NOVA SCOTIA
Environment and Climate Change

Comment Index

Walden Quarry Expansion Project, Digby County

Publication Date: December 14, 2023

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NOVA SCOTIA
Environment and Climate Change

Nova Scotia Mi'kmaq

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1	Kwilmu'kw Maw-Klusuaqn Negotiation Office (KMKNO)	November 23, 2023
2	Native Council of Nova Scotia (NCNS) / Maritime Aboriginal Aquatic Resources Secretariate (MAARS)	November 24, 2023

Public

Number	Source	Date Received
1	Anonymous	November 20, 2023
2	Anonymous	November 20, 2023
3	Anonymous	November 20, 2023
4	Anonymous	November 20, 2023
5	Anonymous	November 21, 2023
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12	Anonymous	November 23, 2023
13	Anonymous	November 23, 2023
14	Anonymous	November 24, 2023
15	Anonymous	November 24, 2023

From:	Ferris, Kevin (HC/SC) on behalf of IA-ATL / EI-ATL (HC/SC)
To:	McInnis, Mark
Cc:	Allain, Jérémie (HC/SC); Maclean, Lachlan (HC/SC)
Subject:	RE: Walden Quarry Expansion Project, Lunenburg County - EA Registration
Date:	October 20, 2023 4:04:23 PM
Attachments:	image002.png Human Health Considerations in EA.pdf

Hello Mark,

As per your email below regarding **Walden Quarry Expansion Project, Lunenburg County**, please identify any project-related human health impacts to which you require advice and guidance from Health Canada.

HC's role in Impact/Environmental Assessment is founded in statutory obligations under the Canadian Impact Assessment Act, and its knowledge and expertise can be called upon by reviewing bodies (e.g., Impact Assessment Agency of Canada, review panels, Indigenous groups and/or other jurisdictions). In the absence of such a request from one of the above noted groups, HC is unable to carry out a comprehensive review of the project. **However, HC is able to accommodate specific requests for human health advice and guidance related to provincial environmental assessments within a reasonable timeframe.**

Health Canada currently possesses expertise in the following areas related to human health: air quality, recreational and drinking water quality, traditional foods (country foods), noise, and methodological expertise in conducting human health risk assessment.

To help with your review of human health impacts, I have attached a document of common human health considerations in project reviews and links to Health Canada's guidance documents.

Kind regards,

Kevin Ferris
Regulatory Operations and Enforcement Branch
Health Canada / Government of Canada
kevin.ferris@hc-sc.gc.ca

Direction générale des opérations réglementaires et de l'application de la loi
Santé Canada / Gouvernement du Canada
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Health Canada Santé Canada

Human Health Considerations in Environmental Assessment

Health Canada (HC) provides the following generic considerations for evaluating human health impacts in environmental/impact assessment (EA/IA). Please note that this is not an exhaustive list of human health concerns that may result from projects, and that issues will vary based on project specifics. Please also note that HC does not approve or issue licenses, permits, or authorizations in relation to the IA. HC's role in Impact Assessment is founded in statutory obligations under the Canadian Impact Assessment Act, and its knowledge and expertise can be called upon by reviewing bodies (e.g., Impact Assessment Agency of Canada, review panels, Indigenous groups and/or other jurisdictions). In the absence of such a request from one of the above noted groups, HC is unable to carry out a comprehensive review of the project. However, HC is able to accommodate specific requests for human health advice and guidance related to provincial environmental assessments within a reasonable timeframe.

HC currently possesses expertise in the following areas related to human health: air quality, recreational and drinking water quality, traditional foods (country foods), noise, and methodological expertise in conducting human health risk assessment. Based on Health Canada's "*Guidance for Evaluating Human Health Impacts in Environmental Assessment*", please consider the following information on these topics to assist in your review.

	Consideration	**Reference Document**
Receptor Location(s)		
Please ensure the registration document clearly identifies the locations of all receptors that may be impacted by the proposed project, including any receptors located along the transportation route, if applicable.	• It is important to clearly describe the location and distance from the proposed site(s) to all potential human receptors (permanent, seasonal or temporary), taking into consideration the different types of land uses (e.g. residential, recreational, industrial, etc.), and identifying all vulnerable populations (e.g. in schools, hospitals, retirement or assisted living communities). Note that the types of residents and visitors in a particular area will depend on land use, and may include members of the general public and/or members of specific population subgroups (Indigenous peoples, campers, hunters, etc.)	Section 7.1.3 of *Health Canada. 2019. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.* *https://publications.gc.ca/site/eng/9.870475/publication.html*

	• If there is the potential that project-related activities could affect human receptors, impacts to human health should be considered.	
Atmospheric Environment		
Project impacts to the atmospheric environment include changes to air quality and noise, and can occur in both the construction, operation and decommissioning phases of the project. Project impacts to air quality are commonly caused by emissions from equipment or vehicles as well as by dust. Noise impacts are commonly caused by equipment as well as by activities such as blasting.	• If there are receptors that could be affected by project-related activities, impacts to the atmospheric environment should be considered. Changes to the atmospheric environment that may impact human health include: o impacts to air quality (dust or fumes including $PM_{2.5}$, NO_x, SO_x, PAHs) o increased noise from construction or operations	*Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.* http://publications.gc.ca/pub?id=9.832514&sl=0 *Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.* http://publications.gc.ca/pub?id=9.802343&sl=0
	• If there are receptors who could be impacted by project-related noise, it may be necessary to inform receptors prior to loud activities, such as blasting.	
	• If there is the potential for impacts to human receptors from noise and/or air quality changes from the project, the proponent should consider establishing mitigation measures. If complaints are received additional mitigation measures may be required.	
Recreational and Drinking Water Quality		
The proponent should consider whether any nearby waterbodies are used for recreational (i.e. swimming, boating, or fishing) or drinking water purposes, as well as whether there are any drinking water wells in the area potentially impacted by the project. Nearby drinking and/or recreational water quality may be impacted by accidents or malfunctions, such as a fuel spill; by dust and	• If there is the potential for impacts to drinking and/or recreational water quality from the project site, the proponent should consider establishing mitigation measures. If complaints are received additional mitigation measures may be required.	*Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Water Quality. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.* http://publications.gc.ca/pub?id=9.832511&sl=0
	• The proponent should consider preparing a response plan in the event of an accident or malfunction with the potential to impact drinking and/or recreational water quality. Response plans should include a spill response kit, adequate spill response training, and a communication plan to notify all recreational and drinking water users in the impacted area as well as all relevant authorities.	

increased sediment runoff; and by other chemical discharges to the environment. Additionally, wells in the area potentially impacted by the project may be impacted by activities such as blasting.	• In some cases, for projects that are likely to have an impact on drinking and/or recreational water quality, the proponent should consider conducting water monitoring prior to the start of the project (to establish a baseline). Monitoring would continue throughout the construction, operation and decommissioning phases of the project (as applicable) to monitor for any changes in water quality or quantity.	
Country Foods		
If there are plants or animals present in the area potentially impacted by the project that are consumed by humans, there may be potential for impacts to country foods. The proponent should consider all country foods that are hunted, harvested or fished from the area potentially impacted by the project. Impacts to country foods may occur from the release of contaminants into soil or water (including from an accident or spill) or from deposition of air borne contaminants.	• If there is the potential for impacts to country foods from the proposed project, the proponent should consider establishing mitigation measures. If complaints are received additional mitigation measures may be required. • The proponent should consider preparing a response plan in the event of an accident or malfunction with the potential to impact country foods. Response plans should include a spill response kit, adequate spill response training, and a communication plan to notify all potential consumers of country foods in the impacted area as well as all relevant authorities.	*Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.* http://publications.gc.ca/pub?id=9.855584&sl=0

For more information on HC's guidelines for evaluating human health impacts in environmental assessments, please see:

Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. http://publications.gc.ca/pub?id=9.832514&sl=0

Appendix B of this guidance document provides a checklist that may be beneficial in verifying that the main components of a noise environmental assessment are completed.

Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. http://publications.gc.ca/pub?id=9.802343&sl=0

Appendix A of this guidance document provides a checklist that may be beneficial in verifying that the main components of an air quality environmental assessment are completed.

Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Water Quality. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. http://publications.gc.ca/pub?id=9.832511&sl=0

Appendix A of this guidance document provides a checklist that may be beneficial in verifying that the main components of a water quality environmental assessment are completed.

Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. http://publications.gc.ca/pub?id=9.855584&sl=0

Appendix A of this guidance document provides a checklist that may be beneficial in verifying that the main components of a country foods environmental assessment are completed.

Health Canada. 2019. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. https://publications.gc.ca/site/eng/9.870475/publication.html

Appendix B of this guidance document provides a checklist that may be beneficial in verifying that the main components of a human health risk assessment are completed.

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: November 6, 2023

To: Mark McInnis, Environmental Assessment Officer

From: Neil Morehouse Manager Protected Areas and Ecosystems

Subject: **Walden Quarry Expansion Project, Lunenburg County, Nova Scotia**

Scope of review:
This review focuses on the following mandate: Protected Areas and Ecosystems

List of Documents Reviewed: Wilderness Area Protection Art, Special Places Protection Act

Details of Technical Review: Nearest Protected areas is over 10 KM away

Key Considerations:
No further comments

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: November 14th, 2023

To: Mark McInnis, Environmental Assessment Officer

From: Water Resources Management Unit, Sign-off by Elizabeth Kennedy, Director, Sustainability and Applied Science Division

Subject: Walden Quarry Expansion Project, Lunenburg County, Nova Scotia

Scope of review:

This review focuses on the following mandate:

- Surface water quantity and quality
- Groundwater quantity and quality
- Wetlands

List of Documents Reviewed:

Environmental Assessment Registration Document – Walden Quarry Expansion Project, Walden, Nova Scotia. Prepared for Dexter Construction Company Ltd, 927 Rochy Lake Dr. Bedford, Nova Scotia, B4A 3ZA. Prepared by MaCallum Environmental Ltd., 2 Bluewater Road, Suite 115, Bedford, Nova Scotia, B4B 1G7. October 25, 2023

Details of Technical Review:

Surface Water Quantity and Quality

There are gaps in the information provided in the Environmental Assessment Registration Document (EARD) to assess potential impacts to surface water quantity and quality. Specifically:

- The water balance model (Appendix E, EARD) used to predict hydrological changes due to the proposed quarry expansion is based on unvalidated assumptions and may not accurately represent real conditions.
    - Water balance is based on secondary references/assumptions that are unvalidated by in field measurements.
    - The EARD states that the majority of surface water runoff and drainage occurring within the quarry expansion area (QEA) will infiltrate the fractured quarry floor. The capacity of the fractured quarry floor in retaining and infiltrating precipitation has not been quantified, i.e., can the quarry floor manage and infiltrate water from extreme precipitation events. It is also unclear if this was considered in the soil storage element or how this was considered in the water balance model and assessment.

The predicted hydrological changes/impacts of the quarry expansion are uncertain, and the result could be that the surface water management plan and water management system, erosion and sediment control plan and surface water monitoring plan in support of Industrial Application cannot adequately prevent or manage changes to flow in and sediment delivery to nearby watercourse (i.e., WC1) in extreme precipitation events.

- Water quality measurements conducted in three single days in July (26th, 27th, and 28th) and one single day in September (28th) in 2022 cannot appropriately represent the average water quality conditions in the sampled surface water resources. In addition,
    - Most water temperatures measured in July are high, ranging from 22.8˚C to 29.6˚C (with most measurements above 25˚C), and sharp temperature changes were noted (e.g., 10 ˚C in one day). Temperature can affect chemistry, and this requires an explanation of why the temperature changed (e.g., because of data integrity? impacts of the current quarry operations? or natural phenomenon?)
    - All pH measured in-situ are lower than the Canadian Council of Ministers of the Environment Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME Guidelines); most of the dissolved oxygen (DO) measured in-situ are lower than the CCME Guidelines. No further assessment was provided on whether low pH and DO are natural in the area, and/or are associated with existing quarry activities.
    - The EARD indicates turbidity was measured but no turbidity measurement results were included.
    - It is unclear if total suspended solids (TSS) laboratory analysis was conducted for water quality measurements in surrounding surface water resources. TSS is a water quality parameter typically measured in surface water resources in and/or near quarry sites, as it is an appropriate indicator for assessing potential impacts to surface water resources due to quarry activities. The EARD did not provide rationale for not having TSS measurements in surrounding surface water resources, given that WC1 receives quarry drainage. Pits and Quarry Guidelines (NSECC, 1999) also set effluent discharge limit to and requires effluent monitoring for TSS from operating site of a quarry.

  The analysis presented does not demonstrate that the effects of the proposed quarry expansion have been adequately considered or mitigated.

The EARD indicates topsoil and organic stockpiles (grubbings) will typically be stockpiled around selected areas of the site for future use in reclamation, and aggregate stockpiles are stable and stored uncovered. These areas may be potential sources of sediment releases during storm events when they are close to WC1. As such, these areas need to be carefully located and managed to minimize potential sediment releases into WC1.

Groundwater Quantity and Quality

There has been a sufficient base level of work conducted for the site by the proponent in

the EARD to assess background geological and groundwater conditions and level of risk appropriate to identified groundwater receptors. The primary relevant points from this work are as follows:

- According to the EARD there is one (1) identified permanent residential receptor with a drilled groundwater well within 380 m, west of the Study Area. This site is on Bagpipe Lake. In addition, there a number of potential residences (as shown on mapping) located between 1.7 and 2.0 km to the south of the Study Area (and additional others further away) along Hallamore Lane on Little Mushamush Lake.

- As not all water wells are identified in the Provincial Well Logs Database, it is recommended that, if approved, the proponents conduct a field verification to identify all water wells within 2.0 km of the Walden Quarry EA Study Area

- Although not identified in the EARD, a baseline water survey of water wells within 1.0 km is typical at similar sites for establishing baseline water quality and quantity.

- The establishment and maintenance of groundwater monitoring program is identified in the EARD "*to ensure the Project is not causing adverse effects to groundwater quantity and quality conditions*" (EARD p. 178). If the project is approved, a monitoring well program should be determined in conjunction with the Department.

- The EARD states the intention to conduct all operations above the water table "*It is the intention of Dexter to not excavate or blast below the water table in the QEA. In addition, there will be no pumping of groundwater and therefore no dewatering of the associated bedrock aquifer. If future quarry operations are planned to extend below the groundwater table, a hydrological study will be completed, and approval from NSECC obtained prior to excavation below the groundwater table*." (EARD p. 177). The installation of monitoring wells (in the groundwater monitoring program) and determination of true water table location will help ensure this objective. Typically, the Department requires at least 1.0 m separation between the water table and operating quarry floor.

- A wetland monitoring program is also identified (EARD, pp, 178, 198 etc) to "*evaluate potential shifts in wetland characteristics and function over time*" in conjunction with requirements of the Department.

- As rock blasting is a necessary component of the proposed operations, the proponent has identified the need for pre-blast surveys in the EARD. If approved, this would include surveying nearby residential receptors (including their water wells), in accordance with the blast monitoring requirements of the Department, or others.

No other groundwater receptors of note, or concerns related to groundwater have been identified, based on the EARD and the site location at this time.

Wetlands

The EARD indicates the alteration of seven wetlands and three wetlands of special significance (Wetlands 4, 5, and 9) due to the presence of Canada Warbler observed during the field studies (breeding bird studies). Wetlands 1,2 were also identified as potential WSS, however they are to be avoided by direct impacts.

There is insufficient information provided in the EARD to predict whether indirect impacts will alter the adjacent wetlands. WL5 extends outside the study area and appears to be hydrologically connected to Little North Brook. Additionally, WL1, could receive changes in hydrology and/or increases in sediment etc. Wetland monitoring should be completed for all remaining and partially altered wetlands.

Key Considerations:

Surface Water Quantity and Quality

As there are gaps in information provided in the EARD to support complete understanding and assessment of potential impacts to surface water resources near the QEA, the following considerations would further help mitigate potential risks of impacts to surface water resources.

In addition to collecting data to validate the water balance model and assessment, consider ongoing assessment of the retaining and infiltrating capacity of the fractured quarry floor during expansion in relation to precipitation (including appropriately and clearly defined extreme events) to support planning of appropriate surface water management measures. It is recommended to factor climate change into this ongoing assessment. The assessment of potential risks of impacts to WC1 as a result of overflow from site due to extreme precipitation events can inform additional mitigations that may be necessary. Consider defining clear triggers on when settling pond is required, in consideration of the retaining and infiltrating capacity of the fractured quarry floor.

In addition to what was included in the surface water monitoring program, consider planning appropriate monitoring frequencies to collect sufficient information on surface water quantity for ongoing assessment of impacts on WC2 from the proposed quarry expansion (including shutdown) to inform additional mitigations that may be necessary.

In addition to collecting baseline water quality samples prior to quarry expansion for comparison against samples collected during quarry development, consider planning appropriate monitoring frequencies to collect sufficient information on surface water quality for ongoing assessment of impacts on WC1 from all phases of the proposed quarry expansion (including shutdown) to inform additional mitigations that may be necessary. Total suspended solids (TSS) should be included in future water quality monitoring.

Consider placing topsoil and organic stockpiles, and aggregate stockpiles in areas that can minimize potential sediment releases into WC1 during storm events. Consider using appropriate stabilization measures (e.g., covering, sediment fences) in these areas to minimize potential erosion and sedimentation during storm events.

Groundwater Quantity and Quality

The Walden Quarry Expansion EARD has provided a base level of information sufficient in determining the potential environmental sustainability of the proposed operations in relation to groundwater. Based on the information provided, the statement by the proponent that "*The Project is predicted to have a not significant effect on groundwater*" (EARD p. 179) is found to be reasonable.

Work as proposed involves blasting, quarrying activity and extraction conducted above the water table. Operating above the water table is a key component and the Department typically requires in similar situations that work be conducted a minimum of 1 metre above the annual high-water table level, as measured in a permanent monitoring well network (to be established). Based on quarrying activity to occur above the water table, no groundwater drawdown of the water table is expected.

The nearest residential receptor water well on Bagpipe Lake (380 m from Study Area) is recommended to be included in a baseline water well survey.

Interactions between groundwater and wetlands are proposed by the proponent to be monitored and this should be in conjunction with NSECC wetland specialist review.

Other standard Groundwater EA Terms and Conditions for Quarry Applications should also be applied for this site.

Wetlands

Pursuant to the NS Wetland Conservation Policy, WL1, 4, 5, and 9 are considered Wetland of Special Significance (WSS) due to the presence of endangered or threatened species identified during the project field studies. The EARD predicts loss of WSS. Indirect impacts to wetlands outside the quarry expansion area (particularly WL 1, 2, 5 and 10) were not assessed.

To determine indirect impacts an assessment of changes in surface water and groundwater drawdown and their predicted effects to wetlands outside the quarry expansion area should be included.

Wetland monitoring was only proposed for WL 2, 5 and 10. Wetland monitoring should also be conducted on WL 1 as it has the potential to be indirectly altered.

NOVA SCOTIA

Agriculture

60 Research Drive
Suite A
Bible Hill, Nova Scotia
B6L 2R2

Date: November 21, 2023

To: Mark McInnis, Environmental Assessment Officer

From: Heather Hughes, Executive Director, Policy and Corporate Services, Nova Scotia Department of Agriculture

Subject: Walden Quarry Expansion Project
Walden, Lunenburg County, Nova Scotia

Thank you for the opportunity to review the documents for the above-noted project.

No agricultural impacts are anticipated given that:

- The proposed expansion is located on class 7 land, which is unsuitable for agriculture.
- The closest agricultural land is approximately 2.9 km away from the expansion area.

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: Nov 21, 2023

To: Mark McInnis, Environmental Assessment Officer

From: Environmental Health Consultant, Environmental Health and Food Safety Branch, Sustainability and Applied Science Division.

Subject: **Walden Quarry Expansion Project, Lunenburg County, Nova Scotia**

Scope of review:

The focus of this Environmental Assessment Review is potential impacts on human health. In general, the scope of this review includes the assessment of the potential for the proposed undertaking/project to adversely affect human health in all phases of the project.

List of Documents Reviewed:

The documents outlined below formed the basis for this EA review

- Environmental Assessment Registration Document - Walden Quarry Expansion Project, Walden, Nova Scotia
    - Prepared for Dexter Construction Company Ltd.

Key Considerations:

Provided best management practices are adopted for this project, and adherence to NSECC Approval(s) is achieved, no adverse public health impacts are expected to occur as a result of the project.

It is recommended that proponent establish a complaint handling protocol for the public to communicate project-related impacts associated with both air quality and noise.

