintained during the operation to minimize transport of sediment into adjacent water bodies.
- All activities, including the overland transport of workers, shall be conducted in such a way to minimize ground disturbance and the risk to forest fires.
- Daily drill site inspections for fuel/hydraulic leaks, equipment condition, sediment and erosion control, sump conditions and water intakes shall be conducted prior to commencing work activities at the start and end of each work shift/day. All concerns observed during inspection shall be immediately repaired and reported to the supervisor.
- All drill rigs shall be equipped with spill kits in the event of leaks and spills. All personnel must be trained in spill response and be familiar the use of spill kits. In the event of a release to the environment, the Spill Contingency Plan will be implemented.
- Equipment storage holding areas will be located on gravel, sand or other durable land 30 meters from any waterbody to minimize impacts on surface drainage and water quality unless otherwise permitted. Equipment storage holding areas shall be located within authorized project limits.
- Under the *Environment Act*, a water withdrawal approval is required if a surface water withdrawal exceeds 23,000 liters per day, subject to the exemptions outlined in the Activities Designation Regulations. Drill programs that exceed 23,000 liters and are not subject to an exemption must obtain a water withdrawal approval prior to a drill program.

(See Water Use Section 2.4 for additional protection measures relating to water withdrawal).

- During a drill program, contain and re-circulate drill water to the fullest extent practical in order to reduce water usage.
- Ensure that drilling area is kept clean and tidy at all times. No littering is permitted – collect and package all waste for disposal.
- Do not feed wildlife.
- All work within wetlands or near waterbodies must be approved by NSE.
- Dispose of drill water into a properly constructed sump, when necessary.
- Prior to the commencement of drilling for each hole, establish a dedicated sump location where collected drill water and cuttings are to be disposed.
- Ensure sumps are of sufficient capacity based on a combination of proposed drill hole length, water usage, and the potential residence time of the sump.
- Drilling water and cuttings must not be allowed to spread to the surrounding area or water bodies. The footprint of any spillage must be minimized to the greatest degree practical. The installation of berms, silt fences and/or other means of containment should be utilized to contain drill water runoff.
- If artesian flow (free-flowing) conditions are encountered, drill holes shall be immediately plugged and sealed.
- For exploration drill programs, when drilling near a water body or wetland a water sample should be collected and potentially analyzed to establish background conditions in the event an incident occurs.
- Equipment is not to be washed within 30m of a body of water or in an area where wash water will be transported to a watercourse.
- Equipment or material shall not obstruct any stream or watercourse.
- Upon completion of a drill hole, the drill site will be properly decommissioned including plugging the drill hole and restoring all constructed drill sumps to the natural surrounding contours of the land.
- Any other areas that were disturbed during the drill program will be restored to a pre-disturbed state, when practical.
- Upon completion of the drill hole, the casing will be removed. If the casing cannot be removed it will be cut off to be flush with surface and backfilled.
- Remove all garbage and debris from the land use area to an approved disposal site.
- A Drill Site Decommissioning Checklist Form (for Exploration) shall be completed by the acting supervisor.

### 2.5.3 FORMS

- AGC - ENV FRM - 001 Spill Report Heads Up Form
- AGC - ENV FRM - 002 Environmental Incident Report
- AGEF.004.00 – Pre-Drill Startup Site Inspection – AGC Exploration
- AGEF.005.01 – Detailed Drill Inspection – AGC Exploration
- AGEF.006.00 – Drill Site Simplified Checklist – AGC Exploration
- AGEF.007.00 – Drill Site Decommissioning – AGC Exploration

### 2.5.4 RELATED DOCUMENTS

- OES 2.4 – Water Use
- OES 2.8 – Erosion and Sediment Control
- OES 2.22 – Wetland Crossing, Alterations and Management
- OES 2.23 – Spill Control Measures and Reporting
- AGEN.003.00 – Surface Drills and Drill Sites (Exploration Safe Work Practice)
- AMNS Wildlife Management Plan
- Nova Scotia Wetland Policy - Nova Scotia Environment (https://novascotia.ca/nse/wetland/docs/Nova.Scotia.Wetland.Conservation.Policy.pdf)
- Nova Scotia Guide to Surface Water Withdrawal Approvals (https://novascotia.ca/nse/water/docs/guideToSurfaceWaterWithdrawalApprovals.pdf)

## 2.6 FUGITIVE DUST MANAGEMENT

### 2.6.1 Environmental Concern

Fugitive dust typically refers to small particles of geological or other origin that are moved into the atmosphere from non-ducted, open sources known as non-point sources. At the Project, the potential sources of fugitive dust include: open pit operations – including drilling, blasting, haul truck operations, activity around the ore processing plant, vehicle traffic along the mine site access roads, road grading, wind erosion of waste rock stockpiles, soil stockpiles, low grade ore stockpiles and exposed tailings storage area. Fugitive dust emission sources from the processing plant include mineral material transfer systems associated with the primary crusher and the crushed ore stockpile. These activities have the potential to generate emissions of airborne particulates that may result in short-lived periods of elevated particulate matter (PM10 and PM2.5) concentrations. Maximum fugitive dust generation will take place during windy weather where small and light particles are present in dry, active surface material. As a result, dust plumes tend to be most noticeable from potential sources when wind speeds are high and/or when vehicles are moving.

Minimizing fugitive dust emissions at the source will have a combined benefit of protecting the health and safety of workers on site and protecting the environment and surrounding community by minimizing long-term impacts associated with the Project.

### 2.6.2 Environmental Protection Measures

The following protection measures to minimize fugitive dust emissions shall be implemented:

- Water trucks will be utilized during non-freezing conditions to apply water to unpaved areas where active work is being completed unless existing conditions are sufficiently wet to prevent dust (e.g., during or immediately following a rain event).
- Water will be applied evenly and in a manner that does not generate runoff. The tailings pond will not be used as a water source for dust suppression. Dust suppression activities shall be completed in a manner that ensures water is not discharged to any watercourse or waterbody
- During the winter months and times of high fugitive dust emission magnesium chloride or similar dust suppressant reagent will be applied to unpaved areas as required. Only environmentally acceptable dust suppressant reagents will be used. No petroleum-based products will be used.
- The use of dust suppression reagents for crushing operations at the mill will be applied as required using injection nozzles.

- Process transfer points will be covered and guarded as a means to minimize dust generation and transport.
- The fine ore stockpile will be enclosed and regularly inspected for condition.
- Traffic speed is limited to 40 km/hour on the Project Admin Road (Billybell Way) and further reduced to 30 km/hour prior to the curve in the road before the security checkpoint to reduce fugitive dust.
- Dried tailings will be wetted as required during non-freezing conditions to control wind erosion of tailings.
- Ambient air quality monitoring will be conducted annually in accordance with Industrial Approval requirements.

### 2.6.3 FORMS

- N/A

### 2.6.4 RELATED DOCUMENTS

- OES 2.4 – Water Use
- OES 2.21 – Air Quality, Noise and Vibration
- AMNS Fugitive Dust Control Plan
- AMNS Industrial Approval 2012-084244-06

## 2.7 FUEL STORAGE AND HANDLING

### 2.7.1 Environmental Concern

Permanent and temporary fuel storage facilities are present on the Project site. Most fuel is stored within double walled steel fuel tanks protected by jersey barriers. Smaller quantities of fuel are stored in slip tanks and jerrycans within containment pans. Waste oil is discussed in OES 2.16.

Accidental and uncontrolled leaks, releases and spills of fuel may occur due to improper storage, poor handling procedures or equipment malfunction. Fuel releases to the environment have the potential to negatively affect worker health and safety as well as soil quality, aquatic life and wildlife. Spills are addressed in greater detail in the Company's Emergency Response and Spill Contingency Plans**.**

### 2.7.2 Environmental Protection Measures

The following environmental protection measures shall be used for all storage and handling of fuels at the Project:

- Project personnel refueling equipment or vehicles will always supervise re-fueling and will not leave fuel transfer operations unattended.
- Transfer of fuel to storage tanks or to vehicles shall be conducted by a fully trained and qualified person in accordance with the Refueling Mobile Equipment and Light Vehicles SOP.
- Exposed tanks and lines shall be protected from damage by vehicular collision through the installation of guard rails or barriers.
- Refueling shall not occur within 30 m of a wetland or watercourse.
- All fuel aid triggers will be removed from nozzles prior to being brought on-site.
- Drip trays and/or spill pads will be deployed during fuel transfer operations.
- Hoses and pipes used for fuel transfer shall be equipped with properly functioning and approved check valves that are spaced to prevent backflow of fuel in the case of failures. Lines should be stored up off the ground.
- All spills shall be immediately reported to the Environment Department and documented by submitting the AMNS Environmental Incident Report.
- All fuel storage tanks will be periodically inspected.
- All fuel storage tanks will adhere to the Petroleum Management Regulations pursuant to the Environment Act, Nova Scotia Environment.

- All leaks should be reported and repaired immediately.

### 2.7.3 FORMS

- AGC – ENV FRM – 001 Spill Report Heads Up Form
- AGC – ENV FRM – 002 Environmental Incident Report

### 2.7.4 RELATED DOCUMENTS

- OES 2.16 – Hazardous Materials and Hazardous Waste Management
- OES 2.23 – Spill Control Measures and Reporting
- AMNS Spill Contingency Plan
- AMNS Emergency Response Plan
- AGC – PRO – ENV – 013 Refueling Mobile Equipment and Light Vehicles
- Nova Scotia Standards for Construction and Installation for Petroleum Storage Tank Systems (novascotia.ca/nse/petroleum-regulated/)

## 2.8 EROSION AND SEDIMENT CONTROL

Project activities including facility and roadway construction, excavation/hauling/stockpiling of overburden, ore and construction material, and drilling programs have the potential to cause erosion and release sediment-laden runoff into nearby watercourses. Sediment and erosion control measures may include, but are not limited to, silt fencing, erosion control mats, sedimentation ponds, erosion blankets/geotextile lining, sand bags, hay bales, silt curtains, terraces, benching, and riprap structures. Project Personnel are responsible for the implementation of erosion and sedimentation control measures prior to the initiation of construction activities (i.e. clearing, grubbing, development of facilities, etc.). On-going monitoring and maintenance of operational erosion and sedimentation control measures is required to ensure continued effectiveness of these structures.

