

Comment Index

Tote Road Expansion Project Additional Information Addendum

Publication Date: January 16, 2022

Government

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1	Kwilmu'kw Maw-Klusuaqn Negotiation Office (KMKNO)	December 14, 2022

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1	Native Council of Nova Scotia (NCNS); Maritime Aboriginal Peoples Council	December 15, 2022

Guidance for Reviewers – Environmental Assessments

Environmental Assessment Branch, Environment and Climate Change

Date: November 17, 2022

To: Renata Mageste da Silva, Environmental Assessment Officer

From: Office of L'nu Affairs - Consultation Division;



Subject: Tote Road Quarry Expansion Project, Halifax County, Nova Scotia

Scope of review:

The following review considers whether the information provided will assist the Province in assessing the potential of the proposed Project to adversely impact established and/or asserted Mi'kmaq Aboriginal and Treaty rights.

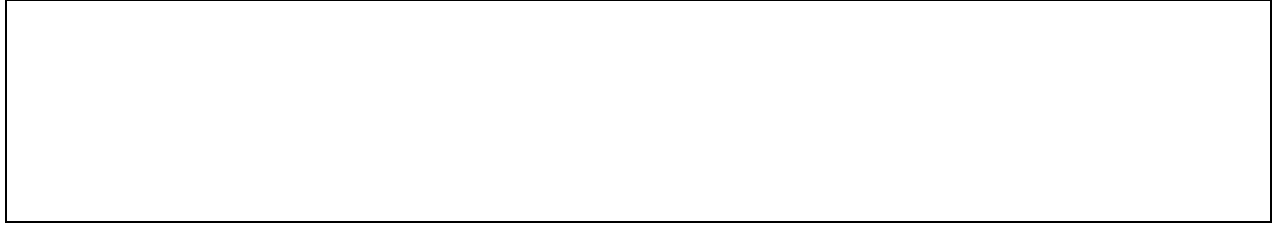
Technical Comments:

At this time, OLA has no comments on the proposed Tote Road Quarry Expansion Project. OLA will however, continue to work with the EA Branch to address any comments submitted by the Mi'kmaq of Nova Scotia through the Environmental Assessment process.

Summary of Recommendations: (provide in non-technical language)

At this time, OLA has no comments on the proposed Tote Road Quarry Expansion Project. OLA will however, continue to work with the EA Branch to address any comments submitted by the Mi'kmaq of Nova Scotia through the Environmental Assessment process.

Guidance for Reviewers – Environmental Assessments
Environmental Assessment Branch, Environment and Climate Change





Date: December 8, 2022

To: Renata Mageste da Silva, Environmental Assessment Officer

From: Sarah MacLeod, Hydro and Flow Unit, Regulatory Review Biologist, Fish and Fish Habitat Protection Program

Subject: Tote Road Quarry Expansion EA Project

Dear Renata Mageste da Silva:

Fisheries and Oceans Canada (DFO), Fish and Fish Habitat Protection Program (FFHPP) received the Nova Scotia Environmental Assessment Addendum registration documents submitted for the Tote Road Quarry Expansion Project in Halifax County. The project is to expand on the existing quarry that is currently less than four hectares (ha) to a total 24 ha. Quarry operations are anticipated to remain the same, with operations active during the construction season and shut down for the winter.

The study area includes three wetlands and an isolated pond in the southwest corner; the area is bordered by an additional wetland and watercourse. No fish habitat was identified within the study area. Poor fish habitat was identified within the bordering wetland and watercourse, where intermittent access may provide forage habitat. The water balance analysis included in the Addendum documents indicated the potential for increased flows to the bordering wetland and watercourse, which has the potential to increase fish access to habitat in the area. The increased flows may also result in potential sedimentation and scouring of the watercourse.

DFO-FFHPP is responsible for administering the fisheries protection provisions of the *Fisheries Act (FA)* and *Species at Risk Act (SARA)* for aquatic species at risk. The fisheries protection provisions of the *FA* includes: section 34.4 which prohibits the death of fish by means other than fishing; section 35 which prohibits the harmful alterations, disruption, or destruction (HADD) of fish habitat; and section 36.3 which prohibits the deposition of deleterious substances into water frequented by fish or in any place where it may enter such water. *SARA* prohibits: the killing, harming, harassment, possession, capturing, or taking of a species listed as extirpated, endangered, or threatened; the damage or destruction of a residence; or the destruction of any part of the critical habitat of such a listed species, unless authorized by the minister.

Below you will find the comments from DFO-FFHPP regarding the above mentioned project:

- Any direct or indirect impacts to surface water quantities should be monitored to ensure that the isolated pond, known as Pond 1, is not breached in order to avoid fish stranding and/or release of deleterious substances into downstream fish habitat;

- Any changes in water quantity to fish habitat should be assessed and monitored to ensure that quarry activities do not result in the loss of fish habitat or fish passage due to fluctuations in water levels or creation of velocity barriers; and,
- The bordering watercourse should be monitored to ensure that the additional flows in the watercourse associated with the quarry expansion do not result in the scouring of the watercourse and alteration or destruction of fish habitat.

Should the EA be granted conditional approval, DFO will be requesting additional information be provided through the Nova Scotia of Environment Watercourse and Wetland Alteration Approval processes to determine if the project will result in the HADD to fish and fish habitat and require an authorization under the *FA*.

