NOISE FOLLOW-UP MONITORING PROGRAM

EQUINOXGOLD
VALENTINE GOLD MINE

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Noise Follow-up Monitoring Program

REVISION HISTORY

REV NO	DESCRIPTION OF CHANGE	COLLATOR	APPROVER
0.0	New Document issued January 16, 2023	Tara Oak	Tara Oak
1.0	Updated to include new company name/logo and the Berry Pit Expansion	Trudy Wells	Gary Kennell

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REVISION LOG

Version	Date Issued	Revision Notes*	Page(s)
0.0	January 16, 2023	Initial document	All pages
1.0	March 2026	New document template	All pages
		Company name change to Equinox Gold Valentine Gold Mine and logo updated	Throughout the document
		Updated Section 1 and 2 to include details of the Berry Pit Expansion	1-2, 13,15
		Moved original EIS Tables from Section 2 to new Appendix B	Various pages
		Updated Section 4.3 to expand upon locations for Human Health and Wildlife	12-23
		Updated Section 4.4 to expand upon sampling schedule associated with additional locations	24-25
		New section 6.0 pertaining to documentation process	27
		New Appendix B created for EIS Tables moved from Section 2	31-42

Notes:

* Current Revisions in the document are denoted by a vertical line to the right of the change (e.g., paragraph).

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ABBREVIATIONS

AER	Alberta Energy Regulator
ANSI	American National Standards Institute
AMPRP	Accidents and Malfunctions Prevention and Response Plan
BC OGC	BC Oil and Gas Commission
Calibre	Calibre Mining Corporation
CEAA	Canadian Environmental Assessment Act
CEPA	*Canadian Environmental Protection Act, 1999*
CPEEMP	Caribou Protection and Environmental Effects Monitoring Plan
dB	decibel
dBA	A-weighted decibel
dBC	C-weighted decibel
dBZ	Z-weighted decibel
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
EIS	Environment Impact Statement
EPP	Environmental Protection Plan
ESMS	Environmental and Social Management Plan
Equinox	Equinox Gold Corporation
GHG	Greenhouse Gas
%HA	Percent highly annoyed
hr	hour
Hz	Hertz
ISO	International Standards Association
IAAC	Impact Assessment Agency of Canada
ISO	International Standard Organization
km	kilometre
L_{eq}	Sound pressure level, equivalent
L_n	Nighttime sound level
L_d	Daytime sound level
L_{dn}	Day-night average sound level
LAA	Local Assessment Area
LFN	Low frequency noise
NFMP	Noise Follow-up Monitoring Program
NL	Newfoundland and Labrador

NLDFAL	NL Department of Forestry, Agriculture and Lands
NL EPA	*Newfoundland and Labrador Environmental Protection Act*
Marathon	Marathon Gold Corporation
RAA	Regional Assessment Area
TMF	Tailings Management Facility
tpd	tonnes per day
US EPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator
VGM	Valentine Gold Mine
WHO	World Health Organization
WMO	World Meteorological Organization

1.0 INTRODUCTION

Equinox Gold Corp. (Equinox)[1] submitted the Environmental Impact Statement (EIS) for the Valentine Gold Project and the Berry Pit Expansion Environmental Registration / Environmental Assessment (Valentine Gold Project) Update. The combined approved projects are now referred to as the Equinox Valentine Gold Mine (VGM). The VGM is located in central Newfoundland, approximately 57 km south of Buchans, and is comprised of open pits, disposal piles, crushing and stockpiling areas, site infrastructure, a tailings management facility, and mine site haul and access roads. Production capacity is estimated at 10,960 tonnes per day of ore, with an operation life of approximately 14 years. The mine site is accessed by an existing gravel road, approximately 82 kilometres (km) in length, which extends south from Millertown to the VGM.

This document describes the conceptual Noise Follow-up Monitoring Program (NFMP) for the construction, operation, and decommissioning/closure phases of the Project. It provides an overview of the preliminary acoustic assessment (noise monitoring and noise modeling) conducted to support the preparation of the EIS, and its methodology is based on the findings of the preliminary acoustic assessment and recommendations. The monitoring program has been developed to contribute to the mitigation, management, and monitoring of VGM-related effects on sound quality. This program is based on regulatory compliance requirements, approvals and authorizations specific to the VGM.

The construction and operation of the Project will be governed by the VGM Management System which includes tools such as corporate environmental and social policies, environmental protection plans (EPPs), environmental management plans, and monitoring programs. The EPP outlines protection and response measures associated with potential environmental effects related to VGM operation activities, providing general environmental protection procedures related to VGM activities and infrastructure such as air and greenhouse gas emissions, erosion and sedimentation control, rock and soils management, and traffic management, as well as specific protection procedures for caribou, avifauna, and other wildlife (including bats and Newfoundland Pine Marten [*Martes americana atrata*]), ; fish and fish habitat; historic resources; and the Victoria Dam.

The EPP is closely linked to monitoring programs as it describes practical procedures required to reduce or eliminate potential adverse environmental effects, as well as instructions for addressing planned and unplanned activities/events associated with VGM activities. Response measures in the event of an accidental event are described in Section 4 of the Accidents and Malfunctions Prevention and Response Plan (AMPRP). A process for the communication with Indigenous groups on potential adverse effects of planned VGM activities upon the use of land and resources by Indigenous persons (including hunting, trapping, fishing and gathering, and access to lands and resources) is provided in the Current Use of Lands and Resources for Traditional Purposes Indigenous Communications Plan. Additionally,

[1] In January 2024, Marathon Gold Corporation and the Valentine Gold Project was acquired by Calibre and was referenced as Calibre Valentine Gold Mine (VGM). In June 2025, Calibre merged with Equinox Gold Corporation and the mine is now referenced as the Equinox VGM.

communications and reporting specific to Indigenous groups are provided in the Indigenous Communications Plan.

The VGM has established grievance mechanism to afford a process for addressing grievances on the part of non-Indigenous and Indigenous groups or Indigenous persons resulting from the effects of the VGM to these users, such as effects to land and resource use, health, socio-economic conditions and heritage resources. If grievances are received, these will be logged and investigated.

The NFMP presented herein is a living document that will be reviewed in accordance with the Management System requirements and implemented throughout all phases of the VGM. The NFMP is subject to refinements based on policy and technology changes, consultation with regulators, engagement with Indigenous groups, and conditions of authorization.

1.1 PROJECT OVERVIEW

Equinox is developing the VGM, an open pit gold mine located in the west-central region of the Island of Newfoundland (NL), near Valentine Lake. The VGM will include three open pits, disposal piles, crushing and stockpiling areas, site infrastructure, a tailings management facility, and mine site haul and access roads. The VGM is comprised of three mining areas, the Leprechaun, Marathon and Berry deposits. Standard surface mining techniques will be used to mine gold ore from three open pits. Ore will be processed through the mill, where it will be crushed, milled and put through flotation and cyanidation processes to recover the gold. Separate stockpiles will be established for medium high-grade ore and medium-grade ore for priority processing and low-grade ore for processing later in the mine life. Tailings will be treated in the process plant area to remove the cyanide and subsequently deposited in an engineered tailings management facility (TMF). Ore material will initially be mined and processed at a nominal rate of 6,850 tonnes per day (tpd), increasing to 10,960 tonnes per day.

1.2 PURPOSE AND OBJECTIVES

This document has been developed and prepared using currently available information and will be implemented throughout all phases of the VGM.

1.2.1 Purpose

The purpose of the monitoring program is to:

- Identify applicable regulatory requirements, guidelines, and conditions relevant to noise emissions from the Project.
- Identify and describe the sources of noise during Project construction, operation, and decommissioning/closure.
- Describe the mitigation measures for reducing noise associated with mine activities during the VGM construction, operation and decommissioning/closure.

- Describe the noise monitoring to be conducted during the VGM construction, operation, and decommissioning/closure.
- Apply the principles of adaptive management to noise emissions based on the results of the noise monitoring program to continually assess the effectiveness of noise mitigation measures and the corrective actions to further reduce noise emissions (e.g., implementation of additional mitigation measures).
- Describe the provincial and federal requirements for noise monitoring reporting.

This monitoring program applies only to the VGM activities and addresses only noise management and mitigation. Workplace (e.g., occupational) noise and worker exposure assessments, controls, and mitigation measures will be developed and addressed separately from the ambient requirements.

1.2.2 Objectives

Objectives and targets are established to drive continuous improvement in environmental performance through the adaptive management process and are consistent with the overall strategic goals of the Project. Objectives are measurable (where possible), monitored, communicated, and updated as appropriate.

The objectives of the monitoring program are to:

- Implement a noise monitoring program during the VGM construction and operation to monitor ambient sound levels relative to regulatory criteria and guidelines.
- Implement mitigation measures to reduce noise levels from the VGM activities to the extent feasible.
- Use the noise monitoring results to implement adaptive management for noise emissions and validate the acoustic modelling conducted to support the EIS.

1.3 REGULATORY CONTEXT

1.3.1 Human Health Effects

1.3.1.1 Federal Guidelines

Health Canada provides noise targets for annoyance, sleep disturbance and low-frequency noise effects in their Guidance Document, *Guidance for Evaluating Human Health Impacts in Environmental Assessment* (Health Canada 2017). Health Canada's approach to acoustic assessments is based on international standards and technical publications, including the World Health Organization's (WHO) *Guidelines for Community Noise* (1999) and *Night Noise Guidelines for Europe* (2009).

Community Annoyance

The Health Canada Noise Guidance uses daytime or nighttime equivalent sound levels (L_d and L_n, respectively), adjusted day-night average sound levels (L_{dn}), and percent of population highly annoyed (%HA) to quantify noise effects for activities with a duration of more than 12 months (Health Canada 2017). The daytime sound level (L_d) is a 15-hour time average over the daytime period from 7:00 AM to

10:00 PM. The nighttime sound level (L_n) is a 9-hour time average over the nighttime period from 10:00 PM to 7:00 AM. The adjusted day-night average sound level (L_{dn}) is a 24-hour time-averaged L_{eq}, with a 10-decibel (dB) penalty applied to nighttime hours and adjustments made for certain characteristics of sound such as tonality or impulsiveness.

Based on Health Canada Noise Guidance, the noise target for the highest ***change*** in %HA is 6.5%. Impulsive and tonal characteristics of source noise are accounted for in the %HA calculations because their presence can increase annoyance (Health Canada 2017). If the change in %HA is exceeded, effects are considered to be of concern and may require mitigation.

Sleep Disturbance

The noise guidance from Health Canada (Health Canada 2017) references the guidelines and recommendations of the WHO for community noise (WHO 1999) and Night Noise Guidelines for Europe regarding sleep disturbance (WHO 2009). The WHO guideline recommends a target for sleep disturbance as being an indoor sound level of no more than 30 A-weighted decibels (dBA) L_{eq} for continuous noise during the sleep period (WHO 1999). Health Canada recommends that an outdoor-to-indoor transmission loss with windows at least partially open is 15 dBA and fully closed windows are assumed to reduce outdoor sound levels by approximately 27 dBA (Health Canada 2017). The corresponding outdoor sound level targets for sleep disturbance are 45 dBA and 57 dBA for partially open windows and fully closed windows, respectively.

More recently, the WHO (2009) has published nighttime noise guidelines that are intended to protect the public, including the most vulnerable groups, from adverse health effects associated with sleep disturbance due to nighttime noise. The recommended annual average is 40 dBA L_n to be considered outdoors.

Health Canada Noise Guidance recommends the assessment of noise impacts such as sleep disturbance on off-duty workers residing in or near the Project area, with consideration of mitigation measures in the design of living quarters for workers to limit noise. As a result, the temporary and permanent work camps have been included as noise sensitive receptors in the context of sleep disturbance effects.

Low Frequency Noise

Sounds with strong low frequency noise (LFN) content such as combustion exhaust of gas turbine may result in noise-induced rattles within buildings, resulting in greater annoyance. Health Canada Noise Guidance recommends that the energy sum of the linear sound levels in the 16, 31.5 and 63-Hertz (Hz) octave bands not exceed 70 Z-weighted decibels (dBZ) (Health Canada 2017).

1.3.1.2 Provincial Guidelines

There are no regulations regarding noise emissions in the province of Newfoundland and Labrador.