### 2.8.1 Environmental Concern

Storm water, which may include any surface runoff and flows resulting from precipitation, drainage or other sources, may contain suspended sediments. A release of storm water can cause sedimentation of a watercourse or wetland. Sediment may affect water clarity/quality and subsequently, aquatic life by reducing feeding success, fish egg and larval survival and fish habitat. Due diligence regarding sediment and erosion control is necessary to minimize deleterious impacts to watercourses or wetlands in accordance with site permits and provincial/federal regulations.

### 2.8.2 Environmental Protection Measures

An Erosion and Sediment Control Plan has been developed for the Project and can be consulted for further detailed information. Project Personnel are required to implement erosion and sediment control measures prior to the initiation of construction activities. The Environment Department should be made aware of any new construction activities that are outside of normal operation. Project Personnel may be requested by the Environment Department to implement additional sediment and erosion control measures if they deem the measures are necessary to ensure protection of the environment.

The following environmental protection procedures/measures will be taken to prevent or mitigate erosion and sediment-laden runoff impacts:

- Sediment mitigation measures will be established and maintained in accordance with the Erosion and Sediment Control Plan.
- The size of the disturbed area and duration of soil exposure shall be minimized as practical.

- Temporary and permanent drainage installations shall be designed, constructed, and maintained to an appropriate standard.
- Appropriate erosion and sediment control measures will be implemented and may include a combination of silt fences, silt (turbidity) curtains, sediment traps, settling ponds, collection ponds and berms.
- Surface water runoff from mine infrastructure must be managed and all runoff directed to the TMF catchment area.
- Access and haul roads shall be constructed with gradients and drainage systems for the purpose of managing run-off and limiting the potential for erosion.
- Disturbance from borrow activities will be limited to the maximum extent possible.
- Project Personnel shall maintain, as required, all sediment and erosion control measures prior to, during and following rain or storm events to minimize environmental damage. All repairs shall be undertaken to the satisfaction of the Environment Department.
- Monitoring of watercourses and waterbodies will be conducted in accordance with the Rain Event Monitoring Protocol SOP by the Environment Department when necessary.

If there is visual discoloration or turbidity identified in a watercourse and/or wetland notify the Environment Department for further assessment. In the event of a sediment release, sampling/monitoring is completed by the Environment Department in accordance with the Rain Event Monitoring Protocol. In addition, the following key actions are required:

- Immediately determine the point source of sedimentation.
- Halt all construction activities if necessary.
- Ensure that all erosion and sedimentation controls are working effectively.
- Correct any issues that need attention or maintenance.
- Additional controls may be needed to stop silt escapement including the installation of trenches, berms, or pumps.
- A follow-up investigation is required to determine whether additional corrective actions are needed to prevent future sediment release events. This should be completed using the Environmental Incident Report form. Results of follow-up investigations are reported to regulators by the Environment Department.

### 2.8.3 FORMS

- AGC – ENV FRM – 001 Spill Report Heads-Up Form
- AGC – ENV FRM – 002 Environmental Incident Report

### 2.8.4 RELATED DOCUMENTS

- OES 2.3 – Land Disturbance
- OES 2.19 – Mine Contact Water
- OES 2.23 – Spill Control Measures and Reporting
- Metal and Diamond Mining Regulations – Government of Canada (https://laws-lois.justice.gc.ca/eng/Regulations/SOR-2002-222/index.html)
- AMNS Erosion and Sediment Control Plan
- AMNS Industrial Approval 2012-084244-06
- AMNS Rain Event Monitoring Protocol SOP

## 2.9 WILDLIFE SIGHTINGS

The Company has implemented a Wildlife Management Plan (WMP) in accordance with Condition 5.4 of the Environmental Assessment Approval. The plan was developed to minimize interactions between wildlife and Project activities. The WMP should be consulted for more information regarding your response to a wildlife encounter. Refer to EPP Sections 2.10 to 2.13 for further protection measures for bears, moose, turtles, and birds.

### 2.9.1 Environmental Concern

There is a variety of wildlife to encounter in the Project Area, including mainland moose, white-tailed deer, black bears, bobcats, coyotes, foxes, snapping turtles, wood turtles, a variety of raptors, swallows, owls, and other bird species.

Project activities can impact wild species in a number of ways. Development of infrastructure can cause direct impacts to habitat used by terrestrial fauna, including upland forested habitat and wetlands. Sensory disturbance to terrestrial fauna would result from rock blasting, clearing, grubbing, infrastructure construction and overall increased traffic during the construction, operation and decommissioning phases. This could result in localized avoidance of the Project Area by some wild species. Increased human activity could result in increased usage of the Project Area by opportunistic species such as Coyotes, Raccoons, Skunks or Black Bears. These opportunistic species generally have a higher risk of becoming habituated to human activity, which can lead to nuisance or aggressive behaviors, increasing risk to both wildlife and site personnel.

### 2.9.2 Environmental Protection Measures

The Environment Department maintains a system of tracking wildlife encounters. Sightings of predatory or protected wildlife should be reported to the Environment Department as soon as possible. The general steps for completing the Wildlife Log are as follows:

- Record your name and the date of the observation.
- Briefly describe the location, noting any significant landmarks (i.e. road kilometre marks, water bodies, road crossings, etc.)
- Record the type of animal. Identify the species, if possible, or the general type or group.
- Record the number of animals observed and the life stage, if possible (juvenile or adult). When identifying life stage of a bear note the size of the ears – big ears indicate most likely a juvenile, smaller ears indicate an adult.

- Record observations on the behaviour of the animal. What was it doing at the time you observed it? Was it making any sound? How did it react to your presence? How far away was it? Were you walking or driving?

### 2.9.3 FORMS

- N/A

### 2.9.4 RELATED DOCUMENTS

- OES 2.10 – Black Bear Encounters
- OES 2.11 – Moose Protection Measures
- OES 2.12 – Snapping Turtle Protection Measures
- OES 2.13 – Bird Protection Measures
- AMNS Environmental Assessment Approval February 1, 2008
- AMNS Wildlife Management Plan
- AMNS Mainland Moose Management Plan

## 2.10 BLACK BEAR ENCOUNTERS

### 2.10.1 Environmental Concern

Black bear encounters have occurred at various locations around the Project site. Black bears can be dangerous animals and measures must be taken to reduce the risk of an encounter as much as possible. Project Personnel should be familiar with black bear behavior to be prepared if an encounter should occur. Preventative actions should be taken to minimize the risk of bear encounters.

The Department of Natural Resources (DNR) no longer traps nuisance bears and any nuisance bears will be killed on site. To reduce the risk of decreasing the local bear population, appropriate measures must be taken to reduce human/bear interactions

### 2.10.2 Environmental Protection Measures

The following measures must be implemented to minimize the potential for bear-human interactions:

- Site and working areas will be kept clean of food scraps and garbage always. Littering of any kind on site is strictly prohibited. Effective food waste management is important to reducing the likelihood of encounters.
- All field employees should become familiar with black bear behaviors. A review of the “Black Bear Safety PowerPoint”, along with the video, before entering the field is advised.
- Carrying a noise maker when doing fieldwork is advised. This can include a bear bell, whistle, air/fog horn or a bear banger.
- When entering the field make as much noise as possible. Honking the truck horn, carrying loud music and talking loudly with your field partner are all good examples. It is important to make your presence known.
- Scan your surrounding area often and look for fresh bear signs (scat, tracks, feeding areas, marking trees).
- Do not enter an area where there has been a bear sighting in the previous 24hrs.

### 2.10.3 FORMS

- N/A

### 2.10.4 RELATED DOCUMENTS

- OES 2.9 – Wildlife Sightings
- AMNS Wildlife Management Plan
- Black Bear Safety PowerPoint (Department of Natural Resources presentation)

## 2.11 MOOSE PROTECTION MEASURES

### 2.11.1 Environmental Concern

The mainland moose is listed as an endangered species under the Nova Scotia Endangered Species Act (NSESA), and as critically imperiled by the Atlantic Canadian Conservation Data Group. The mainland moose population has been reduced to 1200 individuals, restricted to isolated sub-populations. Development of any kind increases access to moose habitat, which can ultimately increase the threat of poaching. Land development can also result in the fragmentation or the direct loss of habit, while potentially further isolating sub-populations from one another.

