

Comment Index

Ellershouse 3 Wind Project

Publication Date: July 5, 2023

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1	Kwilmu'kw Maw-Klusuaqn Negotiation Office (KMKNO)	June 15, 2023

Public

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1	Anonymous	May 18, 2023
2	Potentia Renewables	May 10, 2023
3	Anonymous	May 25, 2023
4	Anonymous	June 14, 2023

From: [Land Use](#)
To: [Quinn, Candace M](#)
Cc: [Ryan Hearn](#)
Subject: RE: 23-1893 (22-1684 EA Proposal)
Date: May 10, 2023 10:35:20 AM
Attachments: [image001.png](#)

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Good Morning,

NAV CANADA has not received an amended submission for this project. You're note below that the turbines will be "to 206.5 m tall" exceeds the previously assessed 194m in file 22-1684.

Please have the revised Ellershouse 3 Wind Project submitted to NAV CANADA Land Use for assessment. File 23-1893 has been created for the submission.

Regards,

Derek Garbutt

Land Use Specialist / Spécialiste d'utilisation de terrains

AERONAUTICAL INFORMATION MANAGEMENT (AIM) NAV CANADA

Guidance for Reviewers – Environmental Assessments

Environmental Assessment Branch, Environment and Climate Change



Environment and Climate Change

Date: May 25, 2023

To: Candace Quinn, Environmental Assessment Officer

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

Subject: Ellershouse 3 Wind Project, Hants County, NS

Scope of review:

This review focuses on the following mandate: Environmental Health Impacts with specific focus on the effects and mitigations of shadow flicker, ice throw, and sound.

Technical Comments:

This review focuses on the mandate to protect public health from possible impacts associated with the project. This review specifically focuses on impacts from shadow flicker, ice throw and sound.

Shadow Flicker

Section 10.3 of the report discusses the impacts of shadow flicker on 500 potential receptors located within 2 km of the project.

Real-case modelling did determine that the 30 minute standard was met at all receptor sites.

Conclusion: It is expected that any impact are of low magnitude and not significant.

Ice Throw

Section 10.1.2 of the EA discusses impacts of ice throw and ice fall. Residential receptors are not expected to be impacted from ice throw, due to distance between receptors and the project area.

Conclusion: Impacts of ice throw on public health are deemed to be negligible.

Sound

Section 10.5.5 discusses the impacts of sound related to the project.

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Environmental Assessment Branch, Environment and Climate Change

Operational Sound

Predicted sound levels at receptor sites were compared to the NSECC guideline of 40

Conclusion:

1. Sound modelling undertaken to assess impacts of noise on human receptors has demonstrated that noise impact associated with the operational phase of this project is deemed to be low magnitude with negligible effect.
2. The proponent will have a complaints handling protocol for receiving and investigating noise related complaints from the public.

The EA registration document (including Appendices) provide adequate information to identify the potential environmental health effects and the proposed mitigation measures and controls seem appropriate to addressing these effects. There are no further comments provided with respect to Environmental Health Impact.

Summary of Technical Considerations: (provide in non-technical language)

No additional comments are required from an Environmental Health Perspective for this project.

Fisheries and Aquaculture

Date: June 05, 2023

To: Candace Quinn, Environmental Assessment Officer, Nova Scotia
Environment and Climate Change

From: Lesley O'Brien-Latham, Executive Director, Policy and Corporate Services
Nova Scotia Department of Fisheries and Aquaculture

Subject: Ellershouse 3 Wind Project, Hants County, Nova Scotia – Environmental
Assessment

Thank you for the opportunity to review the Ellershouse 3 Wind Project (“Project”) documents.

Based on the information you provided, the Nova Scotia Department of Fisheries and Aquaculture (“Department”) has the following comments:

- The Department does not anticipate any negative impact on sportfishing, commercial seafood buying and processing businesses.
- Within a 25km radius of this project, there are two issued land-based aquaculture facilities.

M E M O

DATE: June 8, 2023

To: Candace Quinn, Environmental Assessment Officer

FROM: Provincial Director of Planning, Planning Services Branch

SUBJECT: ELLERSHOUSE 3 WIND PROJECT, WEST HANTS REGIONAL MUNICIPALITY

Comment:

As requested, the Department of Municipal Affairs and Housing (DMAH) has reviewed the Registration Documents provided by Ellershoushe 3 Wind Limited Partnership. All of the components considered under DMAH's areas of mandate have been adequately addressed.

Scope of Review:

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

Technical Comments:

The proponent is aware that a Development Agreement is required. The proponent met with the Municipality, including the Mayor, CAO, Councillors and Planning staff, in September 2021 and February 2022.

Statements of Provincial Interest:

- **Drinking Water:** No anticipated impact. The Mill Lakes Protected Water Area is in close proximity to the study area, but not directly abutting the study area.
- **Agricultural Land:** No anticipated impact. There is no land zoned for agricultural use in close proximity to the study area.
- **Flood Risk:** No anticipated impact. Based on Nova Scotia Environment and Climate Change requirements, the turbines must be 30 metres from watercourses.
- **Infrastructure:** No anticipated impact. There is no municipal servicing in this area.
- **Housing:** No anticipated impact. The turbines must be 206.5 metres (height + blade length) from adjacent dwellings based on the West Hants Land Use By-law.

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

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

Registration #: 20-7536 – Ellershouse 3 Wind Project

COMMENTS:

The federal environmental assessment process is set out in the *Impact Assessment Act* (IAA). The *Physical Activities Regulations* (the Regulations) under IAA set out a list of physical activities considered to be “designated projects.” For designated projects listed in the Regulations, the Proponent must provide the Agency with an Initial Description of a Designated Project that includes information prescribed by applicable regulations (*Information and Management of Time Limits Regulations*).

Based on the information submitted to the Province of Nova Scotia on the proposed Ellershouse 3 Wind Project, it does not appear to be described in the Regulations. Under such circumstances the Proponent would not be required to submit an Initial Description of a Designated Project to the Agency. However, the Proponent is advised to review the Regulations and contact the Agency if, in their view, the Regulations may apply to the proposed project.

The Proponent is advised that under section 9(1) of the IAA, the Minister may, on request or on his or her own initiative, by order, designate a physical activity that is not prescribed by regulations made under paragraph 109(b) if, in his or her opinion, either the carrying out of that physical activity may cause adverse effects within federal jurisdiction or adverse direct or incidental effects, or public concerns related to those effects warrant the designation. Should the Agency receive a request for a project to be designated, the Agency would contact the Proponent with further information.

The proposed project may be subject to sections 82-91 of IAA. Section 82 requires that, for any project occurring on federal lands, the federal authority responsible for administering those lands or for exercising any power to enable the project to proceed must make a determination regarding the significance of environmental effects of the project. The Agency is not involved in this process; it is the responsibility of the federal authority to make and document this determination.

The Proponent is encouraged to contact the Agency at (902) 426-0564 if it has additional information that may be relevant or if it has any questions or concerns related to the above matters.

Lachlan MacLean

Project Manager, Atlantic Regional Office
Impact Assessment Agency of Canada / Government of Canada
Lachlan.MacLean@iaac-aeic.gc.ca / Tel: 902-476-2732

Gestionnaire de projets, région de l'Atlantique
Agence d'évaluation d'impact du Canada / Gouvernement du Canada
Lachlan.MacLean@iaac-aeic.gc.ca / Tél. : 902-476-2732

From: [English, Scott](#)
To: [Ryan Hearn](#); [Garbutt, Derek](#)
Cc: [Quinn, Candace M](#); [Jonathan Bitoun](#)
Subject: RE: 23-1893 (22-1684 EA Proposal)
Date: June 9, 2023 10:23:23 AM
Attachments: [image002.png](#)
[image003.png](#)

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Hello Ryan,

When you have your final information formalized please let us know.

We will need a formal submission with locations and heights

Scott English

Commercial Relations Coordinator / Coordonnateur des relations commerciales
Stakeholder & Commercial Relations

Personal: scott.english@navcanada.ca

Group: commercialrelations@navcanada.ca

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From: Ryan Hearn <rhearn@potentiarenewables.com>
Sent: Wednesday, May 10, 2023 5:05 PM
To: Land Use <LandUse@navcanada.ca>
Cc: Quinn, Candace M <Candace.Quinn@novascotia.ca>; English, Scott <scott.english@navcanada.ca>; Jonathan Bitoun <jbitoun@potentiarenewables.com>
Subject: [EXT] RE: 23-1893 (22-1684 EA Proposal)

Good afternoon Derek,

As discussed with your colleague Scott English in March 2023, we are still in negotiations with turbine manufacturers but we expect to secure a final turbine model for the project in the coming months. We understand the turbine dimensions provided in the Ellershouse 3 environmental assessment differ from those submitted to NAV CANADA in May 2022 in land use file 22-1684. However, as reflected in the EA section 6 (Engagement), we will submit the final turbine model dimensions to all interested stakeholders once the final turbine model has been confirmed. For purposes of the EA, please note that the turbine dimensions submitted reflect the tallest turbine

height under consideration.

If you have any questions or concerns, I'd be happy to discuss further.

Thank you,

Ryan Hearn
Manager, Environment and Community Consultation

Potentia Renewables Inc.

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Suite 1102, PO Box 169
Toronto, Ontario M5V 3C7

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From: Land Use <LandUse@navcanada.ca>
Sent: Wednesday, May 10, 2023 10:35 AM
To: Quinn, Candace M <Candace.Quinn@novascotia.ca>
Cc: Ryan Hearn <rhearn@potentiarenewables.com>
Subject: RE: 23-1893 (22-1684 EA Proposal)

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Regards,

Derek Garbutt
Land Use Specialist / Spécialiste d'utilisation de terrains
AERONAUTICAL INFORMATION MANAGEMENT (AIM) NAV CANADA



Environment and Climate Change

Date: June 7 2023

To: Candace Quinn, Environmental Assessment Officer

From: Water Resources Management Unit, Sign-off by Krysta Montreuil, Manager, Water Resources Management Unit

Subject: Ellershouse 3 Wind Project, Hants County, NS

Scope of review:

This review focuses on the following mandate:

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

Technical Comments:

Groundwater quality and quantity

In general, the proponent's proposed mitigations should reduce the potential for impacts on groundwater quality and quantity as a result of the project.

The EARD identified two groundwater wells within the study area; with an additional observation well located within the study area. Blasting has been identified as required with pre-blast surveys to be completed as a mitigation.

Surface water quantity and quality

The EARD did not reference the definition of a watercourse provided in the *Environment Act* and as such, there is a potential for alterations of watercourses without the required approvals by the department and for some watercourses to not be properly protected with buffers.

The EARD did not address the risk of changing the local hydrology by changing the drainage patterns on the site. This risk is relatively small as most roads are preexisting (16 km), with 4 km of new roads proposed to be built, however potential impacts include unintentional draining or flooding of wetlands.

The EARD appropriately addressed the risks to water quality from storage of fuels, lubricants, and the machinery that require them, on site. The EARD committed to maintaining a minimum 30 m buffer between watercourses (including groundwater features) and refueling sites, equipment servicing and washing, and storage sites for

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Environmental Assessment Branch, Environment and Climate Change

fuels and lubricants. The EARD also committed to completing some activities off site or on impervious surfaces when possible, and to keeping appropriate spill kits on-site.