1.3.2 Wildlife Effects

While not explicitly referenced in provincial regulations such as the NL *Wildlife Act*, RSNL 1990, c W-8, and *Wildlife Regulations*, noise emissions are known to influence wildlife behaviour and can lead to avoidance or changes in foraging habits. As part of the EIS as well as supplementary studies on caribou, noise monitoring, particularly during migration seasons, forms part of the Caribou Protection and Environmental Effects Mitigation and Monitoring Plan (CPEEMP). The CPEEMP notes that while there are no provincial or federal noise thresholds for caribou, 40 dBA is typically used as a threshold for disturbance of wildlife. Additionally, terrestrial mammals (e.g., caribou) have been documented to exhibit increased stress levels and decreased reproductive efficiency at noise levels between 52 and 68 dBA, respectively (Shannon et al. 2016).

2.0 ENVIRONMENTAL SETTING

2.1 BASELINE SOUND LEVELS

The mine site is in a remote area with limited human activity, and no substantive anthropogenic noise sources within 50 km. The mine site is located approximately 49 km southwest of the Town of Buchans and 60 km southwest of the Town of Millertown. Within the Local Assessment Area (LAA) and the Regional Assessment Area (RAA), during the baseline there were approximately 36 dwellings (one inactive outfitter, one existing accommodations camp (Exploration), one proposed accommodations camp and 33 cabins), which represent the nearest sensitive receptors to the Project.

Baseline sound pressure levels were measured at one location (referred to as Northeast Edge (baseline study) in Figure 4.1) within the Project Area, representative of the nearest seasonal receptor (cabin occupants), following Health Canada (2017) recommended protocols, where feasible. The baseline noise monitoring was conducted in accordance with ISO 1996-2:2007 (“Acoustics – Description, measurement and assessment of environmental noise – Part 2L Determination of environmental noise levels”), as recommended by Health Canada (Health Canada 2017). Ambient sound levels were measured using a Larson and Davis Type 1 Sound Pressure Level Meter (Model 831). The microphone was positioned on a tripod approximately 1.5 meters above grade. The microphone was equipped with a wind screen to reduce extraneous noise due to the wind, and the monitoring did not occur during times with precipitation. Digital audio recordings were also logged so that the recordings could be reviewed afterward and any abnormalities in the data checked. The sound pressure level meter was set up to log one-minute equivalent sound pressure level (L_{eq}) values for a period (June 15 to 19, 2020). Values for L_d, L_n, L_{dn} and %HA were calculated for only those monitoring days where a full set of data (i.e., midnight to midnight) was collected, June 16 and 17, 2020.

A summary of the L_d, L_n, L_{dn}, and %HA values for the baseline conditions are provided in Table 2.1. These parameters were calculated using the measured hourly data.

Table 2.1 Baseline L_d, L_n, L_{dn}, and %HA Values

Parameter	June 16, 2020	June 17, 2020
Daytime Sound Level, L_d (dBA)	44.4	44.6
Nighttime Sound Level L_n (dBA)	39.6	38.1
Day Night Average Sound Level (dBA)	47.4	46.9
Baseline Percent Highly Annoyed (%HA)	1.57	1.47

The baseline L_{dn} values ranged from 46.9 dBA to 47.4 dBA and as per the Health Canada guidance (Health Canada 2017), are representative of a quiet rural (< 45 dBA) to quiet suburban (48 – 52 dBA) area, with limited to no existing sources of noise.

2.2 NOISE EMISSIONS

Throughout the life of the VGM, there will be noise emissions associated with mine activities. To support the development of the EIS and subsequent updates for the VGM Berry Expansion, noise emission inventories were prepared for the construction and operation phases of the VGM using operational and design information provided by Equinox and published noise emission estimates for similar equipment. Future noise emissions from the VGM construction and operation were predicted using the latest version of the commercially available Cadna/A® software (DataKustik 2019). Cadna/A® incorporates ISO Standard 9613 (ISO 1993, 1996) algorithms. ISO 9613 standards are commonly used by acoustic practitioners for modelling sound propagation and are accepted by Health Canada. Data collected and generated in the EIS and updated in 2024 are presented in Appendix B.

An overview of the results of the acoustic modelling are presented in the following subsections. Specific details can be found in Chapter 5 of the EIS (Marathon Gold 2020) and Chapters 6 and 10 of the Berry Pit Expansion Environmental Registration / Environmental Assessment Update (Marathon Gold 2023).

2.2.1 Sources of Noise

2.2.1.1 Construction

During the VGM construction, sound emissions are from the operation of heavy mobile equipment and vehicles for land clearing, earth moving activities and material handling. Other vehicle activities, such as those associated with the access road (e.g., delivery of supplies, rotation changes), also generate sound emissions. Sound emissions also result from blasting during construction. Blast energy that liberates into the atmosphere can generate air overpressure and noise.

Construction of the VGM two-pit project (Approved Project), began in Q3 2022, and with the VGM Berry Expansion, construction activities continue into 2026.

The construction phase noise emissions were established using the following information sources:

- Equipment lists and design data provided by Calibre and Ausenco (Marathon Gold 2020, Marathon Gold 2023, Calibre 2024).
- Measurement data of similar equipment from Stantec acoustic database.
- Equipment specifications and referenced formula from acoustic literature (Bies and Hansen 2009, Caterpillar 2018).
- Publication that provides reference sound power levels and sound pressure levels for common material handling equipment (DEFRA 2005 and DEFRA 2006).

A list of the equipment and quantities included in the EIS (Marathon Gold 2020) that could be used during the construction of the VGM is provided in Appendix B, Table B.1. The noise emissions varied per piece of equipment and the noise levels ranged from 93 to 121 dBA.

2.2.1.2 Operation

Sound emissions during the VGM operation will result from activities similar to those expected during construction. Material handling and earth moving will continue throughout mining, and some heavy truck traffic will increase relative to an increase in production levels in the initial few years of operation. Rock breaking, crushing and processing, and blasting will also occur during operation.

The VGM operation phase began in Q3 of 2025 and the estimated mine operation life is 14 years.

The VGM operation phase noise emissions were established using the following information sources:

- Equipment lists and design data provided by Calibre and Ausenco (Marathon Gold 2020, Marathon Gold 2023, Calibre 2024).
- Measurement data of similar equipment from Stantec acoustic database
- Equipment specifications and referenced formula from acoustic literature (Bies and Hansen 2009, Caterpillar 2018)
- Publication that provides reference sound power levels and sound pressure levels for common material handling equipment (DEFRA 2005 and DEFRA 2006)

A summary of sound power level for equipment and the processing plant that were included in the EIS (Marathon Gold, 2020) is provided in Appendix B, Table B.2 through B.5. The noise emissions varied per piece of equipment and the noise levels ranged from 93 to 127 dBA.

Decommissioning

Sound emissions are also expected from the use of heavy equipment during the decommissioning of mine features and infrastructure, progressive and closure rehabilitation. As the amount of heavy equipment operating during the decommissioning, rehabilitation and closure of the mine is expected to be less than that required during construction and operation, the resulting sound emissions are also anticipated to be lower and were therefore not quantified.

2.2.2 Acoustic Modelling

Initial acoustic modelling was completed during the EIS (Marathon Gold 2020) for both the construction and operations phases of the VGM.

Updated modelling was completed in 2023, in support of the Berry Expansion (Marathon Gold 2023). The modelling considered the effects of both the Approved Project and Berry Expansion (i.e., combined Project, VGM), with a focus on potential effects on caribou.

2.2.2.1 Construction

Human Health

The initial modelling completed (Marathon Gold 2020), noted that there were no communities, year-round residential receptors, or major roadways located within the LAA/RAA, receptors considered as potential pathways for effects include approximately 34 seasonal cabins / outfitter locations located within the LAA/RAA (Figure 2.1). The existing exploration camp and accommodations camp were included in the assessment as noise sensitive receptors in the context of sleep disturbance effects. Modelling conducted for the EIS was expanded for the Berry Expansion to incorporate sources of sound from the VGM (i.e., the combined Project); modelling for the EIS did not consider sources from the Berry Expansion. VGM-related nighttime sound pressure levels were predicted to be nominal since construction activities were not anticipated to occur at night (i.e., existing nighttime sound levels will not be affected by the proposed construction activities). The discussion herein references sensitive receptor locations nearest to the Project Area; those considered to experience the greatest change in sound levels from construction activities.

Predicted day-night sound levels (i.e., L_{dn}) during VGM construction activities at nearest sensitive receptors are provided in Table 2.2 and illustrated in **Error! Reference source not found.**2.2. Values of %HA for baseline and total VGM (baseline plus VGM), used to calculate the change in %HA from baseline conditions, are also provided in Table 2.2.

Table 2.2 Predicted L_{dn} and %HA for VGM Construction at Nearby Receptors.

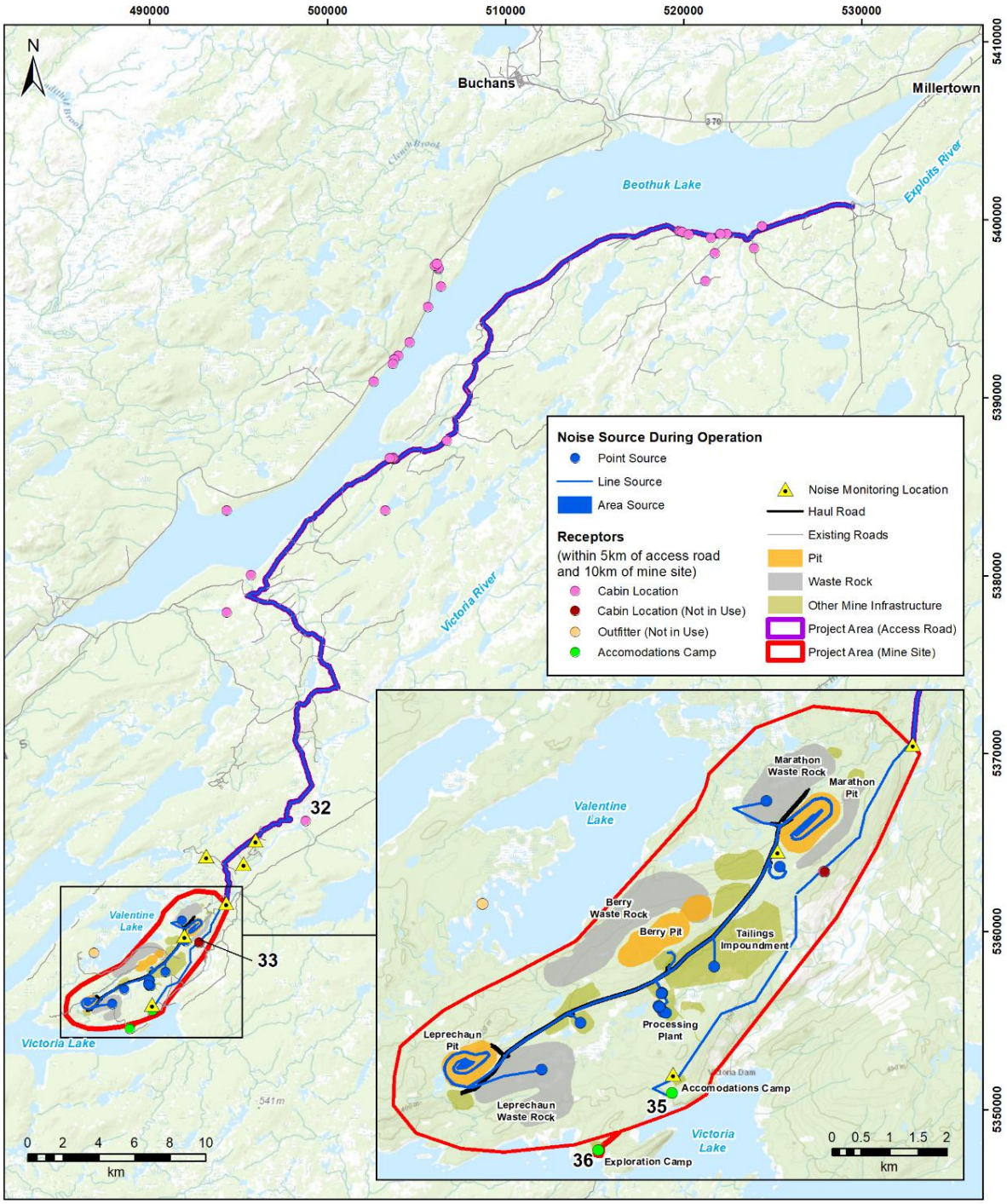
Receptor [A]		Baseline		VGM Predicted L_{dn} (dBA)	Total (Baseline + VGM)		Change in %HA (Between Total and Baseline)
		L_{dn} (dBA)	%HA		L_{dn} (dBA)	%HA	
32	Cabin Location	46.9	1.47	33.3	47.1	1.50	0.03
33	Cabin Location [B]	46.9	1.47	44.0	48.7	1.85	0.38
35	Accommodations Camp	46.9	1.47	41.3	47.9	1.68	0.21
36	Exploration Camp [C]	46.9	1.47	39.2	47.6	1.60	0.13

Note: [A] Locations provided in Figure 2.1
[B] To be relocated per an agreement with Marathon
[C] To be dismantled; area to become an explosives storage facility

The change in %HA from baseline to baseline plus VGM construction was compared to the target for change in %HA of 6.5%, per Health Canada (2017). The changes in %HA at each noise sensitive receptor were well below the 6.5% target for the construction phase of the VGM. Modelling results for the Approved Project are detailed in Appendix B, Table B.6. The results are aligned with the Health Canada guidance (Health Canada 2017).