### 2.11.2 Environmental Protection Measures

The Company has implemented a Mainland Moose Monitoring Program to describe frequency of occurrence of moose around the Project. Full details of this program can be found in the Mainland Moose Management Plan. Outside of the monitoring program, the Company will work with Project Personnel to assist in reducing mainland moose mortality by:

- Working to reduce poaching within and surrounding the Project area through an awareness campaign. Report a Poacher signs will be posted in site offices and lunch rooms and reviewed during site orientation. Any evidence of moose poaching will be reported immediately to Environment Department, who will ensure immediate reporting to the Nova Scotia Department of Natural Resources (NSDNR) and the local RCMP.
- Reducing motor vehicle collision by limiting all mine vehicles to a 50km/hr speed limit within the Project.
- Limiting access for moose to the pit area using berms and fencing.
- Limiting disturbance to the approved areas, and maintaining vegetative buffers, wherever possible.
- Limiting use of ATV's on site for all purpose except those required for mining related activities.
- Controlling public access in the active mine and processing area.
- Consult with NSDNR Wildlife Division during the Project in revisions to the Reclamation Plan.
- Enacting a no wildlife harassment policy on the Project site (See Wildlife Management Plan for more general wildlife management measures).
- Report all moose sightings to the Environment Department. Appropriate reporting to NSDNR will be completed by the Environment Department as required

### 2.11.3 FORMS

- N/A

### 2.11.4 RELATED DOCUMENTS

- OES 2.9 – Wildlife Sightings
- AMNS Mainland Moose Management Plan
- AMNS Wildlife Management Plan

## 2.12 SNAPPING TURTLE PROTECTION MEASURES

### 2.12.1 Environmental Concern

Snapping Turtles are listed as Special Concern under the Species at Risk Act, and Vulnerable under the Nova Scotia Endangered Species Act. As such, appropriate steps should be taken to reduce interactions with Snapping Turtles. Snapping Turtles have been observed on site, most commonly where the public roads intersect Moose River at the western boundary of the Project site. Sightings typically occur in the month of June.

Wood Turtles are listed as Threatened under the Species at Risk Act and the Nova Scotia Endangered Species Act. While Wood Turtles have not been observed within the project area, they are known to reside in the Musquodoboit Watershed and it would be prudent to presume that they could be found within the Project Area.

### 2.12.2 Environmental Protection Measures

If a turtle is found, it must be immediately reported to the Environment Department. If a turtle is found on or near a road, efforts may be taken by trained workers to move the turtle away from the road, provided it is safe to do so and the turtle is not actively nesting.

If a nest, or nest in progress has been identified, the Environment Department will place a predator excluder on the nest. The predator excluder is a simple wooden frame (approximately 2’ square), covered with wire mesh.

Signs are posted in areas where Snapping Turtles are active.

### 2.12.3 FORMS

- N/A

### 2.12.4 RELATED DOCUMENTS

- OES 2.9 – Wildlife Sightings
- AMNS Wildlife Management Plan

## 2.13 BIRD PROTECTION MEASURES

### 2.13.1 Environmental Concern

Project activities have the potential to adversely affect bird populations by influencing migration and behavior patterns. These influences include habitat degradation from clearing and grubbing, noise levels and periodic vibrations from blasting.

### 2.13.2 Environmental Protection Measures

The Company has implemented the following protection measures for the protection of birds:

- All Project Personnel shall comply with regulations outlined in the Migratory Bird Convention Act, which prohibits the disturbance of migratory birds, their nests and eggs.
- If a nest is identified, the Environment Department must be notified immediately, so that steps can be taken to determine appropriate mitigation or avoidance if required.
- Clearing and grubbing activities should be completed outside the accepted breeding bird window (generally between May 1 and September 30).
- A nesting survey is to be performed by a qualified Environmental Professional if clearing or grubbing is performed inside of the breeding bird window. Clearing and grubbing should only be performed if there are no confirmed signs of breeding.
- Site and working areas will be kept clean of food scraps and garbage always. Littering of any kind on site is strictly prohibited.

### 2.13.3 FORMS

N/A

### 2.13.4 RELATED DOCUMENTS

- OES 2.9 – Wildlife Sightings
- Migratory Bird Convention Act – Government of Canada (https://laws.justice.gc.ca/eng/acts/M-7.01/)
- AMNS Wildlife Management Plan

## 2.14 SOLID WASTE MANAGEMENT

### 2.14.1 Environmental Concern

A material is generally considered to be waste once it can no longer be used for its original purpose. Non-hazardous solid waste is generated during operational activities of the Project. Non-hazardous solid waste includes, but is not necessarily limited to, domestic garbage, food waste, construction debris, commercial non-hazardous waste, and other non-hazardous materials. Solid waste management standards are required to ensure the practices employed during the Project minimize the effects of the mine on workers, local community and wildlife.

### 2.14.2 Environmental Protection Measures

- The four main principles of waste management to be followed in order of hierarchy include reduce, reuse, recycle and dispose. Once reduce, reuse and recycle have been implemented the remaining waste will be responsibly handled, stored and disposed of in accordance with regulatory requirements.
- The Company's operating principle is to recycle wherever economically and technically feasible and to use proven management practices to reduce waste on site to the extent feasible.
- Consumption should be assessed by evaluating procedures, processes and consumed material quantities for possible reduction in consumable material usage, as well as possible reductions in generated waste volumes.
- Waste that is produced during the Project will be reused whenever possible (ie materials removed during clearing/stripping are to be reused during reclamation activities)
- Waste that can neither be reduced nor reused will be recycled where practical.
- Waste streams will be segregated in a manner to avoid mixing and minimize improper recycling or disposal.
- Untreated, clean wood waste products including lumber, timber, and pallets will be reused whenever possible. Wood waste products not immediately reused will be placed in designated bins in the waste collection areas for removal offsite for proper disposal. Pressure-treated lumber will be removed by a licensed waste management company to a permitted disposal facility.
- Non-contaminated scrap metal waste will be segregated and placed in designated bins for reuse or salvage. The unused scraps will be sent offsite to a licensed facility for recycling.

- All food waste will be collected in clearly labelled compost bins with closed lids as to not attract wildlife and will be sent offsite to a proper facility for composting.
- Waste accumulated on site prior to disposal will be confined so that it does not pose health or environmental hazards.
- Time lapse between collection and disposal shall be minimized to the extent practical.
- All Project Personnel are responsible for daily clean-up of the area in which their work activities are being conducted.

### 2.14.3 FORMS

- N/A

### 2.14.4 RELATED DOCUMENTS

- OES 2.9 – Wildlife Sightings
- OES 2.16 – Hazardous Materials and Hazardous Waste Management
- AMNS Wildlife Management Plan

## 2.15 WASTEWATER MANAGEMENT

### 2.15.1 Environmental Concern

Wastewater, such as sewage, grey water, laboratory waste, and water contaminated with petroleum-based products will be generated during the life of the Project's construction and operation. Uncontrolled or untreated releases of wastewater to the environment may impact drinking water, aquatic resources, or wildlife and should be reported immediately to the Environment Department.

In addition to the above, the Project has a single permitted discharge location for process wastewater, located at the downstream end of the TMF that discharges treated effluent to Scraggy Lake. Further requirements for the management of process water and mine effluent are provided in Section 2.19.

### 2.15.2 Environmental Protection Measures

- All sewage and greywater will be directed to a septic field that has been installed by a certified installer.
- Levels in all septic tanks will be monitored regularly and serviced as required.
- Any issues concerning the septic tanks or field shall be reported immediately to Site Services and Environment Departments.
- All water contaminated with petroleum-based waste products will be directed to an oil-water separator or containment vessel for off-site removal by a licensed facility.
- All water contaminated by reagent use in the lab will be transferred into the Mill process for disposal in the TMF or contained and disposed of off-site by a licensed facility.
- All process water captured in the mill facility will be captured in sumps and re-introduced into the milling process.
- To conserve freshwater, mill processes will re-use process water or use collected surface facility runoff wherever possible. Process water (or reclaim water) is pumped from the TMF to the mill via the decant barge.
- In the event of an accidental release of wastewater immediate action will be taken to ensure that the release is contained and prevented from reaching any waterbody. Refer to the Emergency Response Plan and Spill Contingency Plan. All spills must be reported to the Environment Department.

### 2.15.3 FORMS

- AGC – ENV FRM – 001 Spill Report Heads-Up Form
- AGC – ENV -FRM – 002 Environmental Incident Report

### 2.15.4 RELATED DOCUMENTS

- OES 2.23 – Spill Control Measures and Reporting
- AMNS Spill Contingency Plan
- AMNS Emergency Response Plan

## 2.16 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

### 2.16.1 Environmental Concern

A variety of potentially hazardous materials will be required throughout the life of the Project. Hazardous materials are defined as those with properties such as flammability, corrosiveness, or inherent toxicity. Hazardous materials that will be transported, handled, and stored at the Project include, but are not limited to, petroleum products, propane, explosives, batteries, mill reagents, antifreeze, solvents, grease, glycol coolant, nuclear gauges for slurry density measurement and other chemicals. Hazardous waste material generated by the Project include, but are not limited to, used batteries, waste oil, oil filters, solvents, oily rags and absorbent material, contaminated soil, empty petroleum and reagent drums and pails, used laboratory reagents, scrap treated lumber and solvent waste.

Hazardous waste management standards are required to ensure the practices employed during the Project are protective of human health (workers and nearby community) as well as the surrounding environment. Specific protection measures are in place to minimize exposure to hazardous materials resulting from spills, leaks or releases. For more information refer to the Company's Spill Contingency Plan, Emergency Response Plan and Emergency Response Plan - Propane.

### 2.16.2 Environmental Protection Measures

The following measures will be implemented to protect the environment and the health and safety of the workers and surrounding communities:

- The four main principles of waste management in order of hierarchy include reduce, reuse, recycle and dispose. Once reduce, reuse and recycle have been implemented the remaining hazardous waste will be responsibly handled, stored and disposed of in accordance with regulatory requirements. Project personnel will work to reduce the amount of hazardous waste generate by recycling and re-using materials, and/or using less toxic or non-toxic alternatives when possible.
- Hazardous materials and hazardous waste materials will be handled, stored, transported and disposed of in accordance with regulatory requirements.
- All material will be clearly labelled according to Workplace Hazardous Materials Information System (WHMIS) and be accompanied by applicable Material Safety Data Sheets (MSDS).
- Hazardous material will be stored in areas designed to adequately and safely store the required quantity over a prescribed period.

