Quarry Management Plan Framework

Draft for Screening by the Nunavut Impact Review Board

Prepared for:

The Hamlet of Gjoa Haven

Prepared by:

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Project No.: 123515256

NUNAMI
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Plan Maintenance and Control

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Abbreviations

e.g.....example

1 Introduction

This Quarry Management Plan (QMP) for Source XXX [insert number] has been developed to support the proposed construction, operation, and reclamation of quarry and borrow sources associated with the Gjoa Haven New Quarries (the Project) by the Hamlet of Gjoa Haven (the Hamlet). The Project is to develop four quarries surrounding the Hamlet of Gjoa Haven, which will serve the current and future aggregate needs of the Hamlet. The quarry operation will occur on an as-needed basis, with operation beginning in 2026. The QMP was developed in accordance with applicable guidelines and best practices in the Nunavut and is one of several plans developed for the construction and operations phases of the Project. This QMP is expected to be a requirement of, and will be complementary to, terms and conditions contained in Quarry Permit(s),and Land Use Permit(s), when issued to the Hamlet.

This QMP is a draft framework and has been prepared to support the screening of the Project by the Nunavut Impact Review Board. Each quarry/borrow source will have its own QMP.

The primary goal of this QMP is to prevent or mitigate potential effects of quarry operations. It has been developed based on the Northern Land Use Guidelines - Pits and Quarries (INAC, 2009). The QMP will become effective upon commencement of project construction.

The QMP will be reviewed and updated with feedback from the environmental assessment process. Revisions will also be performed, as needed, to adapt and incorporate any changes related to environmental factors, pertinent project-specific changes during construction (e.g., site conditions and design modifications), results of ARD/ML analysis, experiences, and policies, and include results from ongoing community engagement, including regulatory agencies.

Figure 1.1 Project Overview

Insert PDF figure [specific to each source]

1.1 Project Contacts

In the event of a spill, inquiries about spills, spill management, and this plan, key contacts include:

Primary Contact:
Jennifer Wakegijig
Chief Administrative Officer
Hamlet of Gjoa Haven
P.O. Box 200 Gjoa Haven, NU X0B 1J0
Tel: 867-360-7141 Ext 202
CAO@gjoahaven.ca

Secondary Contact:
[Insert Name]
[Insert Role]
[Insert Organization]
[mailing address]
[Phone]
[Fax]

[Email]

1.2 Legislation, Guidelines and Policy

This plan has been developed in consideration of the applicable legislation and guidelines, including:

- Northern Land Use Guidelines - Pits and Quarries (INAC, 2009)
- Nunavut Wildlife Act and Wildlife Regulations
- Territorial Lands Regulations
- Commissioner's Lands Act

1.3 Regulatory Approvals

[Describe the regulatory authorizations needed to develop and operate the quarry / borrow source based on its location and land ownership.]

2 Description of the Borrow Pit / Quarry

2.1 Geotechnical Investigations

[Reference and summarize investigations completed to delineate and prove the source material quality and volume.] This may include:

- Test hole locations and methods
- Summary of results
- Material properties
- Prospective site suitability

2.2 Acid Rock Drainage and Metal Leaching Potential Assessment

[This section will *summarize investigations completed to characterize acid rock drainage/metal leaching (ARD/ML) potential using applicable guidance]*

3 Borrow Pit / Quarry Operation

This section will describe:

- Site access and timing
- Salvage and storage of organics and overburden
- Development sequence and progression with pit layout
- Processing, crushing, and stockpiling activities

4 Mitigation Measures and Monitoring

Quarry/borrow operations will occur using best management practices, including the following general mitigation measures for the quarries and borrow pits:

- Minimize the surface area of quarries and borrow pits where possible
- Maintain the floor of the quarries and borrow pits slightly above the elevation of the surrounding area to promote drainage, to avoid creating pit lakes, and to reduce permafrost degradation in borrow pits
- Prevent erosion and sedimentation through appropriate control measures
- Protect archeological resources
- Reduce emissions through dust control/suppression
- Use progressive reclamation in closing quarries and borrow pits when no longer needed

4.1 Acid Rock Drainage and Metal Leaching

Sampling and testing has been completed in alignment with best practice recommendations prior to use of any quarry or borrow pit to reduce the risk of ARD/ML. Additional mitigation measures, including monitoring, may be implemented while the quarries and borrow pits are operational, depending on the results of the ARD/ML analysis.