As construction activities were not initially planned to occur overnight, the sleep disturbance target of 45 dBA was not expected to be exceeded because of any VGM activities. Updated modelling in support of the Berry Expansion conservatively assumed that construction activities would occur concurrently at the three pits (i.e., Leprechaun, Marathon, and Berry) (Marathon Gold 2024).

Figure 2.1 Cabin / Outfitter Locations within the LAA/RAA.



EQUINOXGOLD VALENTINE GOLD MINE	Valentine Gold Mine Noise Monitoring	AUTHOR: CRB	PREPARED BY: sem
	Cabin/Outfitter Locations	COORDINATE SYSTEM: NAD83 UTM Zone 21	DATE: 21/05/2025

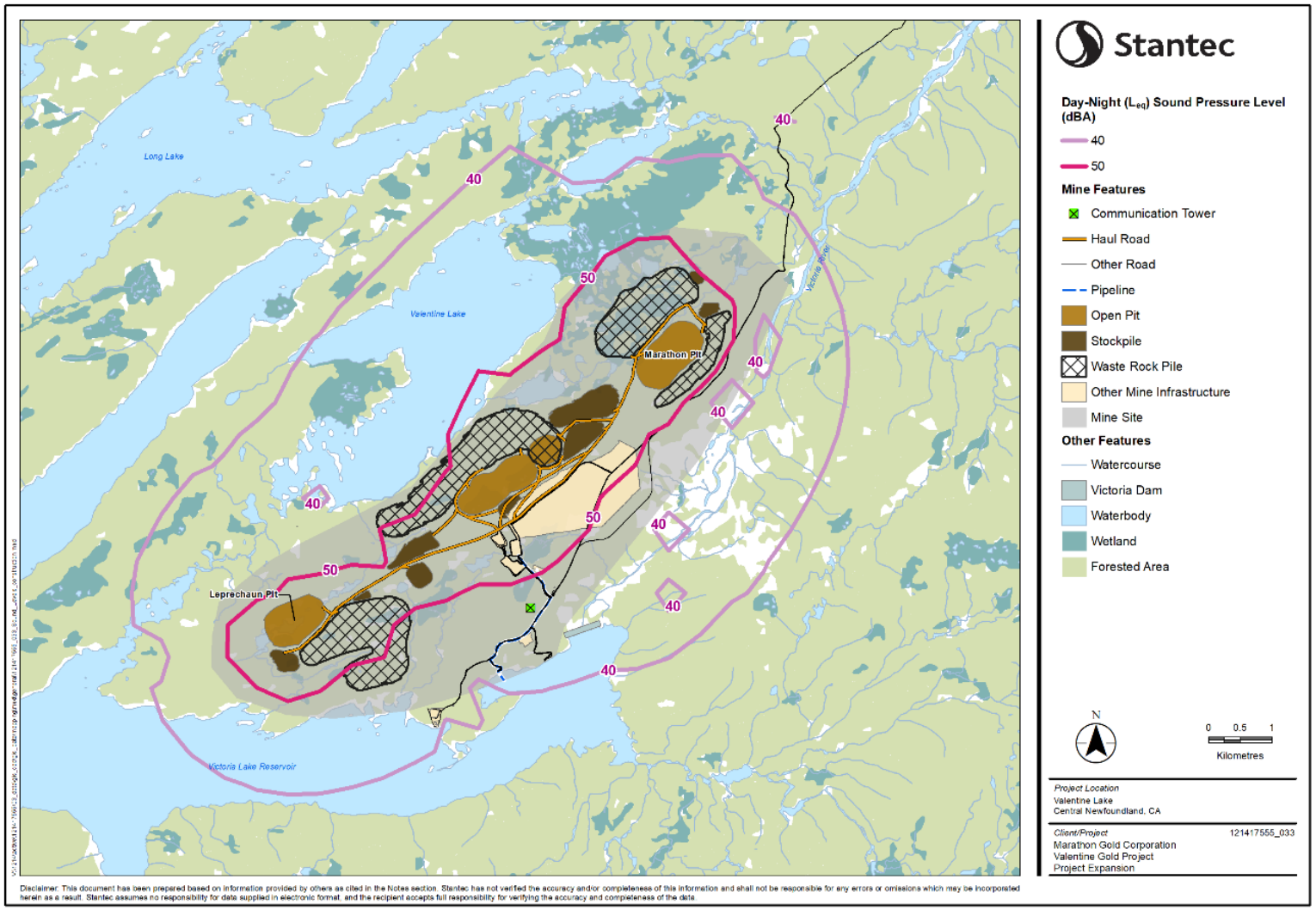


Figure 2.2 Updated Predicted Day-Night- (L_{dn}) Sound Pressure Levels from Project Construction.

Wildlife

To determine the potential effects on wildlife (specifically caribou), predicted sound pressure levels (40 dBA and 50 dBA contours) for the construction phase of the VGM are shown in Figure 2.3. The impact of reducing construction activities at the Marathon pit during spring and fall migration is also illustrated in Figure 2.3 and 2.4, respectively.

Sound pressure levels are expected to be above 50 dBA throughout much of the mine site during the construction phase. When construction activities are reduced at the Marathon pit, the 50 dBA contour shifts to center on the Leprechaun and Berry pits. The 40 dBA contour also shrinks when activities at the Marathon pit are reduced, however, levels are still expected to be above 40 dBA in the Marathon pit and along portions of the high and moderate-high use caribou migration pathways identified for spring and fall migration. The noise modelling completed is conservative, and more refined modelling will inform optimum sequencing of mining activities to reduce sound pressure levels in the preferred migration path used by the Buchans caribou herd.

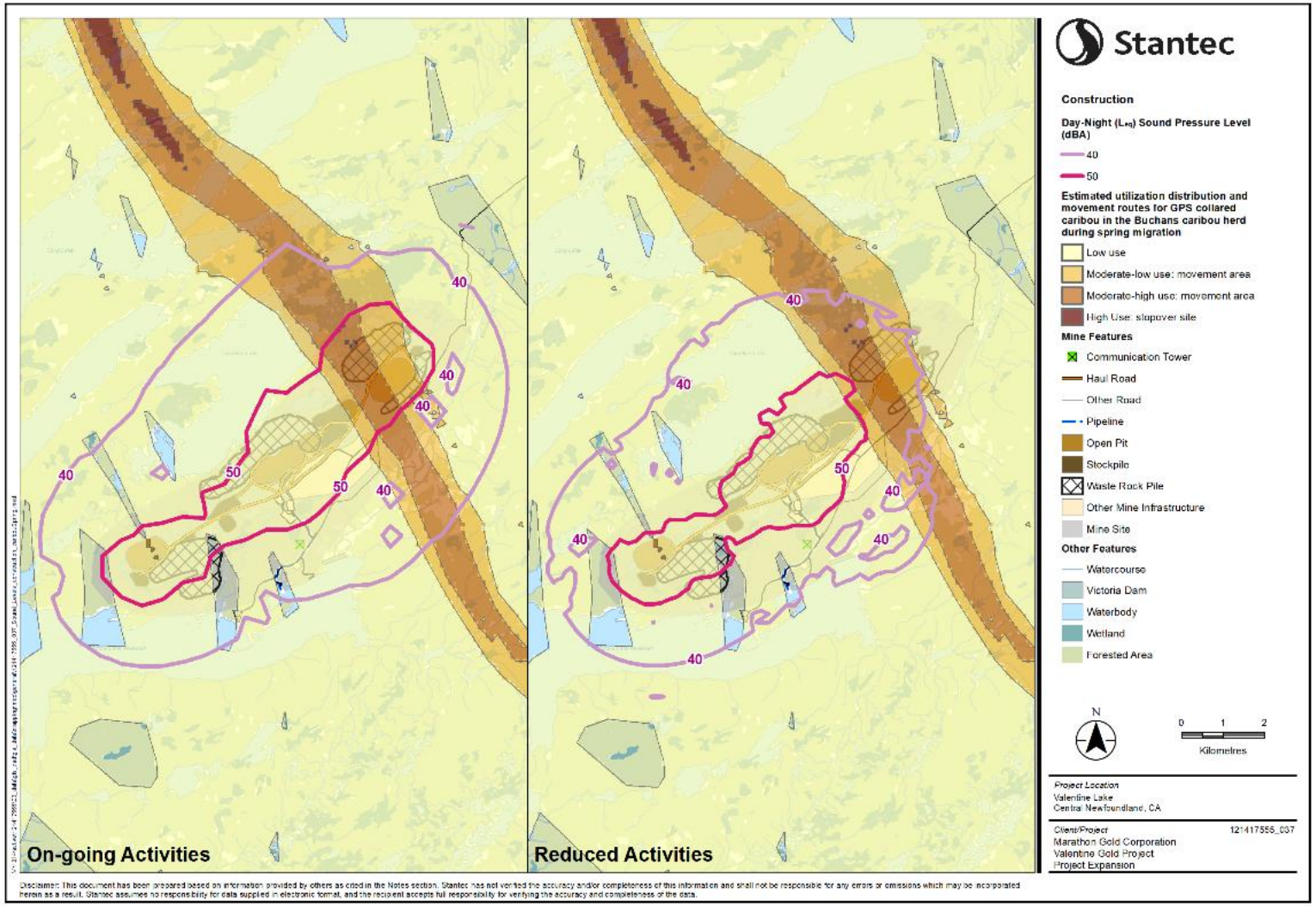


Figure 2.3 Predicted Equivalent Sound Pressure Levels (L_{eq}) from Project Construction Activities during Spring Caribou Migration. On-going Activities (left) and Reduced Activities at the Marathon Pit (right).