BLASTING

- Avoid using explosives in or near water. Use of explosives in or near water produces shock waves that can damage a fish swim bladder and rupture internal organs. Blasting vibrations may also kill or damage fish eggs or larvae.
- Proponents considering the use of explosives are encouraged to consult DFO-FFHPP as early as possible in their planning process to identify possible alternatives to the use of explosives, the biological resources and their habitats at risk, and/or effective mitigation measures.
- If explosives are required as part of a project (e.g., removal of structures such as piers, pilings, footprints; removal of obstructions such as beaver dams; or preparation of a river or lake bottom for installation of a structure such as a dam or water intake), the potential for impacts to fish and fish habitat should be minimized by implementing the following measures:
 - Time in-water work requiring the use of explosives to prevent disruption of vulnerable fish life stages, including eggs and larvae, by adhering to appropriate [timing windows](#).
 - Isolate the work site to exclude fish from within the blast area by using, for example, bubble/air curtains (i.e., a column of bubbled water extending from the substrate to the water surface as generated by forcing large volumes of air through a perforated pipe/hose), noise generating devices (e.g., air compressor discharge line) to scare fish away from site, cofferdams, or aquadams.
 - Remove any fish trapped within the isolated area and release unharmed beyond the blast area prior to initiating blasting.
 - The use of confined, or in particular, unconfined explosives in or near Canadian fisheries waters is discouraged; the proponent is encouraged to utilize less destructive methods wherever possible.
 - Do not use ammonium nitrate based explosives in or near water due to the production of toxic by-products.
 - Minimize blast charge weights used and subdivide each charge into a series of smaller charges in blast holes (i.e., decking) with a minimum 25 millisecond (ms) delay between charge detonations.
 - After loading a charge in a hole, the hole is to be back-filled (stemmed) with angular gravel to the level of the substrate/water interface or the hole collapsed to confine the force of the explosion to the formation being fractured. The angular gravel is to

- have a particle size of approximately $1/12^{\text{th}}$ the diameter of the borehole.
- All “shock-tubes” and detonation wires are to be recovered and removed after each blast. Remove all blasting debris and other associated equipment/products from the blast area.
- Place blasting mats over top of holes to minimize scattering of blast debris around the area.
- No explosive is to be knowingly detonated within 500 metres (m) of any marine mammal (or no visual contact from an observer using 7x35-power binocular).
- No explosive is to be detonated in or near fish habitat that produces, or is likely to produce, an instantaneous pressure change (i.e., overpressure) greater than 100 kPa (14.5 psi) in the swimbladder of a fish.
- No explosive is to be detonated that produces, or is likely to produce, a peak particle velocity greater than 13 millimetres per second (mm/s) in a spawning bed during the period of egg incubation.

Date: December 13, 2022

To: Renata Mageste da Silva, Environmental Assessment Officer

From: Groundwater Program Staff, Sustainability and Applied Science Division

Reviewed by Elizabeth Kennedy, Director, Sustainability and Applied Science Division

Subject: **Groundwater Review of the Tote Road Quarry Expansion Project - Addendum Information Response**

Scope of review:

Scotian Materials Ltd. provided a submission to Nova Scotia Environment and Climate Change dated November 9, 2022, titled the *Tote Road Quarry Expansion Project Environmental Assessment Additional Information Addendum*. The submission is based on the response to the additional information requested by the Minister of Environment and Climate Change, April 29, 2022.

This review focuses on the additional groundwater information in the addendum, provided in response to the Minister's requirements.

Technical Comments:

See attached Information Request (IR) response table.

Summary of Review and Recommendations:

Regarding the additional groundwater information provided:

1. In my view regarding groundwater aspects, the submission and groundwater evaluation provided adequately meets the information requested.
2. Risks due to the project activity remain to surrounding wetlands from the off-site potential for water table lowering due to quarry dewatering. However, the proponent has now included a larger set-back to avoid risk of impacts to the Wetland of Special Significance (WSS) in the area.
3. It is recommended that site operational groundwater monitoring and wetland monitoring be conducted.

Table for Minister's EA Information Request Review – Tote Road Quarry - Groundwater

	NSECC Minister's Request for Information	Scotian Materials Ltd. / GHD Summary Response (Full Details in Complete Nov 9, 2022 Addendum Document)	Does the SML /GHD response meet the Minister's Request? Yes / No	NSECC SAS Groundwater comments regarding response	Main Risks + Recommendations
4 a.	<p>4. Groundwater</p> <p>a. Detailed analysis related of the potential impacts due to groundwater dewatering, and proposed mitigation measures, considering that data provided in the EA registration document indicates that quarry expansion will interact with and extend below the water table.</p>	<p><i>Based on the review of the potential groundwater/surface water interactions, the footprint of the expanded quarry was reduced to 22.6 ha in size including the existing quarry (see Figure 1). The Project will avoid the surface water catchment area of wetland 1 (WL1) and a 133 m buffer was also applied between the expanded quarry and WL1 based on the ROI calculation. Details of the surface water assessment are provided in Section 3.</i></p> <p><i>A Groundwater Monitoring Plan will be developed to validate the predicted ROI and to monitor potential changes to groundwater levels based on Project activities. A surface water and wetland monitoring plan is discussed in Section 3.</i></p>	Yes	<p>The analysis used involved determining hydraulic conductivity from field tests and a rough empirical formula to estimate Radius of Influence (ROI) of groundwater drawdown surrounding a single well (Sichardt Equation). This equation likely underestimates the ROI, particularly over time.</p> <p>Research (Louwyck et al 2022) suggests the Sichardt equation is a widely used empirical formula for estimating drawdown due to extraction from a well. However, the authors find it much simplified compared to other more rigorous derived equations from analytical solutions and ultimately numerical calculation is preferred (but does require significantly more effort). The Sichardt equation was found to likely underestimate drawdown effects, and may not adequately represent transient conditions over longer periods of time.</p> <p>Of note is research by Yidhego (2017) that provides a modified Sichardt equation more appropriate to analyze mining excavations/quarrying as "large equivalent wells" (i.e not a small diameter well test). This approach could be an improvement taken for future site analysis at Tote Road Quarry and takes into account the distance between centre point radius R_e and limits of excavation as additive to the ROI. Using this approach with the modified formula, the evaluation will likely not underestimate ROI as much as the current empirical formula likely does.</p> <p>Alternately more advanced analytical equations could be used for more accurate predictions such as Marinelli and Niccoli (2000, Groundwater Journal). Groundwater numerical modelling could also be used.</p> <p>The establishment of a long-term groundwater monitoring plan as suggested adequately addresses the uncertainty over time in the predicted groundwater ROI equation and drawdown effects.</p>	<p>- Risk of underestimating ROI drawdown effects. Potential for adverse affects to wetlands, including WSS.</p> <p>- Operational groundwater monitoring and wetland monitoring is recommended</p>
4 b.	Provide mapping views and cross-sectional details for the proposed final quarry depths / elevations/ width, current location of the water table and relevant off-site wetland elevations.	<i>The mapping and cross-sectional details of the proposed final quarry depths, elevations and width along with the water table and the locations of the wetland features are shown in Figures 3, 4 and 5 (attached).</i>	Yes	Figures show the quarry depths below the water table, topography etc.	None
4 c.	Analysis of groundwater drawdown effects due to excavation depths below the water table, and the potential for these effects to extend off-site.	<i>To evaluate the potential groundwater drawdown effects due to the development of the expanded quarry to a depth of 116 m above sea level (masl), GHD reviewed the groundwater levels recorded from April 2021 to June 2022, conducted single well response tests, and utilized a numerical equation to determine the potential radius of influence (ROI) of the Project.</i>	Yes	<p>Directly relates to 4 a. above. GHD analysis shows it is likely some drawdown effects will extend 40-100 m from quarry (which may be an underestimate due to the empirical formula used for prediction). Based on the footprint some effects may then be seen off-site. Groundwater monitoring on-site over time should be used to verify/update the empirical equation used.</p> <p>Context also given by Tables 4-8 with water balance results showing</p>	- As in 4 a. the empirical equation used likely underestimates ROI drawdown effects. Monitoring recommended.

