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FINAL REPORT

SD 5-2 Conceptual Noise Abatement and Monitoring Plan - Meliadine Gold Project, Nunavut

Submitted to:

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REPORT



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Executive Summary

As noise emissions associated with the Meliadine Gold Project (the Project) have the potential to impact the environment, Agnico Eagle Mines Limited (AEM) has prepared this conceptual Noise Abatement and Monitoring Plan (NAMP) in accordance with the noise effects assessment outlined in the Final Environmental Impact Statement (FEIS) for the Project.

A detailed NAMP, which will include the detailed study design and methods, will be developed during the Project permitting phase, as the detailed aspects of the Project are finalized. The conceptual NAMP provides the background, rationale, objectives and information on the abatement program, data collection and analysis to illustrate the approach that AEM plans to follow in developing the detailed NAMP.

The conceptual NAMP can be divided into two parts; a Noise Abatement Plan (NAP) and a Noise Monitoring Plan (NMP).

The NAP provides the philosophy and structure to incorporate abatement into the Project, while the NMP sets out the program that will be applied annually to fulfill monitoring requirements throughout the life of the Project. The currently proposed conceptual NAMP considers a range of Project activities and potential project-environment interactions identified within the noise assessment. The conceptual NAMP describes how abatement is incorporated into the development of the Project, and provides an outline of noise monitoring in relation to the Project effects as they are predicted in the FEIS.

The NMP will be designed to confirm predicted impacts to the noise environment related to changes in environmental noise levels during construction, operations and closure. The detailed NMP design will provide clear descriptions of the type, quantity and quality of data that is required to yield defensible conclusions regarding the effects of the Project on the noise environment, and will include field and data analysis methods, including QA/QC procedures. The objectives of the NMP include the following;

- to determine the effects of the Project on the noise environment;
- to evaluate the accuracy of predictions made in the FEIS;
- to assess the effectiveness of planned mitigation incorporated into Project design; and
- to collect data required to identify the need for potential additional mitigation of Project effects.

The NMP study design document will include the overall design approach and will define monitoring locations based on modelling results. The number of stations and length monitoring periods at each monitoring location will also be identified. The frequency of sampling will depend on results of ongoing monitoring and may change over the life of the Project as indicated by interpretation of monitoring results.



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Abbreviation and Acronym List

AEM	Agnico Eagle Mines Limited
AWAR	All-weather Access Road
dB	Decibels
dBA	A-weighted decibels
FEIS	Final Environmental Impact Statement
Golder	Golder Associates Ltd.
Guidelines (the)	<i>Guidelines for the Preparation of an Environmental Impact Statement for Agnico-Eagle Mines Ltd.'s Meliadine Gold Project (NIRB File No. 11MN034)</i>
L _{Aeq}	Integrated equivalent A-weighted sound level
L _{max}	Maximum sound level in dBA
L _{min}	Minimum sound level in dBA
LSA	Local Study Area
NAMP	Noise Abatement and Monitoring Plan
NAP	Noise Abatement Plan
NIRB	Nunavut Impact Review Board
NMP	Noise Monitoring Plan
POR	Point of Reception
Project (the)	Meliadine Gold Project
RSA	Regional Study Area
SSA	Site Study Area



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1.0 INTRODUCTION

Agnico Eagle Mines Limited (AEM) is developing the Meliadine Gold Project (the Project), located approximately 25 kilometres (km) north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut. Situated on the western shore of Hudson Bay, the proposed Project site is located on a peninsula (the Peninsula) between the east, south, and west basins of Meliadine Lake (63°1'23.8" N, 92°13'6.42"W) on Inuit owned lands.

As noise emissions associated with the Project have the potential to impact the noise environment, AEM has prepared this conceptual Noise Abatement and Monitoring Plan (NAMP) in accordance with the noise effects assessment outlined in the Final Environmental Impact Statement (FEIS) for the Project (FEIS Volume 5, Section 5.5). The conceptual NAMP can be divided into 2 parts; a Noise Abatement Plan (NAP) and a Noise Monitoring Plan (NMP). The NAP describes the approach taken in incorporating abatement into the Project, while the NMP sets out the program that will be implemented annually to fulfill NMP requirements throughout the life of the Project.