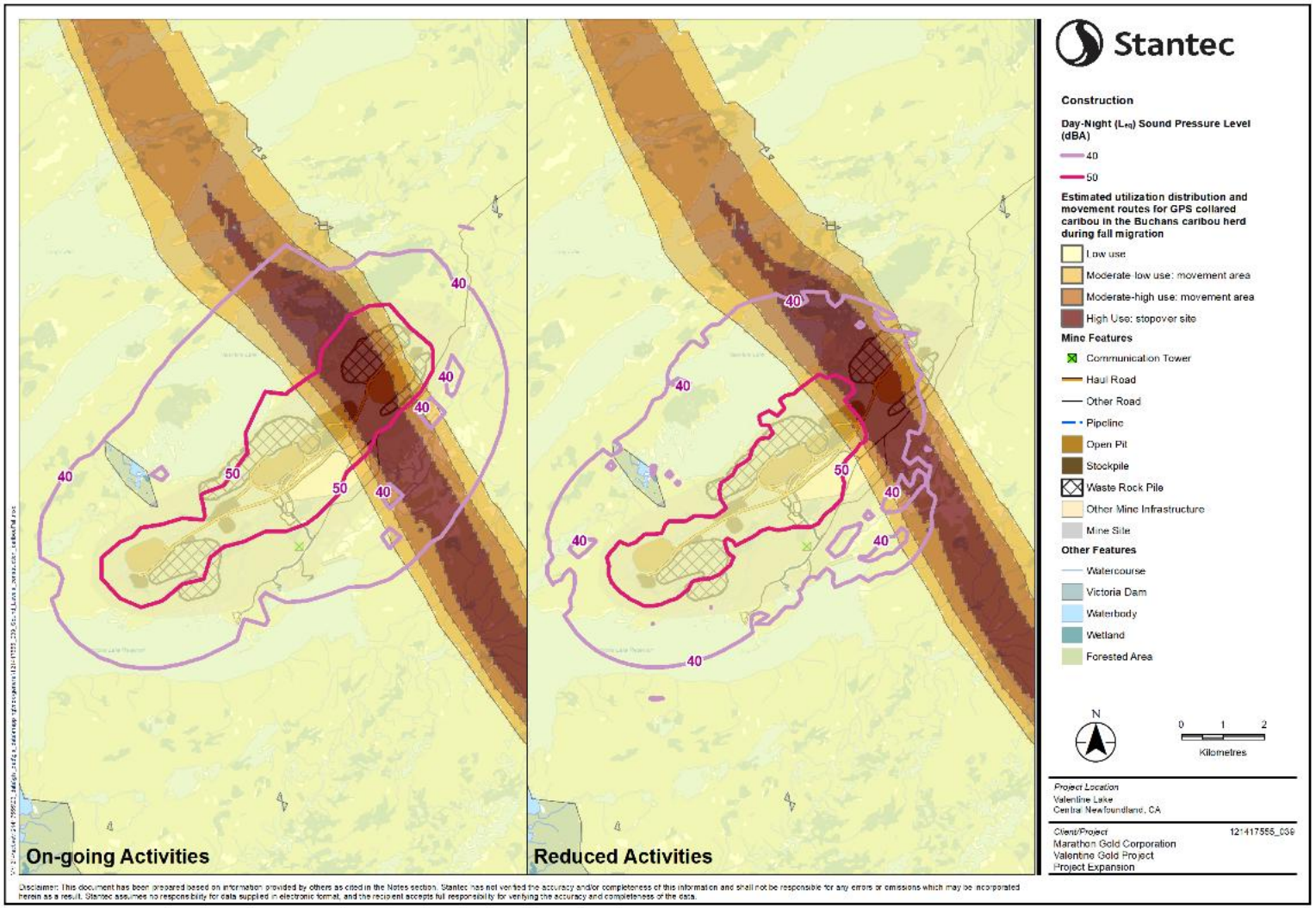


Figure 2.4 Predicted Equivalent Sound Pressure Levels (L_{eq}) from Project Construction Activities during Fall Caribou Migration. On-going Activities (left) and Reduced Activities at the Marathon Pit (right).

2.2.2.2 Operation

Human Health

Modelling conducted for VGM operations did not consider significantly different sources than the Approved Project. It was assumed that processing plant equipment will not differ from the Approved Project; only mobile equipment at the pits to the storage piles have changed. Updated noise modelling was completed in support of the Berry Expansion (Marathon Gold 2023). The modeling conservatively assumed that operational activities would occur concurrently at the three pits (i.e., Leprechaun, Marathon, and Berry).

Predicted values of L_d, L_n, and L_{dn} for the VGM operations at nearest sensitive receptors are presented in Table 2.3. Similar values for the Approved Project are presented in Appendix B (Table B.7) and the predicted day-night average sound pressure levels for Approved Project operations are also illustrated in Appendix A (Figure A-2). Some receptors were predicted to have an L_n of 0 at night, indicating that the sound levels at those locations will not likely be affected by operational activities, given their distance from the noise generating activities.

Table 2.3 Predicted L_d, L_n and L_{dn} for VGM Operations at Nearby Receptors.

Receptor [A]		Project Sound Level (dBA)		
		L_d	L_n	L_{dn}
32	Cabin Location	27.3	26.3	32.5
33	Cabin Location [B]	43.1	42.2	48.4
35	Accommodations Camp	48.0	47.6	53.7
36	Exploration Camp [C]	41.3	41.3	47.3

Note: [A] Locations provided in Figure 2.1
[B] To be relocated per an agreement with Marathon
[C] To be dismantled; area to become an explosives storage facility

Nighttime sound pressure levels (i.e., Ln) at the Accommodations Camp were predicted to exceed the sleep disturbance threshold 45 dBA set forth by Health Canada (2017). Other nearby receptors, including those outside of the Project Area, were not predicted to have nighttime sound pressure levels greater than 45 dBA.

Predicted day-night sound levels (i.e., L_{dn}) during VGM operations at nearest sensitive receptors are provided in Table 2.4 and illustrated in Figure 2.5. Values of %HA for baseline and total VGM (baseline plus VGM), used to calculate the change in %HA from baseline conditions, are also provided in Table 2.4.

Table 2.4 Predicted L_{dn} and %HA for VGM Operations at Nearby Receptors.

Receptor [A]		Baseline		VGM Predicted L_{dn} (dBA)	Total (Baseline + VGM)		Change in %HA (Between Total and Baseline)
		L_{dn} (dBA)	%HA		L_{dn} (dBA)	%HA	
32	Cabin Location	46.9	1.47	32.5	47.1	1.49	0.02
33	Cabin Location [B]	46.9	1.47	48.4	50.7	2.41	0.94
35	Accommodations Camp	46.9	1.47	53.7	54.5	3.91	2.44
36	Exploration Camp [C]	46.9	1.47	47.3	50.1	2.23	0.75

Note: [A] Locations provided in Figure 2.1
[B] To be relocated per an agreement with Marathon
[C] To be dismantled; area to become an explosives storage facility

The change in %HA associated with VGM operations was compared with the threshold of 6.5% advised by Health Canada (2017). The changes in %HA at each noise sensitive receptor were well below the 6.5% target for the operations phase of the VGM. Modelling results for the Approved Project are presented in Appendix B, Table B.8. The results indicate conformance with the Health Canada guidance (Health Canada 2017).

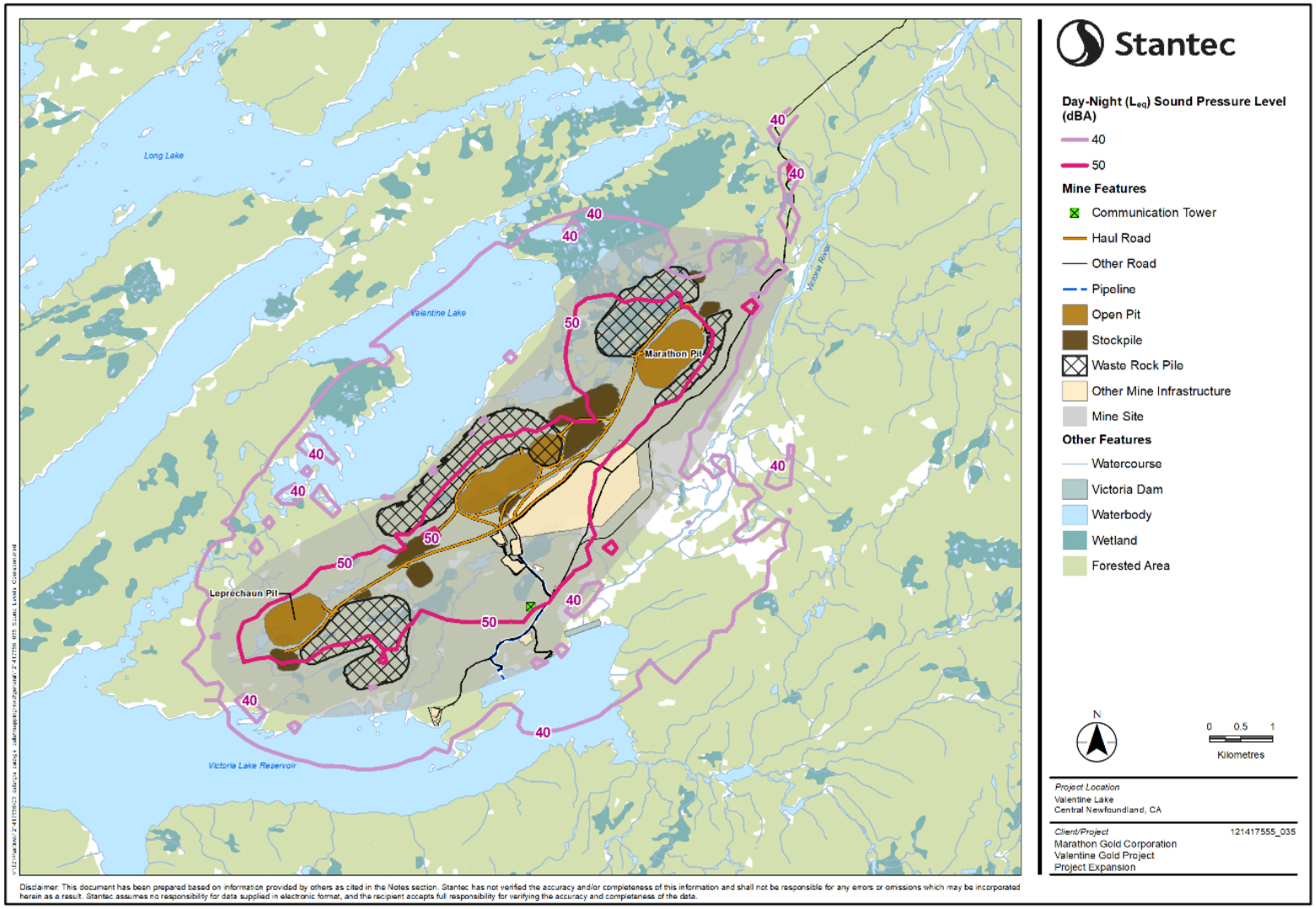


Figure 2.5 Predicted Day-Night (L_d) Sound Pressure Levels from Operations

Wildlife

Noise modelling conservatively assumed that operational activities in Marathon pit would be suspended during spring and fall migration periods. However, it was assumed that full operations would continue at Berry and Leprechaun pits during migration periods (Marathon Gold 2020, 2023).

Predicted sound pressure levels (40 dBA and 50 dBA contours) for the mine site with the addition of the Berry Expansion are shown in Figure 2.6 (spring migration) and 2.7 (fall migration) for operations, with and without the cessation of activities at the Marathon pit.

Sound pressure levels are expected to be above 50 dBA throughout much of the mine site during operations. When activities are reduced at the Marathon pit, the 50 dBA contour shifts to center on the Leprechaun and Berry pits. The 40 dBA contour also shrinks when activities at the Marathon pit are reduced, however, levels are still expected to be above 40 dBA in the Marathon pit and along portions of the high and moderate-high use caribou migration pathways identified for spring and fall migration. The noise modelling completed is conservative, and more refined modelling will inform optimum sequencing of mining activities to reduce sound pressure levels in the preferred migration path used by the Buchans caribou herd. The VGM will further evaluate sound pressure levels associated with activities, in consultation with NLDFAL – Wildlife Division (Marathon Gold 2023).