- Sufficient storage space between containers will be maintained to allow for safe access and handling.
- Storage areas will be properly designed to contain and prevent contamination of the environment. The transfer of hazardous waste material will employ secondary containment (drip trays) and spill response material.
- Spill kits, protective equipment, and/or other equipment necessary to contain, clean and mitigate effects of spills will be maintained on site.
- Spills and/or releases of any hazardous materials will be reported immediately to the Environment Department and the Emergency Response Plan and Spill Contingency Plan will be implemented.
- Only containers that are in good condition will be used and will be properly labelled, marked, placarded and secured.
- Incompatible materials (bases and acids) will not be stored in the same container and will be stored safely and sufficiently far apart to prevent accidents.
- Containers or liners that previously held hazardous material will be subject to hazardous waste disposal, unless the containers are classified as empty.
- Hazardous material storage facilities will be inspected routinely by Project personnel, dependent upon volume and risk, to ensure compliance with relevant regulations and Best Management Practices (BMPs). Inspections will include, but not limited to, ensuring labeling and signage on containers are legible and in good condition, inspection of storage areas, secondary containment and condition of containers for possible leaks, drips or indications of any loss.
- Site hazardous materials and waste storage facilities will be inspected by the Environment Department, Safety Department, and/or Occupational Health and Safety Committee on at least a semi-annual basis.
- All hazardous waste materials shall be clearly labelled, properly stored and properly segregated from the non-hazardous waste stream as to minimize cross contamination.
- Smoking is only permitted in designated areas.
- All Project personnel, including contractors, are responsible for maintaining the current MSDS on site for all hazardous materials pertaining to their activities.
- The transport of hazardous material offsite for recycling or disposal will be handled by licenced contractors. The contractors will comply with relevant legislation and will be responsible for the development of a hazardous materials handling plan, including spill contingency and emergency response plans. Hazardous waste materials will be

transported to provincially licenced disposal facilities and copies of waste transport and disposal manifests will be kept on file.

- Waste oils, lubricants, and other used oil shall be stored in accordance with Guidelines for the Storage of Used Oil, implemented August 26, 2003, until removed from site for disposal at an approved, licenced waste management facility.
- The use of used oil as a dust suppressant is strictly prohibited.

### 2.16.3 FORMS

- AGC – ENV FRM – 001 Spill Report Heads Up Form
- AGC – ENV -FRM – 002 Environmental Incident Report

### 2.16.4 RELATED DOCUMENTS

- OES 2.23 Spill Control Measures and Reporting
- AMNS Spill Contingency Plan
- AMNS Emergency Response Plan
- AMNS Emergency Response Plan - Propane
- Guidelines for the Storage of Used Oil, August 26, 2003 (novascotia.ca/nse/dept/docs.policy/Guidelines-Storage.of.Used.Oil.pdf)

## 2.17 ROAD TRAFFIC MANAGEMENT

### 2.17.1 Environmental Concern

Traffic during construction and operation, if not properly managed, may cause disruption, accidents, impacts to local wildlife and surrounding communities.

Project-related traffic will be managed to:

- Ensure safe operation for all road users.
- Ensure smooth flow of road traffic during the Project's operation.
- Minimize wildlife injury and mortality from vehicle collisions.
- Ensure that adequate information is given to drivers and pedestrians in a timely manner to avoid accidents and delays.
- Ensure assessment, monitoring and improvement of the existing road traffic site plans

Over the life of the Project, there will be different levels of traffic flow. The peak flow periods of vehicles and equipment, and construction workers are expected to be during the day. Low flow periods will be during the night and on weekends.

### 2.17.2 Environmental Protection Measures

- The Run of Mine (ROM) Road has restricted access to public vehicles and requires clearance from the Mine Supervisor for vehicles and equipment other than haul trucks. The ROM road crossing at Moose River Road requires all mine traffic to yield to public vehicles within the identified signed area. The same procedure is followed at the Waste Rock crossing at Moose River Road adjacent to the Alva trailers. All mine traffic must share the road and be respectful of other users.
- Traffic traveling on Billybell Way is restricted to 40 km/hr. The traffic speed reduces to 30 km/hr prior to the security checkpoint. Traffic speed will be monitored by laser (LIDAR) when required.
- All mine vehicles and equipment are equipped with two-way radios. All light (LT) vehicles must radio when entering and exiting the pit and will only proceed if no communication directs otherwise. LT vehicle operation, including two-way radio call procedures, will follow the Mobile Equipment and Light Vehicle Operations (AGC-PRO-MINE-012) Safe Operating Procedure.
- All traffic will be restricted to designated access roads and trails.

- During blasting activities on site, all traffic will be restricted from the blast area as indicated by the Blast Safety Zone Map. Blasting activities (date/time) will be posted on Moose River Road, Mooseland Road and communicated to all Project Personnel 24 hrs in advance of the blast.
- Wildlife has the right-of-way if crossing, or attempting to cross, the Project roadways. Drivers will be obligated to stop (when safe to do so) for all wildlife seen on, or immediately adjacent to roadways, giving wildlife the opportunity to move off. Wildlife sightings must be reported to the Environment Department in accordance with EPP Section 2.9.
- Snapping turtles frequently cross Moose River Road during the spring and summer months. The most common location for turtle sightings is near the Moose River crossing at Moose River Road, at the western boundary of the Project site. Signage has been installed in the crossing area to alert drivers to the potential for turtle encounters. If a turtle is found, it must be immediately reported to the Environment Department. See Section 2.12 for more details.
- Dust suppression will be utilized when necessary to improve visibility and reduce fugitive dust emission. Refer to Section 2.6 for further details.
- The Project's Mine Operations team and Site Services Department are responsible for on site road maintenance to ensure the roads are safe for designated uses.

### 2.17.3 FORMS

- AGC – ENV FRM – 001 – Spill Report Heads Up Form
- AGC – ENV -FRM – 002 – Environmental Incident Report

### 2.17.4 RELATED DOCUMENTS

- Touquoy Mine Site Traffic Plan
- OES 2.2 – Avoiding Disturbance to Local Land Users
- OES 2.6 – Fugitive Dust Management
- OES 2.9 – Wildlife Sightings
- OES 2.12 Snapping Turtle Protection Measures
- AGC-PRO-MINE-012 Mobile Equipment and Light Vehicles Operation SOP
- AMNS Wildlife Management Plan

## 2.18 BLASTING

### 2.18.1 Environmental Concern

Blasting will be conducted at the Project site to access and extract ore. Blasting will typically occur two to three times per week. Emulsion is the primary blasting agent used. Although this type of explosive contains ammonium nitrate, the chance of ammonium nitrate escaping and contaminating the surrounding area is considered low. Ammonia is toxic to aquatic life at certain concentrations; therefore, the proper handling of explosives during blasting operations is crucial in preventing spills from having an impact to nearby watercourses. Blasting will generate dust and noise emissions therefore air quality and noise levels will be monitored by the Environment and Mine Operations Departments.

### 2.18.2 Environmental Protection Measures

- The use of explosives is governed by Natural Resources Canada. The Company utilizes a Drill and Blast Contractor to carry out all Project blasting. The Drill and Blast Contractor shall have all required certifications including a valid Blasting Certificate issued by the Province of Nova Scotia.
- A technical blast design will be prepared by a qualified person to ensure the ground vibration and air concussion limits can be achieved.
- Prior to blasting, the climatic conditions will be assessed to ensure no thermal inversion is anticipated at the time of the proposed blast. Blasting will not occur during thermal inversion conditions.
- All necessary precautions shall be taken to safely handle the explosives and to minimize spillage during blasting operations.
- All spills shall be reported to the Environment Department immediately.
- Environmental personnel will monitor water bodies and watercourses adjacent to blasting activities to ensure operational activities are not causing deleterious effects on aquatic resources.
- All blasts are to be monitored for air concussion (128 dBL) and ground vibration (12.5mm/s) limits to ensure parameters are achieved. Any non-compliant result must be reported to the Environment Department immediately.
- During blasting, all traffic will be restricted from the blast area as indicated by the Blast Safety Zone Map. All persons not associated with the blast must remain in this zone during blasting activities.

- Blasting date and time will be posted on signage at Moose River Road and Mooseland Road. The Blast Safety Zone Map will be communicated to all Project Personnel 24 hrs in advance of the blast.

### 2.18.3 FORMS

- AGC – ENV FRM – 001 Spill Report Heads-Up Form
- AGC – ENV -FRM – 002 – Environmental Incident Report

### 2.18.4 RELATED DOCUMENTS

- OES 2.21 – Air Quality, and Noise and Vibration
- AGC-PRO-MINE-001 Blasting Procedure
- AGC-PRO-MINE-003 Blast Traffic Control Procedure
- AMNS Industrial Approval 2012-084244-06

## 2.19 MINE CONTACT WATER, FACILITY RUNOFF, PROCESS WATER, AND EFFLUENT

### 2.19.1 Environmental Concern

Any water that comes in contact with the mine facility can potentially be impacted by ore and waste rock storage, handling, and processing activities. IA Condition 15 requires all wastewater and surface runoff, associated with the Project's Facility to be directed to the TMF for treatment apart from the two overburden stockpiles located on site. This includes water processed through the Mill and surface water collected within the haul road runoff collection ponds, Mill Site Pond, Open Pit, Waste Rock Collection Ponds, and TMF Seepage Ponds. The discharge of effluent from the Project is regulated via the Metal and Diamond Mining Effluent Regulations.