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: November 9, 2023

To: Mark McInnis, Environmental Assessment Officer

From: Climate Change Division

Subject: **Walden Quarry Expansion Project, Lunenburg County, Nova Scotia**

Scope of review:
This review focuses on the following mandate: Climate Change Adaptation and Mitigation

List of Documents Reviewed:
Environmental Assessment Registration Document

Details of Technical Review:
Adaptation:

- Section 8.1.1 Weather and Climate does include a limited sample of weather statistics from a nearby station. One notable omission is historical extreme precipitation data. This information would help to inform the design of settling ponds or other stormwater infrastructure, as alluded to in Section 10.1.
- As per the *Guide to Considering Climate Change in Environmental Assessments in Nova Scotia*, the proponent may also use the Existing Environment section to highlight environmental components relevant to the project that have documented sensitivity to climate change (e.g., groundwater quality and quantity, at-risk species). If there are VECs with a known positive or negative sensitivity to the projected climate change impacts, then this sensitivity should be taken into account when predicting impacts of the project.
- In Section 10 Effects of the Environment on the Undertaking, it would be valuable for the proponent to include a summary of climate change projections for the project location. This information can be readily obtained through the national climate data portal, ClimateData.ca.
- In Section 10.1 Heavy Precipitation and Flooding, it is mentioned that “If required, settling ponds will be engineered to appropriately maintain surface water runoff during storm events.” Use of climate change-adjusted IDF curves from Environment and Climate Change Canada, available through ClimateData.ca, would be recommended to appropriately account for increasing precipitation intensity in a changing climate.
- There are some potential climate change risks to the Project that do not appear to have been considered. For example, it is unclear whether there may be any risk to Project operations due to extreme heat events, which are becoming longer and more frequent.
- As per the *Guide to Considering Climate Change in Environmental Assessments in Nova Scotia*, it is recommended that at minimum proponents complete the initial step in assessing climate change impacts on the project to determine the risk

category of the project. If a project is identified as Low/No Risk then no further assessment is required, though a brief rationale for the determination should be included.

Mitigation:

- The proponent does not directly identify or quantify potential greenhouse gas emissions.
- No mitigation measures have been proposed.
- The proponent indicates correctly that emissions will be minimal, given the scope. Emissions associated with the operations will be restricted to heavy equipment, earth movers, trucks etc., as well as operation of portable crushers and will be localized and similar in type and amount to those produced during existing quarry operations.

Key Considerations:

Adaptation:

Recommend reviewing localized climate projection data available through Canada's national climate data portal (ClimateData.ca) to determine potential impacts to Project operations and support mitigation measures.

Encourage the proponent to complete an assessment of the climate change risk category according to the *Guide to Considering Climate Change in Environmental Assessments in Nova Scotia*.

Mitigation:

Recommended that the proponent identify mitigation measures that will address greenhouse gas emissions from the equipment sources identified.

NOVA SCOTIA
Municipal Affairs and Housing
Municipal Affairs

Floor 8 North, Maritime Centre
1505 Barrington Street
PO Box 216
Halifax, NS Canada B3J 2M4
novascotia.ca

DATE: November 22, 2023

TO: Mark McInnis, Environmental Assessment Officer

FROM: Christina Lovitt, Provincial Director of Planning

SUBJECT: **WALDEN QUARRY EXPANSION PROJECT, LUNENBURG COUNTY**

Scope of Review:
This review focuses on the following mandates: Statements of Provincial Interest and engagement with municipalities.

List of Documents Reviewed:
Registration Document

Details of Technical Review:
The quarry expansion is located in an area of the Municipality that is unplanned and does not have any applicable zoning or land use by-laws.

The proponent indicates they have been in contact with authorities with the Municipality of the District of Lunenburg, and there are no municipal permits that are required for the proposed expansion. The proponent is also aware of a municipal noise by-law and will confine the hours of operation to maintain compliance with this bylaw.

The proponent has indicated they will continue to support adjustments in proposed mitigation measures and monitoring plans relating to Project impacts based on ongoing feedback and input received from communities. They have further advised that additional public engagement regarding the Project will be completed through published notices and comment periods throughout the EA process.

Statements of Provincial Interest:

- Drinking Water: No impact
- Agricultural Land: No impact
- Flood Risk: No impact
- Infrastructure: No impact
- Housing: No impact

Key Considerations*:*
There is no outstanding information and/or conditions. All components considered under DMAH's areas of mandate have been adequately addressed.

NOVA SCOTIA

Communities, Culture, Tourism and Heritage

1741 Brunswick Street
3rd Floor
P.O. Box 456
Halifax, NS
B3J 2R5

Date: December 6th, 2023

To: Mark McInnis, Nova Scotia Environment & Climate Change

From: Coordinator Special Places, Culture and Heritage Development

Subject: Walden Quarry Expansion Project, Lunenburg County - EA Registration

Staff of the Department of Communities, Culture, Tourism, and Heritage has reviewed the Walden Quarry Expansion Project, Lunenburg County - EA Registration documents and have provided the following comments:

Archaeology

Staff reviewed the sections of the EA document pertaining to archaeology. The EA recommendations are in line with the findings of the final report for HRP A2022NS075 Walden Quarry Expansion. The EA does not include recommendations 3-5, but it should be fine. As long as the recommendations from the ARIA report are followed, there are no archaeological concerns.

Palaeontology

Staff reviewed the sections of the EA document pertaining to Palaeontology. This review focused on the **palaeontology resources** that are likely to be present in the project areas. As stated in the project document, the quarry operations involve Goldenville Formation bedrock. No significant fossils are anticipated to be encountered in these rock units, although very rarely marine invertebrate fossils have been found in other areas. No concerns for palaeontology resources are expected.

McInnis, Mark

From: Wade,Suzanne (ECCC) <suzanne.wade@ec.gc.ca>
Sent: November 23, 2023 11:57 AM
To: McInnis, Mark
Cc: Wade, Suzanne (EC); Hingston,Michael (il, lui | he, him) (ECCC); Mailhiot,Joshua (ECCC)
Subject: Walden Quarry Expansion Project, Lunenburg County - EA Registration (EAS# 23-NS-024)
Attachments: BatSAR_SurveyProtocol_Treed_Habitats_ONMNRF_2017.pdf; CanadianNightjarSurveyProtocol_2022.pdf

Hi Mark,

Environment and Climate Change Canada (ECCC) has reviewed the proposed Walder Quarry Expansion Project, submitted by Dexter Construction Ltd., and we offer the following recommendations:

WILDLIFE COMMENTS

Attachments

- The Canadian Nightjar Survey Protocol (2022)
- Survey Protocol for Species at Risk Bats within Treed Habitats (OMNRF, 2017)

Specific Comments:

General

1. ECCC does not have any permits (or authorizations) or approvals in relation to the proposed project. Any advice that is provided by ECCC is intended to support the Nova Scotia Department of Environment and Climate Change (NSECC)'s environmental assessment (EA) review process. The Proponent is responsible identifying measures which ensures their compliance with the *Migratory Birds Convention Act* (MBCA) and the *Species at Risk Act* (SARA).

2. ECCC-Canadian Wildlife Service (CWS) recommends the removal of hedging statements such as "*where practicable*", "*where possible*", "*when possible and feasible*" when describing mitigation measures. The EA should clearly describe commitments to mitigation measures to avoid/minimize potential effects on migratory birds and species at risk (SAR), and where effects cannot be avoided/minimized, a proposed plan to mitigate residual impacts should be described (e.g., monitoring plan, scheduling, buffers, offsetting measures, etc.). Contingency plans identifying mitigation measures should be prepared to address all scenarios that may impact migratory birds and SAR during all of times of the year and all project phases.

3. ECCC-CWS recommends restricting high disturbance activities such as vegetation clearing activities and blasting to *outside* of the regional nesting period for migratory birds to avoid impacts and ensure compliance with the MBCA and its associated regulations.

   ECCC-CWS does not recommend active nest searches in complex habitat (trees and shrubs) as they are unlikely to be successful in avoiding incidental take. Nest surveys may be carried out successfully by experienced observers using scientific methodology in the event that activities would take place in simple

habitats (often in human-made settings) with only a few likely nesting areas or a small community of migratory birds.

4. The modernized *Migratory Birds Regulations* (MBRs) under the *Migratory Birds Convention Act* (MBCA) came into effect on July 30, 2022, allows for flexibility with respect to the removal of nests (Canada Gazette, Part 2, Volume 156, Number 12: Migratory Birds Regulations, 2022). Per the new provisions under the modernized MBRs, the nests of all migratory bird species are protected when they contain a live bird or a viable egg (i.e., during the nesting period), excluding the nests of 18 species listed in Schedule 1 of the regulations whose nests are reused and remain protected year-round.

   For more information on the amended nest protections, frequently asked questions on how these protections apply to migratory birds and your responsibilities for reporting abandoned nests, please visit Fact Sheet Nest Protection Under the Migratory Birds Regulations, 2022 and Frequently Asked Question, Migratory Birds Regulations, 2022.

Avifauna - Species at Risk

5. ECCC-CWS notes that the following avian SAR listed on Schedule 1 of SARA were observed incidentally during field surveys:
   - Canada Warbler (Threatened) (wetlands 4, 5, and 9 – breeding habitat)
   - Olive-side Flycatcher (Special Concern)
   - Eastern Wood-pewee (Special Concern)
   - Common Nighthawk (Special Concern)

6. ECCC-CWS notes that desktop studies and field surveys have observed the following terrestrial SAR listed on Schedule 1 of SARA: Little Brown Myotis (SARA Endangered), Eastern Painted Turtle (SARA – Special Concern), Snapping Turtle (SARA – Special Concern), and Frosted glass-whiskers (1) (SARA - Special Concern).

7. ECCC-CWS notes that WL1, 2, 4, 5 and 9 are presented as potential Wetlands of Special Significance (WSS) due to observations of SAR and supporting habitat for critical life functions. Final WSS designation will be made by NSECC.

8. For projects undergoing EA, ECCC-CWS recommends that adverse effects of the project on SAR and critical habitat are identified, and, if the project is carried out, that mitigation measures are taken to avoid or lessen those effects. We recommend that mitigation measures:

   - be consistent with best available information including any Recovery Strategy, Action Plan or Management Plan in a final or proposed version; and

   - respect the terms and conditions of the SARA regarding protection of individuals, residences, and critical habitat of Extirpated, Endangered, or Threatened species.

   We also recommend follow-up monitoring to verify impact predictions, and adequacy of mitigation measures, and adaptive management in the event that SAR or their critical habitat are adversely affected by the project.

9. ECCC-CWS notes that five Canada Warbler, listed as Threatened on Schedule 1 of SARA, were observed incidentally during wetland surveys in suitable breeding habitat at WL-4, WL-5 and WL-9. However, no specific measures to avoid adverse effects to this species have been proposed, other than conducting clearing outside the breeding season for migratory birds "*to the extent practicable*".

   Measures to avoid/minimize adverse effects of the project on this species should be provided. Furthermore, post-construction monitoring to verify impact predictions and adequacy of mitigation measures is recommended.

The Canada Warbler Recovery Strategy (2016) is available at: https://species-registry.canada.ca/index-en.html#/consultations/2730.

10. ECCC-CWS notes that four Common Nighthawk (CONI) (listed Special Concern on Schedule 1 of SARA) were observed during Common Nighthawk Surveys in the Project Study Area and existing quarry. CONI are a ground nesting species that may choose nest sites in open areas (e.g., gravel or sand) or cleared areas (e.g., forest harvest blocks, recent cleared land, and recent burns) in a wide range of habitats and a variety of substrates, and in lands cleared for industrial development.

    CONI are very cryptic in coloration and finding a bird on the nest or a nest site can be challenging. The use of active nest searching techniques must be carefully evaluated because the risk of disturbing active nests is high. Flushing nesting birds increases the risk of predation of the eggs or young, or may cause the parent birds to abandon the nest.

    Should an adult be flushed from the ground or display agitated behaviour during Project operations, it should be suspected that a nest or chicks are present, work in the area should be halted, and a buffer established.

    ECCC-CWS recommends a minimum buffer of 200m for (high disturbance activities), 100m (medium), 0-50m (low) from May 1 to August 31.

11. It is unclear if the Common Nighthawk survey window considered other nightjars SAR such as Eastern Whip-poor-will (EWPW), a listed 'Threatened' on Schedule 1 of SARA, which have been recorded on e-Bird near the Project. EWPW is a nocturnal insectivorous bird that breeds in sparse forest or at the edge of forests adjacent to open habitats required for foraging. Similar to CONI, EWPW may choose nest sites in open areas (e.g., gravel or sand) or cleared areas (e.g., forest harvest blocks, recent cleared land, and recent burns) in a wide range of habitats and a variety of substrates. EWPW may establish nest sites in newly cleared habitats, such as lands cleared for industrial development.

    While Common Nighthawk are crepuscular, Eastern Whip-poor-will are nocturnal and only begin to vocalize 30 minutes after sunset. ECCC-CWS recommends extending nightjar survey time 2hrs after sunset to also capture the EWPW window.

    ECCC-CWS recommends referencing the Canadian Nightjar Survey Protocols (2022) (attached) in any futures survey effort.

12. Table 9-1. Potential Project Interactions with Valued Environmental Components, ECCC-CWS recommends considering potential effects on avifauna during Operations and Maintenance – Handling and Stockpiling Material.

    Certain species of migratory birds (e.g., Bank Swallows) may nest in unattended/vegetated soil/material stockpiles and banks in pits and quarries during the most critical period of the breeding season (April 15th through August 15th). To discourage this, measures should be considered to cover or to deter birds from these large piles of unattended soil during the breeding season. If migratory birds take up occupancy of these piles, any industrial activities (including hydroseeding) will cause disturbance to these migratory birds and inadvertently cause the destruction of nests and eggs. Alternate measures will then need to be taken to reduce potential erosion, and to ensure that nests are protected until chicks have fledged and left the area.

    For a species such as Bank Swallow, the period when the nests (i.e. the burrow = 'residence') would be considered active would include not only the time when birds are incubating eggs or taking care of flightless chicks, but also a period of time after chicks have learned to fly, because Bank Swallows return to their colony to roost (see Description of Residence for Bank Swallow (*Riparia riparia*) in Canada: Description of Residence for Bank Swallow (Riparia riparia) in Canada - Document search - Species at risk registry) .

The Government of Canada (GoC) guidance document "*Bank Swallow (Riparia riparia) in Sandspit and Quarries*" (GoC 2020) offers advice in preparing mitigation measures in the management of stockpiles during construction activities: https://species-registry.canada.ca/index-en.html#/documents/1602

Bats

13. ECCC-CWS recommends that the Proponent consult with the province of Nova Scotia's Department of Natural Resources and Renewables – SAR Program for technical expertise on bats under their jurisdiction and management responsibility. ECCC-CWS is able to provide comments regarding the federal recovery strategy, including threats to the species. Our comments on bat SAR are also based on available ECCC expertise, but we recognize that the technical expertise and authority lies with the province.

    Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) are small, insectivorous bats SAR that are listed as Endangered on Schedule 1 of the *Species at Risk Act* (SARA). The Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*), and the Tricolored Bat (*Perimyotis subflavus*) in Canada (2018) should be consulted: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/recovery-strategies/little-brown-myotis-2018.html .

14. ECCC-CWS notes that mature forested stands exist within the Study Area and could provide bat maternity roosting habitat. However, no evidence of roosting was observed incidentally by the Proponent during biophysical surveys in 2022 and 2023.

    ECCC-CWS recommends a bat specific habitat assessment of natural and anthropogenic habitats be undertaken using the Ontario Ministry of Natural Resources and Forestry's *Survey Protocol for Species at Risk Bats within Treed Habitats – Little Brown Myotis, Northern Myotis & Tri-Colored Bat* (OMNRF, 2017).

    ECCC-CWS recommends establishing a 100m minimum buffer around large diameter tree (s) (>25 cm dbh) with suitable maternity roost habitat characteristics until occupancy can be confirmed (see Appendix 1 for Excerpt from the Draft Bat SAR Residence Description).

Herpetofauna

15. ECCC-CWS recommends that the Proponent consult with the province of Nova Scotia's Department of Natural Resources and Renewables – SAR Program for technical expertise on Turtle SAR surveys, monitoring and mitigation measures to avoid and minimize direct and indirect effects on turtle SAR under their jurisdiction and management responsibility. ECCC-CWS is able to provide comments regarding the federal recovery strategy, including threats to the species. Our comments on turtle SAR are also based on available ECCC expertise, but we recognize that the technical expertise and authority lies with the province.

    ECCC-CWS notes that turtle SAR are using the area for breeding and overwintering. Three observations of Eastern painted turtle and snapping turtle, listed as 'Special Concern' on Schedule 1 of SARA, were observed incidentally and evidence of four nests were found during field surveys in a quarry gravel stockpile and along roadsides near WL-1. While Wood Turtle, listed as 'Threatened' on Schedule 1 of SARA, was not observed during field surveys, the Study Area is within the range and has suitable habitat for this species.

    As mitigation for the existing quarry operations, the proponent erected turtle fencing in summer 2022 following observations between WL-1 and stockpiles. Signage, fencing or other appropriate barriers will be maintained on-site during nest season (April to late-July), and personnel will conduct visual inspections of stockpiles to ensure no nests are present.

    September is the pre-overwintering period when SAR Turtles are in the forest; hatchlings emerge from nests early September to early October. ECCC-CWS recommends considering additional mitigation, such as, conducting vegetation clearing no earlier than mid-October to avoid risk of destruction of individuals, and,

including mitigation measures for turtles found travelling to nesting and overwintering habitats during construction activities or while staff are travelling to and from the quarry.

ECCC recommends that vegetation clearing occur no earlier than mid-October to avoid risk of destruction of turtle SAR individual travelling from nesting to over-wintering habitats.

If dewatering an area, mitigation measures should also be considered for turtles found in dewatered areas.

ECCC-CWS also recommends installing signage alerting drivers to reduce travel speeds in locations where there have been incidental observations of turtle SAR along access roads or gravel areas.

The Recovery Strategy for Wood Turtle (*Glyptemys insculpta*) in Canada [Final](2020) is available at: https://species-registry.canada.ca/index-en.html#/consultations/2864

The Snapping Turtle Management Plan (2020): https://species-registry.canada.ca/index-en.html#/species/1033-710#management_plans.

Mature Forest Habitat

16. The Study Area consists of both disturbed and intact habitat. Intact habitat is dominated by softwood, mixedwood and hardwood stands and wetlands, and mature forested stands.

    Several types of migratory bird habitat are in decline in Nova Scotia, including mature coniferous forest, mature deciduous forest and mature mixed forest. This is of concern because certain bird species prefer mature forest habitat. Furthermore, some bird species, generally known as interior species, only prosper when the tracts of mature forest are relatively large and unfragmented (i.e., interior forest). ECCC-CWS recommends that the proponent undertake project activities that avoid causing further loss and fragmentation of these habitat types on the landscape.

    ECCC-CWS recommends that the Proponent include mapping that identifies mature forest habitat in relation to proposed project infrastructure, including an analysis of project impacts on mature forest habitat including the use of these habitats by species of migratory birds (e.g., Eastern Wood-pewee) that depend on these habitats, and a rationale as to why each patch of mature forest habitat cannot be avoided, taking into account cumulative losses.

    ECCC-CWS recommends the Proponent prepare a plan that sets out appropriate mitigation measures (e.g., biodiversity offsets) for the predictable loss of mature forest habitat for migratory birds and avian SAR in instances where these habitats cannot be avoided.

Wetlands

17. ECCC-CWS notes that there will be 7 wetlands directly affected by the project resulting in 0.884 ha of wetland habitat loss, including the complete alteration of two WSS (WL-4 and WL9) and partial alteration of WL-5.

    While the Federal Policy on Wetland Conservation does not apply to this project, ECCC advocates for the conservation of wetlands in areas where wetland losses have already reached critical levels (e.g., NB, NS, PEI, southern Ontario, Prairies) and regionally important wetlands, as well as, wetlands used by avian SAR and SoCC as part of their lifecycle (e.g., Canada Warbler, Chimney Swift, Olive-sided Flycatcher Common Nighthawk, Greater Yellowlegs, Spotted sandpiper, etc.).

General "Standard" ECCC Advice and Recommendations:

Migratory Birds Convention Act

The federal *Migratory Birds Convention Act (MBCA) and its* regulations protect migratory birds and their eggs and prohibit the disturbance, damage, destruction or removal of migratory bird nests that contain a live bird or a viable egg. Migratory birds are protected at all times; all migratory bird nests are protected when they contain a live bird or viable egg; and the nests of 18 species listed in Schedule 1 of the MBR 2022 are protected year-round. These general prohibitions apply to all lands and waters in Canada, regardless of ownership. For more information, please visit: Avoiding harm to migratory birds - Canada.ca.