The currently proposed conceptual NAMP considers a range of Project activities and potential project-environment interactions identified within the noise assessment. The NAMP will also comply with the requirements of the "Guidelines for the Preparation of an Environmental Impact Statement for Agnico-Eagle Mines Ltd.'s Meliadine Gold Project (NIRB File No. 11MN034)" (the Guidelines), Section 9.4.15. The conceptual NAMP describes how abatement is incorporated into the development of the Project, and provides an outline of noise monitoring in relation to the Project effects as they are predicted in the FEIS. Volume 1, Appendix 1.0-A provides relevant section numbers and references to demonstrate concordance with the Guidelines.

A detailed NAMP, which will include the detailed study design and methods, will be developed during the Project permitting phase, as the detailed aspects of the Project are finalized. The following provides the background, rationale, objectives and information on; the abatement program, data collection and analysis to illustrate the approach that AEM plans to follow in developing the detailed NAMP.

1.1 Background

A NAMP is often prepared in response to various guidelines and regulations. The NAP component of the NAMP is generally required as a result of regulator guidance that set limits on the noise levels at sensitive Point(s) of Reception (PORs). Limited guidance is available from Nunavut. Therefore, federal and various provincial guidance documents were referenced in developing this conceptual NAMP.

The general purpose of a NMP can be summarized as follows:

- to assess the accuracy of noise predictions contained in the Project impact assessments;
- to measure the relevant effects of each of the Project phases on the environment; and
- to help qualify the effectiveness of a Noise Abatement Plan.

The NAP and NMP will be designed to control potential Project noise impacts on PORs located in the Project area, including those located within Iqalugaarjuup Nunanga Territorial Park (see FEIS Volume 5, Section 5.5.4). If the noise monitoring confirms excessive Project associated noise levels exist, the monitoring data will be used to determine where the NAP requires improvement and if additional monitoring activities are required.



2.0 SUMMARY OF PROJECT DESCRIPTION

The Project is located in the Kivalliq Region of Nunavut near the western shore of Hudson Bay, in Northern Canada. The nearest community is Rankin Inlet, an Inuit hamlet on the Kudlulik Peninsula located between Chesterfield Inlet and Arviat. Rankin Inlet is the regional center and the largest community of the Kivalliq region, and the second most populated community in Nunavut after the capital of Iqaluit.

The Project involves building, operating, decommissioning and reclamation of a conventional gold mine. Some facility development will take place at Rankin Inlet, where materials will be received by air and sea transport. Year-round access between Rankin Inlet and the mine site will be facilitated by the All-weather Access Road (AWAR). The overall Project layout, including the AWAR and proposed infrastructure in Rankin Inlet, is presented in Figure 1.

For the purposes on this Plan, Project activities have been divided into 3 phases, as follows:

- 1) **Construction Phase** – construction of the mine infrastructure and facilities leading to the first production of gold;
- 2) **Operations Phase** – the ongoing operation of the mine and associated facilities to produce gold through the end of the mine life; and
- 3) **Closure and Post-Closure Phase** – the post operational period, when gold is no longer being produced; during this phase, the mine and associated infrastructure will be decommissioned, demolished and removed, and reclamation will be underway to return the site to a physically and chemically stable condition.