The quality and quantity of water directed to and from the TMF must be monitored in order to manage water levels and maintain compliance with permit and regulatory requirements. Uncontrolled or untreated releases of mine contact water to the environment may impact drinking water, aquatic resources, wildlife and human health and must be reported to regulators.

### 2.19.2 Environmental Protection Measures

The following measures will be implemented to minimize the potential for accidental releases of mine contact water on site:

- Mine contact water, facility runoff, and waste process water will be captured and directed to the TMF in accordance with IA Condition 15 and the Project's Water Management Plan.
- The quantity of water directed to the TMF is monitored by the Mill and Environment Department via the use of inline flow meters. All inputs to the TMF must have flow meters installed.
- Water levels within the TMF are managed by the Mill via monthly updates to the site Water Balance in accordance with the TMF Operations, Maintenance, and Surveillance (OMS) Manual. TMF capacity is also reviewed by the TMF's Engineer of Record on a semi-annual basis.
- Prior to release to the environment, process/mine water is treated via the TMF Effluent Treatment Plant (ETP). Further passive treatment occurs within the polishing pond and engineered wetland prior to release to Scraggy Lake.
- The Project is permitted to discharge treated effluent to the environment from a single discharge point at the south end of the TMF. The quantity and quality of treated effluent is monitored to meet federal MDMER requirements. Control of discharge is maintained via an engineered discharge control structure. Samples of effluent are collected by the Environment Department to meet the testing requirements. In the event that results of

water quality testing fail to meet discharge requirements, the discharge valve must be immediately closed.

- Operating levels within all site collection ponds must be met, as to avoid overtopping of these ponds. This includes the TMF seepage ponds, tailings pond, polishing pond, mill pond, waste rock ponds, and other collection ponds located along the haul roads. Water levels must be regularly monitored to maintain water levels below allowable levels. Dewatering and pumping procedures are to be conducted in accordance with the relevant SOPs.
- Any problems associated with pumping operations, including improper operation, pipeline rupture, system breakdown, etc. shall be reported to an employee's direct Supervisor and the Environmental Department.
- In the event of an accidental release of contact water, process water, or facility runoff, immediate action will be taken to ensure that the release is contained and prevented from reaching any water body. All process water, facility runoff, or contact water release events must be reported to the Environmental Department.
- Divert surface runoff from entering the Project Site whenever possible to reduce amount of contact water or facility runoff generated.

### 2.19.3 FORMS

- AGC – ENV FRM – 001 Spill Report Heads-Up Form
- AGC – ENV -FRM – 002 Environmental Incident Report

### 2.19.4 RELATED DOCUMENTS

- AGC-PRO-MINE-004 Dewatering
- AGC-PRO-MILL-015 TMF Seepage Pond Pumping
- AGC-PRO-ENV-016 Waste Rock Collection Pond Pumping
- Metal and Diamond Mining Regulations – Government of Canada (https://laws-lois.justice.gc.ca/eng/Regulations/SOR-2002-222/index.html)
- AMNS TMF Operations, Maintenance, and Surveillance Manual
- AMNS Industrial Approval 2012-084244-06
- AMNS Water Management Plan

## 2.20 WASTE ROCK MANAGEMENT

### 2.20.1 Environmental Concern

Metal leaching (ML) and acid rock drainage (ARD) are naturally occurring processes which may have negative impacts on the receiving environment if they occur in the absence of adequate neutralization, dilution and/or attenuation. ARD occurs when pyrite and other sulphide minerals are exposed to the weathering effect of water and oxygen. ARD is generated from the oxidation of sulphur and the precipitation of ferric iron. Although this can occur naturally, the process of ARD is increased by large scale developments such as quarry development and storage of waste rock during mining operations. ML/ARD can impact the environment and nearby waterbodies if not properly managed. The Project has developed a ML/ARD Management Plan to formalize the monitoring procedures as well as to provide guidance with respect to best practice mitigation strategies that may be considered.

### 2.20.2 Environmental Protection Measures

- All Supervisors involved in quarry development and waste rock management will be familiar with the AMNS ML/ARD Management Plan.
- Samples of fresh waste rock will be collected from the open pit mine for a least every 100,000 tonnes of ore mined. Samples are collected by the Geology Department in accordance with the Blast Materials Sampling SOP.
- Samples from the tailing's slurry are collected for every 100,000 tonnes of ore processed. Samples are collected by the Mill Department in accordance with the Tailings Solid Sampling SOP.
- Samples from the TMF Quarry are collected by the Geology Department and analyzed for at least every 20,000 tonnes of rock quarried. Samples are collected by the Geology Department in accordance with the Blast Materials Sampling SOP
- Samples from waste rock are screened for total sulphur at the on-site AMNS laboratory (as per AGC-PRO-ASSAY 300) and the remaining geochemical test work is carried out at an external laboratory and are analyzed for parameters as prescribed in the ML/ARD Management Plan. Results of analysis are reviewed by Geology and Environment Departments as well as an independent professional geochemist.
- There are four material types expected as a result from the operation: ore, quarry rock (suitable for construction), clean waste rock, or potentially acid generating (PAG) waste rock. Material is stored based on classification as described in the ML/ARD Management Plan.

- Waste rock within the storage area will be tracked in case it is determined that management is required.
- Quarry materials used for construction shall be non-potentially acid generating (NPAG) waste rock.
- Weekly monitoring of pH, conductivity, total dissolved solids, and temperature in the waste rock collection ponds and open pit will be conducted by the Environment Department.
- Any signs of ML/ARD (staining, stressed vegetation, snowmelt) should be reported to the Environmental Department immediately.

### 2.20.3 FORMS

- N/A

### 2.20.4 RELATED DOCUMENTS

- AMNS ML/ARD Management Plan (Draft)
- AGC-PRO-GEO-007 Blast Material Sampling & Handling
- AGC-PRO-MILL-951 Tailings Solids Sampling
- AGC-PRO-ASSAY 300 Eltra CS800 Sulphur Analyzer Operation
- AMNS Industrial Approval 2012-084244-06

## 2.21 AIR QUALITY, AND NOISE AND VIBRATION

### 2.21.1 Environmental Concern

Project related sources that may affect air quality include exhaust emissions from vehicles and other mine equipment, stack emissions from the plant facility along with fugitive dust emissions. Further details regarding potential sources of fugitive dust are outlined in Section 2.6. Minimizing emissions at the source will have a combined benefit of protecting the health and safety of workers on site and protect the environment and surrounding residents by minimizing long-term impacts associated with the Project.

Project related sources that have the potential to generate elevated noise and vibration levels would include open pit operations such as machinery, diesel generators, vehicles, drilling, excavation, crushing of aggregate, blasting, milling operations, etc. Mitigation measures are put in place in order to protect Project Personnel working with or near noisy equipment or processes to minimize and/or avoid the impact of high direct or ambient noise which could potentially result in noise induced hearing loss. Noise and vibration may also affect wildlife in areas surrounding the Project site.

### 2.21.2 Environmental Protection Measures

Particulate emissions shall not contribute to an ambient concentration of total suspended particulate matter that exceed the following limits (in micrograms per cubic meter of air) at or beyond the Project property boundaries:

- Annual Geometric Mean 70 µg/m3
- Daily Average (24 hr.) 120 µg/m3

Ambient air monitoring is completed annually at the end of July and beginning of August at designated stations across the site and along site property boundaries. See the Key Figure section (4.0) for a map showing the location the air monitoring stations.

Sound levels measured at stations situated at or beyond the Project property boundaries shall not exceed the following equivalent sound levels (Leq):

- Leq 65 dBA 0700-1900 hours (Days)
- 60 dBA 1900-2300 hours (Evenings)
- 55 dBA 2300-0700 hours (Nights)

Blasting limits shall be measured every blast for air concussion and ground vibration. Air concussion values shall not exceed 128 dBL within 7 m of the nearest structure outside the

Project boundary. Ground vibrations shall not exceed 12.5 mm/s below grade or less than 1 m above grade in any part of the structure located outside of the Project boundary.

For fugitive dust emissions mitigation measures please see Section 2.6 of this EPP.

### 2.21.3 FORMS

- N/A

### 2.21.4 RELATED DOCUMENTS

- OES 2.6 Fugitive Dust Management
- OES 2.18 Blasting
- AMNS Industrial Approval 2012-084244-06
- AMNS Air Quality Management Plan

## 2.22 WETLAND CROSSINGS, ALTERATIONS AND MANAGEMENT

### 2.22.1 Environmental Concern

The term wetland is land commonly referred to as a marsh, swamp, fen or bog, that is either periodically or permanently with standing water. Wetlands sustain aquatic processes that are indicated by the presence of poorly drained soils, hydrophytic (water-loving) vegetation and biological activities that are adapted to wet conditions. Wetlands perform many important functions for our ecosystems including improving overall water quality, controlling floods and recharging groundwater. They are among the most productive and diverse ecosystems on earth. The loss of wetland can mean the loss of local fish population, wildlife and plant species. Many of Nova Scotia's wetlands have already been lost and therefore they take on a heightened level of importance.

### 2.22.2 Environmental Protection Measures

The Project has a Wetland Protection Plan (WPP) which provides an overview of methods by which wetlands existing in, adjacent to and down-gradient of the Project are protected. There are two main activity types that are addressed in the WPP and are as follows:

- Direct impacts as a result of construction activities *i.e.* grubbing, machinery access, removal of buffers, etc. and;
- Indirect impacts as a result of altering hydrological conditions *i.e.* change in water inputs and outputs, water quality considerations, etc.