[List all mitigation measures applicable to this section]

If ARD/ML materials are found, additional mitigation measures will be discussed with the regulator.

4.2 Erosion and Sediment Control

The development of each borrow pit/quarry will be operated in a manner consistent with best management practices, including:

- Vegetation clearing and grading is limited to the extent possible
- Snow melt and runoff from rainfall events will be controlled to within the active quarry boundary
- A buffer of at least 30 m of undisturbed land will be maintained between quarries/borrow pits and waterbodies, where possible
- If necessary, silt curtains and/or straw logs will be used to control suspended sediments or reduce water runoff seepage from the quarry/borrow pits.

4.3 Archaeological Resources

An Archaeological Impact Assessment has been completed for all prospective quarry sites for the Project. All recorded archaeology sites have been staked with avoidance markers delineating a 30 m buffer. This buffer will be avoided during quarry operation activities.

If any potential archaeological site is identified during the operation of any quarry/borrow pit, work will stop and a professional archaeologist will be consulted in accordance with standard chance find protocols, and the Government of Nunavut Department of Culture and Heritage will be informed of the discovery. All equipment will remain within the boundaries of the quarries/borrow pits to reduce the risk of disturbing other nearby archaeological sites.

4.4 Air Quality and Noise

Fugitive air emissions may be produced during the operations of the borrow pit/ quarry through use of a crusher and transport of material along the access road between the sites and the Hamlet of Gjoa Haven. During the summer when dry weather is expected, dust emissions will be minimized through wetting. Additionally, speed restrictions will be implemented during transport of the quarry material.

Noise levels will be typical of heavy machinery and will only be operation during approved times throughout the life of the quarry.

4.5 Permafrost

If permafrost is exposed from excavation activities, it may be subject to warming and cause permafrost thaw and slumping. Extraction and stockpiling of material will occur during summer months when the surface material is thawed to limit impacts caused by permafrost thaw. Given that the quarry material is largely gravel and sand, any thawed runoff will drain and pooling is unlikely to occur.

[List all other mitigation measures applicable to this section]

4.6 Wildlife

To reduce disturbance and effects on wildlife and wildlife habitat, the Project will adhere to the following mitigation measures:

- Minimize disturbance to new areas to the extent practical
- Activities will be restricted to workspaces and access roads
- Travel of construction vehicles will be confined to existing trails as much as possible to avoid undisturbed areas
- Closure and reclamation will promote re-establishment of applicable vegetation ground cover
- Borrow source vegetated surface material, where present, will be replaced after development is completed

- Caribou will have the right of way in project areas
- Personnel will not feed, harass, or hunt wildlife while working on the Project
- Food and other wildlife attractants will be stored in odour-proof containers
- Waste will be removed following every quarry season
- The site will be returned to a natural condition that blends in with the existing topography and surrounding landscape If animals enter the quarry excavation, work will pause until the wildlife leaves the area.

5 Closure and Reclamation

5.1 Desired Future Condition of Site

Describe based on guidance and community input

- *[List all commitments applicable to this section]*

5.2 Environmental Protection

Describe mitigation measures to prevent ponding, erosion, permafrost degradation, etc.

- *[List all commitments applicable to this section]*

5.3 Public Safety

Describe mitigation measures to mitigate safety risk to the public

- *[List all commitments applicable to this section]*

6 References

INAC (Indigenous and Northern Affairs Canada). 2009. Northern Land Use Guidelines: Pits and Quarries. GNWT. Ottawa, ON. Available at: R2-226-8-2009-eng.pdf

.Accessed August 2025.

Appendix A August 2025 ARD/ML Analysis Report

[Placeholder – to be included prior to permitting]