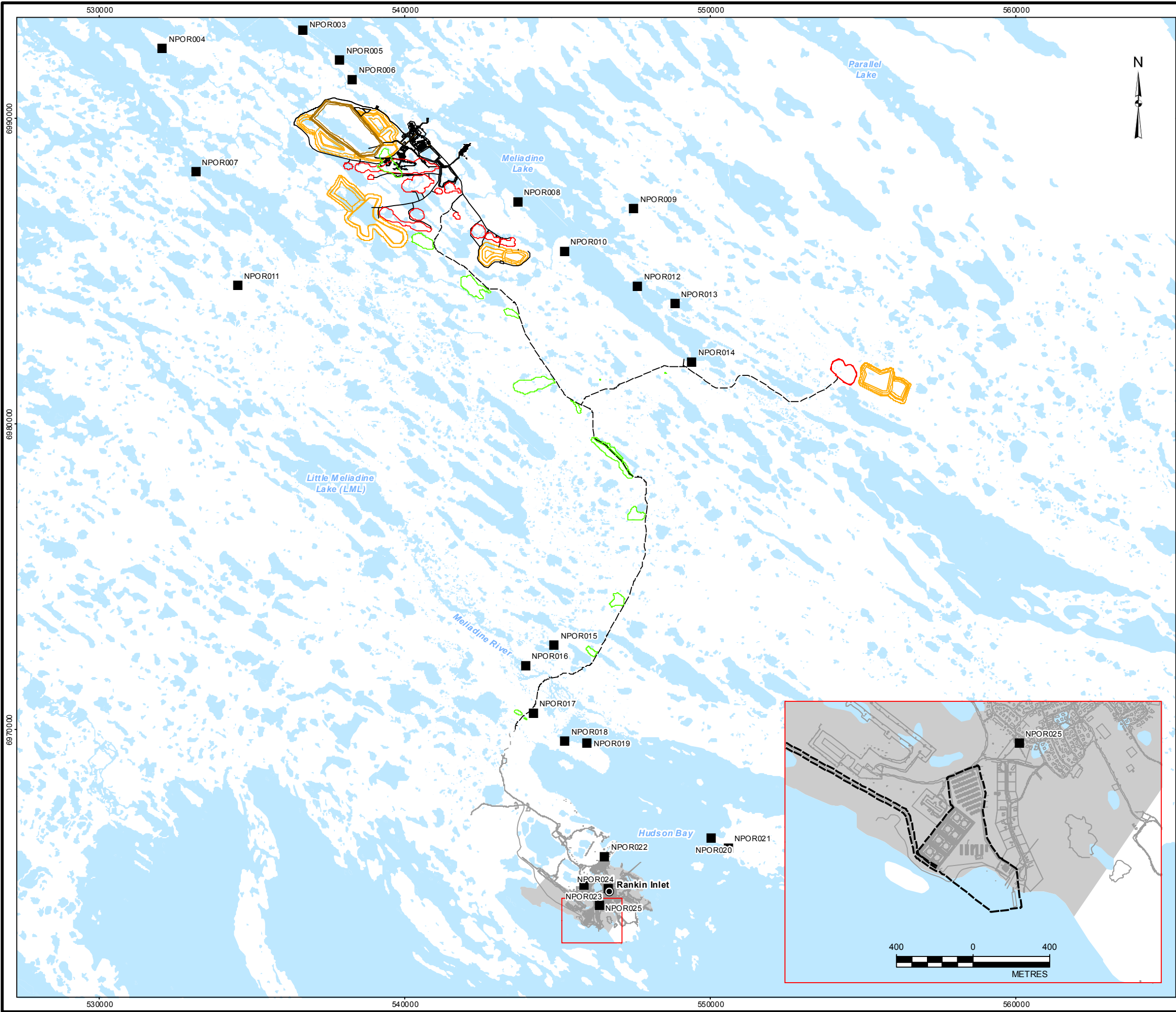
Mine development will include open-pit and underground mining that will provide ore to the mill. The mill, camp, powerhouse, tank farm, tailings storage facility, waste rock storage facilities, water supply, and sewage treatment plant are integral components of the Mine Site. The Project requires additional ancillary support activities, which include the AWAR, activities in Rankin Inlet and Marine Shipping activities.

Five gold deposits are included in the mine planning, of which Tiriganiaq is the most significant. The other deposits are Discovery, F Zone, Pump, and Wesmeg. Underground mining is planned for Tiriganiaq.

The mill and camp infrastructure will be located near the existing exploration camp, and close to the Tiriganiaq deposit (Figure 2). The Discovery deposit is located approximately 22.4 km east-southeast of the proposed main site. It will be mined as a satellite deposit. The F Zone deposit is located approximately 5.1 km southeast of the Tiriganiaq deposit. The Pump deposit is about 3 km south of the Tiriganiaq open pit. Finally, the Wesmeg deposit is about 300 m south of the Tiriganiaq deposit.