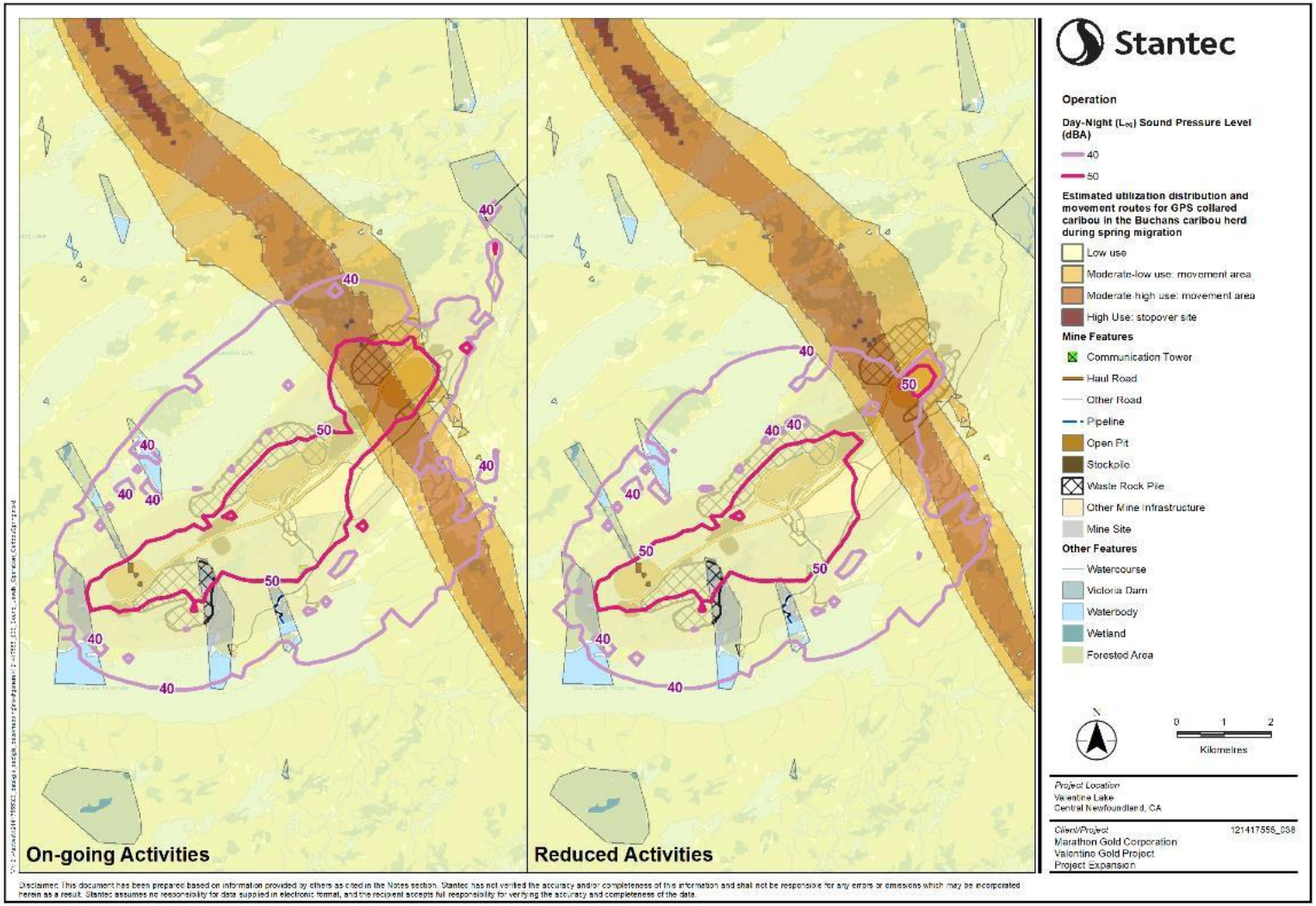


Figure 2.6 **Predicted Equivalent Sound Pressure Levels (L_{eq}) from Operation Activities during Spring Caribou Migration. On-going Activities (left) and Reduced Activities at the Marathon Pit (right).**

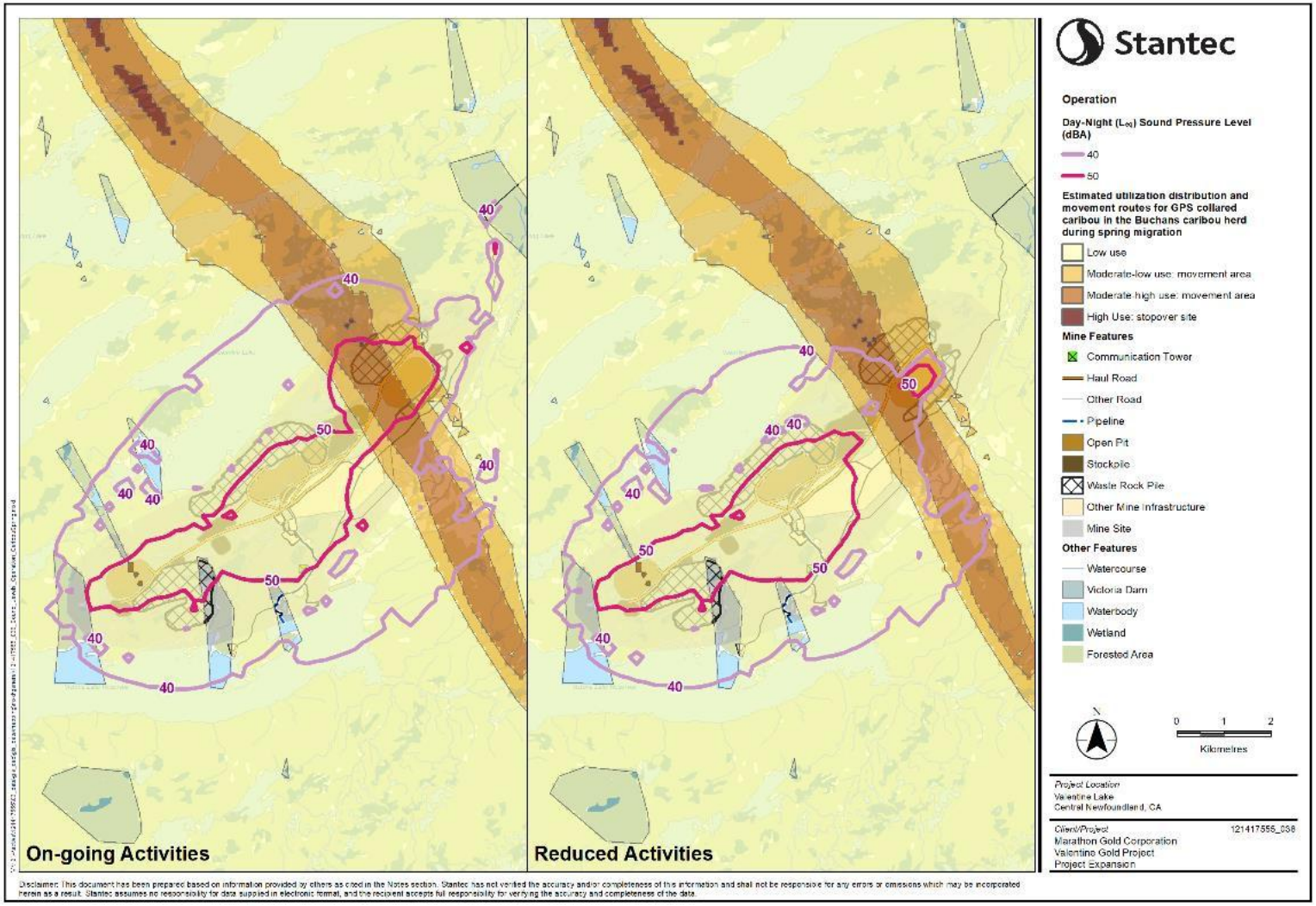


Figure 2.7 Predicted Equivalent Sound Pressure Levels (L_{eq}) from Operation Activities during Fall Caribou Migration. On-going Activities (left) and Reduced Activities at the Marathon Pit (right).

3.0 PROPOSED MITIGATION AND MANAGEMENT MEASURES

The noise emissions mitigation measures were presented in Chapter 5, Atmospheric Environment, of the EIS under Section 5.4 (Marathon 2020). No new mitigation measures have been identified since the EIS. The following mitigation measures, related to air noise, are to be applied throughout the VGM construction, operation,decommissioning, rehabilitation and closure.

Mitigation measures related to noise include the following:

- Best practices from Blasters' Handbook (ISEE 2020) and Environmental Code of Practice for Metal Mines (ECCC 2009) will be followed to reduce and monitor noise emissions during blasting.
- Vehicles and heavy equipment will be maintained in good working order and will be equipped with appropriate mufflers to reduce noise.
- VGM facilities and infrastructure will be designed to limit noise emissions.
- Where practicable in accessible areas (e.g., along cleared rights-of-ways), trees and other vegetation will be left in place or encouraged to grow to obstruct the view of the VGM facilities, reducing the change in viewshed and muffling nuisance noise.
- The VGM will suspend activities at the Marathon pit during caribou migration during both construction and operations phase (see CPEEMP for more details).

4.0 MONITORING PROGRAM

The results of the acoustic modelling conducted in support of the EIS, as well as updated modelling for the combined Project, demonstrated compliance of the proposed facility with Health Canada's annoyance criteria (i.e., %HA) at each of the noise sensitive receptors within the LAA/RAA. With respect to sleep disturbance, sound pressure levels at receptors beyond the mine site boundary were not predicted to exceed the sleep disturbance threshold of 45 dBA recommended by Health Canada (2017) during operations. However, the nighttime sound pressure levels were greater than the nighttime target of 45 dBA at the accommodations camp.

The results of the acoustic assessment conducted to support the EIS indicated noise monitoring near the most affected receptor locations, including the accommodations camps, should be conducted to validate model predictions and evaluate noise mitigation. Noise monitoring is also necessary to confirm reductions in activities, particularly in Marathon pit, during spring and fall migration periods.

The results of the noise monitoring program will be used to assess the effectiveness of the noise mitigation and to evaluate the potential need for more rigorous mitigation. If the monitoring program indicates that noise emissions are greater than Health Canada's recommended criteria or that noise reductions from decreased operation activities are insufficient during caribou migration, additional mitigation measures to reduce noise emissions will be implemented and this document will be updated.

Reports from the noise monitoring program will be submitted annually to the regulatory authorities and shared with interested Indigenous groups and local stakeholders. Monitoring data will be reviewed internally by the Environmental Superintendent or designate, and used to implement adaptive management. If additional mitigation measures are implemented, the IAAC will be notified within 24 hours, and the VGM will follow-up with a detailed description of the measures within seven days following implementation.

Details of the noise monitoring program are presented in the following sections and are based on the current Project design, acoustic modelling conducted to support the development of the EIS, and the provincial and federal EIS conditions of approval.

4.1 METHODS

The noise monitoring will be performed using dedicated sound level meters to obtain the noise data at selected locations. The following data will be logged during the noise monitoring at each location:

- Continuous equivalent sound levels in A-weighted decibel (dBA), C-weighted decibel (dBC), and linear (unweighted) decibel (dB) in one third octave bands.
- Logging period is recommended to range from one minute to one hour.
- Hourly statistical sound levels (i.e., L1, L10, L50, L90).

4.2 EQUIPMENT

4.2.1 Sound Level Meter and Field Calibrator

High precision Type 1 integrating sound level meters capable of recording hourly sound pressure levels in dBA are recommended to assess the spectra characteristic of noise sources (i.e., tonality, low frequency noise), sound pressure levels at the one-third octave band are required. In addition, audible recording capability is recommended to identify non-representative events for data analysis. Battery powered units would be used to conduct automated (unattended) noise monitoring.

Sound level meters would be capable of recording equivalent sound level (L_{eq}) and statistical sound level (L_n) with different time period settings. Sound level meters must be calibrated in the last two years by an independent accredited laboratory. A copy of the calibration certificates will be appended to the monitoring report.

The sound level meters must be lab-calibrated within the last 24 months of the measurement period.

The field calibrator must be lab-calibrated within the last 12 months. Field calibrators meeting American National Standards Institute (ANSI) S1.40-2006 regulations are to be used to calibrate sound level meters immediately before and after each measurement series and after any change in equipment conditions (e.g., cable replacement). If discrepancy in calibration level exceeds +/- 1 dB during the measurement period, the measurement data should not be used.

4.2.2 Climate Station

Health Canada noise guidance stipulates that sound should not be measured in the presence of precipitation or when wind speeds exceed 14 km/hr, unless the sound level meter is equipped with an appropriate wind screen. Other provincial noise guidelines such as Alberta Energy Regulator (AER) Directive 038 and BC Oil and Gas Commission (BC OGC) Noise Control Best Practice Guideline consider wind speeds higher than 15 kilometres per hour (km/hr) and rain precipitation as non-representative weather conditions. Given the prevailing weather patterns of the region, however, weather conditions should be deemed non-representative when precipitation and/or elevated wind speeds are sustained for periods of one hour or more. Additionally, audio recordings should be used to determine if elevated wind speeds interfere with sound recordings.

Ambient temperatures must also be within the manufacturer's tolerances for instrument operation. In addition, International Standard Organization (ISO) 1996-2 specifies a set of weather conditions for sound measurements; therefore, weather data should be collected near the monitoring locations. An on-site met station, commissioned in June 2023, measures variables stipulated in the provincial EIS guidelines, as follows:

- Precipitation intensity
- Wind speed and direction
- Snow depth
- Temperature and relative humidity

- Barometric pressure

Weather data collected at the site can be used to confirm design parameters used in sizing infrastructure, update the site water balance through operation, and inform the implementation of the Water Management Plan.

The provincial EIS guidelines require that precipitation monitoring be established at higher elevations (i.e., at the site) to assist and inform runoff assessments (p.52, Government of NL 2020). The installation and operation of this met station addresses this requirement. As noted above, the instrumentation is sited and installed following guidance information on siting criteria from the equipment manufacturer, the US EPA and the WMO, as applicable. Newfoundland and Labrador Department of Environment, Conservation and Climate Change – Water Resources Management Division (NLDECCC-WRMD) is responsible for the on-going operation, maintenance and annual reporting of the station, as well as QA/QC of its data.

4.3 LOCATION

The noise monitoring program will be implemented to measure the noise levels at various locations.

