

June 15, 2026

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119 Gjoa Haven
Nunavut NU X0B 1J0

RE: *Design Report for Discovery Road Phase 1 for water licence 2AM-MEL1631*

Dear Mr. Dwyer,

Agnico Eagle Mines Limited (Agnico Eagle) thanks the Nunavut Water Board (NWB) for the opportunity to address comments received for Meliadine Mine Discovery Road Phase 1 Design Report.






The following information and comments are intended to address comments outlined in the below referenced letter.

260608 2AM-MEL1631 Discovery road Phase1 - Design Report AEM Response CIRNA
Reply-IMLE

Should you have any questions or require further information, please do not hesitate to contact us.

With my best regards,



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Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)

CIRNAC-2: THAW SUSCEPTIBILITY

Comment

Section 2.2 of the Design Report indicates that the project site is underlain by ice-rich and thaw-susceptible permafrost with an active layer varying between 1.0 and 3.0 m.

Section 3.2 of the Design Report proposes a minimum fill thickness of 1.2 m in order to prevent thaw settlement, with increased thickness over culverts. However, Section 5 of the Road Management Plan indicates that “a minimum road fill thickness of at least 1.3 m is required above ice rich subgrade soils” in order to prevent permafrost thaw. The report does not indicate how the Applicant arrived at a value of 1.2 m, and does not justify how this will be sufficient to prevent thaw settlement.

The design report also does not discuss climate projections for the project site, or the implications this has for road design. The mine is projected to enter closure in 2032. However, the road may persist beyond this, depending on the Applicant’s response to R-01.

The concern is that there is insufficient information for CIRNAC to evaluate whether the road is designed to withstand thaw settlement over its lifetime. Permafrost thaw and subsequent settlement can affect surface water regimes, and may negate the effectiveness of the planned surface water management strategies.

Recommendations

R-02a) CIRNAC recommends that the Applicant describe how it arrived at a minimum fill thickness value of 1.2 m, and explain how this will sufficiently prevent thaw settlement.

R-02b) CIRNAC recommends that the Applicant describe the climate change projections for the project site, and describe how the road is designed to withstand the effects of climate change induced thaw over the road’s intended lifetime.

Agnico Eagle Answer

Main roads thickness in the Meliadine area range from approximately 0.3 m to more than 2.0 m, depending on construction year, design criteria, anticipated traffic loads, ground conditions, materials, and other site-specific factors. The 2025 Annual Geotechnical Inspection (Appendix 6 of the Annual Report) identified no permafrost degradation along these roads, all of which are performing well and remain in good geotechnical condition. Based on the demonstrated performance of these historical roads, a minimum thickness of 1.2 m is considered sufficient to prevent permafrost degradation. Thickness of the road will follow the design engineer’s recommendations. Section 5 of the Roads Management Plan will be updated accordingly in the next revision.

CIRNAC Response:

A description to substantiate the minimum fill thickness value changing from 1.3 m to 1.2 m was not provided, nor a projection of climate-change inducted thaw depth over the road's intended lifetime.

CIRNAC considers comments 2a and 2b unresolved.

Agnico Eagle Answer

Comment 2a

Agnico Eagle engaged the Design Engineer (Tetra Tech), who provided input to the following response to CIRNAC Comment 2a.

The engineering design for the Discovery Road is based on the Feasibility Report for the All-Weather Access Road, prepared by Golder (Document No. 085, Rev. 0, November 19, 2010). This report includes soil descriptions, geomorphological data, a thermal study and recommendations specific to the Discovery Road branch.

Based on the thermal analyses, the recommended minimum fill thickness for the road section is 1.3 m over thaw-susceptible soils and 1.0 m over thaw-stable soils.

The thermal modeling also indicates that the subgrade soils along the proposed Discovery Road are highly variable. As a result, soil mapping was developed to identify areas classified as thaw-stable and thaw-susceptible.

During the detailed engineering phase, the designer used this mapping to adapt the road design according to the soil conditions. The applicable design criteria were therefore established at 1.3 m for thaw-susceptible soils and 1.0 m for thaw-stable soils.

An optimization of the design was then carried out from a road profile optimization perspective. The following observations and guidelines, established in consultation with Agnico Eagle, were used:

- Based on Agnico Eagle's experience, and as documented in Tetra Tech's Annual Geotechnical Inspection Reports, existing roads constructed more than 10 years ago have generally performed well. Some sections with fill thicknesses as low as 0.3 m were observed to remain in good condition. It was therefore considered acceptable to reduce the fill thickness to 0.5 m at specific locations where the subgrade is classified as thaw-stable, the road is located at a high point in the profile, and the conditions are expected to provide adequate drainage, with ice-poor to frost-shattered bedrock material. The minimum road dept of 0.5 m accounts for approximately 8% of the entire road alignment.

- The survey data (LiDAR type) show local variations in the ground profile that may be considered minor irregularities and could be adjusted to achieve a smoother road geometry. A tolerance of 10 cm was considered acceptable by the design engineer where such irregularities in the existing ground profile were deemed reasonable. Accordingly, a fill cover of 1.2 m, rather than 1.3 m, was accepted in certain areas where this would help achieve a smoother and more constructible road alignment. The minimum road depth of 1.2 m accounts for less than 8% of the entire road alignment.

The final proposed design **complies with Golder’s design criteria along approximately 85% of the road length**, while incorporating localized adjustments where site conditions and optimization considerations justified deviations.

Comment 2b

In response to CIRNAC Comment 2b, Agnico Eagle acknowledges that climate change may accelerate permafrost degradation. To address this risk, an ongoing monitoring program has been implemented to provide a mechanism for detecting changes in thaw depth or permafrost conditions over time. Annual Geotechnical Inspections are conducted in accordance with Water Licence 2AM-MEL1631 and reported in the Meliadine Annual Reports. These inspections include permafrost monitoring and are also aligned with the requirements of NIRB Project Certificate No. 006.

The demonstrated performance of existing infrastructure, including roads in service for more than 10 years under current conditions, combined with continued annual inspections, supports the conclusion that the proposed design is appropriate and durable for Discovery Road.

Following construction, Discovery Road will be incorporated in the Annual Geotechnical Inspection program. Should any performance issues be identified, appropriate mitigation measures, corrective repairs, and additional soil investigations will be implemented as required.

Further, Agnico Eagle commits to updating the thermal study originally conducted by Golder in 2010 and results of this updated study will be used to revise Section 5 of the Roads Management Plan.