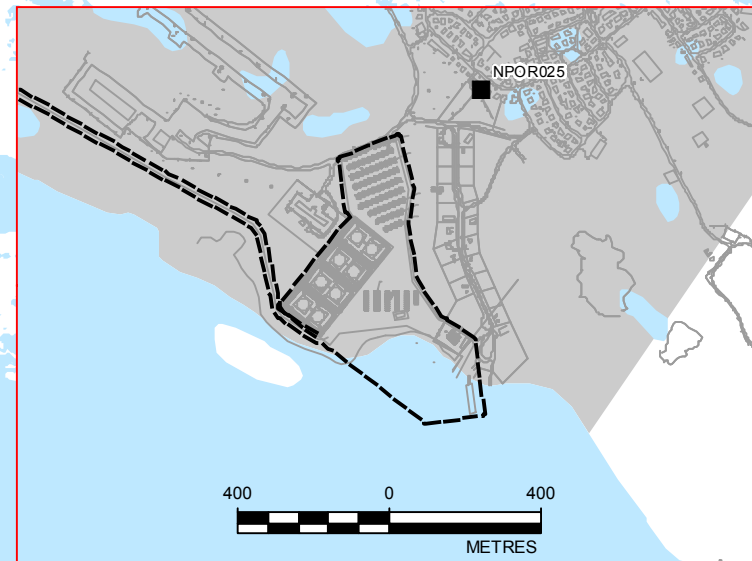
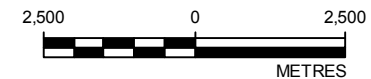
Construction tasks will include all pre-development work and will take approximately three years to complete. Construction includes all the steps from engineering to instrumentation and control, including programming (i.e., planning, site preparation, drainage and dewatering, excavation, backfilling, piling, concrete works, buildings construction/installation, piping and plumbing, mechanical, electrical and communication installations). Construction also includes planning and installing ventilation and other underground services, as well as all infrastructure related to rock handling, mill processing and tailings and water management.


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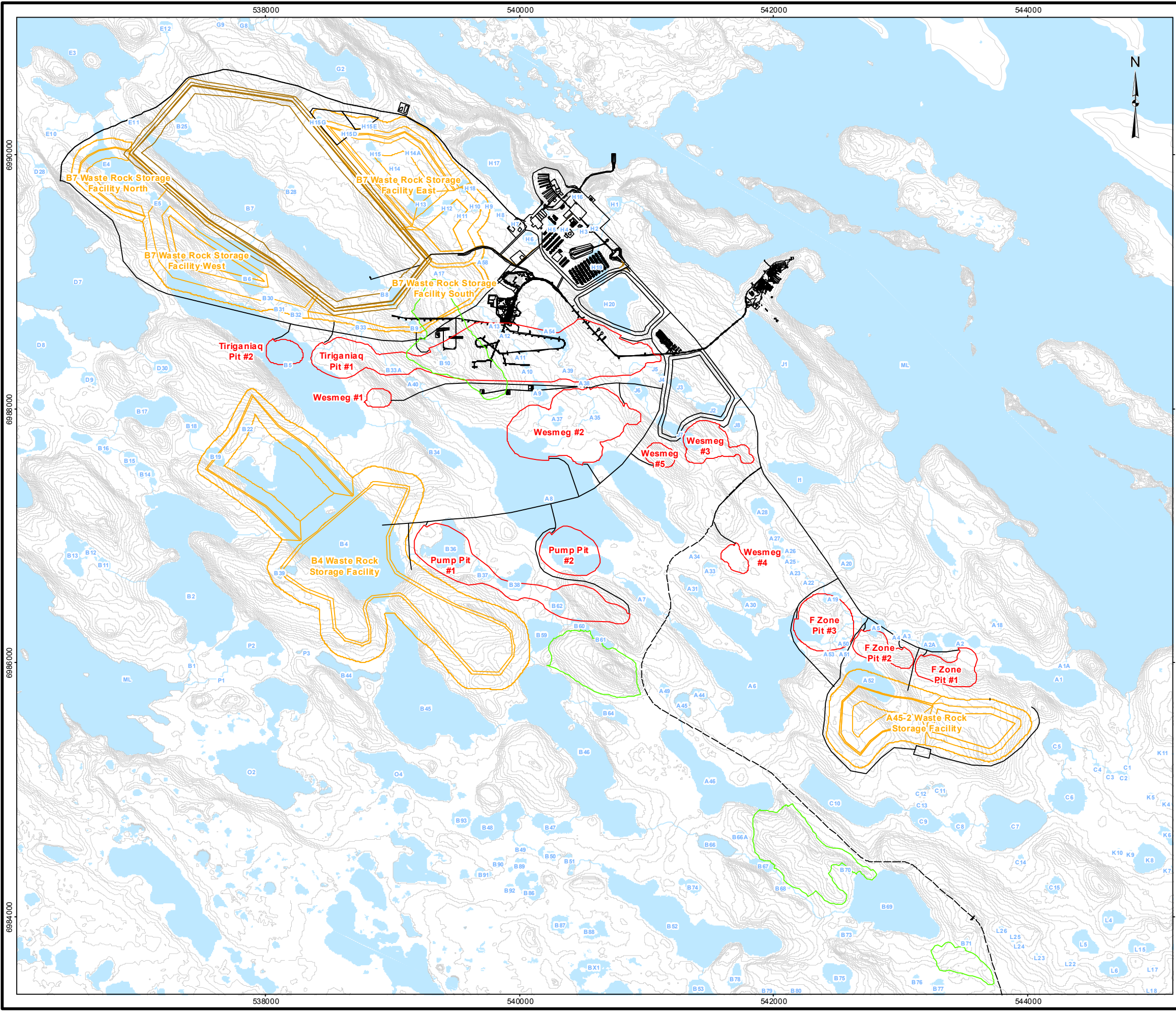
- LEGEND**
- Noise Receptor
 - Proposed Project Infrastructure
 - Open Pit
 - Tailings Storage Facility
 - Waste Rock Storage Facility
 - Borrow Pit/Quarry
 - All-weather Access Road (AWAR)
 - Road - New
 - Road - Existing
 - Watercourse
 - Waterbody
 - Municipal Boundary