The EARD mentioned wetting stored materials to control fugitive dust. Proponents are reminded that water taken from a watercourse or other water resource is subject to the water withdrawals program and that withdrawals in excess of 23 000 L/day require an approval.

Wetlands

Wetlands and potential impacts have been assessed sufficiently; WESP-AC assessments were completed for all wetlands predicted to be impacted. The proponent has identified a Wetland of Special Significance (WSS) and will be avoiding this wetland.

The proponent also identified Canada warbler in Wetland 10 in the breeding season, in suitable habitat (treed/shrub swamp) exhibiting possible breeding behaviour (singing). After consultation with DNRR, it is determined that Wetland 10 would be designated as a WSS as the weight of evidence suggests breeding is occurring in this wetland. Due to the project meeting the definition of necessary public function project, NSECC would allow alteration to WSS, but a higher ratio (4:1) of compensation would be required.

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Recommended Conditions:

Groundwater quality and quantity

If the project is approved, ECC should consider the following EA Terms and Conditions:

- If blasting is required the proponent should submit a blasting plan, prior to blasting. The plan should include completed pre-blast surveys for structures within 800 m of the point of blast, including water quality analysis for water wells within the same area. A detailed blast monitoring plan and a blast damage response policy should also be provided.
- In order to ensure that any unexpected impacts on groundwater users are mitigated, a condition requiring the replacement of any impacted water supply should be included within the EA Approval.
- In order to close a potential pathway for groundwater contamination, the observation well found within the study area should be decommissioned if not being maintained for present or future use.

Surface water quantity and quality

- Establish a minimum buffer distance of 30m from any surface watercourse or wetland for the following activities: fuel storage, refueling, and/or lubrication of equipment; washing of machinery or equipment; and storage of equipment, excavated/stockpiled materials, and potential contaminants.
- A detailed erosion and sediment control plan should be prepared by a qualified professional prior to construction activities including clearing, grubbing, and stripping, take place. The plan should follow industry practice to mitigate the risk associated with construction of new roadways and turbine pads.
- A surface water management plan should be prepared by a qualified professional. The plan should include, not be limited to, a discussion of local hydrology, with sufficient detail identifying potential effects to site drainage patterns resulting from the construction, and justifications for final proposed designs and operations prior to construction activities.
- All watercourse alterations should be identified using the framework set out under the Activities Designation Regulations, using the definitions provided by the Environment Act to ensure the proponent has the appropriate approvals for watercourse alterations.

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- Information should be submitted to the Department around planned water uses required to support the activity (e.g., dust suppression), including the water source(s) and estimated volumes.

Wetlands

- Submit a Wetland Alteration Approval Application for review and approval for any wetlands proposed to be directly or indirectly altered and complete any necessary compensation and monitoring. The proponent should utilize Nova Scotia's Wetland Alteration Application's Guided Template for the permit applications.

Date: June 13, 2023

To: Candace Quinn, Nova Scotia Environment & Climate Change

From: Coordinator Special Places, Culture and Heritage Development

Subject: Ellershose III Wind Project - EA Registration

Staff of the Department of Communities, Culture, Tourism, and Heritage has reviewed the Ellershose III Wind Project - EA Registration documents and have provided the following comments:

Archaeology

Staff reviewed the sections of the EA document pertaining to archaeology. The EA Report reflects the recommendations made in the final reports for Heritage Research Permits A2022NS191 & A2023NS029. Should avoidance not be possible for areas of high archaeological potential that were identified, a program of archaeological subsurface testing will be conducted. Should areas not previously assessed for archaeological potential be required for the proposed development due to design plan changes, those areas should be assessed for impact to potential impacts to archaeological resources.

Botany

Staff have reviewed the sections of the EA document pertaining to botany. All effects are appropriately considered, and mitigations are acceptable.

Palaeontology

Staff have reviewed the sections of the EA document pertaining to palaeontology. The Registration Document identified the local bedrock geology composed of granite as well as Cambrian aged slates of the Goldenville and Halifax Groups. The Goldenville and Halifax Group rocks have rare occurrences of fossils. If any significant trace or body fossils are exposed during construction the Museum can be contacted for additional information and advice.

Zoology

Staff have reviewed the sections of the EA document pertaining to zoology. The document highlights several cases where there are SOCI/SAR species among several taxonomic groups

that are within and/or immediately outside the study area. It appears to be a reasonable assessment of the zoological setting for the site and immediate-adjacent area.



Date: June 14, 2023

To: Candace Quinn, Environmental Assessment Officer

From: Tiffany MacAulay, Linear Development, Regulatory Review Biologist, Fish and Fish Habitat Protection Program; Sign-off by Sarah MacLeod, A/Senior Biologist

Subject: Ellershouse 3 Wind Farm Project, Hants County, Nova Scotia (DFO File #23-EA-247)

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 Ellershouse 3 Wind Farm 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*.

Technical Comments:

Risk Assessment: Watercourse Crossing Designs	
Identify Gap/Risk	Specific information related to anticipated alterations or replacements of existing structures (i.e., bridges at WC1 and WC2, and culvert at WC9) is not yet determined.
Can it be addressed in another permit/approval or with a T&C?	The identified gap can be addressed during the NSECC watercourse and/or wetland alteration approval process(es) and DFO regulatory review process. Work, undertakings or activities (WUAs) associated with this project in or near water that may result in potential harmful impacts on fish or fish habitat will require DFO regulatory review to avoid, mitigate or offset those impacts.
Define/provide detail	For WUAs that may result in potential harmful impacts on fish or fish habitat, additional information will be required as part of the DFO regulatory review process, including detailed information on the proposed WUAs, a detailed description of the fish and fish habitat

	found at the location of the proposed WUAs, a detailed description on the likely effects of the proposed WUAs on fish and fish habitat, and a detailed description of the measures and standards that will be implemented to avoid and mitigate potential harmful impacts on fish and fish habitat.
Risk Assessment: Priority Species	
Identify Gap/Risk	The proponent identifies Atlantic Salmon (<i>Salmo salar</i>) and Brook Floater (<i>Alasmidonta varicosa</i>) as priority species; however, they do not provide detailed information on the potential presence and habitat suitability within the study area for these species. Further information on the aquatic habitat and fish species, including species at risk, that may be affected by the proposed WUA is required.
Can it be addressed in another permit/approval or with a T&C?	The identified gap can be addressed during the NSECC watercourse and/or wetland alteration approval process(es) and DFO regulatory review process. WUAs associated with this project in or near water that may result in potential harmful impacts on fish or fish habitat will require DFO regulatory review to avoid, mitigate or offset those impacts.
Define/provide detail	For WUAs that may result in potential harmful impacts on fish or fish habitat, additional information will be required as part of the DFO regulatory review process, including detailed information on the proposed WUAs, a detailed description of the fish and fish habitat found at the location of the proposed WUAs, a detailed description on the likely effects of the proposed WUAs on fish and fish habitat, and a detailed description of the measures and standards that will be implemented to avoid and mitigate potential harmful impacts on fish and fish habitat.
Risk Assessment: Fish Habitat Assessments	
Identify Gap/Risk	Within the Field Assessment Methodology, it states that assessments avoided conducting electrofishing and detailed fish habitat assessments in watercourses associated with Atlantic Salmon fry releases as part of a DFO-related initiative. Further information on the aquatic habitat and fish species, including species at risk, that may be affected by the proposed WUA is required.
Can it be addressed in another permit/approval or with a T&C?	The identified gap can be addressed during the NSECC watercourse and/or wetland alteration approval process(es) and DFO regulatory review process. WUAs associated with this project in or near water that may result in potential harmful impacts on fish or fish habitat will require DFO regulatory review to avoid, mitigate or offset those impacts.
Define/provide	For WUAs that may result in potential harmful impacts on fish or fish

detail	habitat, additional information will be required as part of the DFO regulatory review process, including detailed information on the proposed WUAs, a detailed description of the fish and fish habitat found at the location of the proposed WUAs, a detailed description on the likely effects of the proposed WUAs on fish and fish habitat, and a detailed description of the measures and standards that will be implemented to avoid and mitigate potential harmful impacts on fish and fish habitat.
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Summary of Recommendations: (provide in non-technical language)

DFO recommends the proponent:

- Submit detailed information on the proposed watercourse crossing and wetland alteration designs, detailed descriptions of the fish and fish habitat found at the location of the proposed WUAs, detailed descriptions on the likely effects of the proposed WUAs on fish and fish habitat (including local and cumulative impacts, potential impacts on species at risk, and direct and indirect impacts on fish habitat), and detailed descriptions of the measures and standards that will be implemented to avoid and mitigate potential harmful impacts on fish and fish habitat;
- Consider open bottom structures, such as clear span bridges and open bottom arch culverts for fish bearing watercourse crossings rather than closed bottom structures, where possible; and
- Refer to DFO’s website, <https://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>, for further information on DFO’s regulatory review process and for further measures to protect fish and fish habitat.

This information can be provided through the NSECC watercourse and/or wetland alteration approval process(es) and/or through submission of a DFO Request for Review application directly to DFO. DFO will then conduct a regulatory review of the proposed project under the *Fisheries Act*, *Species at Risk Act*, and Aquatic Invasive Species Regulations to determine if an authorization under the *Fisheries Act* and/or a *Species at Risk* permit is required.

Public Works

Date: June 12, 2023
To: Candace Quinn, Environmental Assessment Officer
From: Environmental Services, Nova Scotia Public Works
Subject: Ellershouse 3 Wind Project, Hants County, NS

Scope of review:

This review focuses on the following mandate: Traffic Engineering and Road Safety Impacts for the Ellerhouse 3 Wind Project

Technical Comments:

1. Provincial Regulatory and Permitting requirements are appropriately identified in Table 2.2 Provincial Regulatory Requirements (Pg. 4). Working within Highway Right of Way Permit (WWHROW), Overweight/Special Moves Permit, as well as compliance with the Nova Scotia Temporary Workplace Traffic Control Manual (NSTWTCM) and Spring Weight Restrictions are identified.
2. With regards to the WWHROW, this permit is available from the local Area Manager. This will be required for any infrastructure upgrades or removal of signage (as referenced in Section 8.3 Traffic and Transportation). Any signage removal on any provincially owned road will require the approval of the local Traffic Authority. The local Area Manager can serve as the contact for the Traffic Authority.
3. With regards to any implication to do with the NSTWTCM, any Traffic Control Plans would need to be prepared by the proponent and reviewed by the local Traffic Authority.
4. With regards to the Overweight/Special Moves Permits, the proponent should contact our Departmental contact for Special Moves Permits to determine any required information for inclusion. E.g. Information in Section 3.2.1 Turbine Specs (pg 8), or references to the transportation of turbine components in Section 8.3 Traffic and Transportation (Pg 222), with regards to a comprehensive transportation plan being required.
5. Table 3.3 Summary of Minimum Setbacks and Separation Distances (Pg 7) for Turbines has Public Roads stakeholder identified as Health Canada. NSDPW would also normally be a stakeholder with regards to this unless it is something strictly to do with a health perspective only.

6. Traffic Mitigation Measures mentioned in Section 8.3.3 (Pg. 225) and repeated in Section 11.2 Summary of Mitigation Measures (Pg. 267) are sufficient, provided the necessary approvals are obtained for the actions identified.