For migratory birds that are listed as Endangered, Threatened or Extirpated on Schedule 1 of the *Species at Risk Act* S.32 (protection of individuals) and S.33 (protection of residences) apply to all land tenure types in Canada. For some migratory bird species listed under the *Species at Risk Act* (SARA), the residence prohibition will protect nests that are not active but are re-used in subsequent years (please note that the residence of a migratory bird may not necessarily be limited to their nest).

It is the responsibility of the proponent to ensure that activities are managed so as to ensure compliance with the MBCA and associated regulations, and the *SARA*.

Vegetation Clearing

Clearing vegetation may cause disturbance to migratory birds, and may inadvertently cause the destruction of their nests and eggs. Most migratory bird species construct nests in trees (sometimes in tree cavities) and shrubs, but several species nest at ground level (e.g., Common Nighthawk, Killdeer, sandpipers), in hay fields, pastures or in burrows. Some bird species may nest on cliffs or in stockpiles of overburden material from mines or the banks of quarries. Some migratory birds (including certain waterfowl species) may nest in head ponds created by beaver dams. Some migratory birds (e.g., Barn Swallow, Cliff Swallow, Eastern Phoebe) may build their nests on structures such as bridges, ledges or gutters.

In developing mitigation measures, it is incumbent on the proponent to identify the best approach, based on the circumstances, to complying with the MBCA. The following should be considered during project planning:

- Avoid scheduling high disturbance activities, such as vegetation clearing, during the regional nesting period for migratory birds. Information regarding regional nesting periods can be found at: https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods.html. Some species protected under the MBCA may nest *outside* these timeframes. For expected breeding date for Newfoundland by species: breeding dates_edited.xlsx (birdatlas.ca)

- The risk of impacting active nests or birds caring for pre-fledged chicks discovered during project activities *outside* of the regional nesting period can be minimized by measures such as the establishment of vegetated buffer zones around nests and minimization of activities in the immediate area until nesting is complete and chicks have naturally migrated from the area.

- In developing and implementing a wildlife management plan, preventative measures to minimize the risk of impacts on migratory birds should be considered (see “Avoiding harm to migratory birds: guidelines to reduce the risk to migratory birds” at https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html).

Nest Searches

ECCC generally does not recommend nest searches or sweeps in vegetation prior to clearing during the breeding season. Nests in complex habitat are difficult to locate, and adult birds avoid approaching their nests in a manner that would attract predators to their eggs or young. In many circumstances, harm to migratory birds is still likely to occur even when active nest searches are conducted prior to development activities, except when the nests searched are known to be easy to locate without disturbance (e.g., previously cleared area, simple habitats, low vegetation).

Nest surveys may be carried out successfully by experienced observers using scientific methodology in the event that activities would take place in simple habitats (often in human-made settings) with only a few likely nesting areas or a small community of migratory birds. Examples of simple habitats include:

- An urban park consisting mostly of lawns with a few isolated trees;
- A vacant lot with few possible nest sites;
- A previously cleared area where there is a lag between clearing and construction activities and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil; or,
- A structure such as a bridge, a beacon, a tower or a building (often chosen as a nesting spot by robins, swallows, phoebes, Common Nighthawk, gulls and others).

Nest searches can also be considered when looking for:

- Conspicuous nest structures (such as nests of Great Blue Herons, Bank Swallows, Chimney Swifts);
- Cavity nesters in snags (such as woodpeckers, goldeneyes, nuthatches); or,
- Colonial-breeding species that can be located from a distance (such as a colony of terns or gulls).

Should any nests or unfledged chicks be discovered, protection with an appropriate-sized buffer is expected. Note: Nests should not be marked using flagging tape or other similar material as this increases the risk of nest predation. ECCC CWS can be contacted for further advice on bird monitoring and/or mitigation if a nest is found.

Noise Disturbance

Anthropogenic noise produced by construction and human activity can have multiple impacts on birds, including causing stress responses, avoidance of certain important habitats, changes in foraging behavior and reproductive success, and interference with songs, calls, and communication. Activities that introduce loud and/or random noise into habitats with previously no to little levels of anthropogenic noise are particularly disruptive.

ECCC recommends the following best management practices:

- The proponent should develop mitigations for programs that introduce very loud and random noise disturbance (e.g., blasting) during the migratory bird breeding season for their region.
- The proponent should, where possible, prioritize construction works in areas away from natural vegetation while working during the migratory bird breeding season. Conducting loud construction works adjacent to natural vegetation should completed outside the migratory bird breeding season.
- The proponent should keep all construction equipment and vehicles in good working order and loud machinery should be muffled if possible.

Lighting Attraction and Migratory Birds

Attraction to lights at night, or in poor visibility conditions during the day, may result in collision with lit structures, or with other migratory birds. Disoriented migratory birds are prone to circling light sources and may deplete their energy reserve and either die of exhaustion or be forced to land where they are at risk of depredation.

To reduce the risk of disturbance or harm to migratory birds related to human-induced light, ECCC recommends implementation of the following beneficial management practices:

- Use the minimum amount of pilot, warning and obstruction lighting needed on tall structures. Warning lights should flash and completely turn off between flashes.
- Use the fewest number of site-illuminating lights possible in the project area. Only use strobe lights at night, at the lowest intensity and the smallest number of flashes per minute allowable by Transport Canada.
- Reduce lighting levels during severe weather events that may force migratory birds to land to prevent birds from landing in areas that would cause injury, harm, or death.

- Avoid or restrict the time of operation of exterior decorative lights such as spotlights and floodlights whose function is to highlight features of buildings or to illuminate an entire building. These lights, especially on humid, foggy or rainy nights, can draw birds from far away. Turn off these lights during the migratory season when the risk to birds is highest and during periods when birds are dispersing from their nests or colonies.
- Shield safety lighting so that the illumination shines down. Only install safety lighting where it is needed, without compromising safety.
- Shield street and parking lot lighting so that little escapes into the sky, and it falls where it is required. Consider using LED lighting fixtures as they are generally less prone to light trespass.
- The proponent should make all reasonable attempts to limit construction activities to the day and avoid illuminating the habitat adjacent to the worksite.

Transmission lines

Transmission lines have the potential to harm, injure, or kill migratory birds through increasing risks of collision and electrocution. The proposed placement of above-ground transmission lines should consider areas used as flight paths by migratory birds during migration, near shorebird staging and foraging involving overland daily movements, or while travelling from nesting to foraging areas, and/or along streams used by waterfowl.

ECCC recommends the following beneficial management practices to avoid potential harm to migratory birds associated with transmission lines:

- Avoid building transmission or distribution lines over, adjacent, or near areas where birds are known to congregate or move, including:
    - Important breeding, staging, moulting areas;
    - Breeding colonies; and
    - Between breeding and foraging areas.
- Design “avian-safe” configurations to reduce the risk of electrocutions, including:
    - Providing sufficient separation between energized phase conductors and between phases and grounded hardware;
    - Insulating exposed surfaces in high-risk areas;
    - Installing perch-management (e.g., perch guard) devices on poles; and
    - Removing or minimizing vegetation around poles and lines.
- Install measures on lines that reduce the risk of collisions:
    - Provide minimal vertical separation between lines;
    - Use self-supporting structures to reduce the number of guy wires; and
    - Use line-marking devices to increase the visibility of the lines.

ECCC-CWS recommends that the Proponent refer to Avian Power Line Interaction Committee (www.aplic.org) for an understanding of avian risks from power lines and guidance. Possible mitigation could also include the use of “flappers” on power lines to reduce strike: https://www.sciencedaily.com/releases/2020/06/200624151533.htm

The Proponent should consider installing underground transmission lines in high-risk areas for bird collisions.

Stockpiles

Certain species of migratory birds (e.g., Bank Swallows) may nest in unattended/vegetated soil/material stockpiles and banks in pits and quarries during the most critical period of the breeding season (April 15th through August 15th). To discourage this, measures should be considered to cover or to deter birds from these large piles of unattended soil during the breeding season. If migratory birds take up occupancy of these piles, any industrial activities (including hydroseeding) will cause disturbance to these migratory birds and inadvertently cause the destruction of nests and eggs. Alternate measures will then need to be taken to reduce potential erosion, and to ensure that nests are protected until chicks have fledged and left the area. For a species such as Bank Swallow, the period when the nests (i.e. the burrow – ‘residence’) would be considered active would include not only the time when birds are incubating eggs or taking care of flightless chicks, but also a period of

time after chicks have learned to fly, because Bank Swallows return to their colony to roost (see Description of Residence for Bank Swallow (*Riparia riparia*) in Canada: Description of Residence for Bank Swallow (Riparia riparia) in Canada - Document search - Species at risk registry) .

The Government of Canada (GoC) guidance document "*Bank Swallow (Riparia riparia) in Sandspit and Quarries*" (GoC 2020) offers advice in preparing mitigation measures in the management of stockpiles during construction activities: https://species-registry.canada.ca/index-en.html#/documents/1602

Fuel Leaks

The proponent must ensure that all precautions are taken by the contractors to prevent fuel leaks from equipment, and that a contingency plan in case of oil spills is prepared. Furthermore, the proponent should ensure that contractors are aware that under the MBR, "*no person shall deposit or permit to be deposited oil, oil wastes or any substance harmful to migratory birds in any waters or any area frequented by migratory birds*." Biodegradable alternatives to petroleum-based chainsaw bar oil and hydraulic for heavy machinery are commonly available from major manufacturers. Such biodegradable fluids should be considered for use in place of petroleum products whenever possible, as a standard for best practices. Fueling and servicing of equipment should not take place within 30 meters of environmentally sensitive areas, including shorelines and wetlands.

ECCC recommend incorporating a Wildlife Emergency Response Plan into emergency response contingency plans for scenarios that may impact avifauna directly (injury or mortality e.g., polluting incident) or indirectly (collisions causing mortality, stranding due to light attraction).

For consideration in emergency response and contingency planning related to accidents and malfunctions, ECCC has prepared *Guidelines for Effective Wildlife Response Plans* (ECCC 2022) available online at: https://www.canada.ca/en/services/environment/wildlife-plants-species/national-wildlife-emergency-framework.html.

The proponent is responsible for ensuring that all precautions are taken by the contractors to prevent fuel leaks from equipment, and that a contingency plan is prepared in the case of spills. Furthermore, the proponent should ensure that contractors are aware of section 5.1 MBCA prohibitions.

Events involving a polluting substance should be reported to the 24-hour environmental emergencies reporting system: **1-800-565-1633**.

Bird mortality incidents of 10 or more birds in a single event, or an individual species at risk, should be reported via ECCC Main Office **(506) 364-5044** or via email to: SCFATLEvaluationImpact-CWSATLImpactAssessment@ec.gc.ca.

Revegetation

A variety of species of plants native to the general project area should be used in revegetation efforts. Should seed mixes for herbaceous native species for the area not be available, it should be ensured that plants used in revegetation efforts are not known to be invasive.

ECCC recommends that mitigation measures identify revegetation efforts which includes enhancing native plant diversity. The Proponent should consult the Pollinator Partnerships Canada planting guide for Nova Scotia for information on native species for this region.

Invasive Species

Measures to diminish the risk of introducing invasive species should be developed and implemented during all project phases. These measures could include:

- Cleaning and inspecting construction equipment prior to transport from elsewhere to ensure that no vegetative matter is attached to the machinery (e.g., use of pressure water hose to clean vehicles prior to transport).

- Regularly inspecting equipment prior to, during and immediately following construction in areas found to support Purple Loosestrife to ensure that vegetative matter is not transported from one construction area to another.

Species at Risk

For federal impact assessments, the *Species at Risk Act* ss. 79(1) states that, "*Every person who is required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted, and every authority who makes a determination under paragraph 82(a) or (b) of the Impact Assessment Act in relation to a project must, without delay notify the competent minister or ministers in writing of the project if is likely to affect a listed wildlife species or its critical habitat*", and, SARA ss.79(2) "*The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them"*.

Measures should be:

- be consistent with best available information including any Recovery Strategy, Action Plan or Management Plan in a final or proposed version; and,
- respect the terms and conditions of the SARA regarding protection of individuals, residences, and critical habitat of Extirpated, Endangered, or Threatened species.

As part of an EA, ECCC recommends that the proponent present mitigation measures consistent with best available information including any Recovery Strategy, Action Plan or Management Plan (final or proposed version).

For species which are not listed under SARA, but are listed under provincial legislation only or that have been assessed and designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), it is best practice to consider these species in the EA as though they were listed under SARA.

Where adverse effects cannot be avoided or mitigated, ECCC recommends that the Proponent develop and implement a plan to address the residual adverse effects of the Project, and considering the principles that are described in *the Operational Framework for Use of Conservation Allowances* (ECCC, 2012).

Appendix 1

Excerpt from the Draft ECCC Residence Description (January 2022)

Little Brown Myotis and Northern Myotis

Any place used as a maternity roost by Little Brown Myotis and Northern Myotis is considered a residence. A maternity roost site may be a natural site, such as a cavity in a tree, a rock crevice, a cave or the underside of loose bark, or an anthropogenic site such as the underside of a bridge, an attic in a building or other structures (Fenton and Barclay 1980; Coleman and Barclay 2011). Little Brown Myotis is one of the few bat species that uses buildings and other anthropogenic structures to roost. Females are thought to select a quality maternity roost at the expense of travelling longer distances to forage possibly indicative of a limited number of suitable maternity roosting sites in foraging areas (Broders et al. 2006, Randall et al. 2014).

Maternity roosts in trees are often associated with natural holes, holes made by cavity excavators (*e.g.,* woodpeckers) or holes resulting from broken limbs or under loose bark. Typically, maternity roost sites are located in tall, large-diameter trees (DBH >30 cm), within forests (Kalcounis-Ruepell et al. 2005; Olson 2011; Olson and Barclay 2013) and older forest stands are preferred over younger forest stands (Barclay and Brigham 1996; Crampton and Barclay 1996; Jung et al. 1999). A larger tree size will usually house a larger number of bats (Olson 2011). Broders and Forbes (2004) found a preference for deciduous trees (Sugar Maple, Yellow Birch, and American Beech) and attributed this preference to deciduous trees' susceptibility to limb breakage and decay (creating available habitat for roosting), long-lived characteristics (permitting repeated use by bats), and their upland habitats with increased solar radiation (reducing energy costs to maintain the bat's body temperature).

Maternity roosts located in buildings tend to be located in warm but uninhabited areas of the building or in abandoned ones. Attics in older buildings are commonly used.

Tri-colored Bat

Little is known about maternity roosts of Tri-colored Bat. However, the species is known to roost in clumps of dead tree foliage and lichens and broken branches in coniferous and deciduous tree species (Veilleux et al. 2003, Perry and Thill 2007, Poissant et al. 2010). Tri-colored Bats also use barns and other anthropogenic structures for maternity roosts, and they may also use tree cavities, broken branches on trees, caves and rock crevices (Fujita and Kunz 1984). In Nova Scotia, a local population of Tri-colored Bat roosted solely in clumps of *Usnea* lichen and mostly within spruce trees (Poissant et al. 2010).

WATER QUALITY

Pollution prevention and control provisions of the *Fisheries Act* are administered and enforced by ECCC. Subsection 36(3) of the *Fisheries Act* prohibits "anyone from depositing or permitting the deposit of a deleterious substance of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter such water".

It is the responsibility of the proponent to ensure that activities are managed so as to prevent the release of substances deleterious to fish. In general, compliance is determined at the last point of control of the substance before it enters waters frequented by fish, or, in any place under any conditions where a substance may enter such waters. Additional information on what constitutes a deposit under the *Fisheries Act* can be found here: https://www.canada.ca/en/environment-climate-change/services/managing-pollution/effluent-regulations-fisheries-act/frequently-asked-questions.html

ACCIDENTS AND MALFUNCTIONS

Hazardous materials (e.g. fuels, lubricants, hydraulic oil) and wastes (e.g. waste oil) should be managed so as to minimize the risk of chronic and/or accidental releases. For example, the proponent should encourage contractors and staff to undertake refueling and maintenance activities on level terrain, at a suitable distance from environmentally sensitive areas including watercourses, and on a prepared impermeable surface with a collection system.

The proponent is encouraged to prepare contingency plans that reflect a consideration of potential accidents and malfunctions and that take into account site-specific conditions and sensitivities. The Canadian Standards Association publication, *Emergency Preparedness and Response,* CAN/CSA-Z731-03, reaffirmed 2014), is a useful reference.

All spills or leaks, such as those from machinery or storage tanks, should be promptly contained and cleaned up (sorbents and booms should be available for quick containment and recovery), and reported to the 24-hour environmental emergencies reporting system (Maritime Provinces 1-800-565-1633)

If you have any questions, please direct any further correspondence to ECCC's environmental assessment window for coordination at: FCR_Tracker@ec.gc.ca.

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Survey Protocol for Species at Risk Bats within Treed Habitats

Little Brown Myotis, Northern Myotis & Tri-Colored Bat

April 2017

Ontario Ministry of Natural Resources and Forestry

Guelph District

Ontario

Introduction

This document describes Guelph District's recommended protocol for confirming presence/absence of Little Brown Myotis, Northern Myotis and Tri-colored Bat, where it is determined that suitable habitat for the establishment of maternity roosts is present.

This document replaces any previous versions of the survey protocol, and may be updated periodically as new information becomes available.

Note that those undertaking projects that may impact anthropogenic structures and isolated trees considered suitable habitat for bats should refer to Guelph District's *Survey Methodology for the Use of Buildings and Isolated Trees by Species at Risk (SAR) Bats*.

Little Brown Myotis (*Myotis lucifugus)*, Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) are listed as provincially endangered and receive species and general habitat protection under the *Endangered Species Act, 2007* (ESA).

Where the habitat of an endangered or threatened species is not prescribed by regulation, the ESA defines habitat as an area on which a species depends on, directly or indirectly, to carry out its life processes. Such processes include reproduction, rearing, hibernation, migration or feeding, as well as places being used by members of the species.

Throughout eastern North America, a disease known as white-nose syndrome (WNS), which is caused by the fungus *Pseudogmnoascus destructans*, is the primary cause of the decline of Little Brown Myotis, Northern Myotis and Tri-colored Bat populations. Where population numbers have significantly decreased due to WNS, the relative magnitude of other threats (e.g., habitat destruction) may increase. This is because the mortality or displacement of a small number of the remaining individuals can have a major impact on the survival of local populations and their recovery.

Many bat species are known to have high fidelity to their hibernacula and maternity roost sites. It is not uncommon for bats to return to the same roost tree or group of trees in successive years. Some bats switch roost trees periodically within the same treed area over the summer, likely to avoid predators or parasites or in search of a warmer or cooler roost.

Of the SAR bats species noted in this protocol, Little Brown Myotis is the most frequently encountered species in treed communities due to higher population numbers relative to other SAR bat species. Little Brown Myotis establishes maternity roosts within tree cavities and under loose or exfoliating bark, especially in wooded areas located near water. Foraging habitat includes over water and in open areas between water and forest. Favoured prey consists of aquatic insects (e.g., mayflies, midges, mosquitos and caddisflies). In agricultural environments, Little Brown Myotis tend to follow linear wooded features, such as hedgerows, for commuting and foraging.

Northern Myotis is less frequently encountered relative to Little Brown Myotis but selects similar maternity roost space. Northern Myotis roosts within tree crevices, hollows and under the bark of live and dead trees, particularly when trees are located within a forest gap. Northern Myotis switch roost trees more frequently compared to other SAR bat species (i.e., every 1-5 days) and are relatively

slow flyers. Northern Myotis is adapted to hunting in cluttered environments, such as within the forest along edges, where it gleans and hawks its prey (primarily moths).

Tri-coloured Bat establishes maternity roosts within live and dead foliage within or below the canopy. Oak is the preferred roost tree species, likely because oaks retain their leaves longer than other trees. Maples are also thought to be important for roosting, although maples are selected far less often compared to oaks. Some studies have shown that Tri-colored Bat prefers dead leaves over live leaves, especially if the dead leaves are situated on a live tree i.e., along a broken branch. Other documented roost sites include dogwood leaves, within accumulations of pine needles, in squirrel nests and in tree cavities. Within a forest, the location of maternity roost trees varies from dense woods to more open areas, although roosts are rarely found in deep woods. Although Tri-colored Bat switches roosts over the summer, this species has very high site fidelity to particular leaf clusters within a season. Foraging occurs along forested riparian corridors, over water (e.g., ponds and rivers) and within gaps in forest canopies. This species is an insect generalist, feeding on species such as leafhoppers, ground beetles, flies, moths and flying ants. The Tri-colored Bat is less frequently encountered compared to Little Brown Myotis and Northern Myotis. Unlike other SAR bats, Tri-colored Bat rarely roosts in buildings, and therefore relies heavily on treed areas for rearing its young.