REFERENCE
Base data obtained from Agnico Eagle Mines Limited (AEM).
Datum: NAD 83 Projection: UTM Zone 15



PROJECT		AGNICO EAGLE MINES LIMITED MELIADINE GOLD PROJECT NUNAVUT																					
TITLE		PROJECT LAYOUT, INCLUDING AWAR AND PROPOSED INFRASTRUCTURE IN RANKIN INLET FOR THE MELIADINE GOLD PROJECT																					
		<table border="1"><tr><td>PROJECT NO.</td><td>10-1373-0076</td><td>FILE No.</td><td></td></tr><tr><td>DESIGN</td><td>DW</td><td>19 Nov. 2012</td><td>SCALE AS SHOWN</td></tr><tr><td>GIS</td><td>CDB</td><td>19 Nov. 2012</td><td>REV. 0</td></tr><tr><td>CHECK</td><td>DW</td><td>11 Jan. 2013</td><td></td></tr><tr><td>REVIEW</td><td>DW</td><td>11 Jan. 2013</td><td></td></tr></table>		PROJECT NO.	10-1373-0076	FILE No.		DESIGN	DW	19 Nov. 2012	SCALE AS SHOWN	GIS	CDB	19 Nov. 2012	REV. 0	CHECK	DW	11 Jan. 2013		REVIEW	DW	11 Jan. 2013	
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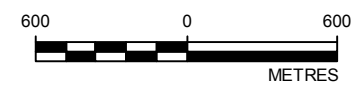
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LEGEND

- Proposed Project Infrastructure
- Open Pit
- Tailings Storage Facility
- Waste Rock Storage Facility
- Borrow Pit/Quarry
- All-weather Access Road (AWAR)
- Road - New
- Road - Existing
- Watercourse
- Waterbody

REFERENCE
Base data obtained from Agnico Eagle Mines Limited (AEM).
Datum: NAD 83 Projection: UTM Zone 15



PROJECT		 AGNICO EAGLE		AGNICO EAGLE MINES LIMITED MELIADINE GOLD PROJECT NUNAVUT	
TITLE					
MAIN SITE INFRASTRUCTURE FOR THE MELIADINE GOLD PROJECT					
	PROJECT NO.		10-1373-0076		FILE No.
	DESIGN	DW	19 Nov. 2012		SCALE AS SHOWN
	GIS	CDB	19 Nov. 2012		REV. 0
	CHECK	DW	11 Jan. 2013		FIGURE 2
REVIEW	DW	11 Jan. 2013			



Operations will include open pit mining, as well as underground operations, although underground mining is only being considered for the Tiriganiaq deposit at this time. Operations are projected to start about 2 years after construction begins and continue for an estimated 10 to 13 years.