Protection measures outlined in this document are as follows:

- As per IA Condition 7m: There shall be a 30m undeveloped buffer on all adjacent watercourses and wetlands unless specific approval has been given to alter the watercourse/wetland. See the Key Figure section (4.0) for wetland delineation within the Project area.
- To encroach on this limit, a wetland or watercourse alterations approval from NSE is required. All work associated with wetland or watercourse alterations will have site-specific terms and conditions which must be adhered to.
- All employees must adhere to the specific conditions covered in the wetland alteration listed below:
    - Approval #2016-095967-03, Effective Date January 30, 2020
- A Wetland Monitoring Plan (WMP) has been developed to ensure protection of all remaining wetland habitat, outside of the permitted alteration. An annual report is to be

compiled at the end of each calendar year detailing the results of the monitoring completed that year. This report will also include:

  - Actual areas of wetland that have been altered that calendar year
  - An updated schedule for alteration areas expected for the forthcoming year.

- All work operations shall be conducted in a manner to protect watercourses and wetlands from siltation and disturbance. Sediment control measures shall be installed prior to construction and properly maintained until erodible material is stabilized. Refer to Sediment and Erosion control Section 2.8 for more information on appropriate control measures.
- Regular monitoring of nearby wetlands during construction activities is required to ensure protective measures are effective;
- Driving and use of machinery within wetland habitat will be limited to the use of swamp maps/corduroy bridges in wet areas to prevent rutting, diverting water flow and sedimentation;
- Ensure all development related activity (*i.e.* construction areas, access roads, etc.) are located within areas where biophysical field evaluations have been completed and approvals/written authorizations are in place as required, including work within 30m or a wetland and watercourse;
- Clearing within wetland habitat outside of approved wetland alteration areas is prohibited;
- Clearing of vegetation within wetlands should occur outside of the breeding bird window, otherwise a nesting survey must be completed to ensure compliance with federal and provincial legislation. The provincial wetland alteration permits require nesting surveys be completed for clearing activities within a wetland between the period of May 1 to September 30.
- Refueling shall not occur within 30m of a wetland or watercourse.
- All spills shall be immediately reported to the Environment Department and the Emergency Response Plan and Spill Contingency Plan will be implemented.

### 2.22.3 FORMS

- AGC – ENV FRM – 001 Spill Report Heads-Up Form
- AGC – ENV -FRM – 002 Environmental Incident Report

### 2.22.4 RELATED DOCUMENTS

- OES 2.8 Erosion and Sediment Control
- OES 2.7 Fuel Storage and Handling
- OES 2.23 Spill Control Measures and Reporting
- AMNS Water Approval – Wetland Alteration 2016-095967-03
- AMNS Industrial Approval 2012-084244-06
- AMNS Wetland Monitoring Plan
- AMNS Wetland Protection Plan
- Nova Scotia Wetland Policy - Nova Scotia Environment (NSE). (https://novascotia.ca/nse/wetland/docs/Nova.Scotia.Wetland.Conservation.Policy.pdf)

## 2.23 SPILL RESPONSE AND REPORTING

### 2.23.1 Environmental Concern

A variety of potentially hazardous supplies and materials will be required throughout the life of the Project. Hazardous materials are defined as those with properties such as flammability, corrosiveness, or inherent toxicity. Hazardous materials that will be stored and handled at the Project include, but are not limited to, petroleum products, propane, mill reagents, antifreeze, solvents, grease, glycol coolant and other chemicals. For more information on the management of hazardous materials onsite see Section 2.16 Hazardous Materials and Hazardous Waste Management.

Accidental and uncontrolled leaks, releases and spills of hazardous material may occur due to improper storage, poor handling procedures, equipment malfunction or process failures. Spills, leaks or releases have the potential to negatively impact human health and the environment. Refer to the Spill Contingency Plan and Emergency Response Plan for various response action levels based on the type of hazardous product spilled, volume spilled and type of receiving environment. A brief summary of the various spill response action levels is provided below.

The levels of emergency response for spills are detailed in the Spill Contingency Plan. The Company has adopted a tiered emergency classification scheme that includes three levels of emergencies. Each level of emergency, based on the significance of the event, requires varying degrees of response, effort and support. The three response levels are as follows:

**Level 1 (Low)** – Minor accidental release of a deleterious substance with;

- No threat to public safety; and/or
- Negligible environmental impact to receiving environment

**Level 2 (Medium)** – Moderate accidental release of a deleterious substance with;

- No threat to public safety; and/or
- Moderate environmental impact to receiving environment

**Level 3 (High/Extreme)** – Major accidental release of a deleterious substance with;

- A threat to public safety and jeopardizes project personnel safety; and/or
- Significant environmental impacts to receiving environment

Spill response levels are provided in Figure 2.23.1.1 for tailings, hydrocarbons and hazardous materials.

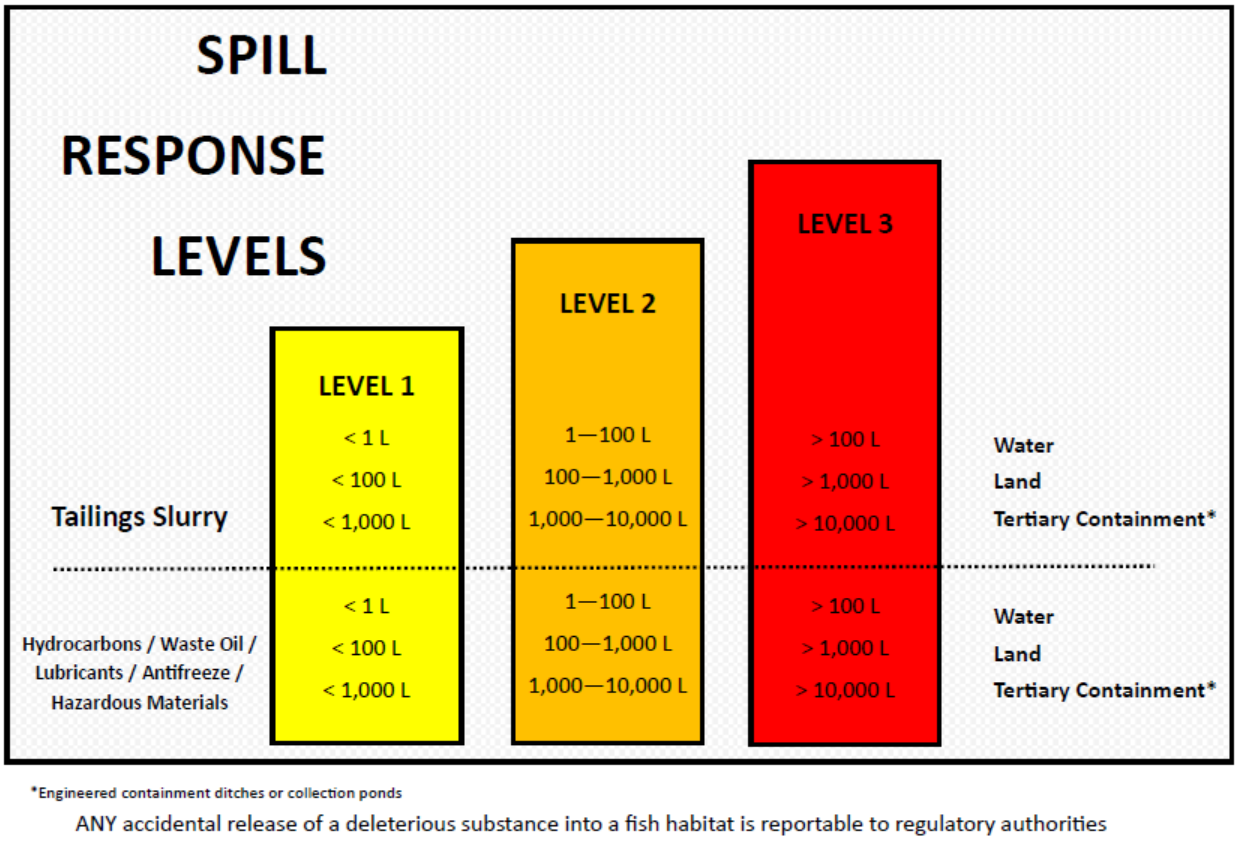


**Figure 2.23.1.1: Spill Response Levels for Tailings Slurry, Hydrocarbons and Hazardous Materials**

### 2.23.2 Environmental Protection Measures

Detailed environmental response measures are provided in the Spill Contingency Plan. A high-level summary of a generic spill response steps is provided below:

**Source Control** – If safe to do so, reduce or stop the flow of product. This may include actions such as turning off a pump, closing a valve, sealing a puncture, raising a leaking or discharging hose to a level higher than the material inside the tank, or transferring the material to a secondary container.

**Contain and Control the Free Product** – If safe to do so, prevent or minimize the spread of spilled material. Accumulate/concentrate spilled product in an area to facilitate recovery. Barriers positioned down-gradient of the spill will slow or stop the progression of the spill. Barriers can consist of absorbent booms (socks), dykes, berms, or trenches.

**Protection** – Evaluate the risk of the impacted area to the surrounding environment. If safe to do so, protect sensitive ecosystems and natural resources at risk by isolating the area and/or diverting the spilled material away from sensitive receptors such as watercourses, water bodies and wetlands.

**Report the Spill** - See below for further details.

**Spill Clean-up** – Recover and contain as much free material as possible. Ensure proper clean-up and spill controls are in place. Ensure proper disposal of spill clean-up materials.

Spill control materials are available in spill kits (yellow drums) located throughout the site.

Emergency spill response training shall be completed in conjunction with the Company's Emergency Response Plan. Supervisors should be trained in general spill response procedures relevant to their work area. Third party consultants and contractors may be retained as required for technical support and resources.