Human Health

Baseline sound pressure levels were measured at a location representative of the nearest seasonal receptor (Cabin occupants), within the Project Area and referred to as Northeast Edge (baseline study) in Figure 4.1. Due to ongoing activities (e.g., exploration) not related to the VGM site, an alternate location was selected as the Northeast Edge of the Property (current study) in Figure 4.1, for ongoing monitoring. Additionally, sound pressure levels are measured outside the accommodations camp.

Wildlife

In accordance with the Caribou Protection and Environmental Effects Mitigation and Monitoring Plan (CPEEMP), noise emissions from the VGM will be monitored regularly using sound recording equipment set up at distance intervals from VGM activities selected based on topography and vegetation cover to confirm the noise level predictions. Monitoring will specifically target noise levels relative to the primary caribou migration corridor and noise levels at greater distances from VGM activities (5 to 10 km or greater) to measure noise levels that may affect both migrating and resident caribou. Two initial locations were selected for monitoring during the construction phase (as indicated in Figure 4.1). The first location is adjacent to the Marathon pit, where caribou were detected during initial stages of construction during the migratory seasons (primary caribou migration corridor). The second location is a pseudo-Project Control, a wooded area between 5 to 10 km away from VGM activities. It was selected to represent noise levels in a remote area with limited human activity, and no substantive noise.

The number and location of monitoring locations pertaining to potential noise related wildlife effects will be finalized in consultation with the NL Department of Forestry, Agriculture and Lands (NLDFAL) Wildlife Division and are subject to change pending project advancements and evolving regulatory guidelines, thus this document will be updated accordingly.

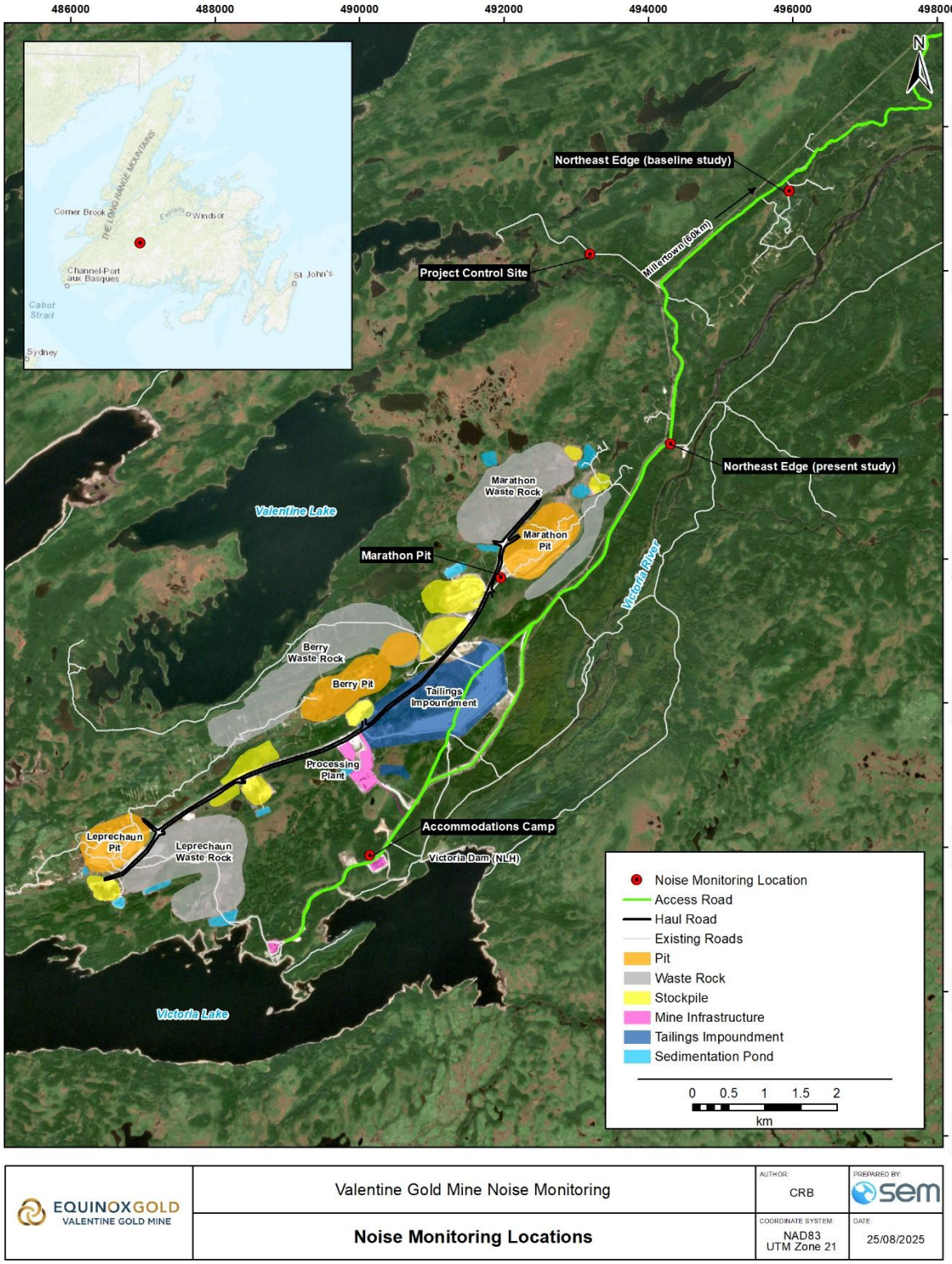


Figure 4.1 Noise Monitoring Locations

4.4 SCHEDULE

The noise monitoring frequency for each location during each project phase is summarized in Table 4.1. Each monitoring session will be completed on a continuous basis for a minimum of one week. Monitoring sessions may be extended to mitigate the impacts of non-representative weather conditions.

Noise monitoring for the accommodations camp is scheduled during peak construction and operation activities to confirm the results from the acoustics modelling. Peak activities refer to the periods of time when equipment usage will be highest. Noise monitoring at the northeast edge of the property will be conducted on a quarterly basis to assess the potential annoyance effects on nearby receptors (i.e., seasonal cabin owners).

Noise monitoring associated with potential wildlife (i.e., caribou) effects are scheduled at a greater frequency. During construction, the two Wildlife locations are scheduled for quarterly during a minimum of one year of construction. During Operations, in addition to the quarterly monitoring, additional monitoring will be completed during the caribou spring (between April 1 and May 19) and fall (between November 1 and December 15) migration periods.

Table 4.1 Noise Monitoring Schedule

Category	Location	Phase	Number of Sessions	Duration per Session
Human Health	Accommodations Camp	Construction	One session during peak construction activities	Continuously for one week
		Operation	One session during peak mining activities	Continuously for one week
	Northeast edge of Project Area	Construction	Four – One session per quarter	Continuously for one week
		Operation	Four – One session per quarter	Continuously for one week
Wildlife	Adjacent to Marathon pit (“Marathon Pit”)	Construction [A]	Four – One session per quarter for a minimum of one year	Continuously for one week
		Operation [A]	Four – One session per quarter; coinciding with spring and fall caribou migration between April 1 and May 19, and November 1 and December 15, respectively	Continuously for one week
	Wooded area 5-10 km northeast of the Project Area (“Project Control Site”)	Construction [A]	Four – One session per quarter for a minimum of one year	Continuously for one week
		Operation [A]	Four – One session per quarter; coinciding with spring and fall caribou migration between April 1 and May 19, and November 1 and December 15, respectively	Continuously for one week
	Adjacent to Leprechaun pit (“Leprechaun Pit”)	Operations	Two – coinciding with spring and fall caribou migration between April 1 and May 19, and November 1 and December 15, respectively	Continuously for one week

Note: [A] The second quarter (Q2) and fourth quarter (Q4) monitoring scheduled during the defined caribou migratory seasons (PL 4).

4.5 SITE OBSERVATIONS

To analyze noise monitoring results, the following information will be recorded during the monitoring periods:

- Field personnel's name
- Monitoring location in Universal Transverse Mercator (UTM) coordinates
- Sound level meter model and serial number
- Monitoring duration
- Start and end date and time
- On-site calibration results
- Geographic features of the surrounding area
- Meteorological conditions, including cloud cover, temperature, humidity, wind speed and direction
- Description of acoustic environment (i.e., busy road, birds, local activities)
- Photos or videos of the monitoring setup and surrounding area
- Photos during the monitoring period, collected via motion-activated trail camera

4.6 ANALYSIS AND EVALUATION

For long-term measurement results, measured equivalent sound level data at the monitoring locations will be analyzed to determine daytime and nighttime equivalent sound levels to identify changes in the %HA parameter or Health Canada criteria for sleep disturbance. Noise data will also be reviewed to capture changes in sound level due to reduced mining activities during the caribou migration seasons.

Invalid or abnormal data not typical of an average ambient sound level will be extracted from the measurement. Invalid data includes periods with non-representative weather conditions (high wind, rain, monitoring equipment setup activities), which are typically associated with higher sound levels. A sampling interval of shorter time period (e.g., one minute to one hour) will be used, which provides sufficient resolution for isolation of invalid data.

Audio sound recordings made during monitoring period will be reviewed to track and identify changes in measured noise levels and filter out unrepresentative events. Data that are not representative of normal site activity (e.g., human and animal interference with the microphone, technician activities) or measured outside acceptable weather conditions (i.e., steady rain and sustained wind speed exceed 15 km/hr) will be filtered from the data set prior to the calculation of any averages or other statistics.

The monitoring results during construction and operation phases will be compared to the prediction results in the EIS for validation purposes. If the construction and operation phases measurement results are above the thresholds at the monitoring locations, adaptive management will be initiated to manage the noise effect. As stated above, if additional mitigation measures are implemented, IACC will be notified

within 24 hours, and Equinox will follow-up with a detailed description of the measures within 7 days following implementation.

5.0 REPORTING

Results from monitoring programs will be included in the annual report submitted to the IAAC Compliance group, by March 31 of the following year, and to additional regulatory authorities, as required.

The noise monitoring annual reports will include the results of the noise monitoring program following a standardized format, including:

- A map showing the location of emitting sources, property boundary and noise monitoring locations
- A summary of construction/operation activities - parameters monitored, equipment, frequency of site visits and calibrations
- Summary of the meteorological monitoring data (e.g., ambient air temperature, precipitation, wind speed and direction
- Summary of the measure sound levels in comparison to relevant criteria.

6.0 RELATED DOCUMENTS

Other environmental management plans and monitoring programs related to this follow-up monitoring program are described in Table 6.1.

Table 6.1 Related Management Plans and Monitoring Programs

Plan/Program	Details
Environmental Protection Plan (EPP)	The VGM EPP provides general environmental protection procedures related to VGM activities and infrastructure such as air and greenhouse gas emissions management; erosion and sedimentation control; rock and soils management; and clearing and grubbing. Also included are protection procedures specific to caribou, avifauna, and other wildlife (including bats and American marten); fish and fish habitat; historic resources; and the Victoria Dam. The EPP also includes contingency plans for fuel and hazardous materials spills, failure of erosion and sediment control measures and/or dams, and forest fires.
Accidents and Malfunctions Prevention and Response Plan	The Accidents and Malfunctions Prevention and Response Plan outlines the mitigation measures and response measures for potential accidents and malfunctions. The Plan provides direction for communication and reporting requirements following an accident or malfunction. Potential accidents or malfunctions addressed include tailings management facility malfunction, stockpile slope failure, fuel and hazardous materials spill, unplanned release of contact water, fire/explosion, and vehicle accident.
Caribou Protection and Environmental Effects Monitoring Plan	The Caribou Protection and Environmental Effects Monitoring Plan defines the mitigation measures aimed at reducing the risk of adverse effects on caribou and describes the follow-up and monitoring activities that will be undertaken to verify the environmental assessment (EA)/EIS effects predictions and mitigation effectiveness.