Summary of Technical Considerations: (provide in non-technical language)

1. Contact the Local Area Manager (Patrick Lemal) for any Working Within Highway Right of Way Permit required. That will be the contact for the District Traffic Authority as well, with regards to signage or review of Traffic Control Plans
2. Contact our Departmental Contact for Special Moves Permits, Manuel Abreu at Manuel.Abreu@novascotia.ca for any required information for this permit.
3. Nova Scotia Temporary Workplace Traffic Control Manual most recent version (2023) is available from our website.

Date: June 14, 2023

To: Candace Quinn, Environmental Assessment Officer

From: Air Quality Unit (reviewed by Manager and AQRM Director)

Subject: Ellershouse 3 Wind Project

Scope of review:

This review focuses on the following mandate: Noise

Technical Comments:

Ellershouse 3 Wind Limited Partnership proposes to construct and operate the Ellershouse 3 Wind Project, a 66 megawatt (MW) wind development located near the community of Ellershouse in Hants County, Nova Scotia. The Project will consist of up to 12 (5.9 MW) wind turbines along with associated infrastructure, including access roads and interconnection lines. Wind power projects support the Government goals of achieving 80% of provincial electricity requirements from renewable sources by 2030 (*Environmental Goals and Climate Change Reduction Act S.7 (l)*) and progress towards cleaner air for Nova Scotians (*Environmental Goals and Climate Change Reduction Act S.11 (c and d)*).

Section 10.5 of the EA Registration Document contains the information on noise/sound assessment. The noise model output is included in drawing 10.3 and the low frequency assessment in Appendix O. The assessment of sound considered both construction and operational noise from the Project.

The range of decibels anticipated for the project's construction activities are stated to be between 78 to 137 dBA from a single piece of equipment. Given that the construction footprint is widespread, Table 10.12 shows that sounds produced during construction (blasting, handheld air tools) have the potential to exceed 65 dBA at some receptors located within 2000 m of the noise source. The proponent states that this would occur intermittently and over a very short time frame. Table 10.12 summarizes the minimum, median, and maximum construction noise levels at varying distances from the source. The max noise level at 2000 m from the source is anticipated to be 114.5 dBA and to occur during blasting. The median noise level at 2000 m from the source is anticipated to be 53.5 dBA and to occur from vehicles.

The proponent states that the 30 receptors within 500 m of the Assessment Area are located near the intersection of Ellershouse Road the Project's access road. Therefore, most project-related construction sound will be consistent with existing sound levels.

An operational sound assessment was completed using the windPRO version 3.5.552 software package. Potential receptors included all structures identified in GIS data from the Nova Scotia Geomatics Centre, as well as any additional identifiable structures based on aerial imagery and a field investigation. A total of 500 receptors were identified within 2 km of the Study Area. The assessment also included the 10 existing turbines from the Ellershouse Wind Farm and the potential for cumulative effects. The model followed ISO 9613-2 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method and calculations.

Operational sound at receptor locations is predicted to comply with the guidelines adopted within Nova Scotia (40 dBA) and the highest predicted sound level at a potential receptor is 38 dBA. However, the proponent has not included baseline noise levels in the model. If baseline was included, it could result in a predicted noise level close to the Nova Scotia standard of 40 dBA. The proponent states that pre-construction baseline sound levels at key receptor locations will be measured as part of the development of a Complaint Response Protocol to establish baseline conditions for future reference.

The low frequency noise assessment (Appendix O) used the Finland Low Frequency noise model and shows that no receptor would exceed the recommended limit. A frequency of 100 Hz was used in the model; however it is unclear how 100 Hz was determined to be the most critical frequency.

The proponent states that a Complaint Response Protocol will be developed, which will consider complaints related to sound and outline a process to investigate complaints. Mitigation to resolve complaints, if determined to be necessary, will be completed on a case-by-case basis in consultation with the affected landowner.

Summary of Technical Considerations: (provide in non-technical language)

Receptors within the study area should be notified before blasting occurs, or if continued use of handheld air tools is anticipated, as these activities may result in noise levels over 65 dB. Baseline noise levels, once available, should be included in the operational noise model to ensure predicted noise levels do not exceed 40 dB as stated in the EA Guide for Wind Power Projects in Nova Scotia.

Date: June 14, 2023

To: Candace Quinn, Environmental Assessment Officer

From: Air Quality Unit (reviewed by Manager and AQRM Director)

Subject: Ellershouse 3 Wind Project

Scope of review:

This review focuses on the following mandate: Air Quality

Technical Comments:

Ellershouse 3 Wind Limited Partnership proposes to construct and operate the Ellershouse 3 Wind Project, a 66 megawatt (MW) wind development located near the community of Ellershouse in Hants County, Nova Scotia. The Project will consist of up to 12 (5.9 MW) wind turbines along with associated infrastructure, including access roads and interconnection lines. The development of this Project will support Nova Scotia in their target of producing 80% renewable energy by 2030, reducing the province's dependency on coal generated electricity.

Impacts on air quality from this project are most likely to occur from vehicle exhaust and fugitive dust emissions during the construction phase of the project. Data from 2018-2022 from the NSECC Kentville station, located ~39km from the project area, was used to determine baseline concentrations of PM_{2.5}, NO_x, and ozone (O₃).

Exhaust emissions (primarily PM, NO_x, SO₂, and CO) are anticipated to be associated with local roadways and roads developed for the Project within the Project Area. The proponent states that the closest non-participating receptors are located over 673 m from the project and exhaust emissions are not anticipated to travel beyond the extent of the Project Area, and as such, impacts to local residential receptors are not anticipated. However, the residence time of exhaust emissions depends on weather conditions and chemical reactions (or lack thereof) in the atmosphere.

Fugitive dust emissions are anticipated from wind erosion, increased vehicle traffic on roadways, soil disturbance during site preparation, and loading/unload materials. These activities are most likely to contribute to increases in concentrations of total suspended particulate (TSP).

The proponent states that an Air Quality and Dust Management Plan will be developed in addition to the general mitigation measures listed: conduct site preparation in phases, stabilize stockpiled materials to prevent erosion (spray with water, design

containment areas, tie down/cover materials, etc), cease dust-generating activities during windy periods, require the use of low-sulphur diesel, maintain exhaust systems according to manufacturers specifications, and other measures.

Overall, exhaust and fugitive dust emissions are expected to be short-term and intermittent. The operation of the turbines will have minimal impacts on air quality – vehicles using the unpaved roads for access may contribute to small increases in airborne dust from time to time. Decommissioning of the site should be addressed at the appropriate time to minimize dust impacts from site operations.

Summary of Technical Considerations: (provide in non-technical language)

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 to be appropriate once construction starts. The dust mitigation methods should be outlined in a Dust Management Plan.

Agriculture

Date: June 15, 2023

To: Candace Quinn, Environmental Assessment Officer

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

Subject: Ellershouse 3 Wind Project
Hants 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 project is located on class 7 soil which is unsuitable for agriculture.
- The closest farm is 4.6 km from the nearest proposed wind turbine.
- The closest agricultural land is 4km from the nearest proposed wind turbine.

Date: June 12, 2024

To: Candace Quinn, Environmental Assessment Officer

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

Subject: Ellershouse 3 Wind Project, Hants Count, Nova Scotia

Scope of review:

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

Technical Comments:

Based on the results provided in the MEKS, historical, traditional, and current use practices have been identified within the Project Area and the Study Area, as such there is potential that the proposed Project could affect established and/or asserted Mi'kmaw Aboriginal and Treaty rights. Furthermore, the Project is located just east of the St. Croix I.R. 34.

The results of the MEKS and an effects analysis of the undertaking on the Mi'kmaq of Nova Scotia were not incorporated into the EARD. As a result, the EARD does not include direct mitigation measures to reduce potential impacts on traditional and current use practices. Given that an effects analysis on the practice of traditional and current use activities was not included within the EARD, OLA is limited in our ability to assess whether the proposed Project will adversely impact established and/or asserted Mi'kmaw Aboriginal and/or Treaty rights.

Summary of Technical Considerations: (provide in non-technical language)

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 appropriate accommodation and mitigation measures. Currently, OLA can provide the following comments and recommendations:

5.2 MEKS

This section provides a summary of the MEKS findings. The MEKS illustrates that traditional, historical, and current use activities exists within the Project Area, including deer, bear, and rabbit hunting along with trout fishing and wood harvesting. The MEKS also illustrates that traditional, historical, and current use activities exists within the Study Area, predominantly deer, bear, and rabbit hunting along with trout, eel, smelt, and salmon fishing and berry harvesting.

OLA encourages the regulator to carefully consider the information contained in the MEKS and factor relevant information into the decision-making process. For example, information regarding current rights activities within the project area and potential impacts to those activities that may occur from this project. OLA recommends that the Proponent continues to engage in discussions with the Mi'kmaq of Nova Scotia to address mitigation measures for potential impacts on traditional and current use activities within the Project area.

5.3 Mi'kmaq Engagement

This section states that the Proponent initiated engagement with the Mi'kmaq of Nova Scotia in 2021. The EARD provides a good overview of the Proponent's engagement approach, a review of concerns raised, and how the Proponent is addressing potential project-specific impacts. OLA is encouraged to see the engagement approach undertaken by the Proponent, particularly with Annapolis Valley First Nation (AVFN) given the proposed project's proximal location to the St. Croix reserve. OLA recommends that the Proponent continues to engage with AVFN as well as the remaining Mi'kmaq communities, including KMKNO, and provide regular updates throughout the duration of the Project.

7.3 Aquatic Environment

7.3.1 Waterbodies and Watercourses

The MEKS illustrates that traditional, historical, and current use activities occur within the Project Area and the Study Area. Activities related to waterbodies predominantly include trout, eel, smelt, and salmon fishing. OLA recommends that the Proponent continues to engage in discussions with the Mi'kmaq of Nova Scotia to address mitigation measures for potential impacts on traditional and current use activities within the Project area.

Given that the Proponent anticipates that alterations will be required for three watercourses that may impact fish and fish habitat, OLA recommends that a Mi'kmaq Communication Plan be developed in consultation with the Mi'kmaq and that the Plan should consider aspects relating to fish and fish habitat.

7.3.3 Wetlands

This section indicates that six individual Black ash trees were found in Wetland 1, in the Study Area. The EARD states that "it could not be determined during the field assessment if the trees were seeding bearing. To be conservative, the buffer for seed-bearing trees was applied to the wetland these trees were found in. An existing road is located approximately 90 m to the east of the wetland and therefore within the buffer. The installation of the collector system along this road will be designed such that there is no additional disturbance within the buffer (i.e., confined within the existing right-of-way/disturbed area), unless otherwise authorized by NSECC and/or NRR".

Although the Proponent does not anticipate further disruption within the Black ash tree buffer zone, OLA recommends that the Proponent engage with the Mi'kmaq of Nova Scotia if further disruptions do occur. Given that Black ash are considered a species of significance for the Mi'kmaq of Nova Scotia, potential impacts to Black ash and their habitat may potentially adversely impact Aboriginal and/or Treaty rights. OLA recommends that the Proponent continues to engage in discussions with the Mi'kmaq of Nova Scotia to address mitigation measures for potential impacts on traditional and current use activities within the Project area. OLA further recommends that a Mi'kmaq Communication Plan be developed in consultation with the Mi'kmaq and that the Plan should consider aspects relating to wetland mitigation, compensation, and monitoring plans.