Various aspects of the emergency spill response such as organization, roles and responsibilities, general spill response procedures, internal and external contacts list, training, resources, and reporting are detailed in the Spill Contingency and Emergency Response Plans.

### 2.23.3 Spill Reporting Procedures

All spills (whether reportable externally or not) must be reported by the first responder to their immediate supervisor and then to the Environment Department. The supervisor of the

responsible department will notify the Environment Department and conduct the necessary spill response with support as required.

Department supervisors are required to report the spill as soon as reasonably practicable, no more than four hours from the time of the spill. Initial reporting can be made via the Company's Spill Report Incident Heads Up Form. Alternatively, if access to the form is not readily available, an email to the Environment Department's incident email address will be accepted (environmental.incident@atlanticgold.ca) and should include:

- Substance spilled
- Estimated volume
- Receiving environment (land/water/wetland/facility infrastructure)
- Immediate cause
- Summary of clean-up actions

Further information may be requested depending on the nature of the release. The Environmental Incident Report form must be initiated within 24 hours, if required by the Environment Department. This report requires inclusion of photos, a description of clean-up activities, subsequent actions, identifies root cause and determines any additional corrective actions.

All external reporting requirements for regulatory agencies shall be submitted by the Environment Department.

### 2.23.4 FORMS

- AGC – ENV FRM – 001 Spill Report Heads Up Form
- AGC – ENV FRM – 002 Environmental Incident Report Form

### 2.23.5 RELATED DOCUMENTS

- OES 2.7 Fuel Storage and Handling
- OES 2.16 Hazardous Material and Hazardous Waste Management
- AMNS Spill Contingency Plan
- AMNS Emergency Response Plan

# 3 DOCUMENTATION LOGS AND FORMS

Current versions of all documents, logs and forms can be accessed on the Company's network under the Policies Procedures folder. Exploration logs and forms are accessible on the Exploration X drive under the Health and Safety folder. A summary of all documents, logs and forms referenced in the EPP is provided in the table below.

**Note:** The version numbers referenced in the table below are the most recent versions at the time of EPP update in June 2020. These documents may have been updated since the time of issuance of this EPP. Refer to the Policies and Procedures folder for most recent revision.

**Table 3.0: Documentation Logs and Forms**

| FORM / DOCUMENT | VERSION / DOCUMENT # | DOCUMENT DATE |
|---|---|---|
| AGC-PRO-ASSAY 300 Eltra CS800 Sulphur Analyzer Operation | Refer to Policies Procedures folder for most up to date versions of SOPs and forms. | |
| AGC-PRO-ENV-016 Waste Rock Collection Pond Pumping | | |
| AGC – PRO – ENV 006 Rain Event Monitoring Protocol | | |
| AGC - ENV FRM - 002 REV 3 Environmental Incident Report | | |
| AGC-PRO-GEO-007 Blast Material Sampling & Handling | | |
| AGC-PRO-MILL-015 TMF Seepage Pond Pumping | | |
| AGC-PRO-MILL-951 Tailings Solids Sampling | | |
| AGC-PRO-MINE-001 Blasting Procedure | | |
| AGC-PRO-MINE-001 Blasting Procedure | | |
| AGC-PRO-MINE-003 Blast Traffic Control Procedure | | |
| AGC-PRO-MINE-004 Dewatering | | |
| AGC-PRO-MINE-012 Mobile Equipment and Light Vehicles Operation | | |
| AGC – PRO – ENV – 013 Refueling Mobile Equipment and Light Vehicles | | |
| AGEN.003 Surface Drills and Drill Sites (Exploration Safe Work Practice) | Refer to Exploration X drive for most up to date versions of SOPs and forms. | |
| AGEF.004 Pre-Drill Startup Site Inspection – AGC Exploration | | |
| AGEF.005 Detailed Drill Inspection – AGC Exploration | | |

| FORM / DOCUMENT | VERSION / DOCUMENT # | DOCUMENT DATE |
|---|---|---|
| AGEF.006 Drill Site Simplified Checklist – AGC Exploration | Refer to Exploration X drive for most up to date versions of SOPs and forms. | |
| AGEF.007 Drill Site Decommissioning – AGC Exploration | | |
| Air Quality Management Plan, Touquoy Gold Mine Project, Moose River Gold Mines, NS – Conestoga-Rovers & Associates | - | July 2008 |
| Archaeological Screening, Halifax Regional Municipality, Archaeological Screening Report with Appendix for 2006 Screening – Prepared by Cultural Resource Management Group Ltd | - | November 2006 |
| Complaint Resolution Plan | Version 1 | December 2016 |
| Crown Land Lease Agreement | 2794371 | February 10, 2016 |
| Environmental Assessment Approval, Touquoy Gold Project, DDV Gold Ltd., Proponent, Halifax Regional Municipality, Nova Scotia | - | February 1, 2008 |
| Emergency Response Plan | AGC-PLN-HS-001 | August 1, 2018 |
| Emergency Response Plan – Propane | AGC-PLN-HS-007 | November 2018 |
| Erosion and Sediment Control Plan, Prepared by Stantec Consulting Ltd. | Revision 2 | January 31, 2020 |
| Fugitive Dust Control Plan, Touquoy Gold Mine Project, Moose River Gold Mines, NS | - | February 2008 |
| Groundwater Contingency Plan, Prepared by Stantec Consulting Ltd. | Revision 1.2 | January 18, 2019 |
| Industrial Approval – Nova Scotia Environment | 2012-084244-06 | Effective Date: April 9, 2020 |
| Mainland Moose Management Plan, Submitted by McCallum Environmental Ltd. | - | January 26, 2017 |
| Metal and Diamond Mining Regulations - Government of Canada | Refer to https://laws-lois.justice.gc.ca/eng/Regulations/SOR-2002-222/index.html for most up to date version | |
| Mi'kmaq Knowledge Study, Touquoy Gold Project Moose River Gold Mines, Nova Scotia – Mi'kmaq Environmental Services, The Confederacy of Mainland Mi'kmaq | - | December 2005 |

| FORM / DOCUMENT | VERSION / DOCUMENT # | DOCUMENT DATE |
|---|---|---|
| Migratory Bird Convention Act – Government of Canada | Refer to https://laws.justice.gc.ca/eng/acts/M-7.01/ for most up to date version | |
| ML/ARD Management Plan (DRAFT) | - | May 2019 |
| Spill Contingency Plan | AGC-PLN-ENV-001 | May 22, 2019 |
| Spill Report Heads Up Form | AGC - ENV FRM – 001 REV 1 | December 3, 2018 |
| Touquoy Mine Site Traffic Plan | April 2019 | April 9, 2019 |
| TMF Operations, Maintenance, and Surveillance Manual | Revision 3 | May 24, 2020 |
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| Water Approval - Wetland Alteration (all wetlands) | 2016-095967-03 | Effective Date: January 30, 2020 |
| Water Management Plan, Touquoy Gold Project, Prepared by Stantec Consulting Ltd. | Version 1.0 | February 9, 2017 |
| Wetland Monitoring Plan | - | August 1, 2017 |
| Wetland Protection Plan, Prepared by McCallum Environmental Ltd. | - | April 12, 2016 |
| Wildlife Management Plan, Submitted by McCallum Environmental Ltd. | - | January 27, 2017 |