Note: Confirmation of individual maternity roost trees is extremely challenging. Exit surveys are not always reliable, since SAR bats are known to periodically switch roost trees within a treed area over the summer. In addition, techniques used to confirm maternity roost trees, such as mist netting, are quite invasive and therefore not recommended.

The survey protocol that follows focuses on confirming presence/absence of Little Brown Myotis, Northern Myotis and Tri-colored Bat within treed habitats considered suitable for the establishment of maternity roosts, which is sufficient information to apply species and habitat protection under the ESA.

If an Ecological Land Classification (ELC) ecosite is determined to be suitable for the establishment of maternity roosts, trees with suitable attributes are present, and SAR bats are detected during the maternity roost season (June), it can be concluded with a high degree of certainty that the ELC ecosite represents the habitat most in use during the breeding season for roosting, feeding, rearing of young and resting.

Phase I: Bat Habitat Suitability Assessment

Little Brown Myotis, Northern Myotis and Tri-colored Bat establish maternity roosts in treed areas consisting of deciduous, coniferous or mixed tree species. For bats that roost under bark or within cracks, hollows or crevices, tree species is important only as it relates to its structural attributes. For example, trees that retain bark for longer periods or are more susceptible to fungal infections/attract cavity excavators are more likely to provide appropriate roosting space.

Following the completion of ELC mapping of a study area, any coniferous, deciduous or mixed wooded ecosite, including treed swamps, that includes trees at least 10cm diameter-at-breast height

(dbh) should be considered suitable maternity roost habitat. For cultural treed areas, such as plantations, consultation with the Ministry of Natural Resource and Forestry (MNRF) is recommended to determine if these habitats may be suitable for the species.

If suitable habitat is to be impacted by a proposed activity, project proponents should proceed to Phase II. It is recommended that the proponent contact the MNRF to discuss the need for additional work with respect to SAR bats.

Phase II: Identification of Suitable Maternity Roost Trees

As previously described, Tri-colored Bat primarily roosts in tree foliage (mainly oak), while Little Brown Myotis and Northern Myotis select loose bark, cracks and cavities. Because of these differences, two separate field data sheets should be completed by the proponent to identify and map suitable roost trees for Tri-colored Bat (Appendix A) and Little Brown Myotis/Northern Myotis (Appendix B). The data collected in Phase II will help inform the positioning of acoustic monitoring stations in Phase III.

The timing of field visits is important in order for an observer to be able to clearly identify tree attributes that are suitable for the establishment of maternity roosts:

- **Tri-colored Bat**: field visits should take place during the leaf-on season the same year that acoustic monitoring is to be conducted so that foliage characteristic (i.e., dead/dying leaves along a dead branch) can be observed.

- **Little Brown Myotis/Northern Myotis**: field visits should occur during the leaf-off period so that the view of tree attributes (hollows, cracks etc.) is not obscured by foliage.

Note that for large ecosites (e.g., >10 ha) where a thorough walk-through may not be possible or practical, the proponent should discuss the study design for Phase II with the MNRF prior to undertaking field work.

i) Tri-colored Bat

Leaf roosts are shaped like umbrellas with a “roof” and a hollow core where bats rest. Studies have shown that oak leaves are the preferred roost site. Maple leaves are also selected, although less commonly. It is thought that Tri-colored Bat may prefer roost trees in open woodlands, as opposed to deep woods.

Within each ecosite identified as suitable maternity roost habitat in Phase I, the following trees should be documented on the field data sheet (Appendix A)

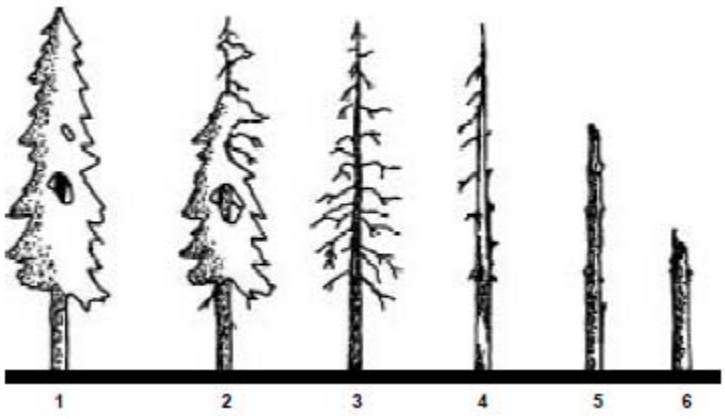
- any oak tree ≥10cm dbh
- any maple tree ≥10cm dbh IF the tree includes dead/dying leaf clusters
- any maple tree ≥25cm dbh

ii) Little Brown Myotis and Northern Myotis

Within each ecosite identified as suitable maternity roost habitat in Phase I, all “snags” should be identified and relevant information recorded on the field data sheet provided in Appendix B.

For purposes of this exercise, a "snag" is any standing live or dead tree ≥10cm dbh with cracks, crevices, hollows, cavities, and/or loose or naturally exfoliating bark.

During the field visit, the Decay Class should be noted for each snag (see Figure 1). Snags in an early stage of decay (which also includes healthy, live trees) may be preferred by Little Brown Myotis and Northern Myotis if suitable attributes for roost space are present. However, since SAR bats will also roost in snags outside of Class 1-3, any snag >10cm dbh with suitable roost features should be documented. For trees with cavities, the entrance can be high or low ("chimney-like") on the tree.



1. Healthy, live tree
2. Declining live tree, part of canopy lost
3. Very recently dead, no canopy, bark intact, branches intact
4. Recently dead, bark peeling, only large branches intact
5. Older dead tree, 90 percent of bark lost, few branch stubs, broken top
6. Very old dead tree, advanced decay, no branches, parts of the stem have rotted away

Figure 1: Snag classification (Decay Class 1-3 is considered an early decay stage)[1]

In addition, proponents should be aware that some tree species, such as shagbark hickory, silver maple and yellow birch, have naturally exfoliating bark that may be suitable for establishing maternity roosts. Trees ≥10cm dbh exhibiting these characteristics should be considered "snags" as per the definition above and included on the field data sheet provided in Appendix B.

Note: For efficiency (especially for larger ecosites e.g., >10 ha), a proponent may choose to undertake snag density surveys while conducting the work required in Phase II. For a detailed methodology, refer to Phase IV of this protocol.

[1] Watt, Robert and Caceres, M. 1999. Managing snags in the Boreal Forests of Northeastern Ontario. OMNR, Northeast Science & Technology. TN-016. 20p.

Phase III: Acoustic Surveys

Within each ELC ecosite determined to be suitable maternity roost habitat in Phase I, acoustic surveys are recommended to confirm presence/absence of Little Brown Myotis, Northern Myotis and Tri-colored Bat. As described below, acoustic detectors should be placed in the best possible locations in order to maximize the probability of detecting all three SAR bats species. The data collected in Phase II should be used to select optimal locations for monitoring. The trees to be targeted for acoustic monitoring will typically be a subset of the trees documented in Phase II.

Density and Optimal Location of Acoustic Monitoring Stations:

Multiple stations may be required to cover an ecosite adequately (see example in Figure 2). Based on the microphone range of most broadband acoustic detectors (20-30m), **4 stations/hectare** is needed for full coverage of an ELC ecosite.

Strategic placement of acoustic detectors is critical for the successful isolation of high-quality bat calls. Recommended positioning is to locate acoustic detectors **within 10m of the best potential maternity roost trees**. To increase the probability of detecting all three SAR bat species, detectors should be divided proportionally to target suitable roost trees (if present) for Tri-colored Bat and Little Brown Myotis/Northern Myotis.

Prior to undertaking acoustic surveys, it is recommended that the proponent discuss the proposed location of acoustic monitoring stations with the MNRF.

(i) Tri-colored Bat

Although Tri-colored Bat will roost within both live and dead foliage, it appears that reproductive females may prefer clusters of dead leaves, especially if they are situated on a live tree. Using the information collected on the field data sheet (Appendix A), the best suitable maternity roost trees for Tri-colored Bat should be selected according to the following criteria (in order of importance):

If oaks are present:

- Live oak with dead/dying leaf clusters
- Dead oak with retained dead leaf clusters
- Live oak (no dead leaf clusters) with the largest dbh (>25cm)
- Oak within a forest gap

If oaks are absent:

- Live maple with dead/dying leaf clusters
- Dead maple with retained dead leaf clusters
- Live maple (no dead leaf clusters) with the largest dbh (>25cm)
- Maple within a forest gap

Note that if a cluster of tree species with attributes preferred by Tri-colored Bat is present, this may be a good area to target acoustic monitoring.

(ii) Little Brown Myotis and Northern Myotis

Bats that roost under tree bark or within crevices or cavities frequently select the tallest and largest diameter snags, which often extend above the forest canopy. This is because larger snags better retain solar heat, which benefits the pups. Tall trees within a forest gap or along an edge may also have a less obstructed flight approach for bats.

Using the information collected on the field data sheet completed in Phase II, the best suitable maternity roost trees for Little Brown Myotis/Northern Myotis should be selected using the following criteria (in order of importance):

- Tallest snag
- Snag exhibits cavities/crevices often originating as cracks, scars, knot holes or woodpecker cavities
- Snag has the largest dbh (>25 cm)
- Snag is within the highest density of snags (e.g., cluster of snags)
- Snag has a large amount of loose, peeling bark (naturally occurring or due to decay)
- Cavity or crevice is high on the tree (>10 m) or is “chimney like” with a low entrance
- Tree is a species known to be rot resistant (e.g., black cherry, black locust)
- Tree species provides good cavity habitat (e.g., white pine, maple, aspen, ash, oak)
- Snag is located within an area where the canopy is more open
- Snag exhibits early stages of decay (Decay Class 1-3)

Note: The sole purpose of the above-listed criteria is to determine the best placement of acoustic monitors in order to maximize the probability of detecting Little Brown Myotis and Northern Myotis. The listed criteria are NOT intended for any type of snag “ranking”. Snags that do not include any of the above characteristics may still be used as a maternity roost site. For example, the absence of snags >25 cm dbh by no means indicates that there is no potential maternity roost habitat present on a site.

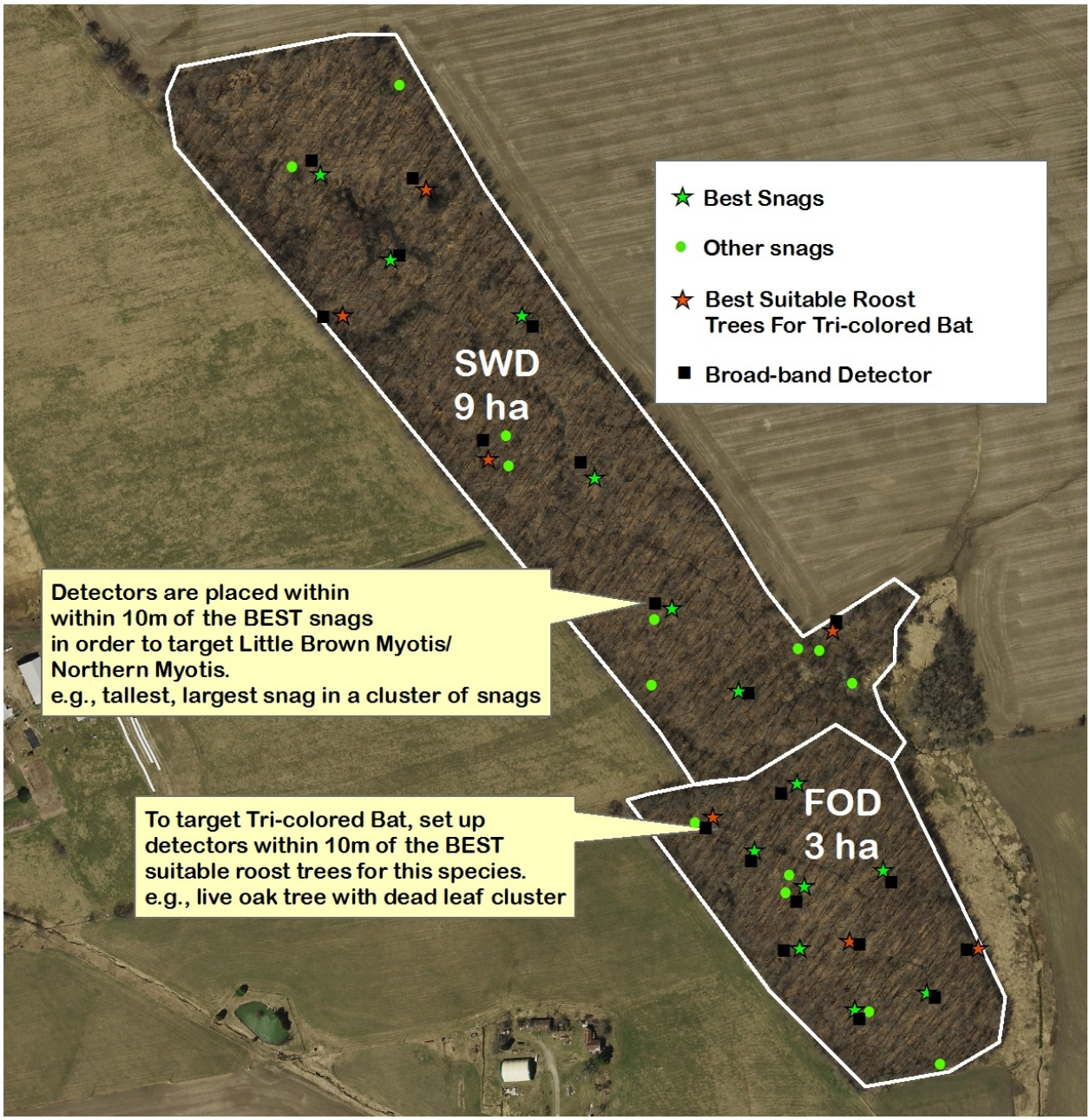


Figure 2: Hypothetical example illustrating the location and density of acoustic detectors i.e., 4/ha to a maximum of 10 per ELC ecosite.

Timing and Weather Conditions:

Acoustic surveys should take place on **evenings between June 1st and June 30th, commencing after dusk and continuing for 5 hours**.

Surveys should occur on warm/mild nights (i.e., ambient temperature >10°C) with low wind and no precipitation. At least 10 visits on nights that align with the above conditions where no SAR bat activity is detected are required to confirm absence.

Note that project proponents may cease survey work at any point once documentation of all three SAR bats species presence occurs.

Recommended Equipment Guidelines for Best Results:

- Broadband detectors (full spectrum) should be used. These may be automated systems in conjunction with computer software analysis packages or manual devices with condenser microphones.
- Acoustic monitoring systems should allow the observer to determine the signal to noise ratio of the recorded signal (e.g., from oscillograms or time-amplitude displays). These provide information about signal strength and increase quality and accuracy of the data being analysed.
- Microphones should be positioned to maximize bat detection i.e., situated away from nearby obstacles to allow for maximum range of detection and angled slightly away from prevailing wind to minimize wind noise.
- The same brand and/or model acoustic recording system should be used throughout the survey (if multiple devices are required), as the type of system may influence detection range/efficiency. If different systems are used, this variation should be quantified.
- Information on the equipment used should be recorded, including information on all adjustable settings (e.g., gain level), the position of the microphones, and dates and times for each station where recording was conducted.

Analysis:

Analytical software should be used to interpret bat calls and process results. Data should be analysed to the species level (as opposed to the genus level) in order to confirm presence/absence of SAR bats. Note that MNRF may request a copy of the raw acoustic data file when reviewing the results of the work completed in Phase III.

Additional Notes:

Project proponents should be aware that information about the number of bat passes detected in an area does not allow for an estimate of the number of bats present because there is not a 1:1 relationship between the number of passes and the number of bats responsible for those passes. It is not possible to distinguish between several bat passes made by a single bat flying repeatedly through the study area vs. several bats each making a single pass. Therefore, bat passes cannot provide a direct estimate of population densities.

Next Steps:

If Little Brown Myotis and/or Northern Myotis are detected, project proponents should proceed to Phase IV (Snag Density Survey). If only Tri-colored Bat is detected, snag density is not relevant and the proponent can proceed directly to Phase V (Complete an Information Gathering Form).

Phase IV: Snag Density Survey

Snag density information may be useful when the MNRF is considering the potential impact of a proposed activity on Little Brown Myotis and/or Northern Myotis. Snag density for each suitable ELC ecosite should be noted on the field data sheet provided in Appendix B. Surveys should take place during the leaf-off period so that the view of tree cavities, cracks and loose bark etc., is not obscured by foliage.

Snag density is a qualitative assessment of a treed ecosite, not a method of determining presence/absence of maternity roost habitat. There is no minimum threshold in terms of the number of snags/ha for an ELC ecosite to be considered suitable maternity roost habitat. However, an ELC with 10 or more snags/ha may be considered to be high quality potential maternity roost habitat. This information may be relevant when considering overall benefit in cases where a s.17(2)c permit under the ESA is required.

For smaller ecosites (e.g., <10 ha), snag density (# of snags/ha) can be calculated by dividing the number of snags mapped in Phase II by the total area of the ecosite.

Example:

ELC ecosite	Size (ha)	# of snags	Snag Density
WOD-M4	3.1	14	4.5 snags/ha
FOD-M2	0.8	9	11.25 snags/ha

For larger ecosites (e.g., >10 ha), sample plots can be used to estimate snag density within the suitable ELC ecosite, as follows:

- Select random plots across the represented ELC ecosite
- Survey fixed area 12.6m radius plots (equates to 0.05 ha)
- Survey a minimum of 10 plots for sites up to 10 ha, and add another plot for each additional ha up to a maximum of 35 plots
- Measure the number of suitable snags in each plot
- Use the formula πr^2 to calculate the number of snags/ha (where r=12.6m)
- Map the location of each snag density plot and record the UTM location using a GPS
- Calculate snag density for the ELC ecosite (snags/ha)

Example: **ELC Ecosite FOD-M2 (12 ha)**

# of sample plots	Total # of snags in sample plots	# of sample plots x r	Area of plots (πr^2)	Snag Density
12	48	12 x 12.6m = 151.2m	$3.14(151.2m)^{2} =$ $71784.9m^2$ = 7.18 ha	48 snags in 7.18 ha = 6.7 snags/ha

Phase V: Complete an Information Gathering Form

If SAR bats are detected during Phase III, the proponent should complete an Information Gathering Form (IGF) and submit it to the MNRF, Guelph District Office (esa.guelph@ontario.ca) for review. The IGF is available by searching the form repository on the government of Ontario website: http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf.

The MNRF will determine whether an activity is likely to kill, harm or harass a listed species and/or damage or destroy its habitat. The MNRF requires all of the necessary details and results from this survey protocol to be included on the IGF in order to make this determination.

For more information on overall benefit permits, including submission guidelines, process and timelines, please visit: https://www.ontario.ca/page/species-risk-overall-benefit-permits.

Appendix A – Suitable Maternity Roost Trees for Tri-colored Bat

Include all oak trees ≥10cm dbh (if present). If oaks are absent, include maples ≥10cm dbh IF dead/dying leaf clusters are present; and maples >25cm dbh if no dead/dying leaf clusters are present.

Project Name: Survey Date(s):

Site Name: Observer(s):

ELC Ecosite:

Tree#	Tree Species ID	Tree Status (live/dead)	Dbh (cm)	Tree Structural & Locational Attributes (check all that apply)	Easting	Northing	Notes
				☐ dead/dying leaf cluster ☐ cavity ☐ open area/forest gap ☐ forest edge ☐ interior ☐ preferred tree species within 10m?			
				☐ dead/dying leaf cluster ☐ cavity ☐ open area/forest gap ☐ forest edge ☐ interior ☐ preferred tree species within 10m?			
				☐ dead/dying leaf cluster ☐ cavity ☐ open area/forest gap ☐ forest edge ☐ interior ☐ preferred tree species within 10m?			
				☐ dead/dying leaf cluster ☐ cavity ☐ open area/forest gap ☐ forest edge ☐ interior ☐ preferred tree species within 10m?			
				☐ dead/dying leaf cluster ☐ cavity ☐ open area/forest gap ☐ forest edge ☐ interior ☐ preferred tree species within 10m?			
				☐ dead/dying leaf cluster ☐ cavity ☐ open area/forest gap ☐ forest edge ☐ interior ☐ preferred tree species within 10m?			
				☐ dead/dying leaf cluster ☐ cavity ☐ open area/forest gap ☐ forest edge ☐ interior ☐ preferred tree species within 10m?			

Appendix B – Suitable Maternity Roost Trees for Little Brown Myotis/Northern Myotis

Include all live and dead standing trees ≥10cm dbh with loose or naturally exfoliating bark, cavities, hollows or cracks.