7.0 REFERENCES

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Appendix A NOISE CONTOUR PLOTS - EIS APPROVED PROJECT

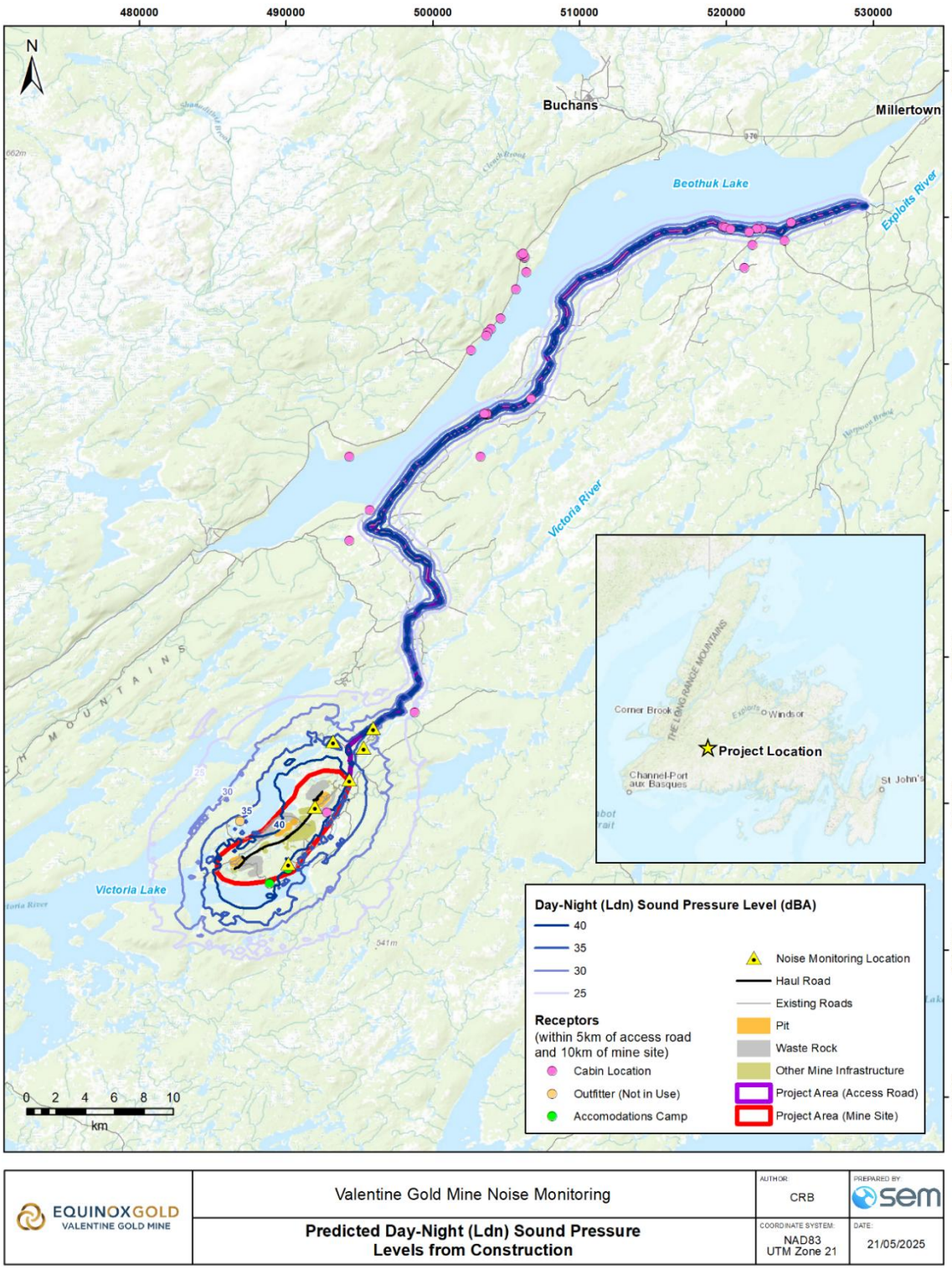


Figure A.1 Predicted Day-Night (L_{dn}) Sound Pressure Levels from Construction

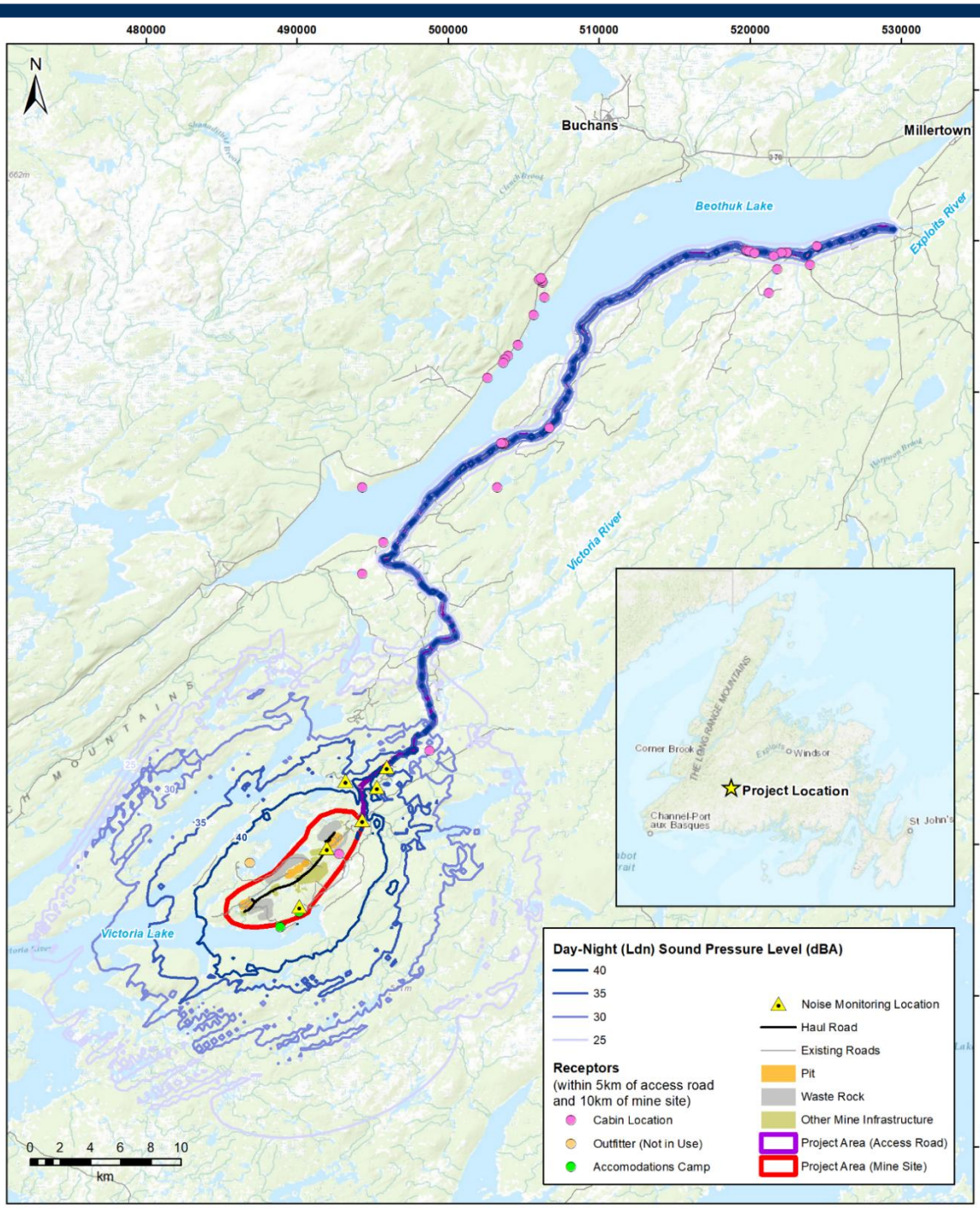


Figure A.2 Predicted Day-Night (L_{dn}) Sound Pressure Levels during Operation

Appendix B EIS DATA - APPROVED PROJECT

Table B.1 Sound Power Level for Equipment used during Construction – EIS

Equipment Type	Number	Sound Power Level (dB) by Octave Band (Hz)								Total Sound Power Level (Per Piece of Equipment)	
		63	125	250	500	1000	2000	4000	8000	dB	dBA
Tracked DTH Drill	2	122	123	118	119	115	113	108	101	127	121
Tracked RC Drill	2	122	123	118	119	115	113	108	101	127	121
Wheel Loader, 13 m^3 bucket	1	116	121	112	112	111	109	107	97	123	116
Hydraulic Excavator, 12 m^3 bucket	2	117	120	111	109	110	106	101	93	123	114
Rigid Frame Hauler	5	114	117	116	116	114	111	104	98	123	119
Articulated Hauler	2	128	125	116	112	110	108	105	96	130	117
Motor Grader	2	116	115	111	107	112	106	102	93	120	115
Water/Gravel Truck	2	106	114	112	106	106	105	98	97	118	111
Track Dozer, 447 kW	2	108	112	104	105	107	109	97	87	116	113
Track Dozer, 325 kW	2	108	112	104	105	107	109	97	87	116	113
Wheel Loader, 4.5 m^3 bucket	2	115	115	113	103	104	102	97	90	120	110
Hydraulic Excavator, 4 m^3 bucket	2	119	120	111	112	108	106	105	98	123	114
Fuel/Lube Truck	2	106	114	112	106	106	105	98	97	118	111
Hydraulic Excavator, 3 m^3 bucket	2	119	120	111	112	108	106	105	98	123	114
Crew Shuttle	2	109	106	104	102	100	97	92	84	112	105
Pickup Trucks	5	109	106	104	102	100	97	92	84	112	105
Light Plants	4	106	99	94	90	87	83	84	77	107	93
Water Pumps	2	111	104	98	101	102	100	93	86	113	106
On Highway Dump Truck	2	124	110	102	101	105	100	99	92	124	109
Flatbed Picker Truck	2	109	106	104	102	100	97	92	84	112	105
Emergency Response Vehicle	1	124	110	102	101	105	100	99	92	124	109
Maintenance Trucks	2	124	110	102	101	105	100	99	92	124	109
Mobile Crane	1	109	106	104	102	100	97	92	84	112	105
Float Trailer	1	124	107	103	107	110	108	100	95	124	114
Forklift and Tire Handler	1	109	106	104	102	100	97	92	84	112	105
Mobile Steam Cleaner	1	106	114	112	106	106	105	98	97	118	111
Scissor Lift	1	108	105	102	102	102	99	93	91	112	106

Table B.1 Sound Power Level for Equipment used during Construction – EIS

Equipment Type	Number	Sound Power Level (dB) by Octave Band (Hz)								Total Sound Power Level (Per Piece of Equipment)	
		63	125	250	500	1000	2000	4000	8000	dB	dBA
Mobile Manlift	1	96	91	92	91	87	88	86	79	100	94
Generators	6	111	121	115	107	107	108	108	105	123	115

Table B.2 Sound Power Level for Mobile Equipment during Operation – EIS

Equipment Type	Number	Sound Power Level (dB) by Octave Band (Hz)								Total Sound Power Level	
		63	125	250	500	1000	2000	4000	8000	dB	dBA
Tracked DTH Drill	7	122	123	118	119	115	113	108	101	127	121
Tracked RC Drill	3	122	123	118	119	115	113	108	101	127	121
Wheel Loader, 13 m^3 bucket	2	116	121	112	112	111	109	107	97	123	116
Hydraulic Excavator, 12 m^3bucket	5	117	120	111	109	110	106	101	93	123	114
Rigid Frame Hauler	32	114	117	116	116	114	111	104	98	123	119
Articulated Hauler	2	128	125	116	112	110	108	105	96	130	117
Motor Grader	6	116	115	111	107	112	106	102	93	120	115
Water/Gravel Truck	4	106	114	112	106	106	105	98	97	118	111
Track Dozer, 447 kW	3	108	112	104	105	107	109	97	87	116	113
Track Dozer, 325 kW	2	108	112	104	105	107	109	97	87	116	113
Wheel Loader, 4.5 m^3 bucket	2	115	115	113	103	104	102	97	90	120	110
Hydraulic Excavator, 4 m^3bucket	2	119	120	111	112	108	106	105	98	123	114
Fuel/Lube Truck	3	106	114	112	106	106	105	98	97	118	111
Hydraulic Excavator, 3.0m^3 bucket	2	119	120	111	112	108	106	105	98	123	114
Crew Shuttle	4	109	106	104	102	100	97	92	84	112	105
Pickup Trucks	10	109	106	104	102	100	97	92	84	112	105
Light Plants	8	106	99	94	90	87	83	84	77	107	93
Water Pumps	4	111	104	98	101	102	100	93	86	113	106
On Highway Dump Truck	2	124	110	102	101	105	100	99	92	124	109
Flatbed Picker Truck	2	109	106	104	102	100	97	92	84	112	105
Emergency Response Vehicle	1	124	110	102	101	105	100	99	92	124	109