7.4 Terrestrial Environment

7.4.3 Terrestrial Fauna

This section states that the Study Area overlaps with the most northern tip of a Mainland moose concentration area and that Mainland moose were recorded within 100 km of the Study Area. Given that Mainland moose are considered a species of significance to the Mi'kmaq of Nova Scotia, potential impacts to moose and their habitat may potentially adversely impact Aboriginal and/or Treaty rights. OLA recommends that the Proponent continues to engage in discussions with the Mi'kmaq of Nova Scotia to address mitigation measures for potential impacts on traditional and current use activities within the Project area. OLA further recommends that a Mi'kmaq Communication Plan be developed in consultation with the Mi'kmaq and that the Plan should consider aspects relating to wildlife mitigation and monitoring plans.

Date: June 15, 2023
To: Candace Quinn, Environmental Assessment Officer
From: Department of Natural Resources and Renewables
Subject: Ellershouse 3 Wind Project, Hants County, NS

Scope of review:

This review focuses on the following mandate: Land Services, Geoscience and Mines, Clean Energy, biodiversity, species at risk status and recovery, wildlife species and habitat management and conservation, including Old Growth Forest, forest resources/research.

Technical Comments:

Clean Energy Branch:

Wind energy projects such as Ellershouse 3 Wind are the only low-cost solution to transition Nova Scotia's electricity system to reduce greenhouse gas emissions and achieve our climate change goals. New wind energy is also the primary resource available to economically allow electricity utilities in Nova Scotia to achieve the Renewable Electricity Standards set out in the Renewable Electricity Regulations. New generation resources such as wind will assist Nova Scotia transition its electricity system from the use of coal-fired generation that has direct negative impacts, including air pollution and greenhouse gas emissions.

The transition of our electricity system to renewable energy is part of the province's plans and commitments to climate change mitigation.

Wind energy is the lowest cost of energy world-wide and local deployment of wind energy is anticipated to save rate payers of Nova Scotia millions of dollars over the lifetime of their operation while also reducing the emissions and pollution intensity of the electricity system.

Wind energy will help the electricity system avoid output-based price compliance for greenhouse gas emissions in Nova Scotia resulting in less upward pressure on rate payers through fuel.

Transitioning the electricity system to renewable energy is the most cost effective and significant action the province can undertake to reduce its greenhouse gas emissions in the near term.

This project is in partnership with Annapolis Valley First Nation meeting the Departments mandate on inclusion in the transition of the electricity system.

Renewable energy projects such as wind projects will assist the province in achieving its goals in the Electricity Act, NRR mandate letter and business plan. It will also support Environment and Climate Change's Environmental Goals and Climate Change Reduction Act (EGCCRA), and the Climate Change Plan for Clean Growth (CCPCG):

Electricity Act:

- 80% Renewable Electricity Standard by 2030;

NRR Mandate letter:

- Commit to 80% of Nova Scotia's electricity needs being supplied by renewable energy by 2030;

NRR 2022-23 Business Plan:

- The Department will work to deliver on the goal that 80% of Nova Scotia's electricity will be supplied by renewable energy by 2030, by:
- completing Rate Based Procurement to add 10% renewable energy to the province's energy generation
- finalizing the Green Choice Program for large users to add 100% renewable energy to their operations.

EGCCRA: 80% of electricity in the Province supplied by renewable energy by 2030;

- 53% emissions reduction targets from 2005 levels by 2030;
- Phase out of coal-fired electricity generation by 2030;
- Net-zero emissions by 2050;

CCPCG:

- 90% emissions reductions from the electricity sector by 2035;
- Green Choice Program (includes a subsequent renewable energy procurement) to be launched by 2023.
- 500 MW of new local renewable energy by 2026.

Land Services Branch:

The Project does not include Crown lands and does not join Crown lands, so no authorizations/permits are required from the Land Services Branch.

Geoscience and Mines Branch (GMB):

This review was conducted through the lens of requirements as laid out under the Nova Scotia *Mineral Resources Act* and its associated regulations.

Between May 24th, 2023 and June 1st, 2023 the Nova Scotia Geological Survey conducted a close set of measurements of the two aggregate pits found at the base of the development near Hartville as well as much of the development footprint of roads and some, but not all, tower sites. Survey personnel found only background radioactivity and background deposition of secondary Fe in the pits, the roads and the development sites inspected. If aggregate from the Hartville pits is to be used for the

developments, there should be no radon or ARD issues or problems. However, if aggregate is to be generated onsite of any tower developments or used as fill, this could cause problems so each development site should be checked for radioactivity with a scintillometer if such aggregate is to be generated onsite or onsite grade is to be used as fill.

Biodiversity Branch:

This Environmental Assessment Registration Document has been reviewed by Natural Resources and Renewables biologists. The review focused on the following mandates: biodiversity, species at risk status and recovery, wildlife species and habitat management and conservation.

Forestry Branch:

This proposed wind project development does not interfere with any current or planned silvicultural research activities. The project is situated on private industrial lands currently managed for forestry. There is some ambiguity around how the wind energy projects and forestry activity may coexist after development, though it appears as though increased levels of forestry activities occurred in the years just prior to this proposed wind project.

Ideally the greenhouse gas emissions quantification in Appendix D would also include emissions associated with the land sector (i.e., biogenic carbon stored in forests subject to clearing).

There is some overlap with proposed project with the Old-Forest predictor layer and the proponents must complete old growth forest field assessments to ensure no growth forest (as defined in the Old-growth Policy) will be impacted by the project before IRM approval is given.

Summary of Technical Considerations: (provide in non-technical language)

Clean Energy Branch:

The EA process does not currently allow for the comparison and reflection on the climate change or environmental related benefits of transitioning the electricity system from fossil fuels to renewable energy. The long-term use of coal-fired generation for our electricity system has had significant cumulative negative impacts to the environment, climate, and human and animal health as a result of air pollution and other related pollutants from coal-fired generation. New renewable energy projects, such as wind energy, must be considered in comparison to the status quo and the benefits that result from the transition of the electricity sector to renewable energy. There are substantial benefits to the health and welfare of the ecosystem in Nova Scotia that is a result of switching coal-fired generation for new renewable energy resources.

It is recommended this project proceed for approvals with the appropriate mitigation measures captured in terms and conditions to ensure sustainable development of wind energy in Nova Scotia.

Geoscience and Mines Branch (GMB):

Prior to development, more local development site checks should include the following elements:

1. A technical summary that:
 - a. Identifies and describes any known occurrences of uranium mineralization on the overall project footprint (e.g., geological, geophysical and geochemical).
 - b. Identifies and describes any locally found occurrences of massive iron mineralization within the stratigraphy on the overall project footprint (to address future ARD concerns).
 - c. Describes the local health and safety risk (i.e. frequency and severity) pertaining to
 - i) known and/or potential occurrences of uranium mineralization,
 - ii) potential occurrences of ARD on each tower development site
 - iii) naturally occurring secondary geological pathways (e.g., structures and till dispersion).
2. Recommended as part of potential mitigation and or avoidance planning:
 - a. An exposure assessment (general) related to geoscience site characterization with particular attention to buildup of radon gas in onsite structures and to potential ARD runoff.
 - b. An exposure assessment for planned activities of infrastructure development and all primary or secondary ground disturbance activities with particular attention to buildup of radon gas in onsite structures and to potential ARD runoff.
3. A geological examination of each tower development footprint site identifying potential for:
 - Acid Rock Drainage (ARD),
 - radiometric measurements of each tower development pad site within the project area.
4. A site-specific engineering mitigation plan for ARD and above background radiometric measurements if any issues are encountered at any tower development site.

Biodiversity Branch:

The department offers the following recommendations:

- It is the responsibility of the proponent to ensure compliance with federal and provincial legislation and regulations regarding resident, migratory and at-risk bird species and their habitats (e.g., *Species at Risk Act*, *Migratory Birds Convention Act*, *Fisheries Act*, *NS Endangered Species Act*, *NS Wildlife Act*, and their regulations).
- Obtain all necessary permits as required under legislation related to wildlife and

species at risk in order to undertake the project.

- Should work commence prior to the development of a Wildlife Management Plan, the proponent should contact NRR (biodiversity@novascotia.ca) to discuss permits, particularly if the project has potential impacts on threatened or endangered species. The absence of effective mitigations may lead to breaches in prohibitions as per s.13(1) of the Endangered Species Act.

Provide digital way points and/or shapefiles for all Species at Risk, 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) and all flora and fauna surveys. 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.

- Habitat suitability modeling should be provided to NRR at biodiversity@novascotia.ca
- Prior to the development of a Wildlife Management Plan (WMP), field surveys should occur to address information gaps that prevent a full risk assessment to SAR or SOCC. Methodology and timing must follow standard science-based protocols and must be of sufficient scale and detail to inform the development of mitigation measures. These include:
 - Vegetation surveys
 - At-risk Mollusc surveys
 - At-risk Lichen surveys
 - Old Growth surveys
 - Wood Turtle surveys during appropriate time of year

Provide at least two (2) years of pre-construction radar and acoustic monitoring for bird and bat species. The following approach is recommended: A minimum of two (2) years of consecutive baseline surveys, provided that at least one of these survey years is conducted prior to the construction phase of the project. The acoustic monitor was non-functional due to technical issues that prevented data collection potentially during the peak migration period (i.e., was missed or not fully captured). An additional year of acoustic surveys is highly recommended.

Develop a Wildlife Management Plan (WMP) based on standard, science-based practices, which shall include:

- Communication protocol with regulatory agencies.
- General wildlife concerns (e.g., human-wildlife conflict avoidance, road salt as wildlife attractant).
- Mitigation measures to promote safety and prevent spread of Avian Influenza.
- Education sessions and materials for project personnel on Species at Risk, non-Species at Risk-wildlife, and other important biodiversity features they may encounter on-site and how to appropriately respond to those encounters.
- Noise, dust, lighting, blasting, and herbicide use mitigations.

- Measures to protect and mitigate against adverse effects to migratory birds during construction and operation, include Canada warbler and Chimney swift. 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, and other best management practices.
- Mitigations to proactively protect bats and avifauna against mortality from turbine strikes and barotrauma. This may include implementing turbine deterrents, seasonal or detection-based shutdown systems for turbines, and prevention of turbine blade feathering.
- 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 on site (e.g., Mainland moose, Monarch, Migratory and Non-migratory bats).
- Details on monitoring and inspections to assess compliance with the WMP.
- Avoidance and mitigation measures around critical habitat present (e.g. Bat critical habitat)
- NOTE: Review of the Wildlife Management Plan by NRR may reduce the risk of impacts to biodiversity.

The components of the WMP that address impacts expected during each phase of the project must be finalized before that phase begins (this includes the construction phase).

Engage NRR and ECCC to develop an adaptive management plan to inform decision-making related to adverse effects of the project on migratory bird and bat species.

- Revegetate cleared areas using native vegetation or seed sources, taking into consideration Monarch.

Develop a plan to prevent the spread of invasives both on and off site.

Prior to construction, provide final locations of turbines and infrastructure to NRR and ECC detailing changes and mitigation measures for potential environmental effects.