Project Name: Survey Date(s):

Site Name: Observers(s):

ELC Ecosite: Snag Density (snags/ha):

Tree #	Tree Species ID	dbh (cm)	Height Class[2]	Snag attributes (check all that apply)	Easting	Northing	Notes
				☐ cavity[3] ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?[4]			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			

[2] **Height Class**: 1 = Dominant (above canopy); 2 = Co-dominant (canopy height); 3 = Intermediate (just below canopy); 4 = suppressed (well below canopy)

[3] The approx. height of the cavity should be noted. Note that cavities with an entrance near the ground may also be used by bats if they are "chimney-like".

[4] **Decay Class**: 1 = Healthy, live tree; 2 = Declining live tree, part of canopy lost; 3 = Very recently dead, bark intact, branches intact

Canadian Nightjar Survey: Protocol 2022

This protocol is the product of a series of working group meetings held from November 2015 to April 2016, and is adapted from the *Nightjar Survey Network* protocol from the Center for Conservation Biology (USA).

Contributions were made by the following individuals: Allison Manthorne (Birds Canada), Andrea Sidler (University of Regina; WildResearch), Audrey Heagy (Birds Canada), Elly Knight (WildResearch; University of Alberta), Gabriel Foley (University of Regina; WildResearch), Gilles Falardeau (Canadian Wildlife Service), Jean-Sébastien Guénette (Regroupement QuébecOiseaux), Jon McCracken (Birds Canada), Julie McKnight (Canadian Wildlife Service), Kathy St. Laurent (Canadian Wildlife Service), Kevin Hannah (Canadian Wildlife Service), Marie-France Julien (Regroupement QuébecOiseaux), Mark Brigham (University of Regina), Pam Sinclair (Canadian Wildlife Service), and Rhiannon Pankratz (Canadian Wildlife Service; WildResearch).

This protocol was prepared by Elly Knight, and the French translation was produced by Kevin Quirion Poirier and Audrey Lauzon.

Photo credits: Anne C. Brigham (Common Nighthawk); Alan Burger (Common Poorwill); Nicholas Bertrand (Eastern Whip-poor-will).

For more information, please contact:

Andrew P. Coughlan: acoughlan@birdscanada.org

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TABLE OF CONTENTS

1. INTRODUCTION

Thank you for contributing to nightjar monitoring in Canada! Prior to surveying, please read this protocol in its entirety and familiarize yourself with the identification of nightjar species that may be found in your area. A one-page summary of the protocol can be found in Appendix A and used as quick reference in the field.

Conducting a Nightjar Survey is easy – anyone with good hearing and a vehicle can participate!

- Each route is a series of 12 road-side stops
- Each route needs to be surveyed once per year between June 15 and July 15
- Each survey starts 30 minutes before sunset
- At each stop, you will listen quietly for nightjars for six minutes and record information about your survey

2. OBJECTIVES

The data you are helping to collect will be used to expand our understanding of Common Nighthawks, Common Poorwills, and Eastern Whip-poor-wills across the country. Due to their nocturnal habits, nightjars are understudied, but there is concern about their declining populations. Common Nighthawks and Eastern Whip-poor-wills are listed as Threatened under the federal *Species at Risk Act*. Common Poorwills were assessed as Data Deficient by the Committee on the Status of Endangered Species in Canada (COSEWIC) in 1993. Information on nightjar distribution, abundance, habitat associations, and population trends is critical for conservation and management efforts.

The Canadian Nightjar Survey has been designed with four objectives in mind, to increase our understanding of nightjar species:

1. **Habitat associations and critical habitat mapping**: roadside citizen science data will cover a large geographic expanse and can be integrated with more locally-collected, non-roadside data to characterize nightjar habitat.
2. **Long-term population monitoring:** data collected will be compared to Breeding Bird Survey data after several years of data collection to determine whether the protocol increases the precision of population trend estimates.
3. **Distribution and abundance mapping**: data collected will help refine our understanding of the distribution and abundance of nightjars across Canada.
4. **Environmental assessment**: survey data could be used to inform environmental assessments by providing a baseline against which we can evaluate the potential impacts of development to nightjar species and their habitat.

3. NIGHTJAR BIOLOGY & IDENTIFICATION

Nightjars are a family of cryptic birds that forage for flying insects at night. These beautiful birds have long, pointed wings and are well camouflaged against the leaves and branches they roost upon during the day. Many of these species are highly migratory, some spending their winters as far south as Argentina. During the summer, nightjars breed across Canada, generally laying two eggs directly on the ground with no nest.

Due to their nocturnal behaviour and cryptic appearance, nightjars are rarely seen, so it is most important to learn how to identify nightjars by ear!

3.1. Common Nighthawk (*Chordeiles minor*)

3.1.1. Biology

The Common Nighthawk is found almost everywhere in Canada, except Newfoundland and the far north. This species is one of the last migrants to arrive, showing up across the country in late May and early June. It is generally found in open habitat such as grasslands, clearcuts, sandy areas, peatlands, rocky bluffs, open forests, and even urban areas. The nighthawk uses large areas – males are thought to defend territories for mating and nesting, but forage and roost outside those territories, sometimes up to several kilometres away. The Common Nighthawk is listed as Threatened due to steep population declines based on existing Breeding Bird Survey data.

3.1.2. Identification

The Common Nighthawk is the nightjar the most likely to be seen during surveys because it is more crepuscular than the others, meaning that it is most active at dawn and dusk. This species becomes active approximately 30 minutes before sunset, and remain active until 60 or 90 minutes after sunset. Nighthawks forage for insect prey during sustained-flight, much like swallows and swifts. Their bright white wing bars are a tell-tale way to identify it in flight.

The Common Nighthawk can be identified by two different sounds. The first is a vocal "peent" or "beerb" call that is frequently made while in flight. The second is a mechanical wing-boom, made by air rushing through the down-curved wing tips of the male at the bottom of a steep vertical dive. Wing-booms are thought to be for territorial defense and mate attraction, much like the songs of male songbirds.

3.2. Common Poorwill (*Phalaenoptilus nuttallii*)

3.2.1. Biology

The Common Poorwill is found in the southern-most areas of central British Columbia, eastern Alberta, and western Saskatchewan. This species arrives in Canada in late April to early May to breed in semi-arid open habitats such as rocky bunchgrass hillsides and open forests. Common Poorwill population trends in Canada are unknown. The species was assessed as Data Deficient by the Committee on the Status of Endangered Species in Canada (COSEWIC) in 1993 due to insufficient information. The Common Poorwill is physiologically noteworthy in that it is one of the only bird species that can enter torpor (i.e., hibernation) for weeks at a time to conserve energy!

3.2.2. Identification


Alan Burger

The Common Poorwill is rarely seen because it is truly nocturnal and remain on the ground or perched, taking flight only to sally up and catch insects from the air. True to its name, the Common Poorwill is most readily detected by its "poor-will" call. This species begins calling about 30 minutes after sunset, and is most vocal during clear nights when the moon is at least half full.

3.3. Eastern Whip-poor-will (*Antrostomus vociferus*)

3.3.1. Biology

The Eastern Whip-poor-will is found from east-central Saskatchewan to Nova Scotia, with the majority of the population likely occurring in Ontario and Québec. This species arrives in Canada in early to mid-May, and occupies areas that are a mixture of open land and woods. It forages in open areas and uses wooded areas for perching and nesting. The Eastern Whip-poor-wills is listed as Threatened also due to steep population declines.

3.3.2. Identification

The Eastern Whip-poor-will is also rarely seen, but the species is distinguished by a white ring around the base of the neck and white spots on the outer tail feathers. It is most vocal during clear nights in June when the moon is at least half full, and it can repeat its characteristic

"whip-poor-will" call up to 100 times without stopping! It begins calling about 30 minutes after sunset, and calls for about 90 minutes each night.

3.4. Other Species of Interest

Other nocturnal and crepuscular species of conservation interest that it is useful to document, and that you might want to learn include:

- Owls
- Yellow Rail
- American Woodcock
- Chimney Swift

3.5. Identification Resources

To practice your nightjar and nocturnal bird species identification, we recommend the following resources:

3.5.1. Online – Before You Survey

- Dendroica: an interactive website designed to help learn bird identification. Listen to recordings and look at photos of potential species.
- Xeno-canto: an online database of recordings of birds from volunteers across the world.
    - Common Nighthawk (make sure to listen to some recordings with wing-booms)
    - Common Poorwill
    - Eastern Whip-poor-will
- The Cornell Lab of Ornithology's Macaulay Library is the world's largest collection of wildlife sounds and videos.

3.5.2. Apps – While You Survey

- iBird (nightjars are in the Pro, Canada, Ultimate, and Plus editions)
- Audubon Birds of North America (free)
- The Sibley eGuide to Birds

4. SURVEY OVERVIEW

4.1. Route

The Canadian Nightjar Survey uses unlimited radius point counts along permanent road-side survey routes so that survey data can be compared between years. The route framework is made up of permanent routes from:

- Breeding Bird Survey (every second stop of the first 23 stops)
- Routes in target habitat for Common Poorwills or Eastern Whip-poor-wills

Please contact your Regional Coordinator if there are no nightjar survey routes available near your area. It may be possible to establish a route designed to target a specific habitat, and in certain cases Breeding Bird Survey staff may consider establishing an additional route.

4.2. Stops

Each route consists of **12 survey stops each spaced 1.6 km apart** (straight line distance). Some routes may have 10 or 11 stops if there is not enough space for 12. The starting point of your route will be named Stop 1. Subsequent stops are sequentially numbered (i.e., 2, 3, 4, etc.). **It is critical that surveys be conducted at these same stops each year** so that data can be compared between years. To ensure the same stop locations are surveyed each year, volunteers will be able to access a route map and the coordinates of their survey stops via the NatureCounts sign-up and data entry portal or the coordinator.

4.2.1. New Routes

Some routes may never have been surveyed before, in which case the location of the stops will need to be determined by you and the coordinator, and will require extra time. You will be able to obtain a map of your route including satellite imagery, and **you will be required to collect information on stop location** (see Section 5.4). Stop locations are chosen with the following in mind:

- Stops should ideally be 1.6 km apart, and no less. Use your car odometer to measure the distance on straight roads.
- If your survey route road has curves, try to place stops at least 1.6 km apart (straight-line distance). Using a GPS will help determine the distance.
- Your safety is of first priority during nightjar surveys, so please ensure that your stops include a safe place to pull over and park.
- Avoid stop locations with excessive noise (e.g., near running water, barking dogs, etc.)
- It is better to add distance between stops rather than placing stops less than 1.6 km apart. This is to avoid counting the same birds twice.
- Not all of your stopping points need to be on the same road. Turning onto different roads may be necessary to find a safe place to park.
- We recommend scouting your route during daylight to become familiar with the stops.

4.3. Survey

At each survey stop, count all nightjars seen or heard for a period of **SIX minutes**. Counting birds and recording data should be done from a stationary position outside of your vehicle. To avoid data omission errors, record birds as you hear them, rather than waiting for the end of the six-minute period. Most importantly, be consistent. Use the same technique at each stop including how you focus your listening between nearby and distant birds. To ensure data are comparable between surveys by different volunteers, please:

- **DO NOT** use whistles, audio calls, or any method that coaxes birds to call or come closer
- **DO NOT** use a flashlight to search for reflections of bird eyes

See Section 5.3 for further details on how to record your nightjar observations.

4.4. Date

Surveys must be conducted between **June 15 and July 15**. **Each route needs to be surveyed once per year.**

If there is the potential for Common Poorwill or Eastern Whip-poor-will in your area, survey in the two-week period centered on the full moon (June 15 to 21 and July 6 to 15, 2022).

Excessive wind and rain will diminish the quality of surveys. **Do not complete surveys when wind speeds are Beaufort level 3 or greater, or if there is any precipitation.** If you begin a survey route and conditions deteriorate for more than 3 survey stops, we advise you to abort the survey and attempt it on another night with better conditions.

4.5. Time

Surveys **begin 30 minutes before sunset**, the time when nightjars are most active. Due to this timing requirement, only one route may be surveyed per night. Sunset is considered the beginning of official civil twilight for your survey route area and can be looked up online at:

http://www.nrc-cnrc.gc.ca/eng/services/sunrise/advanced.html.

To cover both the 6-minute nightjar survey and driving to your next survey stop, each stop will require about ten minutes to complete. The entire route will require a total time of approximately two hours.

5. DATA COLLECTION

A datasheet for data entry is available in Appendix B. Fill in each section of the datasheet according to the instructions in this section.

5.1. Survey Info

Fill in the route name, date, start time, and end time of the survey. Describe the general location and condition of the route including road condition and any safety concerns. Record the temperature at the beginning and end of your survey. Provide your name, mailing address, phone number, and email address for our records.

5.2. Stop Conditions

For each stop surveyed, **record the time the survey began**. We also ask that you record data on the conditions at each stop because factors such as wind and moon visibility can affect your chances of detecting a nightjar.

5.2.1. **Wind**

Record the wind speed using the Beaufort scale below. Do not conduct surveys if the wind force is greater than code 3.

Code	Wind Speed	Description
0	< 1 km/h	Calm: smoke rises vertically.
1	1-5 km/h	Light air: smoke drifts, leaves and wind vanes are stationary.
2	6-11 km/h	Light breeze: wind felt on exposed skin, leaves rustle, wind vanes begin to move.
3	12-19 km/h	Gentle breeze: leaves and small twigs constantly moving.

5.2.2. Cloud Cover

Rate the approximate amount of cloud cover at the time of your survey using tenths of sky covered. The codes are 0=clear; 1=10% cloud cover; 2=20% cloud cover; 3=30% cloud cover; 4=40% cloud cover, etc. up to 10=100% cloud cover or completely overcast. Code 11 can be used to indicate fog.

5.2.3. Moon

Enter yes or no to indicate if the moon can be seen while surveying. This is particularly important to record in deep valleys where the moon is often obstructed by the surrounding hills or mountain ridges.

5.2.4. Noise

Record the level of background noise at each stop using the following codes:

Code	Noise	Description
0	None or slight	Relatively quiet, little interference (e.g., distant traffic, dog barking).
1	Moderate	Some interference when listening for nightjars (e.g., airplane, moderate traffic)
2	High	Substantial interference when listening for nightjars (e.g., fairly constant flow of traffic)
3	Excessive	Extreme interference when listening for nightjars (e.g., continuous traffic passing, construction noise, loud frog chorus).

5.2.5. Cars

Count the number of cars that pass on the road during your survey.

5.3. Nightjar Detections

5.3.1. Nightjars

Each line on the data sheet represents an individual bird's detection history (see example on next page). Use a new line for each new bird detected at a stop. Do not record any detection data if no nightjars (or owls) were heard at a given stop. If you cannot accurately count the number of individuals by sight or by concurrent calls, make a note in the "comments" column of your data sheet. Use the following nightjar codes:

- CONI = Common Nighthawk
- COPO = Common Poorwill

- EWPW = Eastern Whip-poor-will

5.3.2. Detection Type

The survey period is broken into **6 one-minute intervals** on the data sheet. **For each bird heard or seen during each one-minute interval, indicate the highest ranked type.**

1. **Wing-boom (W):** If the bird performed a territorial wing-boom in that one-minute interval (Common Nighthawks only).
2. **Call (C):** If you heard the bird call during that one-minute interval.
3. **Visual (V):** If you saw the bird, but did not hear it during that one-minute interval.
4. **Not detected (N)**: If you did not detect the bird during a given one-minute interval.

Please also note whether or not you think the individual is a repeat bird, that is, one that you already reported at the previous stop.

Sample data entry: The observer detected one Common Nighthawk calling during the first 3 minutes of the survey at Stop 1, and performing wing-booms in minute 3. The observer then detected a second Common Nighthawk calling at Stop 1 during the 3rd and 4th minute of the survey, so began a new row on the data sheet for this bird. Using best judgment, the observer decided these were two individual Common Nighthawks, and not the same bird that moved after initial detection. At Stop 2, the observer did not detect any birds during the survey period, so did not record anything on the data sheet. At Stop 3, the observer detected one Common Nighthawk several hundred metres to the northeast, calling and performing several wing-booms per minute for the entire 6 minutes. A Common Poorwill was also heard calling in minutes 2 to 5 less than 100 metres to the south. At Stop 4, the observer saw two Common Nighthawks fly over in minute 2, one of which made a "peent". None of the birds were thought to be individuals recorded at a previous stop.

Stop (1-12)	Species	Time Interval						Repeat bird (circle)	Distance (circle)	Direction
		1	2	3	4	5	6			
1	CONI	C	C	W	N	N	N	Y (N)	< 100 m > 100 m	
1	CONI	N	N	C	C	N	N	Y (N)	< 100 m > 100 m	
3	CONI	W	W	W	W	W	W	Y (N)	< 100 m (> 100 m)	NE
3	COPO	N	C	C	C	C	N	Y (N)	(< 100 m) > 100 m	S
4	CONI	N	C	N	N	N	N	Y (N)	< 100 m > 100 m	
4	CONI	N	V	N	N	N	N	Y (N)	< 100 m > 100 m	

5.3.3. Distance and Direction

Recording the location of particular observations may help us learn more about the specifics of nightjar habitat requirements. Please estimate the distance and direction to your first detection of:

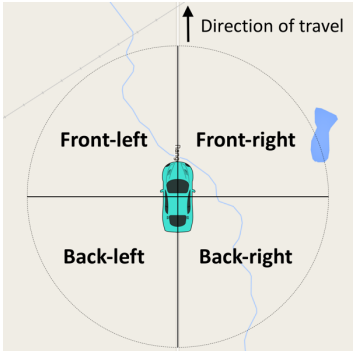
- Common Poorwills
- Eastern Whip-poor-wills
- Common Nighthawks performing repeated wing-booming in the same location (3 or more wing-booms).

You do not need to estimate distance and direction for Common Nighthawks that are not performing repeated wing-booming.

Estimate distance as one of the following:

- near (< 100 m)
- far (> 100 m)

Estimate direction using cardinal or intercardinal directions (e.g., north, east, south, west, northeast, north-northeast, etc.). If you are unsure of the direction, you may describe the direction relative to your vehicle and the road:



5.4. Stop Locations

This section of the datasheet should **only be filled out if your route has never been surveyed before or if you wish to recommend a stop location amendment.**

Stop coordinates must be recorded and submitted so that surveys can be conducted at the same stops in subsequent years. Ideally, location coordinates should be submitted as latitude and longitude in **decimal degrees** to six digits (e.g., 49.884128 N, 119.496301 W). There are several ways to obtain the coordinates for your new stop locations:

1. Use a handheld GPS and take waypoints at each of your stops.
2. There are many excellent GPS apps available for smartphones. If you have an iPhone, Android, or BlackBerry, you can turn it into a handheld GPS. Here are a few app options:
   - MotionX-GPS for iPhone
   - Free GPS for iPhone (Free)
   - GPS Test for Android (Free)
   - GPS Maps Location Finder for BlackBerry (Free)

3. Locate coordinates after survey completion in Google Earth. If you choose this option, we recommend marking stops on a printed map as you survey and using your car's odometer to keep track of how far apart your stops are.

6. EQUIPMENT

6.1. Essential

- Vehicle
- Protocol
- Datasheets (blank)
- Flashlight (ideally headlamp type)
- Watch or other device with a timer (e.g., phone)
- Several pencils/pens

6.2. Recommended

- An assistant/driver
- Map of route and stops
- GPS and/or phone with GPS app
- Thermometer for recording temperature at the beginning and end of your survey
- Road map for getting to your route
- Compass (for determining cardinal or intercardinal direction to birds)
- Clipboard
- Spare batteries (for flashlight or GPS)
- Insect repellent and/or mosquito-repellent clothing
- Safety vest or other reflective clothing.

7. SAFETY

Your safety is most important, so please ensure that you are conscious of your safety when conducting a survey. Please take the follow points into consideration:

- Consider conducting surveys in a team of two.
- If surveying alone, make sure someone knows where your survey route is and what time you will return. Please make sure that you contact this person when you get back.
- Park your vehicle well off the road during survey stops.
- Stand off the road surface when conducting surveys.
- Leave parking lights on throughout the duration of a count.
- Wear a reflective vest or use a headlamp so that other drivers are aware of your presence.
- Conduct the survey near the road to avoid trespassing on private property.
- Check your clothing and skin for ticks when you get home to prevent the transmission of Lyme disease and other tick-borne illnesses.

8. DATA SUBMISSION

8.1. Data Entry via NatureCounts

If possible, please set aside sufficient time (20 minutes or so, depending on whether you are adding comments or not) to enter all your data for a given survey in one sitting. If you are unable to do this, you can save an incomplete form and come back to it later (see below for details), but you will need to complete the page that you are working on, as saving an incomplete page is not allowed.

Step 1: Log on

Log on to the survey's NatureCounts portal:.
https://www.birdscanada.org/naturecounts/nightjars/main.jsp.