The closure phase involves decommissioning and reclamation. Where possible, reclamation work will start as soon as an area's operation is complete (i.e., may begin during operations). Most demolition of buildings and infrastructure will occur at the end of the operations phase, and would be done in the first 2 years of decommissioning. Reclamation work is expected to be completed within three to four years of closure. Post-closure activities will continue until chemical and physical stability of the site is demonstrated.

3.0 REGULATORY HISTORY

In early May 2011, AEM submitted a Project Description for the Project to NIRB, the Kivalliq Inuit Association, the Nunavut Planning Commission, and other regulatory agencies. The Project received a positive conformity determination against the Keewatin Regional Land Use Plan, and the Nunavut Planning Commission forwarded the Project Description and their conformity determination to NIRB in June 2011.

Pursuant to Article 12 of the Nunavut Land Claims Agreement (1993), NIRB then screened the Project proposal and forwarded a recommendation for an Article 12 – Part 5 review of the Project to be led by NIRB to the Minister of Aboriginal Affairs and Northern Development Canada in July 2011. The Minister concurred with the NIRB recommendation and in September 2011 directed that NIRB conduct a Part 5 review of the Project.

Final guidelines for the preparation of an Environmental Impact Statement for the Project were issued by NIRB in February of 2012. AEM has since proceeded to prepare the FEIS for submission to NIRB to facilitate the required Part 5 Review. The present conceptual NAMP serves to satisfy Section 9.4.15 (Noise Abatement Plan) of the NIRB Guidelines (as detailed in FEIS Volume 1, Appendix 1.0-A).

4.0 NOISE ABATEMENT PLAN

The NAP will function as an integrated abatement program for the Project. The NAP considers potential Project-noise environment interactions with respect to noise as described in the FEIS. The NAP will be implemented during the various Project phases (i.e., construction, operation, and closure and post-closure), and will consider potential changes in noise levels during each of these phases.

The NAP is designed to address common noise sources associated with the Project. These common noise sources include sources that can operate frequently, such as stationary equipment at the Mine Site (e.g., generators, compressors, pumps, or plants), mobile equipment at the Mine Site (e.g., loaders, haul trucks, dozer) and equipment associated with the AWAR, Rankin Inlet, and Marine Shipping activities.

4.1 Site and Infrastructure Layout

A number of attenuation measures were undertaken during the design of the Project. Wherever possible, the Mine Site infrastructure is laid-out to concentrate activities within a small footprint, as presented in Figure 2, and the design team strived to locate equipment as far as possible from identified PORs. In addition, the operating scenario for the noise sources was considered when maximizing the distance from the identified PORs.



Stationary sources are also generally located within buildings, which help reduce noise emissions to the environment. The buildings will be constructed with building materials and designs such that radiating building noise levels will be minimized. This can include interior acoustical treatments, heavier gauge building material, avoiding building openings near stationary sources, and locating stationary sources within the structures such that they benefit from both additional shielding from other Mine Site structures and maximizing the distance from the PORs. Where equipment is located outdoors, efforts will be made to locate and operate the equipment behind structures which can provide adequate acoustic shielding, such as acoustic barriers, existing topography, berms, pit faces, stockpiles, and/or buildings.

4.2 Noise Sources Mitigation

An on-going equipment specific mitigation plan will be implemented, which will supplement and support the noise attenuation efforts undertaken in developing the Project design. The equipment specific mitigation plan will include the following:

- Procuring equipment that is designed and manufactured to minimize noise emissions.
- Investigate, and implement accordingly, the use of safety equipment (i.e., white sound alarms, camera monitoring systems, proximity sensors, and pulsed radar sensors) that can maintain a high level of safety but minimize noise nuisance.
- Install silencers on inlets and exhausts of certain noisy equipment. These could include generators, underground ventilation systems, compressors and building ventilation for buildings containing noisy equipment.