Table for Minister's EA Information Request Review – Tote Road Quarry - Groundwater

	NSECC Minister's Request for Information	Scotian Materials Ltd. / GHD Summary Response (Full Details in Complete Nov 9, 2022 Addendum Document)	Does the SML /GHD response meet the Minister's Request? Yes / No	NSECC SAS Groundwater comments regarding response	Main Risks + Recommendations
				changes in "% runoff + baseflow [groundwater]". GHD evaluation shows generally that WL 1 (WSS) is likely protected with new setback conditions. However, WL 3 is at risk due to groundwater dewatering.	

Main Risks

- 1) Risk of underestimating groundwater Radius of Influence (ROI) drawdown effects from quarrying.
- 2) Potential risk for adverse affects/loss of wetlands (including WSS) related to groundwater lowering within the area of the ROI .

Recommendations

Operational groundwater monitoring and wetland monitoring is recommended.

Environment and Climate Change

Date: December 14, 2022

To: Renata Mageste da Silva, Environmental Assessment Officer

From: I.C.E. Division; (Regional Engineer, Inspector Specialist, and District Manager)

Subject: **Tote Road Quarry Expansion Project_ Environmental Assessment
Additional Information Addendum Halifax County, Nova Scotia**

Scope of review:

This review focuses on the following mandate: Environmental and human receptors of quarry impacts (including its effluent), hydrology, surface water quantity, and surface water quality.

Technical Comments:

The submitted supplemental information (2022-Nov) seemingly addresses the issues for which additional information was requested, although we defer to the staff position who requested the information (each topic) regarding completeness and any subsequent information that may be required. However, we do note one observation: there appears to be an additional catchment area that is not identified with a label, nor included in the tables. The area is east of WL4 catchment area, and south of WL3 catchment area, and contains a minimum of several hectares on the subject property that currently seemingly flows east towards the watercourse flowing from Sandy Lake to Little Indian Lake (which then flows to the ocean). When EOQ timeframe occurs, these several hectares will flow west, and will therefore no longer be contributing to this watercourse catchment area. The risk of loss of contributing flow (quantity) could affect habitat availability (potentially fish habitat if this is a fish-bearing watercourse) as well as have a detrimental effect on quality (i.e. temperature, and potential concentration of sedimentation or other particulates in the watercourse).

ICE identifies no issue with proceeding with the EA.

Based upon the potential impact to the Little Indian Lake and associated watercourse, a watercourse alteration application may be required. If a decision is made to approve the EA, a term and condition should require that assessment or monitoring be completed for potential impacts to Little Indian Lake and associated watercourses prior to the disturbance of any land in the unnamed catchment area.

Summary of Recommendations: (provide in non-technical language)

ICE Division's recommendation is that the EA be approved with terms and conditions that require assessment or monitoring be completed prior to the disturbance of land in the unidentified catchment area.

Date: December 16th, 2022

To: Renata Mageste da Silva, Environmental Assessment Officer

From: Surface Water staff, Water Resources Management Unit

Reviewed by Elizabeth Kennedy, Director, Sustainability and Applied Science Division

Subject: Additional Information Addendum - Tote Road Quarry Expansion Project, Halifax County, Nova Scotia

Scope of review:

Scotian Materials Ltd. provided a submission to Nova Scotia Environment and Climate Change dated November 9, 2022, titled the *Tote Road Quarry Expansion Project Environmental Assessment Additional Information Addendum*. The submission is based on the response to the additional information requested by the Minister of Environment and Climate Change, April 29, 2022.

This review from the Water Resources Management Unit Surface Water staff with the Nova Scotia Environment and Climate Change (NSECC), Sustainability and Applied Science Division focuses on the following mandate:

- Surface water quantity
- Surface water quality
- Potential adverse effects and proposed mitigations with respect to surface water quantity and quality.

While comments may also include considerations for impacts on wetlands, appropriate technical specialists for these areas should be consulted for specific review and comments.

Documents reviewed:

Tote Road Quarry Expansion Project Environmental Assessment Additional Information Addendum (the Addendum). Scotian Materials Limited. 09 November, 2022.