Click on "Sign in" in the main menu, enter your Login name and Password, and click on the blue "Sign in" button at the bottom of the page.

Step 2: Check that your stations are in the database

This step is facultative if you know that your stations are set up correctly.

Once you are signed in, place you cursor over the "Explore" tab and open the "Available Routes" map. Click on the blue marker for your route and select "adoption preferences" to see your route. Make sure that all the stations you wish to enter data for are showing and in the correct place. If your stops are not correctly displayed, please contact your coordinator so that the full route can be set up in the system.

Step 3: Submit data

Once you have checked that your stations are all showing, place you cursor over the "Submit" tab in the main menu bar at the top of the page and then click on "Submit Data".

This will open a new window and you can select your survey site from the drop down list. Routes are listed alphabetically by name. Be careful that you select your route and not an adjacent one in the list. You can also select your route by using the map and zooming into your area and clicking on the route button. Once your route is selected, click the blue "Continue" button

A data entry form will open. The first page is the Form Header. Enter the survey date and the name of any assistants. You can add names to the list by clicking on "Add observers". Save any changes to this list and click on the "Return to data form" button. You can then tick the appropriate box or boxes to add any assistants to the data form. You do not need to include your name as you are associated with the form as the primary observer.

Then enter the start and end temperatures that you recorded during the survey. Please just enter numbers here and not text.

You can add any relevant general survey or route comments to the "Comments" box. There are additional comments boxes for each station.

Once the Form Header page is completed, click on the "Next Page" button at the top or bottom of the sheet. This will save the sheet you have just completed and open the sheet for your first survey stop (called station on these forms).

You will see that "Station 1" is indicated in the "Jump To" box at the top of the page. Next, you will need to select the number of the stop that you surveyed first for the "Station" box. The drop down or scroll through list associated with this box lists all the stops for the route. For the first station, you will normally select "Stop 1", but if you did your route in reverse order, it will be "Stop 12" (for standard routes).

In the "Time and Effort" box, enter the time that you started surveying the stop. Do this using the 24 hour clock (i.e., 8:30 p.m. should be entered as 20 in the hour box and 30 in the minute box). Please note that for subsequent stops, if you accidently enter a time that is earlier than the previous station, this will generate an error message. You can put a later time on the page that you are working on, then save it and go back to the previous station and correct the time. Once this is done, you can return to the page you were working on and indicate the appropriate time.

Under "Weather and Survey Conditions" enter the wind speed and its direction (if noted), and the cloud cover (this is in tenths of sky covered, so 1 is equal to 10% covered, etc.)

Under "Other Variables", enter whether the moon was visible or not, the number of vehicles that passed as you were surveying (enter 0 if no vehicles passed by), and the noise level you recorded.

Then go to the "List of Species" box. If you did not hear or see nightjars at the stop, tick the box that indicates that you completed the survey for the stop but no nightjars were present.

If you did record night jars, use one row in the box per individual. Enter the name of the species in the first box. Let's say it was a Common Nighthawk. Then for each of the one minute time periods, note for that individual what you recorded. You might start with "N-Not detected" for the first two minutes, then perhaps "W-Wing boom" in the third minute and then a "C-Call" in the fifth minute and "W-Wing boom" during minute 6. If there were more than three wing booms given in total, note the distance to the individual (i.e., less than or greater than 100 m) and the direction it was in.

If, at a given stop, you think that you are hearing a bird from a previous stop, please indicate this by ticking the "repeat bird" box. But please don't use this box to indicate that a bird called multiple times at the stop that you are entering data for. *If this option is not in place yet, please add this information to the comments box for the stop.*

You can note other species that you may have recorded (e.g., owls) in the comments box for the stop and you can also note stop-specific comments. Then click on "Next Page", this will save your data and open the data form for the second stop you surveyed. Please only click on "Next Page" (or "Previous Page") after completing a page.

Complete this process for the number stops that you surveyed. If for whatever reason you were unable to collect data from one of your stops, simply take this into account in your choice of stop number. For example, if you were unable to survey stop 4, but were able to survey stop five, on the Station 4 page you would select Stop 5 and continue on from there.

If you have a problem you can delete the sheet for a given stop and start again from the last completed stop. Once you have entered all the data for all the stops you visited, click on "Finish Form" at the bottom of the page. Your form will then be submitted. This opens a summary of the data you have entered. Please read through this to make sure there are no errors. If everything is correct, you can simply log out. If you do need to make a correction, click on "Modify" and then go to the page you want to correct using the "Jump To" box at the top of the page. Then make the correction and click on "Finish Form" again.

If you need to take a break during the data entry process, complete the page of the form you are working on and click on "Save" and log out. When you are ready to complete the form, log in again and instead of going to "Submit data", select "Explore" and "View data forms". Then click on the "Edit" button associated with the form you wish to complete and simply continue from where you left off. Occasionally, if you return quickly to a form, it may generate an access error message. If this is the case, wait a while, preferably overnight and try again.

Your form is available for you to modify until it has been validated by the coordinator and finalized. Up until that point, you can make further modifications. Once the form has been finalized, you will still be able to consult it, but you won't be able to modify it. If you notice a mistake in a finalized form, you will need to contact your coordinator and request a correction.

If you have any persistent problems during data entry, simply contact your coordinator.

8.2. Other Options for Data Submission

If you are unable to enter your data online, you can also submit your data using one of the following options:

- Scan/photograph your data sheets and email them to acoughlan@birdscanada.org
- Mail your data sheets to:

  Andrew P. Coughlan
  Director, Québec Region
  Birds Canada
  346, rue Fraser
  Québec (Québec) G1S 1R1

APPENDIX A: QUICK-REFERENCE PROTOCOL SUMMARY

Quick-Reference Protocol Summary

The Protocol Summary is intended as a quick reference when you are in the field. Please use the summary once you have read and are familiar with the full survey protocol.

Survey: Listen quietly for a period of six minutes.

Route: Each route consists of 10 to 12 survey stops spaced at least 1.6 km apart and numbered consecutively.

Date: Survey once between June 15 and July 15. For 2022, survey between June 15 and 21 or July 6 and 15, if you may have Common Poorwills or Eastern Whip-poor-wills in your area. Do not survey when wind speed is greater than Beaufort Scale 3, or rain is stronger than a light drizzle.

Time: Begin at 30 minutes before sunset (civil twilight for your area). It will take about 10 mins to survey one stop and travel to the next, for a total survey time of 2 hours.

Data collection – Stop Conditions: At each survey, record the time your survey began, wind strength, cloud cover, whether the moon is visible, the level of background noise, and the number of cars that pass.

Data collection – Nightjar Detections: Each line on the data sheet represents an individual bird's detection history.

- If you did not detect nightjars at a given stop, you do not need to fill out a row for that stop.
- The survey period is broken into six one-minute intervals on the data sheet.
- For each bird detected in each one-minute interval, record the code for the highest ranked detection type you observed:
    1. W (wing-boom, Common Nighthawks only)
    2. C (call)
    3. V (visual)
    4. N (not detected)
- Use Repeat box to record whether you think you are reporting a bird recorded at a previous stop or not.
- Record the distance (< 100 m or > 100 m) and direction to your first detection of
    - Common Poorwills
    - Eastern Whip-poor-wills
    - Repeat wing-booms of Common Nighthawk(i.e., ≥ 3 wing-booms at the same location)

Data collection – Stop Locations: Record stop coordinates as latitude and longitude in decimal degrees if your route has no pre-established stop locations or if you wish to suggest an amendment to your route.

Essential Equipment Checklist:

- Data sheets
- Survey protocol
- Route map
- Flashlight
- Stopwatch/timer
- Pens/pencils
- GPS or map of route to mark new stops on (new routes only)
- Location of stops (previously surveyed routes only)

APPENDIX B: CANADIAN NIGHTJAR SURVEY DATASHEET

1. SURVEY INFO: Fill this out before you start. Don't forget to fill in "End Temperature" at the end of your survey!

Observer Name:	**Co-Observer Name:**	
Address:	**Email:**	**Phone:**
Route Name:	**Date:**	

Comments: _____

2. STOP CONDITIONS: Record the conditions at each survey stop.

Start Temperature: _____

Stop	Start Time (24 hr)	Wind (circle)	Wind direction	Cloud (10ths of sky covered)	Moon (circle)	Noise (circle)	# Cars	Comments
1		0 1 2 3			Y N	0 1 2 3		
2		0 1 2 3			Y N	0 1 2 3		
3		0 1 2 3			Y N	0 1 2 3		
4		0 1 2 3			Y N	0 1 2 3		
5		0 1 2 3			Y N	0 1 2 3		
6		0 1 2 3			Y N	0 1 2 3		
7		0 1 2 3			Y N	0 1 2 3		
8		0 1 2 3			Y N	0 1 2 3		
9		0 1 2 3			Y N	0 1 2 3		
10		0 1 2 3			Y N	0 1 2 3		
11		0 1 2 3			Y N	0 1 2 3		
12		0 1 2 3			Y N	0 1 2 3		

End Temperature: _____

Code	Wind Description	Cloud Description	Noise Description
0	Calm: smoke rises vertically	0=No clouds	None or slight (e.g., distant traffic)
1	Light air: smoke drifts, leaves and wind vanes are stopped	1=10% cover	Moderate (e.g., airplane, moderate traffic)
2	Light breeze: wind felt on exposed skin, leaves rustle, wind vanes begin to move	2=20% cover	High (e.g., fairly constant traffic)
3	Gentle breeze: leaves and small twigs constantly moving, light flags extended	3=30% cover	Excessive (e.g., construction, frog chorus)
4	Do not survey	4=40% cover, etc.	N/A

3. NIGHTJAR OBSERVATIONS: At each stop, listen for 6 minutes and fill out one line for each individual heard. Record the code for the highest ranked detection type you observed in each one-minute time interval: 1. W (wing-boom), 2. C (call), 3. V (visual), 4. N (not detected). Indicate whether you think it is a repeat bird recorded at another stop or not. Only record distance and direction for COPO, EWPW, and repeat wing-booming CONI.

Stop (1-12)	Species	Time Interval						Repeat bird (circle)	Distance (circle)	Direction	Comments
		1	2	3	4	5	6				
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
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								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		

3. NIGHTJAR OBSERVATIONS: At each stop, listen for 6 minutes and fill out one line for each individual heard. Record the code for the highest ranked detection type you observed in each one-minute time interval: 1. W (wing-boom), 2. C (call), 3. V (visual), 4. N (not detected). Indicate whether you think it is a repeat bird recorded at another stop or not. Only record distance and direction for COPO, EWPW, and repeat wing-booming CONI.

Stop (1-12)	Species	Time Interval						Repeat bird (circle)	Distance (circle)	Direction	Comments
		1	2	3	4	5	6				
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		
								Y N	< 100 m > 100 m		

4. STOP LOCATIONS: This section of the datasheet should **only be filled out if your route has never been surveyed before or if you wish to recommend a stop location amendment.**

Stop	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Comments
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Fisheries and Oceans Canada
Pêches et Océans Canada

Bedford Institute of Oceanography
1 Challenger Drive
P.O. Box 1006, Station P500
Dartmouth, Nova Scotia B2Y 4A2

Date: November 23, 2023

To: Mark McInnis, Environmental Assessment Officer

From: Donald Sam, Regulatory Review Biologist, Fish and Fish Habitat Protection Program

Subject: Walden Quarry Expansion, Lunenburg County, Nova Scotia

Scope of review:
Fisheries and Oceans Canada (DFO) is responsible for administrating the fish and fish habitat protection provisions of the *Fisheries Act* (FA), the *Species at Risk Act* (SARA), and the *Aquatic Invasive Species Regulations*.

DFO's review focused on the impacts of the works outlined in the Walden Quarry Expansion Project Environmental Assessment Registration Document to potentially result in:

- the death of fish by means other than fishing and the harmful alteration, disruption or destruction of fish habitat, which are prohibited under subsections 34.4(1) and 35(1) of the *Fisheries Act*;
- effects to listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act*; and
- the introduction of aquatic species into regions or bodies of water frequented by fish where they are not indigenous, which is prohibited under section 10 of the *Aquatic Invasive Species Regulations*.

Recommendations:

We have not identified any gaps for the works outlined in the Walden Quarry Expansion Environmental Assessment Registration Document.

NOVA SCOTIA
Public Works

J.W. Johnston Building
1672 Granville Street
6th Floor
Halifax, Nova Scotia
Canada B3J 2N2

Date: 22 November 2023

To: Mark McInnis, Environmental Assessment Officer

From: Department of Public Works, Environmental Services – Brent MacDonald, P.Eng., Manager.

Subject: Walden Quarry Expansion Project, Lunenburg County, Nova Scotia

Scope of review:
This review focuses on the following mandate: Traffic Engineering and Road Safety

List of Documents Reviewed:
Walden Quarry Expansion Project EA Document and Appendices

Details of Technical Review:

1. The proponent is expanding an existing quarry, with no changes in truck traffic anticipated. New production is expected to replace existing production, with site activities not planned to increase in scope or frequency. No changes to the access off Woodstock Road are planned, nor will the existing transportation routes be changed.

Key Considerations:

1. No changes are expected to be made to current site activities, therefore DPW does not have any comment on this registration.

NOVA SCOTIA
Fisheries and Aquaculture

Armoyan Centre
1800 Argyle Street
Suite 603
Halifax NS B3J 3N8

Date: November 15, 2023

To: Mark McInnis, Environmental Assessment Officer

From: Lesley O'Brien-Latham, Executive Director, Policy and Strategic Advisory Services

Subject: **Walden Quarry Expansion Project, Lunenburg County, Nova Scotia**

Scope of review:
The scope of this review follows the Department of Fisheries and Aquaculture's legislated mandate to develop, promote and support fishing, aquaculture, seafood processing and sportfishing in Nova Scotia.

List of Documents Reviewed:

Walden Quarry Expansion Project EARD
Walden Quarry Expansion EA Registration document, Appendix A Part 1, Appendix A Part 2.

Details of Technical Review:

Control measures will be implemented on site to manage erosion and sedimentation, as required. Dust emission and particulate matter will be monitored and if required, dust emissions from the quarry will be controlled with the application of water. Water would be sourced onsite from retained surface water within the fractured quarry floor or will be acquired from a water truck. These active mitigation and monitoring steps should result in low risk of negative effects of sedimentation on aquaculture sites and rockweed leases, if applied appropriately.

The majority of surface water runoff and drainage will infiltrate the quarry floor. The mitigation and monitoring steps have been provided and, if applied appropriately, should result in low risk of negative effects on aquaculture sites and rockweed leases.

The proponent should be made aware of the aquaculture operations within the area and ensure mitigations are implemented appropriately, with reference to the following link to identify sites and operators within the project area: Site Mapping Tool - Government of Nova Scotia, Canada

The proponent should also be made aware of the Fisheries and Coastal Resources Act, Provincial Aquaculture License and Lease Regulations, Provincial Aquaculture Management Regulations, and the Nova Scotia Rock Weed Harvesting Regulations.

Key Considerations:

- There are a total of 2 rockweed leases and 18 aquaculture sites within 25km of the proposed project. Of these, 15 are marine shellfish sites, 1 are marine finfish sites, and 2 are land-based aquaculture facilities.
- The Department does not anticipate risks to the commercial harvesting and marine activities within the Department's mandate.
- The Department does not anticipate any risks to sportfishing.

Date: November 24, 2023

To: Mark McInniss, Environmental Assessment Officer

From: Nova Scotia Office of L'nu Affairs – Consultation Division; **Reviewed by Beata Dera, Director of Consultation**

Subject: Walden Quarry Expansion Project, **Lunenberg County, Nova Scotia**

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

List of Documents Reviewed:
Environmental Assessment Registration Document
Appendix B: First Nations and Public Engagement Log

Details of Technical Review:

Appendix B

This is titled "First Nations and Public Engagement Log" however there is no public engagement information included. Suggest renaming to "Mi'kmaq Engagement Report."

3.1 MI'KMAQ ENGAGEMENT

This section states that the Proponent sent letters of invitation to Acadia First Nation, Sipekne'katik First Nation, Millbrook First Nation, KMKNO, and the Native Council of Nova Scotia to participate in an engagement opportunity for the proposed quarry expansion. The EARD states that the Proponent has not received any feedback from the Mi'kmaq of Nova Scotia communities or organizations but is committed to maintaining open lines of communication with interested Mi'kmaq communities through the life of the EARD process and the construction, operational and decommissioning phases of the Project. Specific information (ie. letters, open houses) regarding how the Proponent intends to continue to engage with the Mi'kmaq of Nova Scotia is not included in the EARD.

3.5 EFFECTS OF THE UNDERTAKING ON THE MI'KMAQ OF NOVA SCOTIA

A Mi'kmaq Ecological Knowledge Study (MEKS) was not undertaken for the proposed Project.

7.4.1 WETLANDS

The Proponent indicates that the wetland area within the Walden Quarry Expansion site is estimated at approximately 4 ha, and that construction activities could result in habitat loss due to partial or complete in-filling. The Proponent also indicates that five wetlands are noted as Wetlands of Special Significance (WSS). OLA is aware that wetlands support a wide variety of plants, including those that the Mi'kmaq consider to be of significance for sacred, ceremonial, and medicinal purposes.

7.3.5. FAUNA

The EARD states that the project site is located within mainland moose core habitat and the nearest mainland moose observation is approximately 25km away from the Study Area. OLA is aware that moose is a significant species of interest for the Mi'kmaq of Nova Scotia. Potential impacts to moose and their habitat may potentially adversely impact Aboriginal and/or Treaty rights.

Key Considerations:

Crown consultation with the Mi'kmaq of Nova Scotia is ongoing for this project. The Mi'kmaq of Nova Scotia may provide additional information that informs the regulator in assessing the proposed project's potential impacts to established and/or asserted Mi'kmaw Aboriginal and Treaty rights and resulting appropriate accommodation and mitigation measures. At this time, OLA is able to provide the following considerations:

OLA encourages the Proponent to continue to engage with the Mi'kmaq of Nova Scotia and provide regular updates throughout the duration of the Project.

A Mi'kmaq Communication Plan would be helpful to achieve the sharing of information by the Proponent and providing a mechanism for proponent-led engagement and input from the Mi'kmaq regarding wetland mitigation, compensation, and monitoring plans.

Often, for a project of this scope and scale, a Mi'kmaq Ecological Knowledge Study (MEKS) would be completed to determine what, if any, traditional and current use activities and Aboriginal Rights are practiced by the Mi'kmaq within the Project area.

NOVA SCOTIA
Natural Resources and Renewables

1701 Hollis St.
PO Box 698
Halifax, NS B3J 2T9

Date: November 20, 2023

To: Mark McInnis, Environmental Assessment Officer

From: Matt Parker – Wildlife Division Executive Director

Subject: **Walden Quarry Expansion Project, Lunenburg County, Nova Scotia**

Scope of review:
This review focuses on the following mandate: biodiversity, species at risk status and recovery, wildlife species, and wildlife habitat.

List of Documents Reviewed:
Walden Quarry Expansion Project – Environmental Assessment Registration Document and Appendices.

Details of Technical Review:
Wetlands: There are ten identified wetlands in the Study Area; it is understood that six wetlands will be completely altered, one will withstand partial alteration and three will receive no alterations. Proper mitigation should be in place to prevent disturbance to WL1, WL2 and WL10, and wetlands downstream from the quarry, with appropriate monitoring programs in place to identify changes in wetland habitat, quality, and function. If the mitigation measures identified in section 9.4.1.3 are implemented, impacts to the unaltered and downstream wetlands should be minimized. A properly structured and implemented monitoring plan will ensure unexpected disturbance is identified and mitigations adjusted to account for new disturbance impacts.

Avifauna: Quality and quantity of surveys are sufficient for understanding the bird community in the Study Area. Employing proper mitigations measure, identified in 9.3.3.1, and subsequent monitoring during all Project phases will ensure impacts to avifauna are minimised.

Herpetofauna: Continued employment of turtle exclusion fencing will reduce the use of the quarry and road as nesting areas for snapping and Eastern painted turtles; however, the potential remains for female turtles to nest in these areas. Using additional caution during the nesting period (April – July) will reduce road mortality risks.

Key Considerations:

Largely, the Walden Quarry Expansion Project Environmental Assessment Registration Document, prepared by McCallum Environmental Ltd. for Dexter Construction Company Ltd. is thorough, consistent with current best practices and provides what should be efficient, effective, and achievable mitigation measures for expected impacts

to the environment. Based upon a review of the information provided, the following recommendations for conditions of approval are provided:

1. Regulatory Considerations:
    - Obtain all necessary permits to undertake the project as required under legislation related to wildlife, Species at Risk and habitat alterations.
    - It is illegal to disturb, harm or destroy any threatened or endangered species, their dwellings or habitually occupied habitats, unless a permit from Wildlife Division is issued.