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.

Forestry Branch:

This project is on privately owned, industrially managed forested land and would likely not have major impacts. It does not interfere with on-going forest research objectives.

Including forest lands in greenhouse gas accounting for these projects would be beneficial.

IMPORTANT:

- Always provide a response back to the EA Branch, even if it is simply to confirm that there is “no comment.”
- The comments will be published on the EA website on decision day (privacy review is NOT conducted on comments from government).

Date: June 15, 2023
To: Candace Quinn, Environmental Assessment Officer
From: Melissa Ginn, Regional Environmental Advisor, Transport Canada
Subject: Ellershouse 3 Wind Project, Hants County, NS

Scope of review:

This review focuses on the following mandate: aviation, navigation

Technical Comments:

Transport Canada, Environmental Programs and Indigenous Relations, Atlantic Region has reviewed the registration document. We have determined the since the proposed project is not located on federal lands, a review pursuant to s.82 of the *Impact Assessment Act* (IAA) is not required.

The proponent has received Transport Canada aeronautical assessment form (AAF) including lighting plan approval on June 9, 2022. If updates are required pending final turbine selection, please contact Transport Canada Civil Aviation at aviation.atl@tc.gc.ca.

For further information, please refer to:

Standard 621 - *Obstruction Marking and Lighting - Canadian Aviation Regulations (CARs)* (<https://tc.canada.ca/en/corporate-services/acts-regulations/list-regulations/canadian-aviation-regulations-sor-96-433/standards/standard-621-obstruction-marking-lighting-canadian-aviation-regulations-cars>).

The AAF is located in *Appendix C - Aeronautical Assessment Form for Obstruction Marking and Lighting* ([Form 26-0427E](#)).

Navigation Protection Program of Transport Canada can provide the following comments:

It is noted that the proposed project will involve project components including upgrades to existing roads with culverts/bridges for water crossings during road construction.

The watercourse crossing upgrades, other infrastructure, and activities appear to have potential impact on non-scheduled waterways subject to the Canadian Navigable Waters Act, and the proponent will need to consider the following:

Under the Canadian Navigable Waters Act (CNWA), owners of works – (other than a minor work or a major work) - that are located on navigable waterways not listed in the schedule, which may interfere with navigation, have the option to:

1. either apply to the Minister of Transport; (approval review process and advertising and 30 day registry public review)

or

2. seek authorization through the public resolution process, and deposit specific information regarding their proposed crossing works on the new Common Project Search (online registry) inviting any interested party to comment.

(advertising and 30 day registry public review)

****Note however, that any bridges with piers placed below the high water mark of a watercourse, as well as water control structures always require an approval as outlined in the Major works Order. (an application for approval is required)**

Both the approval application process and the public resolution process on the Registry can be accessed at the following link:

[External Submission Site for the Navigation Protection Program](#)

(create an account first if needed)

Additional guidance information and links for the NPP regulatory process can be found here:

Canadian Navigable Waters Act

<https://www.tc.gc.ca/eng/programs-632.html>

<https://www.tc.gc.ca/eng/canadian-navigable-waters-act.html>

Navigation Protection Program, Transport Canada

<http://www.tc.gc.ca/eng/programs-621.html>

NPP Contact coordinates:

Navigation Protection Program | Programme de protection de la navigation

Transport Canada - Atlantic Region / Heritage Court, P.O. Box 42, 95 Foundry Street, Moncton, N.B.

E1C 8K6 |

Transports Canada - Région de l'Atlantique / Place Héritage, C.P. 42, 95 rue Foundry, Moncton, N.-B.

E1C 8K6

Tel | Tél. : 506-851-3113 / Fax | Téléc. : 506-851-7542

Email / Courriel : NPPATL-PPNATL@tc.gc.ca

Summary of Technical Considerations: (provide in non-technical language)

If updates are required pending final turbine selection, please contact Transport Canada Civil Aviation at aviation.atl@tc.gc.ca.

Under the Canadian Navigable Waters Act (CNWA), owners of works – (other than a minor work or a major work) - that are located on navigable waterways not listed in the schedule, which may interfere with navigation, have the option to:

1. either apply to the Minister of Transport; (approval review process and advertising and 30 day registry public review)

or

2. seek authorization through the public resolution process, and deposit specific information regarding their proposed crossing works on the new Common Project Search (online registry) inviting any interested party to comment.

(advertising and 30 day registry public review)



Environment and Climate Change

Date: June 14, 2023
To: Candace Quinn, Environmental Assessment Officer
From: **Climate Change Division, Contact: Satya Ramen, Manager**
Subject: Ellershouse 3 Wind Project, Hants County, NS

Scope of review:

This review focuses on the following mandate: Climate Change Mitigation & Adaptation

Technical Comments:

Adaptation

- The EA registration document includes a description of the local climate (Pockwock Lake Climate Station) based on climate data from 2012-2022 (Section 7.1.1). The 'Guide to Considering Climate Change in Project Development in Nova Scotia' recommends at least 30 years of climate data to adequately assess climate variability.
- The VEC sections of the EA registration document do not consider climate change impacts and projections for the site as per the provincial 'Guide to Preparing an EA Registration Document for Wind Power Projects'. For example, the document does not provide climate projections for temperature or other climate variables relative to climate normals and indicate how projected climate changes may impact the various phases of the project.
- The EA registration document does not reference specific climate projections for the site but does reference some key climate change trends and natural hazards (temperature, sea level rise, flooding, severe weather, turbine icing, wildfire) (Sections 12.1 and 12.2), and where applicable indicates some of the potential mitigations or design adaptations that may be considered during the project design and implementation. For example, the document indicates the project layout will be concentrated in high elevation areas to minimize flood hazards.
- The potential adverse effects of climate change on the undertaking and mitigative measures are not presented within a risk management framework, as recommended in the 'Guide to Considering Climate Change in Project Development in Nova Scotia'.

Mitigation

Guidance for Reviewers – Environmental Assessments

Environmental Assessment Branch, Environment and Climate Change

- The proponent correctly predicts that the construction phase will generate the most GHGs and has included emissions related to manufacturing and transportation of the wind turbine in the total expected emissions as well as the production and transport of the concrete for the tower foundation and pedestal. The total GHG emission contributions from the construction phase are 24,105.97 tCO₂e.
- The operations phase will generate GHGs from the wind turbines' maintenance (i.e., part replacements) as a one-time (Project lifespan) occurrence of 375.78 tCO₂e.
- Since these estimates included indirect emissions associated with the manufacture and transportation of the turbine, it is appropriate to say the emissions from actual construction and operation of the project can be considered negligible

Summary of Technical Considerations: (provide in non-technical language)

- The proponent should use at least 30 years of climate data to adequately assess climate variability and characterize the local climate as per the province's 'Guide to Considering Climate Change in Project Development in Nova Scotia'.
- The VEC sections of the EA registration document should include climate change projections for the site as per the 'Guide to Preparing an EA Registration Document for Wind Power Projects' and indicate how these climatic changes relative to climate normal may affect the undertaking, which may help identify opportunities for mitigation. The latest CMIP6 climate projection data and updated IDF curves are available at climatedata.ca.
- The EA registration document should provide more detail about how the detailed project design will consider these climate projection data (e.g., IDF curves based on climate projections will be used during the design of the project structures and erosion and sediment control measures).
- The proponent should consider adopting a risk management framework as recommended in the 'Guide to Considering Climate Change in Project Development in Nova Scotia' to determine which impacts present the highest risks to the various phases of the project and to assist in the determination of priorities for implementing adaptation measures, where required.

Mitigation

- No further action recommended.

From: [Wade,Suzanne \(ECCC\)](#)
To: [Quinn, Candace M](#)
Cc: [Wade, Suzanne \(EC\)](#); [Keeping,Brent \(ECCC\)](#); [Hingston,Michael \(il, lui | he, him\) \(ECCC\)](#)
Subject: FW: Ellershouse 3 Wind Project, Hants County, NS - ECCC Comments - EA Registration (EAS# 23-NS-013)
Date: June 20, 2023 9:02:42 AM
Attachments: [image001.png](#)
[Wind_CWS Atlantic Guidance Update for Wind Energy and Migratory Birds - April 2022_EN.pdf](#)
[BatSAR_SurveyProtocol_Treed_Habitats_ONMNR 2017.pdf](#)

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

Exercice caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

Good morning Candace,

Sorry for the delay in sending you comments on this project.

Environment and Climate Change Canada (ECCC) has reviewed the Ellershouse 3 Wind Farm Project, submitted by Ellershouse 3 Limited Partnership, to install up to 12 turbines (5.9 MW – 206.5m total height), including access roads (upgrading 16km of existing forestry roads and 4 km of new access roads) and interconnection lines (above-ground and underground), and substation, located near the community of Ellershouse, NS, and we offer the following comments:

WILDLIFE COMMENTS

Attachments

- ECCC's Canadian Wildlife Service (ECCC-CWS) Atlantic Region "Wind Energy & Birds Environmental Assessment Guidance Update" (ECCC-CWS-ATL, 2022) (available in French) (not available online).
- Ontario Ministry of Natural Resources and Forestry (OMNRF)'s "Survey Protocol for Species at Risk Bats within Treed Habitats Little Brown Myotis, Northern Myotis and Tri-colored Bat (OMNRF, 2017).

Specific Comments:

-

General

1. *ECCC-CWS requests that the Proponent (and/or the Nova Scotia Department of Environment and Climate Change (NSECC)) please remove bat hibernacula location information from environmental assessment documentation and figures since this information is considered sensitive and could result in further disturbance of species at risk and their critical habitat.*
2. Per the Canada Gazette Part II, published on June 8, 2022 ([Canada Gazette, Part 2, Volume 156, Number 12: Migratory Birds Regulations, 2022](#)) the modernized Migratory Birds Regulations came into effect on July 30, 2022, which allows for flexibility with respect to the removal of nests. 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 whose nests are reused (listed in Schedule 1 of the regulations), which will 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](#).

3. If the project proceeds, the proponent should be advised that provincial conditions of approval do not supersede their responsibility to ensure that activities comply with the Migratory Birds Convention Act (MBCA) and associated regulations. For all activities and during all Project phases, the Proponent must take measures to avoid the disturbance or harm of migratory birds, nests, and eggs.
4. Section 3.3.2 Operation and Maintenance (page 13), ECCC-CWS notes that “A vegetation management plan will be initiated to ensure that access roads and turbine locations remain clear of vegetation. Vegetation management will include removal and pruning. Timing of vegetation management will depend on site-specific conditions”.

ECCC-CWS recommends identifying measures to avoid/minimize impacts to migratory birds during Operation and Maintenance activities, including avoiding potential impacts to ground nesting species which may be attracted to previously cleared and grown-over areas (e.g. cleared areas such as turbine pads, roads and roadsides, grown-over areas - tall grass and shrubs) (see general guidance below).

5. Section 3.3.4. Environmental Management and Protection (page 13), ECCC-CWS notes that “An Environmental Protection Plan (EPP) will be developed following EA approval. The EPP is the primary mechanism for ensuring that mitigation is implemented as determined through the EA process, to avoid or mitigate potential adverse environmental effects that might otherwise occur from construction activities, and as required by applicable agencies through permitting processes”.