Environmental Assessment Registration Document – Tote Road Quarry Expansion Head of St. Margarets Bay Halifax County, Nova Scotia (the EARD). Scotian Materials Limited. February 25, 2022.

Comments:

See attached Information Request (IR) response table.

Summary of Review and Recommendations:

The submitted information and assessment on surface quantity and quality meet the information requested. With the information submitted, there remain potential impacts of the project to surface water quantity and quality that will require monitoring, as identified in the table below with associated recommendations.

NSECC Minister's Request for Information	NSECC SAS Surface comments regarding response	Issues/ Risks/Gaps	Recommendations
<p>Additional Information Request (1.a): <i>Details on the assumptions made in the water balance to support modelling results of each selected scenario, as in the EA registration document; or re-evaluate the appropriateness of the selected scenarios.</i></p> <p>Additional Information Request (1.b.) <i>Integration of surface water and groundwater</i></p>	<p>1) Details on the assumptions made for the water balance model, and surface water and groundwater integration are provided within the updated water balance analysis. Except for groundwater radius of influence (ROI), which is estimated from ground water monitoring results, assumptions made for the water balance model includes,</p> <ul style="list-style-type: none"> • infiltration factors for different site features (e.g., quarry floor, gravel area outside quarry floor, soil, natural areas within the site), with the approach to select/calculate these factors; • a storage volume and surplus calculation for the crushed rock layer on the quarry floor; the layer of crushed rock was further assumed to be 1 m in depth with a void ratio of 30%; • 90% of precipitation was assumed to infiltrate into the crushed rock layer at the beginning of quarry operations, 10% of water within the crushed rock layer was also assumed to infiltrate to groundwater when the layer is fully saturated; • baseflow volumes were assumed to equal infiltration volumes when the pit is flooded and the water table is at equilibrium, based on a further assumption that the groundwater flow divide follows the catchment boundaries and the water infiltrated within the catchment area appears as baseflow at the corresponding assessment point; • all infiltration within the groundwater ROI was assumed to be lost as groundwater inflow to the quarry. Baseflow volume reductions were estimated by reducing infiltration volumes by the percentage of the groundwater ROI that overlaps with the respective catchment. 	<p>Main risk/Gap: Application of an unvalidated/ uncalibrated water balance model to support prediction and assessment of potential hydrological impacts. In more details,</p> <ul style="list-style-type: none"> • monthly timestep was used for the water balance model. No information is provided on whether monthly timestep can appropriately capture and represent the specific climate conditions in the Project area. No information is provided on whether climate change is considered, given the proposed 30 year long Project lifespan. • the assumptions made were not adequately justified as limited information was provided to support the reasonableness of making these assumptions, nor was the water balance model validated before it was used to support the water balance assessment. 	<p>Require a surface water quantity monitoring plan to collect necessary data for the settling pond and its discharge to validate predicted hydrological changes and associated impact assessment.</p> <p>The plan should consider collecting data in the first few years during the proposed Project to calibrate the water balance model to support more reasonable and accurate prediction and assessment of impacts, and thus to support planning and implementation of mitigation measures over the 30 years lifespan of the proposed Project.</p>
	<p>2) As indicated in the revised expansion plan (Figure 6 and Figure 7) in the Addendum, the Project sits on the watershed divide of several sub watersheds within the Little Indian Lake watershed. Portion of the drainage areas of WL2, WL3, and an unlabeled watershed (south of WL2, WL3 drainage area, and north of existing quarry site) will be permanently diverted to the proposed quarry. Assessment was provided to the potential impacts to WL2, WL3 due to the loss of drainage areas, but very limited information was provided on the same assessment to the unlabeled watershed. It is important to assess the potential impacts to each sub watershed and associated surface water resources to have a clear understanding of the potential impacts of proposed Project and accordingly plan for adequate mitigation measures.</p>	<p>Main risk/Gap: Potential impacts not assessed for an unlabeled sub watershed and associated surface water resources (if any) due to loss of drainage area to the proposed quarry area.</p>	<p>Require this assessment being provided for NSECC review and acceptance prior to any subsequent approval application/amendment if the EA is approved. If there is deemed to be impact to this sub watershed and any associated surface water resources within it, adequate mitigation measures should be planned.</p> <p>It is also recommended to plan for surface water quantity monitoring for any water resources that will be</p>

NSECC Minister's Request for Information	NSECC SAS Surface comments regarding response	Issues/ Risks/Gaps	Recommendations
	<p>3) The Addendum states the quarry floor will be allowed to flood under reclamation conditions, creating a pit lake, and the pit lake will flow by gravity to a settling pond and will discharge to the southwest. No further information is provided in the Addendum nor in the EARD on whether this pit lake will perform to a state equal to or better than that existed prior to disturbance as stated in the EARD. In addition, no information is provided on how the settling pond will be addressed at final reclamation. This information is important to understand and assess whether the proposed reclamation plan will return the site to the natural state as stated in the EARD.</p>	Not a major risk/gap.	<p>impacted to support planning for mitigation measures.</p> <p>Require detailed information to be included in the reclamation plan to support application/amendment of any approval following EA process.</p> <p>Information should include details of the pit lake, and how it will perform as natural features prior to disturbance; approach to address the settling pond at final reclamation should also be included.</p>
<p>Additional Information Request (2.b.): <i>Water quality monitoring plan for the proposed new settling pond and associated discharge.</i></p>	<p>The Addendum states site discharge is proposed to be sampled from the settling pond outlet pipe quarterly when discharging. No further information is provided on when the proposed monitoring will happen in relation to proposed quarry operations (including shut-down), and whether this monitoring frequency can provide sufficient data for assessment of settling pond performance and water quality from the site discharge.</p>	<p>Risk; settling pond performance is not sufficiently monitored for performance assessment, and to support plan for pond maintenance (e.g., TSS removal) and necessary updates to maintain designed effectiveness.</p>	<p>Require details of the settling pond to be provided in support of any approval application/amendment. Any updates/changes to the design of the settling pond must be completed by a qualified professional engineer and must be submitted for review and acceptance by the Department. Information to be provided should at least include,</p> <p>Information provided in this EA on settling pond;</p> <p>how the settling ponds will be gradually updated and expanded to cope with increased surface runoff with quarry expansion over proposed quarry lifespan;</p> <p>approach to monitor settling pond performance/compliance with appropriate frequencies during the different operational phases of the year, including times of</p>