2. Baseline Surveys
    - Provide digital waypoints and/or shapefiles for all flora and fauna surveys, including for Species at Risk and Species of Conservation Concern to NRR (those species listed and/or assessed as at risk under the Species at Risk Act, Endangered Species Act, COSEWIC, as well as all S1, S2 and S3 species). Data should adhere to the format prescribed in the NRR Template for Species Submissions for EAs and is to be provided within two (2) months of collection.

3. Wildlife Management Plan

Develop a Wildlife Management Plan (WMP) in consultation with NRR and ECCC and implement following approval from NRR and ECCC which shall include:

- Communication protocol with regulatory agencies;
- General wildlife concerns (e.g., human-wildlife conflict avoidance);
- Education sessions and materials for project personnel on important biodiversity features they may encounter on-site and how to appropriately respond to those encounters.
- Mitigations, including:
    - Noise, dust, lighting, blasting mitigations;
    - Emergency response plans for accidental spills, pollution, chemical exposure, and fire;
    - A blasting plan with a completed pre-blast survey, a blast monitoring plan, and a blast damage response;
    - Mitigation measures for bank swallows to ensure any stockpiles or banks have a slope of less than 70 degrees to deter bank swallow nesting in high disturbance areas.
    - Revegetate cleared areas using native vegetation or seed sources following consultation with NRR.
    - Measures to protect and mitigate against adverse effects to migratory birds during all Project phases. This may include avoidance of certain activities (such as vegetation clearing) during the regional nesting period for most birds, buffer zones around discovered nests, limiting activities during the breeding season around active nests, restricting lighting use at night during seasonal migration periods, and other best management practices.
    - Mitigation measures consistent with recovery documents (federal and/or provincial recovery and management plans, COSEWIC status reports) to avoid and/or protect Species at Risk/Species of Conservation Concern and

associated habitats discovered through survey work or have the potential to be found in the Study Area.

- It is recommended that the proponent ensures standard practices are established during development, construction, and operation of the site to prevent wildlife interactions that may result in entanglement, entrapment, or injury. As part of daily operations, staff should be trained to survey the site, identify issues, and consult as appropriate for solutions when wildlife is found to be utilizing artificial or existing habitat conditions during the operation of the site.
- Develop a plan to prevent the spread of invasive species both on and off site. Implementation of the plan can only occur following approval from NRR. The plan should include monitoring, reporting, and adaptive management components.
- Provide a decommissioning and site reclamation plan and reclaim site to satisfaction of NRR at the end of project.

- Details on monitoring and inspections to assess compliance with the WMP.
- The proponent must describe the impacts of the project on landscape-level connectivity for wildlife and habitat (e.g., habitat fragmentation, loss of intact forested habitat, increased road density). An assessment of the cumulative effects of the project on landscape-level connectivity and habitat loss, and the measures proposed to mitigate those effects, must be provided.

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: November 24, 2023

To: Mark McInnis, Environmental Assessment Officer

From: Air Quality Unit; reviewed by Director, Air Quality and Resource Management

Subject: Walden Quarry Expansion Project

Scope of review:
This review focuses on the following mandate: Air Quality

Technical Comments:

Municipal Enterprises Limited is proposing to expand the Walden Quarry operating footprint to increase available aggregate material and ensure that a long-term aggregate supply is available to support local project and infrastructure needs in the future. The Project would see the existing <4 ha quarry expanded an additional 23.8 ha. Other than an increase in the total footprint of the site and the increase in the Project's life, site activities are not planned to increase in scope or frequency from past use. The predicted timeline of the Project is expected to be over a 40+ year period.

Impacts on air quality from this project are most likely to occur during clearing/grubbing, blasting/drilling activities, stockpiling of aggregate, operation of heavy equipment (e.g. crushers, earthmovers), and onsite routine operations. These activities are most likely to contribute to increases in concentrations of total suspended particulate (TSP), while vehicle emissions are likely to contribute to increases in fine particulate (PM2.5) and nitrogen oxides. Quarry expansion is not expected to decrease air quality compared to current baseline conditions, as the existing quarry has been in operation since 2015 and there is no proposed increase to the magnitude and frequency of activities likely to generate dust.

To mitigate these impacts, the proponent proposes maintaining a vegetative buffer around the quarry wherever possible, minimizing vehicle/machinery idling time, appropriate truck loading and hauling procedures, and the use of water spray systems to reduce resuspension of dust originating from the Project. These are appropriate mitigation methods. The proponent should also ensure proper handling/storage/stockpiling of aggregate to prevent resuspension of dust from wind.

Air quality data from the Kentville NAPS station was provided to demonstrate existing air quality conditions. However, it is unclear what date range was used for the analysis.

Overall, the impacts to air quality are expected to be similar to the existing operation – vehicles using the unpaved roads for access may contribute to small increases in airborne dust from time to time.

Summary of Technical Considerations:

The location of the proposed expansion and associated activities suggests that pollutant concentrations would be low with only 1 permanent residence within 800m of the study area. The proponent should ensure that the generation of dust is kept to a minimum using the proposed mitigation methods and any other methods that are considered appropriate once construction starts. The dust mitigation methods should be outlined in a Dust Management Plan and finalized prior to the commencement of construction.

NOVA SCOTIA
Environment and Climate Change

Barrington Place
1903 Barrington Street
Suite 2085
Halifax, Nova Scotia
Canada B3J 2P8

Date: November 24, 2023

To: Mark McInnis, Environmental Assessment Officer

From: Air Quality Unit; reviewed by Director, Air Quality and Resource Management

Subject: Walden Quarry Expansion Project

Scope of review:
This review focuses on the following mandate: Noise

Technical Comments:

Municipal Enterprises Limited is proposing to expand the Walden Quarry operating footprint to increase available aggregate material and ensure that a long-term aggregate supply is available to support local project and infrastructure needs in the future. The Project would see the existing <4 ha quarry expanded an additional 23.8 ha. Other than an increase in the total footprint of the site and the increase in the Project's life, site activities are not planned to increase in scope or frequency from past use. The predicted timeline of the Project is expected to be over a 40+ year period.

The proponent has not undertaken any baseline monitoring but states that the area has an estimated baseline sound level of ≤45dBa and that noise from routine operations is predicted to attenuate to background levels before reaching the nearest permanent residential receptor (380m from the quarry expansion area). The proponent provides Table 9-2 to demonstrate attenuation rates of noise level from various activities at the quarry, which shows that the permissible sound levels detailed in the Pit and Quarry Guidelines, will be adhered to. However, industry best practice indicates that the sound originating from a point source is expected to attenuate by 7.5 dB for every doubling of distance (based on 15m) for a "soft" site. Table 9-2 shows 7.5 dB of attenuation for every 15m away from the noise source, not every doubling of distance.

It is noted that the Guideline for Environmental Noise Monitoring and Assessment (GENMA) was updated on October 1, 2023. The quarry expansion area is classified as "rural" under GENMA, with a daytime maximum permissible sound level of 53 dBA. Noise generated from proposed activities (provided in Table 9-2) have the potential to exceed 53 dB at the nearest residential receptor. However, the activity is located within the quarry, and therefore the quarry itself (depressed area) could have some mitigating effects on noise levels.

Noise from the proposed expansion of the quarry is expected to be similar to that already produced at the site, as there is no anticipated change in the operational scope of quarry activities, aside from timeline. Blasting is expected to occur infrequently (once per year during years in which the site is active). Occasional night-time operations may be required.

In addition, best management practices such as maintaining appropriate operational buffers, maintaining vehicles and heavy equipment in operational order will be used to limit noise impacts.

Summary of Technical Considerations:

If approved, the project has the potential to exceed the GENMA daytime permissible sounds levels at nearby receptors during the construction and operation phases, based on industry best practices regarding sound attenuation. However, the overall impacts to noise are not expected to change with this expansion, and there are no known historical noise complaints associated with existing operation.

It is recommended that the proponent undertakes baseline noise monitoring to assess the existing noise levels prior to expansion. Monitoring baseline noise levels prior to expansion can be provided as evidence if the Department requests monitoring as part of complaints investigations in the future. It is also recommended that that proponent have a Noise Management Plan in place prior to starting the project, which should include steps to reduce noise and timely complaint resolution.

NOVA SCOTIA
Environment and Climate Change

Inspection Compliance &
Enforcement Division
81 Logan Road
Bridgewater, Nova Scotia
Canada B4V 3T3

Date: November 24, 2023

To: Mark McInnis, Environmental Assessment Officer

From: David Clarke, ICE - Manager Bridgewater District

Subject: Walden Quarry Expansion Project, Lunenburg County, Nova Scotia

Scope of review:
This review focuses on the following mandate Quarry Design and Operations, Geophysical Environmental Conditions and Environmental Effects of the Proposed Undertaking, Aquatic Environment/Wetlands

List of Documents Reviewed:
Walden Quarry Expansion Project EA Registration Document and Associated Appendices

Details of Technical Review:

The proposed expansion project will involve wetlands, waterbodies, and groundwater in overburden and bedrock. It appears that some associated information does not provide in the EA Registration Document.

- Quarry Design and Operations does not include the information related to the proposed project schedule, or quarry progress with anticipated quarry floor elevation and expected groundwater level.
- The provided geophysical environmental conditions does not include the information such as overburden area and thickness, aquifer types (surficial aquifer and bedrock aquifer), water tables (local and regional), groundwater flow directions and patterns, and groundwater quality.
- The Wetland Hydrogeology indicates that the water level is high (e.g. water table is closer to the surface or saturation closer to the surface) for groundwater discharging area. Potential impacts of the proposed project to the downgradient WL2 needs be addressed.
- Potential impacts of dewatering shallow overburden aquifer and bedrock aquifer need be addressed.
- Well survey including water quality testing is required for pre-blast survey.

Key Considerations:

Prior to quarry expansion, a hydrologic and hydrogeologic study needs be completed. localized water table and regional groundwater table needs to be defined; surface/wetland – groundwater interaction and potential impacts of dewatering need to be addressed through the study.

Kwilmu'kw Maw-klusuaqn Negotiation Office
Mi'kmaq Rights Initiative

Our Rights. Our Future.

75 Treaty Trail
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Tel (902) 843 3880 **Fax** (902) 843 3882
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Email info@mikmaqrights.com
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November 23rd, 2023

Mark McInnis
Environmental Assessment Officer
Environmental Assessment Branch
Nova Scotia Environment and Climate Change
1903 Barrington St., Suite 2085
Halifax, N.S., B3J 2P8
Email: Mark.mcinnis@novascotia.ca

RE: Consultation with the Mi'kmaq of Nova Scotia on the proposed Walden Quarry Expansion Project, Lunenburg County

Mx. McInnis,

I write in response to your letter dated October 25, 2023, requesting 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. We wish to proceed with consultation.

EA Registration Document

9.1.1 Air Quality

What are the proposed monitoring locations for particulate? Have there been exceedances of the current limits outlined in the Industrial Approval? There are concerns with cumulative effects of particulate over the lifespan of the project, the Mi'kmaq expect to be included in the development of a monitoring plan through comment and review.

9.2.1 Geology and Topography

Is there potential in the project area to encounter pegmatitic intrusions? If so, will the potential new lithology be assessed for Acid Rock Drainage if encountered?

Why was only one sample collected to test for Acid Rock Drainage? The distribution of sulphides can vary in concentration over a given area, therefore it is recommended that additional samples be collected and analyzed as the project progresses to ensure potential remains low.

9.2.2 Groundwater

9.2.2.3 Mitigation

How will contact water be treated, especially those interacting with the Ammonium Nitrate Emulsion?

9.3 Terrestrial Environment

The Mi'kmaq expect to be included in the development of the Wildlife and Vegetation Monitoring Plan through review and comment.

9.4.1 Wetlands

The registration document identified several wetlands that will be altered, disrupted or destroyed due to the construction and development of the Project. The restoration and/or creation of wetland areas is supported and encouraged, however, the no net loss policy for wetlands is in question by the Mi'kmaq of Nova Scotia, for it is our understanding that wetlands are complicated systems that cannot be easily replicated from a biological perspective. The Mi'kmaq of Nova Scotia wish to participate in the development and implementation of any Wetland Habitat Compensation Plans developed for this project.

9.4.2.2.3 Blasting

There is some concern with the explosive charge set at 80 kg and the potential post-detonation shock waves effect on fish. The Mi'kmaq would request that a reduction in blast weight be administered for the first blast due to the proximity of watercourses to ensure protection to fish.

The Mi'kmaq expect to be included in the development of the Surface Water Management Plan through review and comment.

9.5.2 Land Use and Value

It is our expectation that a Mi'kmaq Ecological Knowledge Study (MEKS) be completed in accordance to the Mi'kmaq Ecological Knowledge Protocol. Should this project be approved, it is strongly advised the completion of a MEKS by the proponent be incorporated into the terms and conditions of the Approval.

9.5.4 Cultural and Heritage Resources

Kwilmu'kw Maw-Klusuaqn Negotiation Office's (KMKNO) Archaeological Research Division (ARD) has reviewed an Archaeological Resource Impact Assessment (ARIA), A2022NS075, for the Walden Quarry Expansion Project located in Lunenburg County. The ARIA was conducted by Cultural Resource Management Group Limited (CRM Group Ltd.) and included a background study, a pedestrian survey, and one exploratory shovel test to "investigate the depth and composition of sediment stratigraphy within the proposed impact area" (CRM Group ARIA, A2022NS07, 7). One area of high archaeological potential and one area of moderate archaeological potential were identified in the ARIA. These areas are found along the northeast border of the study area along a watercourse and waterbody. The remaining area was recommended to "be cleared of any requirement for future archaeological investigation" (CRM Group ARIA, A2022NS075, 43).

We do not support clearances without subsurface testing. 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. At this time, we support the recommendations to shovel test areas of high potential (at 5-metere intervals) and moderate potential (10-metre intervals) areas,

as depicted in CRM Group's archaeological potential model map located on page 44. We consistently recommend in areas that will undergo impact, that subsurface testing be undertaken to confirm the presence, or lack of presence, of archaeological heritage. This is especially important in landscapes which will undergo significant permanent mechanical alteration associated with quarry activities. We wish to clarify that negative tests and negative evidence are considered relevant and important data, regardless of suspected disturbances or classifications of low potential to exhibit archaeological resources.

The Assembly of Nova Scotia Mi'kmaw Chiefs 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. 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 by heavy equipment.

We would recommend that all areas impacted that are found in proximity to a waterway, water body, or low-lying & wet areas be subjected to shovel testing prior to any development (both high and low potential areas) to eliminate concern for presence, protection, and management of Mi'kmaw archaeological and cultural heritage as part of assessment. Any time there is a watercourse, named or unnamed, regardless of size or velocity, and whether there is terracing or not, there is a heightened probability of encountering Mi'kmaw archaeological heritage. Often, smaller streams or rivers have been, and sometimes continue to be, used by Mi'kmaq on journeys by foot because they not only provide a safe and clear route of travel, but provide fresh water, plants to harvest, and a variety of aquatic resources. We consider any construction project that may exist within proximity to a water course or wetland, regardless of size, to have elevated potential for encountering Mi'kmaw belongings.

We strongly recommend 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 wish to clarify that negative tests and negative evidence are considered relevant and important data.

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

- Water Management Plan
- Surface Water Monitoring Plan
- Groundwater Monitoring Plan
- Wetland Compensation and Monitoring Plan
- Wildlife and Vegetation Monitoring Plan
- Reclamation Plan
- Contingency Plan
- Blast Management Plan
- Sedimentation and Erosion Management Plan
- Noise and Dust Particulate Management Plan

Finally, the Mi'kmaw Nation in Nova Scotia has a general interest in all lands, waters 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.:

Kwilmu'kw Maw-Klusuaqn Negotiation Office
Nova Scotia Office of L'nu Affairs
Adam McKechnie, Nova Scotia Environment and Climate Change
Barry Gillis, Nova Scotia Environment and Climate Change
David Clarke, Nova Scotia Environment and Climate Change

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

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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: chieflaugustine@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

November 24th, 2023

Dexter Construction

Box 48100
Bedford, NS, B4A 3Z2

RE: Walden Quarry Expansion

On behalf of the Native Council of Nova Scotia (NCNS), and the Maritime Aboriginal Aquatic Resources Secretariate (MAARS) we would like to thank you for taking the time to discuss the Walden Quarry Expansion on June 23rd, 2023. We would like to take this opportunity to summarize the discussion to ensure they are captured for the Environmental Assessment review. Some of the key points raised during our meeting included the presence of snapping turtles, potential encroachment on wetland areas, lifespan and operational cycle of the pit, and the site inspection schedule.

Firstly, we discussed the presence of snapping turtles in the project area. It was noted by Dexter that the presence of snapping turtles will be dealt with through exclusionary tactics such as the installation of a silt fence and slope adjustments which has proven successful in prior quarries.

Secondly, the potential for this project to encroach upon a wetland of special significance (WSS) was discussed, given the presence of at-risk bird species which were noted to be nesting in the wetland area. This was further noted in the Environmental Assessment Registration Document on Page 144 that "WL1, 2, 4, 5 and 9 are presented as potential WSS due to observations of SAR and supporting habitat for critical life functions". MAPC-MAARS and the NCNS take wetlands health very seriously and reiterate our thoughts that all options to avoid sensitive ecosystems, like wetlands, should be exerted.

The lifespan and operational cycle were of interest given the significant area increase for this pit. Dexter explained that this site is expected to be active for approximately another 30 to 40 years, with active operations on the site once every three to four years. During operations, the site is expected to run 12 hours per day for six days per week, on a project-to-project basis. We were satisfied with this explanation.

Lastly, of interest was the frequency of site inspections of these pits given that they may sit dormant for several years. Concerns around the potential for erosion of piles left behind, as well as potential for use of the sites by endangered species were raised. The inspection frequency was noted to be at least once per year, with active sites being inspected more frequently for the above-described issues.

At this time, MAARS and NCNS do not have any further commentary to provide related to this proposed undertaking; however, we would like to be kept apprised to any developments or changes to the project.

We assert that the Off-Reserve Aboriginal Communities, as Section 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, 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 to reside 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 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 natural eco-scapes formed with their multitude of in-situ biodiversity. Our NCNS Community has continued to access and use the natural life within those ecosystems and eco-scapes where the equitable sharing of benefits arising from projects and undertakings serve a beneficial purpose towards progress in general and demonstrate the sustainable use of the natural wealth of Mother Earth, with respect for the Constitutional Treaty Rights, Aboriginal Rights, and Other Rights of the Native Council of Nova Scotia Community continuing throughout our Traditional Ancestral Homeland in the part of the Mi'kma'ki now known as Nova Scotia.

We appreciate the opportunity to engage with Dexter Construction to discuss the Walden Quarry Expansion project. Now that we have made this important connection, we look forward to further dialogue as we continue to advocate for the rights of Off-Reserve Status and non-Status, Section 91(24) Indians/Mi'kmaq/Aboriginal Peoples of Nova Scotia.

Advancing Aboriginal Fisheries and Oceans Entities
Best Practices, Management, and Decision-making

Habitat Impact Advisor, MAARS

Executive Director, MAARS & MAPC Projects

CC: Chief & President, Native Council of Nova Scotia

From: @yahoo.com
Sent: November 20, 2023 6:53 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

** EXTERNAL EMAIL / COURRIEL EXTERNE **
Exercise caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

Project: walden-quarry-expansion-project Comments: I am concerned about this project as we have half a dozen young children living in a cluster on Woodstock Road. There are no sidewalks for people to walk safely on this road and I am especially concerned about the childrenâ?Ts safety as they are often walking, biking and scootering to each others houses. With an increase in traffic on the road, I fear for the safety of the young children who live and play here. In the last year we have seen two accidents happens infront of my house due to drivers not paying attention or speeding. I donâ?Tt support the proposed project. Name: Shannon Vincent Email: @yahoo.com Address: Municipality: Clearland email_message: Privacy-Statement: agree x: 60 y: 11

From: @gmail.com>
Sent: November 20, 2023 7:20 PM
To: Environment Assessment Web Account; susancorkumgreekmla@gmail.com
Subject: Walden Quarry

To Environment Assessment Branch & Susan Corkum-Greek,

I have just been informed about the expansion of the quarry up in Walden. I understand that it is going to be possibly growing in size and capacity!

This concerns me because the Woodstock Road is predominantly residential. There are no sidewalks, there are no shoulders on the road. We live less than a kilometre from the local school in Mahone Bay and our daughter is considered a bus student as it is already deemed unsafe for her to be a walking student. We, as a family, are active and would like to be able to continue to walk in to town, ride our bikes into town and feel comfortable and safe. As our daughter grows older, we would like to give her the freedom to walk independently as well as bike.