4.3 Administrative Controls

A number of administrative control aspects are also incorporated into the Project design. These administrative controls include the following:

- Implementing a preventative maintenance program that will include regular inspection and maintenance of equipment and equipment noise control features (e.g., mufflers, acoustic enclosures);
- Limit on-site equipment to only those needed;
- Reduced power operations by using only the size and power rating required;
- Maintain Mine Site roadways to minimize ruts, which will help reduce noise emission of haul truck traveling along the roadways; and
- Minimize idling equipment and, when practicable, turn-off equipment when not in use.

The identified noise controls will act to control noise impacts on all receptors in the Project area including those located within Iqalugaarjuup Nunanga Territorial Park.



5.0 NOISE MONITORING PLAN

The appropriateness of potential noise controls is dependent on many factors, including the type of source and the extent of mitigation necessary. Any further noise mitigation required will be entirely source-specific, and will be determined through the noise monitoring program (NMP).

The NMP will be used to validate the prediction results and confirm the findings of the noise impact assessment. If the noise monitoring confirms excessive Project associated noise levels exist, the monitoring data will be used to determine where the NAP requires improvement (see Section 5.1 below).

Table 1 summarizes the conceptual NMP. It is anticipated that the conceptual NMP will be reviewed by local and regional Inuit governments/organizations, federal and territorial governments, regulatory boards, and other interested community parties, and feedback from these reviews will be considered in the development of the detailed NMP design.

Table 1: Summary of Conceptual Noise Monitoring

Description of actions	Project Phase	Project Objective	Suggested Frequency, Duration and Location of Monitoring
Noise monitoring	Construction and Operations Phase	<ul style="list-style-type: none">■ To verify that the noise emissions used in the noise assessment were reasonable, yet conservative.■ To verify that the mitigation measures considered integral to the Project are incorporated as planned, and are effective.	<ul style="list-style-type: none">■ Year monitoring programs. Twice a year■ A duration of 24 hours per program■ Locations<ul style="list-style-type: none">■ Up to 2 PORs in the Site Study Area■ Up to 2 PORs in the Local Study Area

During the construction and operations phase, it is anticipated that noise monitoring will be completed twice annually in the spring and fall using a Type 1 integrating sound level meter to log the following data parameters:

- Integrated equivalent A-weighted sound level (L_{Aeq}) recorded on 15 minute intervals;
- 1/3 octave band sound levels in decibels (dB);
- Statistical Data (L_{10} , L_{90});
- Maximum sound level (L_{max}) in dBA; and
- Minimum sound level (L_{min}) in dBA.

One, 24 hour survey will be completed at each monitoring location. The monitoring equipment will be set-up to be portable, deployed specifically for the survey, and moved between locations. This type and duration of survey provides data on the daily variability in noise levels and a representative average daily condition. As noise measurements can be affected by inclement weather, the monitored noise levels will be assessed with consideration of the meteorological conditions present during the monitoring program. The meteorological data will be collected using either an on-site weather station, if available, or a portable station deployed during the NMP.

The NMP will be completed by qualified and appropriately trained personnel. The data will be independently reviewed by personnel within the organization, or sub-contracted out, as deemed necessary.



5.1 Monitoring Criteria

Limited guidance is available from Nunavut for use in establishing a noise monitoring criteria. Therefore, federal and various provincial guidance documents were referenced in establishing the NMP criteria.

The determination of any requirement for further mitigation will be established through a comparison of baseline levels with and without the influence of the Project, and a comparison to the design target criteria of 40 dBA (nighttime) at a distance of 1.5 km from the fence line as described in FEIS Volume 5, Section 5.5.3.6. As further described in Section 5.5.3.6 of Volume 5, the conditions identified in Table 2, with respect to change in noise levels from baseline conditions are expected to result in a “significant” effect, thereby requiring the investigation of NAP improvements.