# 4 Key Figures

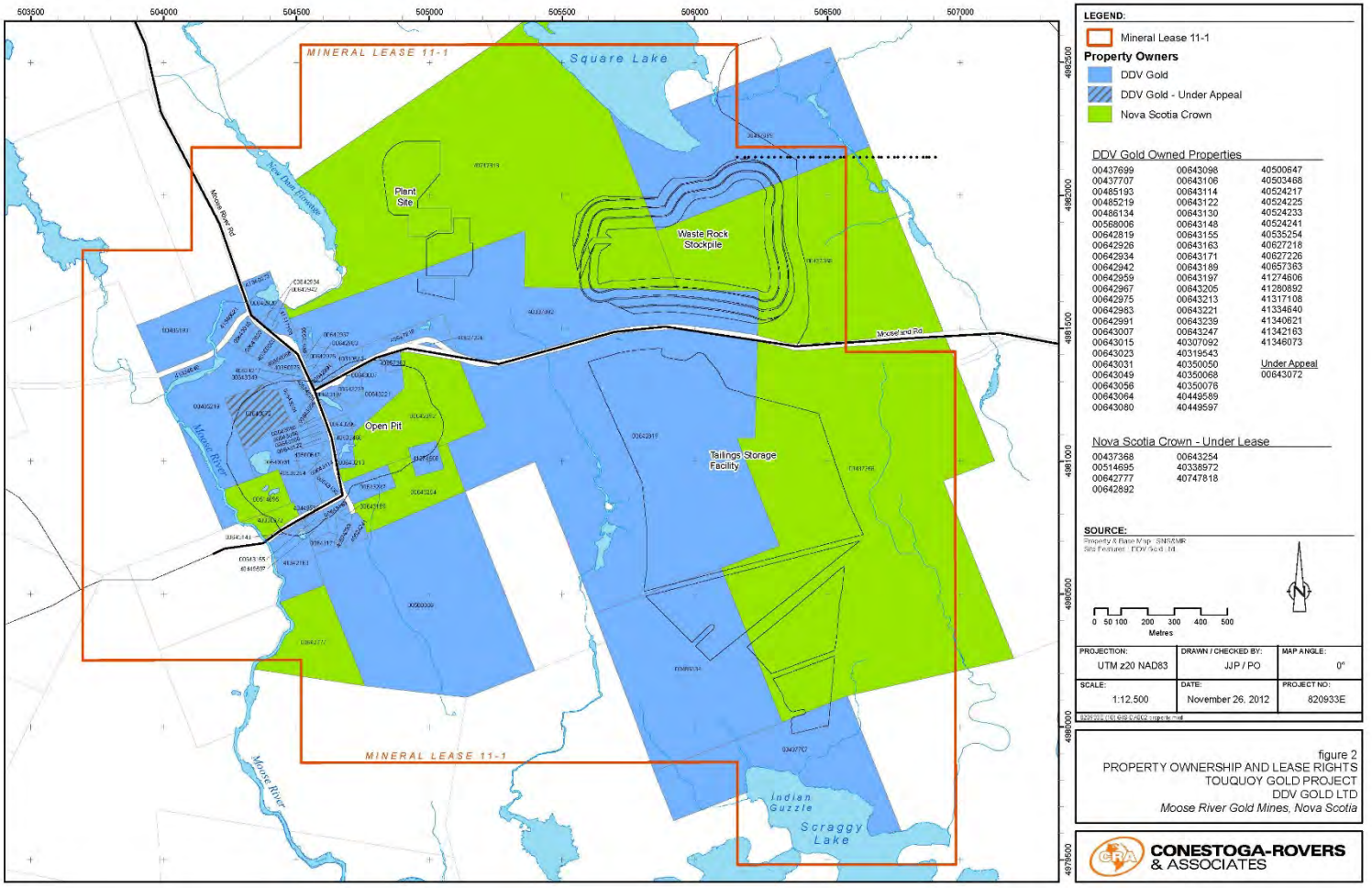


**Figure 4.1: AMNS Property Ownership and Lease Rights Map**


**Figure 4.2: Wetland Location Map**

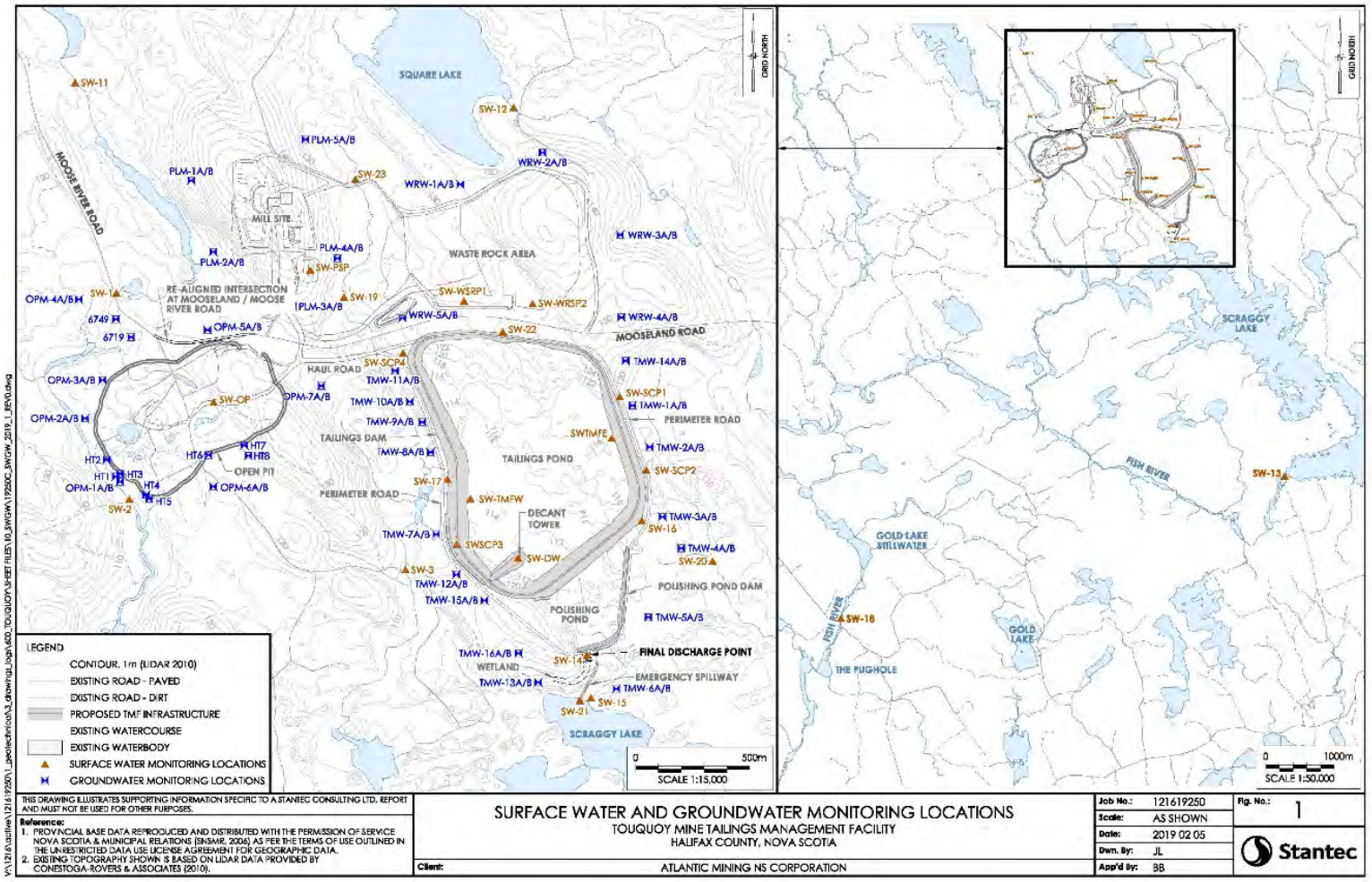


**Figure 4.3: Groundwater and Surface Water Monitoring Location Map**

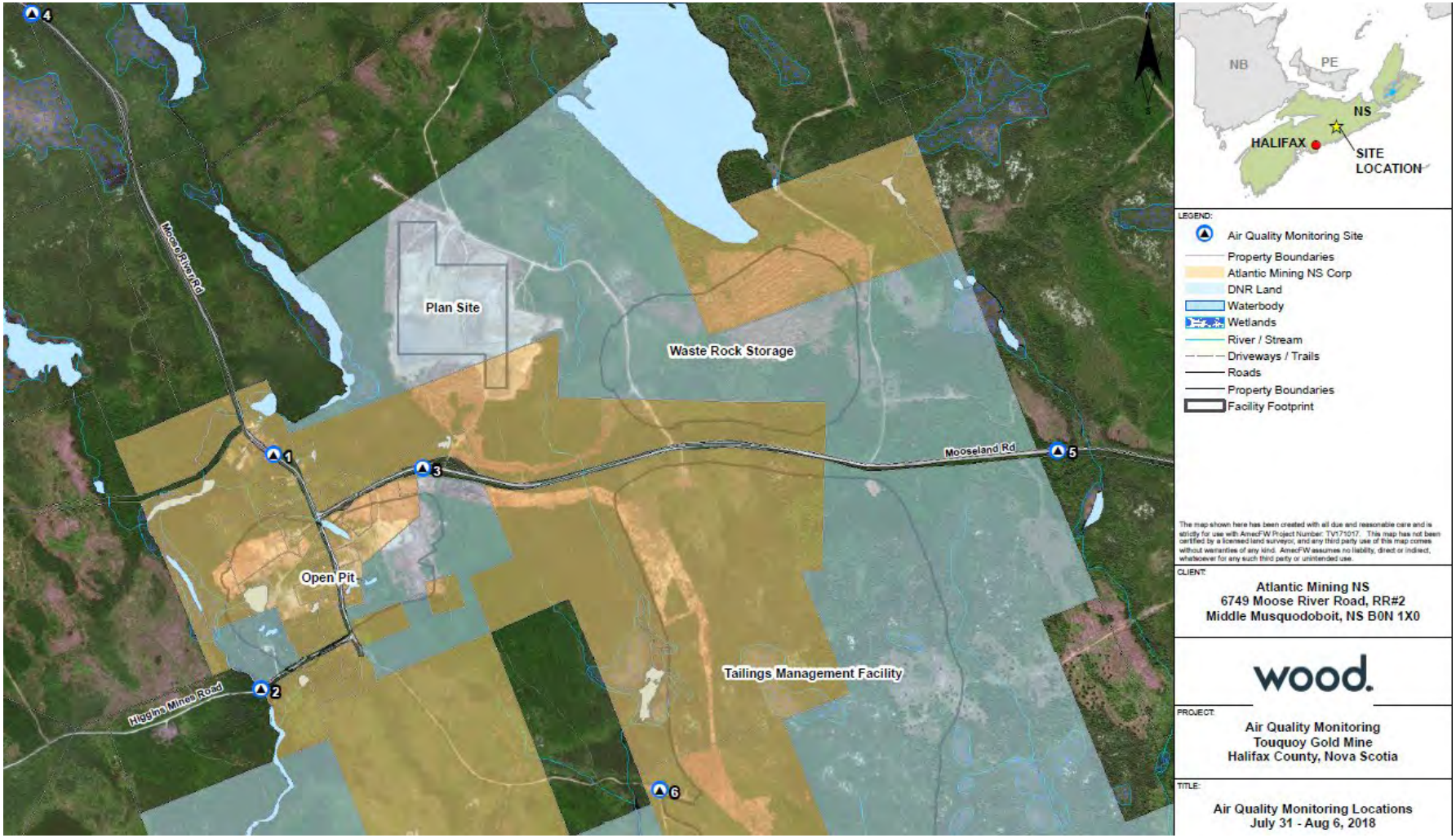


**Figure 5.: Ambient Air Monitoring Station Location Map**