NSECC Minister's Request for Information	NSECC SAS Surface comments regarding response	Issues/ Risks/Gaps	Recommendations
			quarry shutdown; considerations for removal of total suspended solids (TSS) and minimizing impacts to surrounding water resources.
<p>Additional Information Request (3.): <i>Detailed information on the existing quarry site surface water drainage and management, and on the proposed surface water management through the various phases of the quarry expansion.</i></p>	<p>The Addendum states that water from the settling pond will be discharged via gravity to a level spreader located at the southwestern Project boundary, and there is adequate space in the southwestern portion of the Project to construct both the 10 ha and 22.6 ha sized pond. The Addendum states all water collected in the expanded quarry will be directed to the settling pond and discharged to southwest of the expanded quarry and contribute runoff to the catchments supplying WC1 and WL4. However, no information is provided on whether there is potential of sediment being released into WL4 as a result of this runoff, given the relatively short distance between the level spreader of the settling pond and WL4 (approximately 40 metres estimated from the provincial GIS webmap). In addition, no information is provided on whether the settling pond for 22.6 ha quarry will encroach into this area, which will lead to a shorter distance between the level spreader and WL4, and thus potentially increase the risk of sediment releases into WL4.</p>	<p>Risk of sediment being released into WL4 and thus WC1, through overland runoff from the area which receives quarry site discharge.</p>	<p>Require water quality monitoring for TSS to be included in the proposed monitoring plan for WL4.</p> <p>Monitoring should consider including WC1 if it receives overland runoff from the area which receives quarry site discharge.</p>

Date: December 16, 2022

To: Renata Mageste da Silva, Environmental Assessment Officer

From: Wetland & Water Resources Specialist, Water Resources Management Unit

Reviewed by Elizabeth Kennedy, Director, Sustainability and Applied Science Division

Subject: **Wetland Review of the Tote Road Quarry Expansion Project - Addendum Information Response**

Scope of review:

Scotian Materials Ltd. provided a submission to Nova Scotia Environment and Climate Change dated November 9, 2022, titled the *Tote Road Quarry Expansion Project Environmental Assessment Additional Information Addendum*. The submission is based on the response to the additional information requested by the Minister of Environment and Climate Change, April 29, 2022.

This review focuses on the additional wetland information in the addendum, provided in response to the Minister's requirements.

Technical Comments:

See attached Information Request (IR) response table.

Summary of Review and Recommendations:

The additional information provided relevant to the wetlands is sufficient in addressing the information requested. The proponent should submit NSECC Wetland Alteration Approvals prior to any Project activities involving wetland alteration.

Table for Minister's EA Information Request Review – Tote Road Quarry - Wetlands

	NSECC Minister's Request for Information	Scotian Materials Ltd. / GHD Summary Response (Full Details in Complete Nov 9, 2022 Addendum Document)	Does the SML /GHD response meet the Minister's Request? Yes / No	NSECC SAS Wetland Specialist comments regarding response	Main Risks + Recommendations
1 c.	Assessment of impacts to wetlands due to drainage area and surface water runoff. Methodology for the catchment area delineation shall be provided.	<p>As described in the EARD, WL2 and WL3 are expected to be impacted by significant changes to hydrology, therefore, these wetlands will be carried forward into the provincial wetland alteration application process (see EARD Section 6.5.2).</p> <p>WL1 and WL4 are not proposed to be directly impacted. The updated expanded quarry footprint (22.6 ha) has been refined to avoid development within the catchment area for WL1 (potential wetland of special significance) and further limit the potential for indirect hydrological impacts to this wetland. In consideration of the expanded quarry footprint, WL1 catchment area, and conservative modelling methods, it was determined that WL1 is not expected to be functionally altered by indirect changes to local hydrology and will maintain wetland hydrology as defined by the US Army Corp of Engineers (2012). This determination is based on the following assessment:</p> <ul style="list-style-type: none"> - Project-related development is no longer planned within the WL1 catchment area, there is no predicted change to surface runoff to WL1 or its catchment. - The impact extent of Project-related baseflow reduction is predicted by the groundwater ROI. The catchment's updated Water Balance Analysis (WBA) conservatively assumes that 100% of baseflow will be lost within the groundwater ROI, resulting in an average annual flow reduction in a portion of the WL1 catchment of 14.61% under EOQ conditions. The predicted ROI does not interact with WL1 (i.e., the ROI does not encroach within the WL1 boundary). - WL1 is an isolated treed swamp with deep peat substrate (i.e., >40 cm) and a near-surface water table. Isolated swamps experience natural water table variability and have been reported to have seasonal water table fluctuation of ±20 cm (Keddy, 2010). The US Army Corp of Engineers (2012) stipulates that wetland hydrology is defined as saturation of soils 20 cm below the surface or groundwater levels within 30 cm of the surface for a period of two consecutive weeks in the growing season, typically June through September (period when no flow reduction is expected in the WL1 catchment). - No change in flow (increase or decrease) is expected in the WL1 catchment under reclamation conditions. <p>While WL4 is expected to withstand modelled hydrological changes to its catchment, given 'worst case' projections,</p>	Yes	<p>The quarry expansion area has been modified to avoid the catchment area of WL1 a wetland of special significance (WSS), therefore direct and indirect alteration are not expected based on modeling. If the groundwater well (MW-02) installed adjacent to WL1 recognizes a deviation from the baseline conditions NSECC should be notified and may request wetland monitoring on WL1 to ensure no indirect alteration.</p> <p>A Wetland Alteration Approval Application has been proposed for WL2 and WL3. Based on the assessment there are potential indirect alterations proposed to WL4. All three wetlands (WL2,3, and 4) should be included in the Wetland Alteration Approval Application. The application should include a detailed ecological and hydrological monitoring plan. Wetland monitoring efforts should include integration of surface water and groundwater monitoring data wherever appropriate. The NSECC Wetland Alteration Approvals process should be submitted prior to any Project activities involving wetland alteration.</p>	<p>There is a potential risk for additional wetland alteration as the predicted indirect alterations are based off modeling. Wetland monitoring should be conducted to ensure no additional alterations occur.</p>