When considering potential approval conditions related to migratory birds and/or migratory bird species at risk, ECCC recommends clarifying what elements are expected to be included, and that the consultation process is clear for all parties. The preference for ECCC is that any documents and requests for advice from the proponent be submitted and coordinated through NSECC as part of the environmental assessment (EA) process under their jurisdiction.

It should be understood that 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 NSECC’s EA process to determine if potential residual effects are likely, and identify measures to minimize/lessen and monitor those effects to ensure compliance with the MBCA and SARA.

If additional surveys are planned as part of an EPP or monitoring plan, and there is an expectation that additional mitigation measures or adaptive management will be required as a result, ECCC-CWS recommends that this should be indicated in the condition(s).

Wetlands (7.3.3)

6. The Federal Policy on Wetland Conservation in Canada (FPWC) applies to this project. It is understood that this Project is being financed through federal funding programs (Natural Resources Canada (NRCAN)’s Smart Renewables Electrification Pathways Program).

As the federal department responsible for promoting the FPWC, ECCC-CWS is available to work with the province and the proponent in the development and review of a wetland compensation plan that meets the goals of both the provincial and federal wetland policy.

7. ECCC-CWS notes that: "Field surveys completed during summer 2022 identified 25 wetlands either partially or fully within the Assessment Area (Drawings 711A to 7.11J). Detailed results are found in Appendix I."

Section 7.3.3.2 Regulatory Context, it is stated that "The Nova Scotia Wetland Conservation Policy outlines a policy goal of no loss of WSS and no net loss in area and function of other wetlands (NSECC, 2019)"... "Nova Scotia considers a wetland alternation to be any activity that may affect wetland function and habitat. Such activities include, but are not limited to, excavating flooding, infilling, or draining (NSECC, 2019)".

In section 7.3.3.6, ECCC-CWS notes that the total area of potential impact to wetlands is approximately 0.57 ha; However, it is unclear if this calculation includes loss of wetland function via indirect effects (e.g. temporary effects such as soil disturbance, loss of wetland functions of wetland-dependent migratory bird species, etc.).

ECCC-CWS recommends that the EA clarify how field surveys informed plans to avoid effects (indirect and direct) to wetlands, including wetlands used by bird species at risk (SAR). Where effects to wetland habitat are deemed unavoidable, ECCC-CWS recommends including a discussion of why avoidance is not possible, as well as, a wetland compensation plan which considers conservation allowances for the loss of wetland habitat used by bird SAR (if appropriate).

8. ECCC-CWS notes that there are plans to span transmission lines to avoid direct impacts to wetlands. ECCC-CWS request clarification of what is meant by "spanning", and whether there will be construction activities conducted within wetland buffers, including temporary staging areas. The Proponent should identify any alterations caused by project within 30 m of wetlands.

9. ECCC-CWS notes on Page, 112, that it is stated that: "None of the wetlands within the Assessment Area were determined to be WSS as dictated by the Functional WSS Interpretation Results within the WESP-AC spreadsheet calculator."

There are observations of several migratory bird species at risk (SAR) and species of conservation concern (SoCC) that are dependent on wetland habitats as part of their lifecycle which were found in the Project local assessment area during desktop studies and field surveys (e.g. Common Nighthawk, Chimney Swift, Canada Warbler, Barn Swallow, Bank Swallow, Olive-sided Flycatcher, Eastern Wood Pewee, Bobolink, American Bittern, etc.).

ECCC-CWS recommends that the proponent consider potential indirect effects to wetland habitat functions, including habitat loss of wetland-dependent migratory species in finalizing their design plans and the application of the mitigation hierarchy outlines in both federal and provincial wetland policies.

10. In section 7.3.3.5, page 114, it is stated: "WL 10 had confirmed sighting of a lone male Canada Warbler (*Cardellina Canadensis*) with the Assessment Area (see Section 7.4.5)... given the highly mobile nature of the species, and the fact that the individual did not display probable or confirmed breeding behaviour, this wetland was not deemed to be a WSS. Mitigation and minimization of impacts to WL 10 will be assessed during the detailed design and permitting stage of the Project."

ECCC-CWS notes that confirmed breeding evidence is often difficult to obtain (or at least takes extended observation not usually observed during a point count). The lack of confirmed breeding evidence should not be used to infer minimal impact or interaction with the proposed project activities.

11. For consideration, there will soon be a Government of Canada expectation to better clarify and assess the

potential greenhouse gas (GHG) emissions of ecosystem carbon sinks (see section 3.4.3 of the “Draft Technical Guide Related to the Strategic Assessment of Climate Change: Guidance on quantification of net GHG emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream assessment”, available at [Strategic Assessment of Climate Change \(strategicassessmentclimatechange.ca\)](https://www2.gov.bc.ca/gov2/strategicassessmentclimatechange)). For example, carbon sinks would include wetlands (treed and shrub swamp) as well as forest, and thus potential effects to the carbon stores in the soils, as well as the biomass. Alteration of wetlands would decrease the capacity of this ecosystem to sequester carbon and pose impacts to the existing carbon stores where alteration could take place.

While there is no federal impact assessment under the Impact Assessment Act related to this project, as a best practice, ECCC recommends that the Proponent consider the potential impacts on wetland carbon sinks as part of their GHG emissions calculation and impacts to wetland functions.

ECCC-CWS also notes that there is mention that disturbance of wetlands creates methane emissions; this is incorrect – wetlands release carbon dioxide when altered and drained.

ECCC-CWS recommends that hydrological functions are not disturbed to prevent indirect impacts to carbon stocks and sequestration.

Terrestrial Habitat (section 7.4.1)

12. Several types of migratory bird habitat are in decline in Nova Scotia, including mature coniferous forest, mature deciduous forest and mature mixed forest. ECCC CWS recommends that a map that identifies mature forest habitat in relation to proposed project infrastructure be included in the review, including an analysis of project impacts on migratory birds species that use these habitats and taking into account cumulative losses.
13. Page 124, ECCC-CWS notes that it is stated that: “The Old-Growth Potential Index ranks forest stands to determine where with the highest potential for old-growth can be found. No highest-ranking stands were found to intersect with the Assessment Area.”

While the proponent didn’t find any of the “highest ranking stands”, ECCC-CWS recommends that the Proponent identify and describe what they did find in the assessment area.

ECCC-CWS request that the proponent clarify what old growth habitat exists within the Local Assessment area (i.e. how much, location maps where it occurs, and potential overlap with project activities).

ECCC-CWS notes that old growth forest is important for many species at risk, and of particular interest for Chimney Swift and bats.

- Avifauna (Section 7.4.5) (Habitat Modelling Results - Figures – Part 10 - Drawings 7.27A to 7.28E)

14. ECCC-CWS recommends that observations of SAR landbirds singing or displaying in suitable habitat during the breeding season should be taken as evidence of possible breeding; confirmed breeding evidence is often difficult to obtain (or at least takes extended observation not usually observed during a point count). However, the lack of confirmed breeding evidence should not be used to infer minimal impact or interaction with the project activities.
15. Page 184, ECCC-CWS notes on page that “Due to the observation of Chimney Swift in the Study Area, areas of

dead stands were mapped for reference. Areas within 300m of wetlands were also mapped because 3/5 min insect orders consumed by the Chimney Swift are associated with wetlands (NSNRR, 2007, ECC, 2007). Dead trees with developed cavities may also exist within wetlands due to the elevated water table, include those along Lake Panuke”.

ECCC-CWS notes that structures used by Chimney Swift for nesting include living or dead trees with hollow trunks, cavities, excavated by Pileated Woodpeckers, and rock crevices (COSEWIC, 2018).

ECCC-CWS recommends the Proponent confirm whether habitat surveys or modeling for Chimney Swift also considered also living trees potential nesting/roosting trees (>50 cm dbh).

16. Page 209, ECCC-CWS notes that it is stated that “Chimney Swifts (CHSW) were observed during both nocturnal and breeding point count surveys, though no confirmed breeding behavior was observed during those surveys. An incidental observation of Chimney Swifts was recorded during field surveys, as they were observed emerging from a large cavity in a yellow birch tree in October 2022 (Drawing 7.27B). The preferred breeding habitat for this species includes large/mature tree cavities and more urban area where chimney’s and other tall infrastructure are present (ECCC, 2022c). indicating that the host tree is likely a roost. As such, this area was avoided in the Project design to avoid impacting this species...”

ECCC-CWS advises that records of CHSW using natural nesting/roosting structures is considered important because we don’t have many records of CHSW using natural structures. ECCC-CWS request that CHSW occurrence records be identified and included in Drawing 7.27B (as described above), and provided to ECCC-CWS for review, as it is currently unclear where this sighting occurred in relation to proposed infrastructure.

17. Activities that may damage or destroy the a residence of CHSW include, but are not limited to, changing the micro-climate of the roost site, modifying or destroying the roost site, blocking access to the roost site, moving or otherwise disturbing the roost site, or any other activity that would destroy the function of the structure for roosting.

ECCC-CWS recommends that the Proponent provide further details on how they plan to avoid habitat, (e.g. how much will this area be avoided) and any additional mitigation and monitoring plan.

ECCC-CWS recommends that mitigation measures include protecting large diameter nesting/roosting trees (>50 cm dbh) with a minimum 100 m buffer around them.

18. In order to adequately assess risk, ECCC-CWS recommends conducting species-specific surveys for CHSW to investigate suitable habitat where CHSW was observed emerging, as well as large diameter trees (> 50 cm) with hollows or cavities for potential nests and roosts, with at least two surveys during each period (i.e. nesting and roosting). The Maritimes Swiftwatch Survey Protocol (Updated April 2021) is available for references at: [Maritimes_Swiftwatch_Protocol_2021.pdf \(b-cdn.net\)](#) replacing the “chimney” with “tree”.

The best time to detect nesting swifts is during daytime surveys in July for a minimum of 60 minutes on warm days/evenings with low and little cloud cover, when they are making frequent trips to feed growing young. The best time to detect roosting swifts is at dusk in late May, or late July/early August. Surveys are recommended for 60 minutes or until a swift is detected entering or exiting the tree.

19. Any structure (natural or anthropogenic) used for roosting or nesting is considered a ‘residence’ protected under the Species at Risk Act (SARA) for CHSW. Residences are protected year-round until there is documented

evidence that it has not been used for three consecutive years.

The Recovery Strategy for the Chimney Swift (*Chaetura pelagica*) in Canada [Proposed] (2022-03-17) is available: [Chimney Swift \(Chaetura pelagica\) \(canada.ca\)](#).

Chimney Swift residences cannot be destroyed without a SARA Permit. For more information on permitting requirements, the proponent can contact: sarapermittingatl@ec.gc.ca.

20. ECCC-CWS notes that the Avian Acoustic Data was processed using Wildlife Acoustic Kaleidoscope's cluster analysis capabilities and the signal parameters used for this analysis included: 0.1 – 7.5 s length of detection.

Night flight calls of landbird species tend to be extremely brief (as short as 40 milliseconds for a handful of species). In terms of default Kaleidoscope settings, 0.1 seconds is equal to 100 milliseconds, and any calls that are less than 0.1 seconds would not be recognized by the software. As a result, the chosen analysis technique likely missed many (or possibly most) of the night flight calls of nocturnally migrating landbirds of concern.