Table B.2 Sound Power Level for Mobile Equipment during Operation – EIS

Equipment Type	Number	Sound Power Level (dB) by Octave Band (Hz)								Total Sound Power Level	
		63	125	250	500	1000	2000	4000	8000	dB	dBA
Maintenance Trucks	3	124	110	102	101	105	100	99	92	124	109
Mobile Crane	1	109	106	104	102	100	97	92	84	112	105
Float Trailer	1	124	107	103	107	110	108	100	95	124	114
Forklift and Tire Handler	1	109	106	104	102	100	97	92	84	112	105
Mobile Steam Cleaner	1	106	114	112	106	106	105	98	97	118	111
Scissor Lift	1	108	105	102	102	102	99	93	91	112	106
Mobile Manlift	1	96	91	92	91	87	88	86	79	100	94

Table B.3 Sound Power Levels for Stationary Outdoor Equipment during Operation – EIS

Equipment Type	Sound Power Level (dB) by Octave Band (Hz)									Total Sound PowerLevel	
	31.5	63	125	250	500	1000	2000	4000	8000	dB	dBA
Rock Breaker	129	129	129	128	125	122	119	113	103	136	127
Primary Crusher	129	129	129	128	125	122	119	113	103	136	127
Pebble Crusher	-	119	119	116	115	113	111	106	96	124	118
Cyclone Cluster	-	119	119	116	115	113	111	106	96	124	118
Grizzly Screen for Primary Crusher[1]	101	101	95	95	86	86	85	90	90	105	96
Conveyors[1]	-	99	97	96	99	103	95	91	85	107	105

Note:
[1] Sound Power Level is shown as dB per m

Table B.4 Sound Power Level for Processing Equipment inside Process Plant – EIS

Equipment Type	Sound Power Level (dB) by Octave Band (Hz)									Total Sound PowerLevel	
	31.5	63	125	250	500	1000	2000	4000	8000	dB	dBA
Stationary Material Handling[1]	120	122	121	121	118	115	113	114	104	128	122
Pumps	102	103	104	106	106	109	106	102	96	115	113
Total	120	123	121	122	118	116	114	114	105	129	122

Note:
[1] Sound Power Level includes SAG Mill, Ball Mill, and material screening noise

Table B.5 Predicted L_d, L_n and L_{dn} for VGM Construction – EIS

Receptor	Receptor Description	VGM Daytime Sound Level, L_d (dBA)	VGM Nighttime Sound Level, L_n (dBA)	VGM Day-Night Sound Level, L_{dn} (dBA)
1	Cabin Location	36.7	-	34.9
2	Cabin Location	46.1	-	44.3
3	Cabin Location	47.9	-	46.2
4	Cabin Location	43.8	-	42.0
5	Cabin Location	43.5	-	41.7
6	Cabin Location	43.7	-	41.9
7	Cabin Location	41.1	-	39.3
8	Cabin Location	39.4	-	37.7
9	Cabin Location	28.3	-	26.5
10	Cabin Location	25.0	-	23.3
11	Cabin Location	16.4	-	14.6
12	Cabin Location	11.0	-	9.2
13	Cabin Location	10.9	-	9.1
14	Cabin Location	11.5	-	9.7
15	Cabin Location	11.6	-	9.9
16	Cabin Location	13.7	-	11.9
17	Cabin Location	13.3	-	11.5
18	Cabin Location	12.6	-	10.9
19	Cabin Location	12.0	-	10.3
20	Cabin Location	11.9	-	10.1
21	Cabin Location	11.9	-	10.2
22	Cabin Location	11.8	-	10.0
23	Cabin Location	42.0	-	40.2
24	Cabin Location	38.3	-	36.5
25	Cabin Location	38.7	-	36.9
26	Cabin Location	37.7	-	36.0
27	Cabin Location	42.9	-	41.1
28	Cabin Location	18.5	-	16.8
29	Cabin Location	12.0	-	10.2
30	Cabin Location	27.2	-	25.4
31	Cabin Location	16.8	-	15.1
32	Cabin Location	27.7	-	26.0
33	Cabin Location	45.1	-	43.3
34	Outfitter (Not in Use)	37.2	-	35.4

Table B.5 Predicted L_d, L_n and L_{dn} for VGM Construction – EIS

Receptor	Receptor Description	VGM Daytime Sound Level, L_d (dBA)	VGM Nighttime Sound Level, L_n (dBA)	VGM Day-Night Sound Level, L_{dn} (dBA)
35	Accommodations Camp	43.2	-	41.5
36	Exploration Camp	45.3	-	43.5

Notes:
- The L_n was assessed as not applicable during the construction phase of the VGM as construction activities initially would not occur during nighttime hours (i.e., between 10 pm and 7 am).

Table B.6 Estimated VGM L_{dn} and, Total L_{dn}, and Change in %HA for VGM Construction – EIS

Receptor ID	Baseline		VGM Predicted L_{dn} (dBA)	Total (Baseline plus VGM)		Change in %HA (Between Total and Baseline)
	L_{dn} (dBA)	%HA		L_{dn} (dBA)	%HA	
1	45	1.1	34.9	48.0	1.7	0.54
2	45	1.1	44.3	54.8	4.0	2.89
3	45	1.1	46.2	56.5	5.0	3.88
4	45	1.1	42.0	52.8	3.1	1.99
5	45	1.1	41.7	52.5	3.0	1.89
6	45	1.1	41.9	52.7	3.1	1.96
7	45	1.1	39.3	50.7	2.4	1.24
8	45	1.1	37.7	49.6	2.1	0.93
9	45	1.1	26.5	45.6	1.2	0.09
10	45	1.1	23.3	45.3	1.2	0.04
11	45	1.1	14.6	45.0	1.1	0.01
12	45	1.1	9.2	45.0	1.1	no change
13	45	1.1	9.1	45.0	1.1	no change
14	45	1.1	9.7	45.0	1.1	no change
15	45	1.1	9.9	45.0	1.1	no change
16	45	1.1	11.9	45.0	1.1	no change
17	45	1.1	11.5	45.0	1.1	no change
18	45	1.1	10.9	45.0	1.1	no change
19	45	1.1	10.3	45.0	1.1	no change
20	45	1.1	10.1	45.0	1.1	no change
21	45	1.1	10.2	45.0	1.1	no change
22	45	1.1	10.0	45.0	1.1	no change
23	45	1.1	40.2	51.3	2.6	1.46
24	45	1.1	36.5	48.8	1.9	0.74
25	45	1.1	36.9	49.1	1.9	0.80

Table B.6 Estimated VGM L_{dn} and, Total L_{dn}, and Change in %HA for VGM Construction – EIS

Receptor ID	Baseline		VGM Predicted L_{dn} (dBA)	Total (Baseline plus VGM)		Change in %HA (Between Total and Baseline)
	L_{dn} (dBA)	%HA		L_{dn} (dBA)	%HA	
26	45	1.1	36.0	48.5	1.8	0.67
27	45	1.1	41.1	52.1	2.8	1.71
28	45	1.1	16.8	45.1	1.2	0.01
29	45	1.1	10.2	45.0	1.1	no change
30	45	1.1	25.4	45.5	1.2	0.07
31	45	1.1	15.1	45.0	1.1	0.01
32	45	1.1	26.0	45.5	1.2	0.08
33	45	1.1	43.3	53.9	3.6	2.46
34	45	1.1	35.4	48.2	1.7	0.59
Accommodations Camp	45	1.1	41.5	52.4	3.0	1.83

Table B.7 Predicted L_d, Ln and L_{dn} for VGM Operation – EIS

Receptor	Receptor Description	VGM Daytime Sound Level, L_d (dBA)	VGM Nighttime Sound Level L_n (dBA)[A]	VGM Day-Night Sound Level L_{dn} (dBA)
1	Cabin Location	34.2	0	32.5
2	Cabin Location	43.6	0	41.9
3	Cabin Location	45.5	0	43.7
4	Cabin Location	41.3	0	39.5
5	Cabin Location	41.0	0	39.3
6	Cabin Location	41.2	0	39.4
7	Cabin Location	38.6	0	36.9
8	Cabin Location	37.0	0	35.2
9	Cabin Location	25.8	0	24.1
10	Cabin Location	22.6	0	20.8
11	Cabin Location	13.9	0	12.1
12	Cabin Location	8.5	0	6.7
13	Cabin Location	8.4	0	6.7
14	Cabin Location	9.0	0	7.3
15	Cabin Location	9.2	0	7.4
16	Cabin Location	11.2	0	9.4
17	Cabin Location	10.8	0	9.0
18	Cabin Location	10.1	0	8.4

Table B.7 Predicted L_d, Ln and L_{dn} for VGM Operation – EIS

Receptor	Receptor Description	VGM Daytime Sound Level, L_d (dBA)	VGM Nighttime Sound Level L_n (dBA)[A]	VGM Day-Night Sound Level L_{dn} (dBA)
19	Cabin Location	9.6	0	7.8
20	Cabin Location	9.4	0	7.6
21	Cabin Location	9.5	0	7.7
22	Cabin Location	9.3	0	7.5
23	Cabin Location	39.5	0	37.8
24	Cabin Location	35.8	0	34.0
25	Cabin Location	36.2	0	34.5
26	Cabin Location	35.2	0	33.5
27	Cabin Location	40.4	0	38.7
28	Cabin Location	16.1	0	14.3
29	Cabin Location	9.5	0	7.8
30	Cabin Location	24.8	9.7	23.6
31	Cabin Location	17.0	11.9	19.3
32	Cabin Location	26.7	25.4	31.7
33	Cabin Location	43.4	42.6	48.8
34	Outfitter (Not in Use)	39.0	39.0	45.1
35	Accommodations Camp	46.4	45.9	52.0
36	Exploration Camp	41.0	41.0	47.1

Note:
[A] Some receptors were predicted to have an Ln of 0 due to their distance from the noise generating activities at night.

Table B.8 Estimated Project Ldn and, Total Ldn, and Change in %HA for VGM Operation – EIS

Receptor ID	Baseline		VGM Predicted L_{dn} (dBA)	Total (Baseline plus VGM)		Change in %HA (Between Total and Baseline)
	L_{dn} (dBA)	%HA		L_{dn} (dBA)	%HA	
1	45	1.1	32.5	46.9	1.5	0.33
2	45	1.1	41.9	52.7	3.1	1.96
3	45	1.1	43.7	54.2	3.8	2.63
4	45	1.1	39.5	50.8	2.4	1.29
5	45	1.1	39.3	50.7	2.4	1.24
6	45	1.1	39.4	50.7	2.4	1.27
7	45	1.1	36.9	49.1	1.9	0.80

Table B.8 Estimated Project Ldn and, Total Ldn, and Change in %HA for VGM Operation – EIS

Receptor ID	Baseline		VGM Predicted L_{dn} (dBA)	Total (Baseline plus VGM)		Change in %HA (Between Total and Baseline)
	L_{dn} (dBA)	%HA		L_{dn} (dBA)	%HA	
8	45	1.1	35.2	48.1	1.7	0.57
9	45	1.1	24.1	45.3	1.2	0.05
10	45	1.1	20.8	45.2	1.2	0.02
11	45	1.1	12.1	45.0	1.1	no change
12	45	1.1	6.7	45.0	1.1	no change
13	45	1.1	6.7	45.0	1.1	no change
14	45	1.1	7.3	45.0	1.1	no change
15	45	1.1	7.4	45.0	1.1	no change
16	45	1.1	9.4	45.0	1.1	no change
17	45	1.1	9	45.0	1.1	no change
18	45	1.1	8.4	45.0	1.1	no change
19	45	1.1	7.8	45.0	1.1	no change
20	45	1.1	7.6	45.0	1.1	no change
21	45	1.1	7.7	45.0	1.1	no change
22	45	1.1	7.5	45.0	1.1	no change
23	45	1.1	37.8	49.6	2.1	0.94
24	45	1.1	34	47.5	1.6	0.45
25	45	1.1	34.5	47.8	1.6	0.50
26	45	1.1	33.5	47.3	1.5	0.40
27	45	1.1	38.7	50.2	2.3	1.11
28	45	1.1	14.3	45.0	1.1	0.01
29	45	1.1	7.8	45.0	1.1	no change
30	45	1.1	23.6	45.3	1.2	0.05
31	45	1.1	19.3	45.1	1.2	0.02
32	45	1.1	31.7	46.7	1.4	0.28
33	45	1.1	48.8	59.0	6.8	5.67
34	45	1.1	45.1	55.5	4.4	3.28
Accommodations Camp	45	1.1	52	52.8	3.1	1.99