Table for Minister's EA Information Request Review – Tote Road Quarry - Wetlands

	NSECC Minister's Request for Information	Scotian Materials Ltd. / GHD Summary Response (Full Details in Complete Nov 9, 2022 Addendum Document)	Does the SML /GHD response meet the Minister's Request? Yes / No	NSECC SAS Wetland Specialist comments regarding response	Main Risks + Recommendations
		<p>and will not be hydrological altered, it is recommended WL4 be considered for monitoring to verify this assessment. Monitoring methods will be discussed in the Project's Industrial Approval (IA) amendment and wetland alteration application process and defined in consultation with NSECC. Should monitoring results indicate potential hydrological impacts, the monitoring results and scope will be reviewed and may be expanded (e.g., additional stations, monitoring wells and loggers), in consultation with NSECC. Monitoring within WL1 is not proposed at this time, as no direct or indirect impacts are anticipated, nor are there any hydrologically contiguous features with potential Project-related direct or indirect impacts. Additionally, given the position of WL1 in relation to the quarry expansion phases (i.e., north of the proposed expansion area), the Project lifespan of ~30 years, and the planned progressive development, it is not anticipated that any potential indirect impacts would be observed in WL1 at the onset of the quarry expansion. A groundwater well (MW-02) has been installed adjacent to WL1, between the wetland and the expanded quarry, to capture baseline groundwater conditions at this location. Monitoring requirements within WL1 may be reassessed should groundwater levels be observed to significantly deviate from baseline conditions in MW-02. If required, a groundwater monitoring program will be further defined in accordance EA approval, the IA and as required by NSECC.</p>			



December 14th, 2022

Renata Mageste da Silva
Environmental Assessment Officer
Environmental Assessment Branch
Nova Scotia Environment and Climate Change
Email: renata.magestedasilva@novascotia.com

RE: Continuing Consultation on the Tote Road Quarry Expansion Project – Scotian Materials Ltd.

Ms. Mageste da Silva,

I write to acknowledge receipt of your letter dated November 15, 2022, with respect to continued consultation under the *Terms of Reference for a Mi'kmaq-Nova Scotia-Canada Consultation Process* (ToR) as ratified on August 31, 2010, on the above noted project.

EA Registration Document

6.2 Atmospheric Conditions and Air Quality

Please provide thresholds at which water application will be used to reduce dust. What monitoring is planned for dust particulate? What are the proposed monitoring locations off site?

6.4 Noise

Have there been studies conducted to assess how noise will affect local wildlife? If so, please provide for our review.

Will additional noise monitoring locations be established with the expansion? If so, where are the proposed locations? It is recommended that a monitoring station be established the direction of the bat hibernaculum located within 5km of the site.

6.5 Surface Water Resources

It is recommended that sampling occur at the commencement of discharge and monthly thereafter, when discharging.

6.11.1 Existing Environment

Talks to species at risk, and priority species. Once again, with out an\ specific species inventory, inclusive of all species within the project area, we are unable to determine what, if any, impact there will be. The Mi'kmaq, as stewards of the land, reserve the right to protect and conserve all species within the province, including those not yet considered under COSEWIC or under provincial regulation for Species at Risk.

6.12 Priority Species

It would be expected that the Mi'kmaq of Nova Scotia be consulted when determining a priority species list. Did the proponent or their contractor collaborate with the Mi'kmaq of Nova Scotia in the development of this list?

Please provide a wildlife monitoring plan for our review and comment.

6.12.1.1 Flora

States “During field surveys, one SOCI vascular plant species was observed, the Nova Scotia agalinis (S3S4).” and that “No priority vascular plant species were observed within the Project footprint.” but does not include a species inventory. While no provincially recognized species were noted, we are unable to determine if culturally sensitive and rare species for the Mi'kmaq may be present. Thus, the flora section of the Environmental Assessment Registration Document; Tote Road Quarry Expansion Head of St. Margaret's Bay Halifax County, Nova Scotia report is not sufficient.

6.14 Archaeological and Cultural Resources

The Assembly of Nova Scotia Mi'kmaw Chiefs (ANSMC) expects a high level of archaeological diligence with evidence-based decisions grounded in an understanding of the subsurface environmental data. The Maw-lukutijik Saqmaq (Assembly of Nova Scotia Mi'kmaw Chiefs) expects subsurface data, adequate to eliminate concern for presence, protection, and management of Mi'kmaw archaeological and cultural heritage as part of assessment of potential in advance of any development. Without subsurface testing, the evidence of a lack of concern in impact areas does not exist.

We would recommend that all areas impacted be subjected to shovel testing prior to any development to eliminate concern for presence, protection, and management of Mi'kmaw archaeological and cultural heritage as part of assessment.

Disturbance is defined, for archaeological purposes, as the dislocation of soils and/or sediments, such as that by heavily treaded or tracked vehicles, as well as purposeful excavation (including grubbing) by heavy equipment. Mi'kmaw archaeological sites have developed since time immemorial and may not be identified from the surface character of the current landscape, one cannot conclusively eliminate potential for Mi'kmaw archaeological heritage, without subsurface testing, regardless of current landscape conditions.