ECCC-CWS recommends redoing the analysis using a lower call duration standard on the bottom end to address this information gap.

21. Avian Radar Assessment Methods, ECCC-CWS notes that avian radar assessments were undertaken, as recommended, during the spring 2022 (April 22 to June 20, 2022) and fall 2022 (July 19 to November 2, 2022) migratory bird periods to assess bird activity in the airspace above the Study Area.

Avian Radar Assessment (page 194), ECCC-CWS notes that the number of bird detections were analyzed by date, and by height bin (for the vertical radar modes) or range bin (for the horizontal radar modes). To assist in understanding how birds are using the Project Area, ECCC-CWS recommends that the proponent also provide the time of night that birds were detected and include a discussion of bird movements (i.e., bird flight heights (altitude to ground level (AGL)) and how these differed throughout the night).

22. Effect Assessment (page 211), ECCC-CWS notes, "The ARS data from the spring and fall 2022 monitoring campaign indicates the majority of migratory bird activity occurs above the height of the proposed turbines (i.e., above 250m). However, most nights when activity was detected, activity was observed in the tower height bin that coincide with the height of the proposed turbines (i.e., below 250m), which indicates that there would be some level of interaction between migratory avifauna and the Project during operation"... "Observed migration events were stochastic throughout the migration seasons, and are likely heavily influenced by weather, particularly wind direction".

In addition proposed mitigation and monitoring plan(s) as part of the EPP (to be drafted by the Proponent), ECCC-CWS recommends identifying proposed mitigation and monitoring measures to avoid effects following the precautionary principle, and consider preventative mitigation measures related to rotor operations (e.g. temporary remote turbine shutdowns, reducing cut-in speeds or altering the pitch/feathering of blades, monitoring weather conditions, etc.) at times of optimal migration conditions/periods of high risk for collisions.

23. ECCC's Wind Energy & Birds EA Guidance (ECCC, 2007(a)(b), and ECCC-CWS Atlantic Region Guidance Update ECCC, 2022)(attached) is recommended as a reference for guidance on pre and post-construction monitoring studies. ECCC-CWS recommends that pre-construction and proposed post-construction studies be conducted in a consistent manner and be compared to assess and quantify any changes in migratory bird species assemblage,

density, and behaviours.

24. Avian SAR such as CONI and CHSW have a high collision risk with turbines during the breeding period since they are known to occupy open habitat areas in search of flying insects.

CONI are potential at risk because they are crepuscular, and potentially nocturnal, flying at various heights in search of food.

While Chimney Swift don't forage at night, they do return to their roost shortly after sunset which could result in collision if turbines are located in an area where many CHSW return to a roost at dusk.

ECCC-CWS recommends that any plans for post-construction monitoring include species-specific SAR surveys, including nightjar surveys, to determine if these species are being displaced by the project. Mortality surveys during the breeding season would assist in determining whether these species are colliding with turbines or turbine blades, or whether they are able to avoid them while foraging at night.

25. ECCC-CWS recommends scheduling high disturbance activities (e.g. vegetation clearing, blasting) outside of the migratory bird breeding season. While the general breeding season for migratory birds extends from April to July, some species nest outside of this timeframe. For example, early nest nesters, such as Killdeer, observed in the study area, breed between March and July. ECCC-CWS recommends consulting regional nesting zones and calendars when planning clearing activities, available at: <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html>

26. Mitigation (Page 212), ECCC-CWS notes that mitigations to reduce effect on avifauna include: "Adhere to ECCC guidelines on clearing windows for nesting migratory birds, where possible. Best efforts will be made to conduct vegetation clearing activities out of the nesting period that is generally from late March/April to September each year (ECCC, 2018). Timing of clearing activities are generally dependent on seasonal conditions and will be completed in consultation with NSECC and ECCC, as appropriate".

While the Province can authorize the removal of vegetation, it does not have the authority to allow a Proponent to destroy the nests of birds protected under the MBCA. For all activities and during all Project phases, the Proponent must take measures to avoid the incidental take of migratory birds, nests, and eggs.

ECCC-CWS recommends describing situations where adherence to ECCC guidelines may not be possible, and identify mitigation measures to avoid disturbing migratory birds that may be disturbed if construction activities are required during the breeding season.

ECCC-CWS does not recommend nest searches or sweeps in vegetation prior to clearing during the breeding season, except when the nests searched are known to be easy to locate without disturbance (e.g. previously cleared area, simple habitats, low vegetation).

27. Some ground nesting species of migratory birds, including CONI, are attracted to previously cleared areas for nesting in the spring and summer if there is a delay between clearing activities (e.g. clearing conducted in the fall/winter and construction scheduled in the spring and summer). 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, it should be suspected that a nest or

chicks are present, work in the area should be halted, and CWS should be contacted for further advice.

28. ECCC-CWS notes records of Pileated Wood Pecker during the breeding season (Breeding Bird Survey 2022). The nests of Pileated Woodpecker are listed on Schedule 1 of the amended Migratory Bird Regulations (2022) and have year-round nest protection, unless they have been shown to be abandoned. For more information on the amended nest protections, frequently asked questions on how these protections apply to migratory birds, including Pileated Woodpecker, and 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](#). Information on Pileated Woodpecker nest cavities can be found on ECCC's website: [Pileated Woodpecker Cavity identification Guide, Damage or Danger Permits for Nest Destruction: Pileated Woodpecker nesting cavities - Canada.ca](#) and [Damage to the Use of the Land: Pileated Woodpecker nesting cavities - Canada.ca](#)

29. ECCC notes two records of Common Loon (*Gavia immer*) during the breeding season (Breeding Bird Survey, 2022). This species generally place their nests on the ground, and usually on the sheltered side of islands and facing mainland, on the edges of smaller lakes (if no islands are present), or on floating vegetation in bogs.

ECCC-CWS recommends recommend a 200m buffer from Common Loon nests (e.g. road construction near a lake) during the months of May, June or July, and avoiding high disturbance activities (e.g. drilling, blasting) within 1000m of active Common Loon nests during the regional nesting season, including before nest initiation.

Bats (Section 7.4.4)

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30. ECCC-CWS recommends that the proponent contact the NSNRR for technical expertise and advice related to bat SAR under their jurisdiction and responsibility.
31. Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) are small, insectivorous bats species at risk (SAR) that are listed as Endangered (SARA Schedule 1). 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>.

The Government of Canada published factsheets providing information on the Emergency Listing Order, the disease threatening bats, the requirements of SARA, and ways to protect and preserve bat populations. The factsheet "Factsheet on the Emergency Listing Order for the Little Brown Myotis, the Northern Myotis and the Tri-Colored Bat" is available on the SARA registry at: [Factsheet on the Emergency Listing Order for the Little Brown Myotis, the Northern Myotis and the Tri-colored Bat - Document search - Species at risk registry \(canada.ca\)](#). The factsheet "WIND ENERGY and the Emergency Listing Order for the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*) and the Tri-colored Bat (*Perimyotis subflavus*)" (2014), including best management practices, is available on the SARA Registry at: <https://species-registry.canada.ca/index-en.html#/documents/1371>

32. On page 164, ECCC-CWS notes that he proponent identified Little Brown Myotis, Northern Myotis and Tri-colored bat as "non-migratory", however, it should be clarified that these species exhibit radiative migration (vs. latitudinal) and can move long distances (100 kms) between overwintering and summering areas, which can have implications of optimal siting of turbines.

33. ECCC-CWS notes that in conducting their bat habitat assessment, the Proponent used terrestrial habitat mapping to identify ideal foraging habitat and day roost habitat, but did not use the habitat characteristics of ideal maternity roost habitat and hibernacula, which is far more important, to guide habitat assessments (see Appendix 1 below).

ECCC-CWS recommends that any coniferous, deciduous and mixedwood forest ecosites be considered in assessing potential maternity roosting habitat. While the roosts of the two *Myotis* species are more likely to be in deciduous trees (and in older vs younger stands), Tri-colored Bats also use coniferous trees. ECCC-CWS notes that 14 passes of Tri-colored Bat were recorded during acoustic surveys.

34. For bat acoustic surveys, ECCC-CWS notes that only two of the bat monitors recorded data throughout the breeding season and the spring migration period. Bat acoustic monitors will record data up to 40 m under ideal conditions. It is ECCC-CWS opinion that the assessment area is under-sampled both spatially and temporally. Additionally, two units were placed in the same location, albeit at differing heights, and would have sampled the same individuals at this location.

ECCC-CWS recommends that bat SAR monitoring effort is equivalent in detail and effort to the bird monitoring (e.g., covering all seasons of activity from spring emergence to pre-hibernation/swarming – April to October – for two years pre-construction).

The acoustic bat monitoring program should be designed/implemented in a targeted manner to confirm/validate maternity roosts, swarming and/or hibernacula, following targeted habitat assessment, as well as multiple years of data collection (similar to ECCC-CWS ATL recommendations avifauna monitoring).

35. For reporting purposes, it would be helpful if data was presented for each detector location throughout the sampling period. Figure 7.4 of the EA Registration document is misleading since there are counts for periods where there were only two units operating and periods when there were five.

ECCC-CWS notes that given that only two detectors (001 and 005) were operating during the breeding period (late-May to July), the high levels of activity recorded during late-May and June could be indicative of maternity roosting activity, though one would expect higher activity during July when young become volant. ECCC-CWS also notes that there was also high activity levels at one of the sites (005), which is in the middle of the proposed turbine locations.

High levels of bat activity late-August and September could be indicative of migration to/from hibernacula as noted in the EA; however, this could also be indicative of swarming. Swarming occurs at/nearby hibernacula. The primary purpose of autumn swarming behavior is believed to be linked to mating, although it may also be tied to the identification and evaluation of hibernation sites. ECCC-CWS notes that *Myotis* species make up the bulk of the calls in the dataset.

36. Site selection is generally the most important component of a successful mitigation strategy for wind power developments; turbines should be located as far from important bat features as possible. For this to be successful, important bat features (maternity roosts, hibernacula) need to be identified.

ECCC-CWS recommends further investigation of the forested areas in the Project's assessment area for potential bat maternity roosting habitat following recommended OMNRF 2017 (attached).

37. Conclusions (Page 172), ECCC-CWS notes that: "Recorded bat activity during the summer months (July and

August), when maternity roosts are established, was significantly less than the spring/fall seasons”; however, maternity roosts are established in June and July (and not July and August). ECCC-CWS also notes high levels of acoustic activity recorded in June even though only two units were operational.

ECCC-CWS disagrees with the conclusion: “It is unlikely, based on the low bat call counts during summer months along with no previous documented history of maternity colonies in the area, that the Study Area supports maternity roosting habitat.” The fact that maternity roosts have never been recorded in the Study Area is not supporting evidence for unlikely effects since very few are known in natural habitats.

ECCC-CWS recommends that the assessment area be further investigated for maternity roosting activity.

38. Based on the information gaps described in the comments above, ECCC-CWS does not agree with the EA conclusion that the regional/population impacts are reversible and “not significant”. ECCC-CWS is of the opinion that any additive mortality of the SARA listed bat species in White-nose Syndrome (WNS) affected areas, including mortality at wind turbines, has the potential to be biologically-important. The mortality of even a small number of remaining individuals, particularly breeding adults, or disturbance to maternity roosts, has the potential to negatively impact the survival of local populations, their recovery, and potentially, the development of resistance to the fungus that causes WNS.