When my daughter was a baby, I was almost struck by a logging truck walking with her in the stroller. Last year as I was walking and my daughter was on her scooter, she was almost hit by a large dump truck that was driving up the road. It was absolutely terrifying to watch. Luckily, she was able to jump into the woods to prevent a horrific accident. The truck traffic was insane at that time! We had truck after truck after truck drive up and down the Woodstock Road. It feels unnerving to leave our house when it is that truck-busy unless we were in a car. We shouldn't feel like the only safe way to leave our house is in a car. Please don't make this worse!

I fear that expanding the quarry will make our road more dangerous and our residential neighbourhood will no longer allow us to walk or ride our bikes safely. As well, having increase truck traffic pass our school is appalling to even consider.

As I know that construction is inevitable and ever growing, please consider alternative routes or possibly creating an entrance on to a different, less populated road for the trucks to travel on to get to the main highway. Or consider making a new road that allows for truck traffic to avoid residential and school areas. **Please consider that if this is a long term investment in the quarry, you consider a long term investment in the safety of the residential and school areas around the quarry.**

Thank you for your time. Please don't take this letter lightly. We love our children and our neighbourhood.

With thanks,

Woodstock Road, Clearland

From: @yahoo.com
Sent: er 20, 2023 8:29 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

** EXTERNAL EMAIL / COURRIEL EXTERNE **
Exercise caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

Project: walden-quarry-expansion-project Comments: Significant concerns regarding safety of the road and the large trucks travelling through this neighbourhood. Children walking and riding their bikes to school as the school is only 500metres away from our house. I am assuming a bigger quarry means more trucks. Perhaps there is another way/road thev could travel. A less densely populated area not near a school. Name: Email: @yahoo.com Address: Municipality: Mahone Bay email_message: Privacy-Statement: agree x: 74 y: 11

From: @outlook.com
Sent: November 20, 2023 10:56 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

** EXTERNAL EMAIL / COURRIEL EXTERNE **
Exercise caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

Project: walden-quarry-expansion-project Comments: Please reconsider this expansion of the quarry. There is just enough noise now coming from this 4 hectares of quarry now. I canâ?Tt imagine what an additional 23 hectares of quarry noise would sound like not to mention the heavy truck traffic flow up and down our normally quiet roads.ðY~¢ Name: Email: @outlook.com Address: Nova Scotia. Municipality: Clearland email_message: Privacy-Statement: agree x: 1925 y: 821

From:
Sent: November 21, 2023 2:02 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

** EXTERNAL EMAIL / COURRIEL EXTERNE **
Exercise caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

Project: walden-quarry-expansion-project Comments: Hello there- Im a resident of Clearland, NS and Im writing to express my concerns about the expansion of the Walden Quarry. My primary concern is truck traffic, which is already an issue where I live for both noise and safety reasons.We have no sidewalks in my residential area which is about one km from Bayview Community School where there are pedestrians and cyclists sharing the road with the trucks that go back and forth to the quarry. A large expansion to the quarry would obviously greatly increase the number of trucks going back and forth on the residential roads which creates noise, dust and safety issues through a residential area. My other concerns are environmental with loss of habitat for birds, animals and fish being affected, also trees which are essential to a balanced ecosystem. We moved to the country 12 years ago pre-quarry and are work from home artists who were craving a quieter lifestyle- our property values will be affected by creating a high-truck trafficked road as will our peace and quiet which we value highly. Would it be possible to route the trucks a different way that would not have them going past so many houses close to the school that have young children, pedestrians and cyclists? Name: Email: Address: Municipality: Mahone Bay email_message: Privacy-Statement: agree x: 72 y: 21

From: @bellaliant.net
Sent: November 21, 2023 2:35 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

** EXTERNAL EMAIL / COURRIEL EXTERNE **
Exercise caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

Project: walden-quarry-expansion-project Comments: I think an expansion would be great for lunenburg county, the quarry is a asset and employs alot of jobs ! Name: Email: t Address: woodstock road Municipality: mahone bay email_message: Privacy-Statement: agree x: 57 y: 24

From: @hotmail.com>
Sent: November 22, 2023 10:49 AM
To: Environment Assessment Web Account
Subject: Walden Quarry Expansion Project

As a resident of Clearland, NS, I am against expansion of the Walden Quarry for the following reasons. The Woodstock Road is residential and the constant heavy truck traffic is both disruptive and unsafe. The Woodstock Road is narrow, very curvy, and with no shoulders making it unsafe for the large vehicles using it. It has been well documented that the trucks exceed speed limits and there have been many close calls with other vehicles and people. The noise and dust created is both a nuisance and health hazard to the residents of Clearland. Currently the bridge is also substandard and cannot take the stress of these heavy vehicles. Therefore I would strongly oppose any expansion of this quarry area.

Sent from my iPhone

McInnis, Mark

From:
Sent: November 23, 2023 12:15 PM
To: Environment Assessment Web Account
Cc: @gmail.com;
Subject: Walden Quarry Expansion Project

** EXTERNAL EMAIL / COURRIEL EXTERNE **
Exercise caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

To Whom It May Concern,

I am urgently writing you today to express my most serious concerns about the Walden Quarry Expansion Project currently under review.

I live on Woodstock Road, primarily a residential road leading up to the Walden Quarry. I moved to a rural property in here in Clearland in 2011 to escape the noise of urban living. In 2015 when the Walden Quarry opened for business, this all changed. The dump semi trailers (30 to 40
tons) started rolling by in disturbing frequency upending our peaceful, quiet neighborhood. Now we are presented with the possibility of an increased in truck traffic servicing a larger and more active Walden Quarry.

I understand there are environmental concerns for the actual site expansion, but what concerns me and my community members the most is the track traffic to and from the site down Woodstock Road and through our residential neighborhood. Many people in our neighborhood enjoy walking, walking dogs and have children outside playing. As Woodstock Road does not have much of a shoulder to walk on, when these trucks come down the road it can be very dangerous to pedestrians both young and old. Many kids live on Woodstock Road and wait for busses to take them to school in the morning. The trucks often start their runs as early as 6am, creating hazards for the children and noise for those still trying to sleep. As you know, Bayview Community School is situated on Clearway Street, which is the extension of Woodstock Road once it hits Mahone Bay. Please consider the impact that increased truck traffic along this truck route might have on all the kids and teachers at Bayview Community School.

When the trucks leave the quarry with their load of aggregate material, the smell is awful. Each time one of these vehicles passes by there is a stench of tar. Please consider the air quality along the routes that these trucks take to deliver their load.

After consulting a real estate agent servicing the region, there was concern that the expansion of the Walden Quarry, and persistent presence of large semi trailer dump trucks might also have an impact on our property value. Please take this into consideration as well.

A possible solution, to lower the impact of the Walden Quarry on the residents of those who live along Woodstock Road, is to permanently divert the truck traffic north through Walden and not allow trucks traveling to and from the Walden Quarry to travel via Woodstock Road south of the quarry site.

I sincerely urge you please take all of these issues into consideration when assessing the Walden Quarry Expansion Project. Its not just about the site, proper, but the peripheral impact the truck traffic has on the residents along

Woodstock Road. I hope you are able to make decisions that will help all the many residents along Woodstock Road maintain their peaceful, quiet life they have all consciously chosen when deciding to live in Clearland and the surrounding communities.

Thank you for your attention in this matter.

Sincerely,

Clearland, NS

McInnis, Mark

From:
Sent: November 23, 2023 12:32 PM
To: Environment Assessment Web Account; susancorkumgreekmla@gmail.com; Kacy DeLong
Subject: Walden Quarry expansion- urgent

Hi there-

I have left two phone messages for Stephanie at Environmental Assessments regarding the proposed Walden Quarry expansion and also reached out to my MLA Susan Corkum Greek and I'm waiting to hear from both. I received a response from were previously unaware of this expansion proposal as were all of my neighbours and I understand the last day to express concerns is Nov 24th (tomorrow) so I write with some urgency.

We live at 198 Woodstock Road- 900 metres from Bayview Community School, a K-9 school that both of our children attended. We moved here from the city to escape the noise and pollution, we work from home and love living here. One of the most challenging things is the truck traffic from the Walden Quarry that started I believe 8 years ago, a few years after we moved here. Our kids were not able to walk to school as there are no sidewalks and the trucks often speed around blind corners and are carrying smelly materials. We got used to them taking the bus even though it's a short walk. The proposed expansion would see the quarry increase more that 7 times the size of the current quarry which greatly concerns me and my neighbours that bike and walk and love the peace and quiet of the country, especially those of us that work from home (we are both musicians).

Air quality is affected as is the habitat for wildlife (birds, fish and animals) that depend on the trees and waterways that are on site at the quarry. We are also concerned about our property values as this is a quiet residential neighbourhood that will now be a thoroughfare for noisy trucks.

Can I ask what public consultation was done about this proposed expansion?

Also, is there a way that trucks could possibly be routed another way so they are not going around the tricky corner at Clearland road and Clearway Street a very short distance from the elementary school? (Approx 400 metres) where this is also no sidewalk and there are two mixed-use trail crossings for the dynamite trail that the trucks go past.

Thanks for your response-

McInnis, Mark

From:
Sent: November 23, 2023 1:11 PM
To: John D S Adams; Environment Assessment Web Account
Cc:
Subject: RE: Walden Quarry Expansion Project

t

Good afternoon Minister Corkum Greek,
I am deeply concerned with the lack of public consultation prior to this proposed expansion. The fact that this has come to light days prior to the closure of public comment on the file is very problematic.
I have been unable to find any attempt made to notify the residents of the area. The Environmental Assessment Registration Document submitted by McCallum Environmental on behalf of Dexter's Construction notes that "Dexter sent requests via email to meet with various political stakeholders in June and August 2023. No responses have been received to date. Further public engagement on the Project will be completed through published notices and comment periods through the EA process.
Dexter is committed to maintaining open lines of communication with interested Mi'kmaq communities and the public through the life of the EARD process and the construction, operational and decommissioning phases of the Project."
Perhaps those criteria have been met, but it's certainly the first that I have heard of this and it seems to have blindsided the residents in the neighbourhood adjacent to the quarry.
Given the degree to which this quarry already negatively impacts the residents, I would like to voice my support for the need to allow more time for the public to register their concerns. I do not feel that there has been adequate effort placed into public outreach. I hope that you will act quickly to ensure that their voices are heard and given the appropriate weight.

Regards,

Councillor for MODL District 8

https://can01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.modl.ca%2F&data=05%7C01%7Cea%40novascotia.ca%7C241096fb10de45147fc308dbec4723eb%7C8eb23313ce754345a56a297a2412b4db%7C0%7C0%7C638363562664971795%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=Pg5qTbgl39p3P9yqAJNyeSeDgqhvSNmDqWHUXEIqjmc%3D&reserved=0
Municipality of the District of Lunenburg
10 Allée Champlain Drive
Cookville NS B4V 9E4
In the traditional territory of Mi'kma'ki – We are all Treaty People

-----Original Message-----
From:
Sent: Thursday, November 23, 2023 12:15 PM
To: ea@novascotia.ca
Cc:
Subject: Walden Quarry Expansion Project

CAUTION: This email originated from an external sender.

To Whom It May Concern,

I am urgently writing you today to express my most serious concerns about the Walden Quarry Expansion Project currently under review.

I live on Woodstock Road, primarily a residential road leading up to the Walden Quarry. I moved to a rural property in here in Clearland in 2011 to escape the noise of urban living. In 2015 when the Walden Quarry opened for business, this all changed. The dump semi trailers (30 to 40
tons) started rolling by in disturbing frequency upending our peaceful, quiet neighborhood. Now we are presented with the possibility of an increased in truck traffic servicing a larger and more active Walden Quarry.

I understand there are environmental concerns for the actual site expansion, but what concerns me and my community members the most is the track traffic to and from the site down Woodstock Road and through our residential neighborhood. Many people in our neighborhood enjoy walking, walking dogs and have children outside playing. As Woodstock Road does not have much of a shoulder to walk on, when these trucks come down the road it can be very dangerous to pedestrians both young and old. Many kids live on Woodstock Road and wait for busses to take them to school in the morning. The trucks often start their runs as early as 6am, creating hazards for the children and noise for those still trying to sleep. As you know, Bayview Community School is situated on Clearway Street, which is the extension of Woodstock Road once it hits Mahone Bay. Please consider the impact that increased truck traffic along this truck route might have on all the kids and teachers at Bayview Community School.

When the trucks leave the quarry with their load of aggregate material, the smell is awful. Each time one of these vehicles passes by there is a stench of tar. Please consider the air quality along the routes that these trucks take to deliver their load.

After consulting a real estate agent servicing the region, there was concern that the expansion of the Walden Quarry, and persistent presence of large semi trailer dump trucks might also have an impact on our property value. Please take this into consideration as well.

A possible solution, to lower the impact of the Walden Quarry on the residents of those who live along Woodstock Road, is to permanently divert the truck traffic north through Walden and not allow trucks traveling to and from the Walden Quarry to travel via Woodstock Road south of the quarry site.

I sincerely urge you please take all of these issues into consideration when assessing the Walden Quarry Expansion Project. Its not just about the site, proper, but the peripheral impact the truck traffic has on the residents along Woodstock Road. I hope you are able to make decisions that will help all the many residents along Woodstock Road maintain their peaceful, quiet life they have all consciously chosen when deciding to live in Clearland and the surrounding communities.

Thank you for your attention in this matter.

Sincerely,

Clearland, NS

McInnis, Mark

From: @hotmail.com
Sent: November 23, 2023 2:24 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

Project: walden-quarry-expansion-project Comments: The Woodstock road is barely wide enough for a large truck and a car to pass by each other safely on the road. Our many tight and blind corners mean that people are often required to cross the road and walk on the wrong side, in order to stay safe from traffic. These heavy trucks travelling our road are an accident waiting to happen. They force cars off the road when they travel corners, they drive too fast, and if they pass by each other when youâ?Tre walking - you better run instead. Our neighborhood is full of children who walk, bike and play outside. The increase of truck traffic on our quiet roads will force us to keep our children off the road completely. It will just be too dangerous. Name Email: @hotmail.com Address: Municipality: Clearland email_message: Privacy-Statement: agree x: 29 y: 33

McInnis, Mark

From: @hotmail.com
Sent: November 23, 2023 2:48 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

** EXTERNAL EMAIL / COURRIEL EXTERNE **
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Project: walden-quarry-expansion-project Comments: I would like to see the roads in NS be kept up. Iâ?Tm fine with the quarry â?obeing in my backyardâ? and even expanding. Yes the truck traffic can be a nuisance but the quarries have to go somewhere! The materials theyâ?Tre getting from the pit are necessary and have been used for several of the road improvement projects on the South Shore. Name: Email: r @hotmail.com Address: Municipality: Walden email_message: Privacy-Statement: agree x: 58 y: 24

McInnis, Mark

From: @gmail.com>
Sent: November 23, 2023 3:06 PM
To: Kacy DeLong; @gmail.com; Environment Assessment Web Account; Public Affairs
Subject: Walden Quarry Expansion & Truck Traffic

Hello,

I am adding to the email below that I sent to Susan and the Environment Assessment Branch couple days ago. I have included Kacy Delong and the Department of Transportation & Infrustructure to the conversation.

We have been informing neighbours up and down the Woodstock Road about this expansion of the quarry. Not one person had heard a single thing about this. I find it hard to believe that we haven't been included in the consultation as the truck traffic will be 7 times significant on our road. Our road which is barely able to handle the present traffic!

The Woodstock Road is a winding and narrow road with no shoulder or sidewalk. The traffic that goes up our road from Mahone Bay, comes down our road. The traffic drives at a fast speed which already makes our road dangerous. I have asked for paved shoulders to be considered to help make biking and walking safe. As I have mentioned in the below email, we are less than 0.5km from the school. We should be a walking distance, but the school buses have deemed our road too dangerous. Increasing the truck traffic by 7 times would be devastating to our neighbourhood and our children.

As development is rarely turned down by the government, I am begging you all to consider making this development/expansion a win/win for the neighbourhood and for the quarry. There are a handful of roads that access the 103 between exit 8 - exit 10. Could a new road be created to redirect truck traffic to the quarry?

Dexter Construction is one of the most wealthiest business or is the most wealthy business in this area. Demanding a safe and neighbourhood solution should be made in return for a larger quarry.

That said, I am curious what public and private consultations have been made? Please send any information along that has been gathered. As well, has there been a First Nations consultation…isn't this something that should be considered as well? The impact on environment would be HUGE. Anytime the earth is being 'processed' and destroyed at that level, the environment assessment should be publicly approved, shouldn't it be?

There are signifcant water ways: lakes & rivers up the Woodstock Road. Has there been an assessment about whether run off from the quarry would affect these? With the changing weather and large dumps of water that we seem to having, the provinces assessments should be taking an even deeper look at what affects quarries have on the environment they surround.

Please consider all of the above and in the email previously sent below. Consider investing in the surrounding areas of development. The immediate gain should be second to the long term future.

WIth thanks,

Begin forwarded message:

From: @gmail.com>
Subject: Walden Quarry
Date: November 20, 2023 at 7:20:19 PM AST
To: ea@novascotia.ca, @gmail.com

To Environment Assessment Branch

I have just been informed about the expansion of the quarry up in Walden. I understand that it is going to be possibly growing in size and capacity!

This concerns me because the Woodstock Road is predominantly residential. There are no sidewalks, there are no shoulders on the road. We live less than a kilometre from the local school in Mahone Bay and our daughter is considered a bus student as it is already deemed unsafe for her to be a walking student. We, as a family, are active and would like to be able to continue to walk in to town, ride our bikes into town and feel comfortable and safe. As our daughter grows older, we would like to give her the freedom to walk independently as well as bike.

When my daughter was a baby, I was almost struck by a logging truck walking with her in the stroller. Last year as I was walking and my daughter was on her scooter, she was almost hit by a large dump truck that was driving up the road. It was absolutely terrifying to watch. Luckily, she was able to jump into the woods to prevent a horrific accident. The truck traffic was insane at that time! We had truck after truck after truck drive up and down the Woodstock Road. It feels unnerving to leave our house when it is that truck-busy unless we were in a car. We shouldn't feel like the only safe way to leave our house is in a car. Please don't make this worse!

I fear that expanding the quarry will make our road more dangerous and our residential neighbourhood will no longer allow us to walk or ride our bikes safely. As well, having increase truck traffic pass our school is appalling to even consider.

As I know that construction is inevitable and ever growing, please consider alternative routes or possibly creating an entrance on to a different, less populated road for the trucks to travel on to get to the main highway. Or consider making a new road that allows for truck traffic to avoid residential and school areas. **Please consider that if this is a long term investment in the quarry, you consider a long term investment in the safety of the residential and school areas around the quarry.**

Thank you for your time. Please don't take this letter lightly. We love our children and our neighbourhood.

With thanks,

Clearland

McInnis, Mark

From: @gmail.com
Sent: November 24, 2023 5:44 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

Project: walden-quarry-expansion-project Comments: I would like to express my concerns that are strongly against the proposed expansion of the Walden quarry from 4 to 24 hectares. I live in Clearland on Woodstock road and my house is very close to the road, as are many of my neighbours. My house shakes as the trucks go by. We are a community and many of us walk or run on the roads, many with dogs. Many of the houses have young children playing. I strongly object to the big trucks from the quarry using the roads through Clearland as their route. These roads are narrow and not made for heavy vehicle use. There are several sharp bends, which both pedestrians and trucks can not see around. The trucks are big and heavy and with their momentum would not be able to stop in time. Itâ?Ts been an accident waiting to happen. And I donâ?Tt believe the bridge has been fixed yet. So the added trucks would bring more noise pollution, air pollution and a much higher risk of accident, and essentially ruin our quiet community. It is absolutely necessary that the trucks find a different route, not using the Woodstock road through Clearland. I object to the land at whale lake being torn apart for the quary, again bringing noise pollution, and destruction to all the living flora, fauna, animals. Whale lake is a beautiful wilderness area. Surely Nova Scotia can start to follow other countries and protect beautiful areas like these for future generations. Name: Email: t@gmail.com Address: Municipality: Mahone Bay email_message: Privacy-Statement: agree x: 67 y: 20

McInnis, Mark

From: @hotmail.com
Sent: November 24, 2023 9:00 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

** EXTERNAL EMAIL / COURRIEL EXTERNE **
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Project: walden-quarry-expansion-project Comments: Hello, To whom it may concern my family lives on Woodstock Rd, Clearland. When the trucks are running they are very noisy and disruptive. We worry about having our family near the road because some days the trucks wouldnâ?Tt slow down. The noise of the trucks can be heard while inside our home. The quarry needs to find an alternate route to access the quarry. Name: Email: @hotmail.com Address: Municipality: Clearland email_message: Privacy-Statement: agree x: 26 y: 24