6.15 Mi'kmaq

Speaks to Mi'kmaq values and traditional use. Where traditional use has been noted, site preservation should be considered for 'high-risk non-mobile' sites especially given the proximity to known archaeological sites. Tote Road Quarry Expansion should also consider site reclamation or offsetting, whereby known traditional use has been frequent within the project area and that project area will be negatively impacted.

Addendum Document

3. Water Balance Analysis

Due to the proximity to the project area WL1 and WL4 should be included in the wetland monitoring plan. Please provide the wetland monitoring plan and proposed offsetting plan for the destruction of wetlands for our review and comment.

Please provide the following documents for our review upon their completion:

- Surface Water Monitoring Plan
- Groundwater Monitoring Plan
- Wetland Compensation and Monitoring Plan
- Blast Monitoring Plan
- Wildlife and Vegetation Monitoring Plan

The Mi'kmaw Nation in Nova Scotia has a general interest in all lands and resources in Nova Scotia as the Mi'kmaq have never surrendered, ceded, or sold the Aboriginal Title to any of its lands in Nova Scotia. The Mi'kmaq have a Title claim to all of Nova Scotia and as co-owners of the land and its resources it is expected that any potential impacts to Rights and Title shall be addressed.

Yours in Recognition of Mi'kmaw Rights and Title,

Director of Consultation
Kwilmu'kw Maw-Klusuaqn Negotiation Office

c.c.:

Consultation Team, Sipekne'katik First Nation
, Millbrook First Nation
Membertou First Nation
Consultation Advisor, Nova Scotia Office of L'nu Affairs

Maritime Aboriginal Peoples Council



The Maritime Regional Aboriginal Leaders
Intergovernmental Council of Aboriginal Peoples
Continuing to Reside on Traditional Ancestral Homelands

Forums

- Leaders Congress
- MAPC Commissions/Projects
- MAARS Secretariate
- IKANAWTIKET SARA
- MAPC Administration

MAPC Regional
Administrative Office
80 Walker Street, Suite 3
Truro, Nova Scotia
B2N 4A7

Tel: 902-895-2982
Fax: 902-895-3844
Toll Free: 1-855-858-7240
Email: frontdesk@mapcorg.ca

Governmental
APRO Councils

Native Council of
Nova Scotia
P.O. Box 1320
Truro, Nova Scotia
B2N 5N2

Tel: 902-895-1523
Fax: 902-895-0024
Email: chiefaugustine@ncns.ca

New Brunswick Aboriginal
Peoples Council
320 St. Mary's Street
Fredericton, New Brunswick
E3A 2S4

Tel: 506-458-8422
Fax: 506-451-6130
Email: chief@nbapc.org

Native Council of
Prince Edward Island
6 F.J. McAuley Court
Charlottetown
Prince Edward Island
C1A 9M7

Tel: 902-892-5314
Fax: 902-368-7464
Email: chief@ncpei.com

December 16th, 2022

Environmental Assessment Branch
P.O. Box 442
Halifax, Nova Scotia
B3J 2P8

RE: Tote Road Quarry Expansion

To Whom It May Concern,

On behalf of the Native Council of Nova Scotia (NCNS), the Maritime Aboriginal Aquatic Resources Secretariate (MAARS) is providing comments to the Environmental Assessment Branch of the Nova Scotia Department of Environment and Climate Change regarding the Additional Information Addendum to the Tote Road Quarry Expansion by Scotian Materials Ltd. Our comments primarily relate to the matters of invasive species, fringe lichen, and emergency preparedness. NCNS provided commentary on April 8th, 2022, during which we called attention to a few concerns related to the Environmental Assessment (EA), which were not addressed in the NSECC Additional Information Request. Introductory vectors for invasive alien species (IAS) are one concern given that IAS are predisposed to establish themselves in recently disturbed areas, due to the localized eradication of natural predators and the removal of resource competition from anthropogenic activity. Activities such as grubbing, that will take place during the expansion of this quarry, are one of such heavy stressors on the environment that will provide an opportunity for IAS to establish themselves. As the environment is stressed, there is then an increased potential for IAS to be successfully introduced via vehicles, mobile facilities, on the boots of workers, and other vectors if no preventative measures are taken.

The NCNS requests Scotian Materials Limited develop procedures to mitigate introductory vessels for IAS. This could include mandated practices to clean mobile facilities and vehicles prior to entry of the project site, to ensure they do not act as introductory vectors. Additionally, we request clarification if an IAS survey has been performed, and if not, that one be conducted.

Within the project footprint, it is noted that there is an instance of fringe lichen (*Heterodermia neglecta*). The proponent has acknowledged the species designation as ACCDC S3S4, and has opted to consult with Nova Scotia Department of Lands and Forests (NSDL&F) and Nova Scotia Environment and Climate Change (NSECC) regarding mitigation options such as transplantation, as described in Section 6.9.2. In a publication by Smith¹, there were six key considerations outlined for successful transplantation of lichens including; morphology, habitat and substrate, reproductive strategy of target lichen, receptor site, threats to establishment, and seasonality. Seasonality is a mitigating factor not only noted in Smith, but also in noted by Paoli et al.² which acknowledged that beginning transplantation during hot, dry periods can reduce the viability of the transplanted lichens. These will be important considerations when discussing lichen transplantation to ensure success. We would ask for further clarification regarding the proposed consultation with NSDL&F and NSECC, and to elaborate on the methodology that will be used for any such transplantation within the EA, especially as it relates to the above-mentioned considerations for successful transplantation.