Table 2: Proposed Project Noise Monitoring Criteria

Magnitude Criteria (Increase from baseline) ^a	Geographic Extent Criteria
‘Moderate’ (>6 dBA to 10 dBA)	RSA
‘High’ (>10 dBA)	LSA or RSA

Note:

^a Baseline conditions were established through either; a monitoring program or literature review of applicable regulatory guidance

Alternative noise level limit criteria could have been adopted by referencing other provincial guidance. However, many of these reference documents, applicable to projects similar to this Project, would have resulted in less stringent assessment criteria, and a potentially less conservative assessment. A summary and comparison of various alternative noise guidelines in Canada is provided in Table 3 (Keith et. al, 2010).

Table 3: Comparison of Criteria – Specific Limit

Province	Limit (dBA)	Location
Ontario	40-50 ^a	At POR, plane of window or outdoor area on POR property
Quebec	40-70 ^b	At POR, on POR property
Manitoba	50-70 ^b	At property line of POR
Nova Scotia	55-65 ^b	Depending on type of industry, at property line of industry (aggregate pits and quarries), or other area, which is not specifically identified
Health Canada	39-52 ^b	At POR, at façade

Notes:

^a Dependent on local population density, time of day and location on the property of the POR

^b Dependent on local population density, and time of day

The guidelines provided by the provinces of Manitoba and Nova Scotia have prescribed limits which are higher than those used in the assessment. Ontario, Quebec, and Health Canada guidelines have prescribed limits similar to those used in the assessment. However, these guidelines are prescribed at the POR, which are generally located more than 1.5 km from the Project fence line. Therefore, adhering to a noise limit of 40 dBA at a distance of 1.5 km from the Project fence line is considered to be more conservative as this would result in expected noise levels, from Project activities, below 40 dBA at the POR itself.

5.2 Monitoring Locations

A number of monitoring locations were initially selected for the NMP. These locations coincide with identified PORs with the greatest expected predicted change in noise levels from existing conditions as determined



through the noise assessment. The locations are identified in Figure 1, and summarized in Table 4. These monitoring locations will be reviewed and may be adapted throughout the construction and/or operations phases of the Project as deemed necessary.

Table 4: Proposed Noise Monitoring Locations

POR	Project Area in Proximity	Monitor During Construction (Y/N)	Monitor During Operations (Y/N)	Monitor Closure & Post-Closure (Y/N)	Condition for Monitoring
NPOR006	Mine	Y	Y	Y	Monitor during the entire Construction and Operation Phases. Monitor during the initial stages of the Closure Phase when extensive activities are occurring.
NPOR008	Mine	Y	Y	Y	Monitor during the entire Construction and Operation Phases. Monitor during the initial stages of the Closure Phase when extensive activities are occurring
NPOR014	Mine	Y	Y	Y	Monitor only if activities associated with the Discovery Pit are occurring during the monitoring program
NPOR017	All-weather Access Road	Y	Y	Y	Monitor during the entire Construction and Operation Phases. Monitor during the initial stages of the Closure Phase when extensive activities are occurring

Note: NPOR017 was selected to be representative of PORs along the AWAR. As NPOR017 is closer to the Project activities than PORs associated with the Iqalugaarjuup Nunanga Territorial Park, using NPOR017 as a monitoring location is considered conservative. See FEIS Volume 5, Section 5.5.4.

6.0 COMPLAINTS INVESTIGATION

A noise complaints investigation procedure will be developed and implemented. Any complaints received with respect to noise will be logged and an investigation will be completed. The NAP and NMP components of the NAMP will be reviewed against the findings of the investigation, and the NAMP components will be updated as necessary.

7.0 REPORTING

Efforts will be made to harmonize the reporting of NMP results with other monitoring requirements identified for the Project. Reports will include a summary of the field program details, results of the monitoring, and an analysis of the monitoring data in relation with the findings of the noise assessment carried out as part of the FEIS. The reports will discuss the requirement for improvements to the NAP, if applicable, and the reports will also summarize any complaints received and will describe results of the investigation into the complaints.



8.0 CLOSURE

We trust that the information provided herein, meets your needs at this time. If you have any questions, please do not hesitate to contact the undersigned.

Yours very truly,

GOLDER ASSOCIATES LTD.

ORIGINAL SIGNED

ORIGINAL SIGNED

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9.0 REFERENCES

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