In order to gather a fuller understanding of the potential impacts of this project, especially as it relates to water quality and fish habitat, MAPC would like to request a copy of the current Environmental Protection Plan and Spill Contingency Plan be forwarded for review. As well, we are requesting further information on whether these plans have been updated in light of the expansion proposal given that there are further potentials for harmful impacts to water quality and fish habitat. Given that the current proposal involved potential impacts to wetland areas, what types of changes are expected as part of these plans to ensure the ecosystem integrity?

We would like to take this opportunity to reiterate that it is important for all proponents of projects to understand that the Off-Reserve Aboriginal Community represented by the NCNS is included within the definition of the word “Indian” of Section 91(24) of the *Constitution Act*, 1982. The Supreme Court of Canada in a landmark decision in *Daniels v. Canada (Indian Affairs and Northern Development)*, 2016 SCC 12, declared that “the exclusive Legislative Authority of the Parliament of Canada extends to all Indian, and Lands reserved for the Indians” and that the “word Indians’ in s.91(24) includes Métis and non-Status Indians”³. Since 2004, in multiple decisions passed by the Supreme Court of Canada: *Haida Nation*⁴, *Taku River Tlingit First Nation*⁵, and *Mikisew Cree First Nation*⁶, has established that,

Where accommodation is required in decision making that may adversely affect as yet unproven Aboriginal Rights and title claims, the Crown must balance Aboriginal concerns reasonably with the potential impact of the decision on the asserted right or title and with other societal interests.

¹ Paul L. Smith, “Lichen Translocation with Reference to Species Conservation and Habitat Restoration,” *Symbiosis* 62, no. 1 (January 2014): 17–28, <https://doi.org/10.1007/s13199-014-0269-z>.

² Luca Paoli et al., “Physiological and Chemical Response of Lichens Transplanted in and around an Industrial Area of South Italy: Relationship with the Lichen Diversity,” *Ecotoxicology and Environmental Safety* 74, no. 4 (May 2011): 650–57, <https://doi.org/10.1016/j.ecoenv.2010.10.011>.

³ *Daniels v. Canada (Indian Affairs and Northern Development)*, 2016 SCC 12, [2016] 1 S.C.R. 99

⁴ *Haida Nation v. British Columbia (Minister of Forests)*, (2004), 2 S.C.R. 511

⁵ *Taku River Tlingit First Nation v. British Columbia (Project Assessment Director)*, (2004), 3 S.C.R. 550

⁶ *Mikisew Cree First Nations v. Canada (Minister of Canadian Heritage)*, (2005), 3 S.C.R. 388

Further, both the Government of Nova Scotia and the Government of Canada are aware that the “Made in Nova Scotia Process” and the *Mi-kmaq-Nova Scotia-Canada Consultation Terms of Reference* does not circumvent the Provincial Government’s responsibility to hold consultations with other organizations in Nova Scotia that represent Indigenous Peoples of Nova Scotia. While the proponent may have to engage with the thirteen Mi’kmaq First Nations through the Assembly of Nova Scotia Mi’kmaq Chiefs, represented by the Kwilmu’kw Maw-klusuaqn Negotiation Office (KMKNO), the KMKNO does not represent the Off-Reserve Aboriginal Community who has elected to be represented by the NCNS since 1974.

We assert that the Off-Reserve Aboriginal Communities, as 91(24) Indians, are undeniably heirs to Treaty Rights and beneficiaries of Aboriginal Rights as substantiated by Canada’s own Supreme Court jurisprudence. As such, there is absolutely an obligation to consult with the Off-Reserve Community through their elected representative body of the NCNS. The Crown’s duty to consult with all Indians extends beyond that only with Indian Act Bands, or as through the truncated Terms of Reference for a Mi’kmaq Nova Scotia Canada Consultation Process.

For contextual purposes, for over forty years, the three Native Council partners of the Maritime Aboriginal People’s Council (MAPC) have continued to be the Aboriginal Peoples Representative Organizations representing and advocating for the Rights and issues of the Mi’kmaq/Wolastoqiyik/Peskotomuhkati/Section 91 (24) Indians, both Status and non-Status, continuing to reside on their unceded Traditional Ancestral Homelands. In the early 1970s, the communities recognized the need for representation and advocacy for the Rights and Interests of the “off-Reserve community of Aboriginal Peoples, “the forgotten Indian”. Women and men self-organized themselves to be the “voice to the councils of government” for tens of thousands of community members left unrepresented by Indian Act-created Band Councils and Chiefs. Based on the Aboriginal Identity question, Statistics Canada (2016 Census - 25% sample) enumerate 21,915 off-Reserve Aboriginal Persons in New Brunswick, 42,145 in Nova Scotia, and 2,210 in Prince Edward Island.

Each Native Council in their respective province asserts Treaty Rights, Aboriginal Rights, with Interest in Other Rights confirmed in court decisions, recognized as existing Aboriginal and Treaty Rights of the Aboriginal Peoples of Canada in Part II of the Constitution Act of Canada, 1982. Each Native Council has established and maintains Natural Harvesting Regimes, and each have a co-management arrangement with DFO for Food, Social, and Ceremonial use of aquatic species, through the: Najiwsgetaq Nomehs (NBAPC), the Netukulimkewe’l Commission (NCNS), and the Kelewatl Commission (NCPEI).

The Native Council of Nova Scotia was organized in 1974 and represents the interests, needs, and rights of Off-Reserve Status and Non-Status Section 91(24) Indians/Mi’kmaq/Aboriginal Peoples continuing on our Traditional Ancestral Homelands throughout Nova Scotia as Heirs to Treaty Rights, Beneficiaries of Aboriginal Rights, with Interests to Other Rights, including Land Claim Rights.

The Native Council of Nova Scotia (NCNS) Community of Off-Reserve Status and Non-Status Indians/Mi’kmaq/Aboriginal Peoples supports projects, works, activities and undertakings which do not significantly alter, destroy, impact, or affect the sustainable natural life ecosystems or