ECCC-CWS’ work with the University of Waterloo in the province is showing low numbers of Northern Myotis and Tri-colored Bat on the landscape – loss of individuals, maternity roosts, hibernacula could jeopardize recovery for these species. Additionally, the three species of migratory bats (Hoary Bats, Silver-haired Bats, and Eastern Red Bats) identified by the proponent as being at higher risk to mortality from wind turbines are currently undergoing assessment by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). ECCC recommends that monitoring, mitigation measures and adaptive management plans consider species of conservation concern (SOCC) as though they are species at risk, in the event that they become listed throughout the lifetime of the Project.

39. Mitigation (Page 174), ECCC-CWS notes that the Proponent describes measures using terms such as “to the extent possible” or “as much as possible”. ECCC-CWS recommends further describing instances when mitigation measures would not be possible, and identifying additional mitigation measures for avoiding/minimizing potential effects and monitoring them.

ECCC-CWS recommends considering the following additional measures:

- preventive mitigation measures such as reducing cut-in speeds, or altering the pitch/feathering the blades, during high risk collision periods (e.g., during migration or swarming) or when wind velocity is low;
- any tree removal should occur outside the bat active season;
- large diameter trees (>25 cm dbh) should be left standing with a minimum 100 m buffer around them.

ECCC-CWS notes in the Bat mitigation that the Proponent plans to schedule blasting activities within proximity of abandoned mines/caves during the summer months to avoid risk of collapse/degradation of these potential habitat when bats would be present. When scheduling blasting activities, ECCC-CWS recommends also considering the regional nesting period for birds and potential effects from noise disturbance.

Additional Comments

40. The proponent should retain raw data (e.g., information on individual tracks) until appropriate data standards have been developed. Proponents are encouraged to share and store data with:

- The Atlantic Canada Conservation Data Center (<http://accdc.com/en/contribute.html>); and,
- The Wind Energy Bird and Bat Monitoring Database ([NatureCounts - Wind Energy Bird & Bat Monitoring Database](#)) (Birds Canada 2022).

ECCC-CWS requests that any species at risk sightings also be reported to ECCC-CWS at ec.scfatldonneesei-cwsatliadata.ec@ec.gc.ca.

General “Standard” ECCC Advice and Recommendations:

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Migratory Birds

Migratory birds, their eggs, nests, and young are protected under the Migratory Birds Convention Act (MBCA). Migratory birds protected by the MBCA generally include all seabirds (except for cormorants and pelicans), all waterfowl, all shorebirds, and most landbirds (birds with principally terrestrial life cycles). The list of species protected by the MBCA can be found at <https://www.canada.ca/en/environment-climate-change/services/migratory-birds-legal-protection/convention-act.html>. Bird species not listed may be protected under other legislation.

Under Section 5(1) of the Migratory Bird Regulations, 2022 (MBR), it is forbidden to capture, kill, take, injure or harass a migratory bird; or damage, destroy or take a nest or egg of a migratory bird, excluding under the exceptions listed in 5(2) of the MBRs, or under the authority of a permit. It is important to note that under the MBR, no permits can be issued for the harm of migratory birds caused by development projects or other economic activities.

Furthermore, Section 5.1 of the MBCA describes prohibitions related to depositing substances harmful to migratory birds:

“5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.

(2) No person or vessel shall deposit a substance to be deposited in any place if the substance, in combination with one or more substances, result in a substance – in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area – that is harmful to migratory birds.”

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

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.

- 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>).

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Nest Searches

ECCC-CWS 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-CWS recommends the following best management practices:

- The proponent should develop mitigations for programs that introduce very loud and random noise disturbance (e.g. blasting programs) 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 be 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.

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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-CWS 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 (e.g., during migration; travelling from nesting to foraging areas, along streams used by waterfowl). ECCC-CWS 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.

Infrastructure, Buildings and Bridges

Certain species of migratory birds may nest on the sides of buildings, bridges or other pieces of infrastructure. Additionally, some species may nest on equipment, if they are left unattended/idle for long periods of time.

ECCC-CWS recommends the following beneficial management practices:

- The proponent should ensure that project staff are aware of the potential of migratory bird nests on infrastructure, buildings, and bridges, if applicable.
- If a nest is discovered, the proponent should conduct no activities around the nest that cause the nest to be abandoned or destroyed. Activities should be suspended until the chicks have fledged and left the area.
- If the proponent anticipates that birds may nest on infrastructure, the proponent should install anti-perching and nesting exclusion devices (e.g. mesh netting, chicken wire fencing, etc.) before any nest attempts are made.

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-CWS 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>. Plans should include:

- Measures to deter migratory birds from coming into contact with the oil or polluting substance;
- Measures undertaken if individuals of migratory birds and/or sensitive habitat become contaminated; and,
- The type, extent of monitoring, and reporting in relation to various spill events.

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-CWS 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.

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.

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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 it 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".

For provincial/territorial environmental assessment processes, ECCC-CWS recommends a similar approach be undertaken. 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-CWS 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). In instances where habitat for species at risk cannot be avoided, the proponent should provide an explanation why avoidance is not possible, as well as, a discussion of conservation allowances (biodiversity offsets) if appropriate (see ECCC's Operational Framework for Use of Conservation Allowances (2012) available at: <https://www.canada.ca/en/environment-climate-change/services/sustainable-development/publications/operational-framework-use-conservation-allowances.html>). Note: Where the impacted species at risk habitat is wetland, compensation recommended in the Federal Policy on Wetland Conservation in Canada and/or as required under provincial wetland policy may be appropriate.

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 environmental assessment as though they were listed under SARA.

Provincial department responsible for SAR be contacted for technical expertise on SAR under their responsibility (e.g. bats, reptiles, amphibians, land-mammals, insects, plants, lichen, and birds not protected by the MBCA, such as raptors).

Wetlands

ECCC-CWS recommends that the project proponent follow the mitigation options outlined in the Federal Policy on Wetland Conservation (FPWC). The FPWC was introduced “to promote the conservation of Canada’s wetlands to sustain their ecological and socio-economic functions, now and in the future”. The policy recognizes the importance of wetlands to the environment, the economy and human health and promotes a goal of No Net Loss of Wetland Function as a result of the Government of Canada exercising a duty, function, or power in areas of Canada where wetland loss has reached critical levels. In support of this goal, the FPWC and related implementation guidance identify the importance of planning siting and designing a project in a manner that accommodates a consideration of mitigation options in a hierarchical sequence – avoidance, minimization, and as a last resort, compensation (i.e. conservation allowances. A copy of the FPWC can be found at: <http://publications.gc.ca/site/eng/9.686114/publication.html>.

ECCC recommends the development of a Wetland Compensation Plan that fully describes the mitigation hierarchy, including:

- Identification of wetlands potentially affected by the project,
- A detailed description of potential effects, and the reasons why avoidance and minimization of impacts were determined to be not possible, and,
- Identification and justification of proposed offset ratios.

ECCC recommends:

- Developments on wetlands should be avoided;
- Where development does occur in the vicinity of wetlands, a minimum vegetation buffer zone of 30 metres should be maintained around existing wetlands areas;
- Hydrological function of the wetland should be maintained;
- Runoff from development should be directed away from wetlands;
- The use of a 30 metre buffer from the high water mark of any water body (1:100 Flood Zone) in order to maintain movement corridors for migratory birds. Please see <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html> for further information concerning buffer zones.

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)

Please note that specific requests for ECCC advice should be directed to ECCC's environmental assessment window for coordination at: FCR_Tracker@ec.gc.ca.

If you have any questions, please let me know.

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Appendix 1

Excerpt from the Draft ECCC-CWS Residence Description (January 2022)

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Little Brown Myotis and Northern Myotis

Any place used as a maternity roost by Little Brown 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).

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Environment and Climate Change Canada's Canadian Wildlife Service (Atlantic Region) - Wind Energy & Birds Environmental Assessment Guidance Update

Background

Environment and Climate Change Canada's Canadian Wildlife Service (ECCC-CWS) is charged with the administration of the *Migratory Birds Convention Act* (MBCA) and *Species at Risk Act* (SARA), responsible for the management and conservation of migratory birds and protection of SARA listed species at risk and their habitats; ECCC-CWS Atlantic (ATL) provides expert advice for these species for wind energy impact assessments, upon request. ECCC-CWS published two guidance documents in 2007 for assessing the risk of wind energy developments on migratory birds:

- *Wind Turbines and Birds: A Guidance Document for Environmental Assessment*" (Environment Canada 2007a)
- *Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds*" (Environment Canada 2007b)

Recent advancements in technology for wind energy production include taller turbines with increased energy generating capacity. As a result, in 2018, ECCC-CWS-ATL provided an advice update related to radar and acoustic monitoring recommended for monitoring particular factors of concern (e.g. migration corridors, passage rate and flight altitudes of nocturnal migrants in relation to the height of proposed turbines – larger scale) (s.8.2 CWS 2007a and CWS2007b protocols).

ECCC-CWS-ATL has prepared this guidance update to replace the 2018 advice; this guidance update provides minimum standards and best approaches for pre- and post-construction monitoring related to wind energy developments in Atlantic Canada. It is incumbent on the proponent to identify the best approach, based on the circumstances, to comply with the *Migratory Birds Convention Act* and *Species at Risk Act*.

Determining Site Sensitivity

ECCC-CWS-ATL recommends that wind energy sites proposing building turbines > 150m (thus placing turbine height places the rotor sweep within songbird nocturnal flight corridors (i.e., 150 – 600 m, Horton *et al.* 2016)) in total height be considered 'Very High' site sensitivity (i.e., Category 4, Environment Canada 2007a).

Minimum Standard

Pre-Construction Monitoring

There is little available data and associated studies on the latest larger scale turbine technologies and risk to migratory birds. Therefore, proponents should assess the potential risk of Category 4 level sites to understand and characterize nocturnal avian flight paths around proposed sites. ECCC-CWS-ATL recommends using radar and acoustic monitoring during the spring and fall migrations, in addition to standard avian surveys (Environment Canada 2007a).

Although much of the bird migration is above turbine heights and rotor sweep areas, there are accounts of both songbird migration, and localized migratory bird population seasonal movements, occurring within the turbine altitudinal zone (Richardson 1972, Horton et al. 2016). Therefore, monitoring should also characterize potential

localized lower-level movements of birds. For example, Bank Swallows move between coastal bank colonies and inland roost sites; shorebirds move overland from foraging to roosting sites during pre-migration recruitment flights; sea ducks are low altitude nocturnal migrants.

The use of acoustic autonomous recording units (ARUs) complements radar data and can support conclusions in the final analysis. ARUs have a maximum detection distance of approximately 200-250m above ground level, similar to the height of proposed wind turbines and can assist in evaluating species composition of nocturnal migrants, especially important in understanding the potential risk to species at risk.

Study Design

ECCC-CWS-ATL recommends, at minimum, monitoring early in the project-planning phase (pre-construction) to ensure that the proponent completes a minimum of 2 years (consecutive) of monitoring. The 2-year minimum standard supports analyses of bird flight height by capturing the variance in weather conditions present. In addition, ECCC-CWS-ATL recommends pre-construction monitoring to quantify the risk at a proposed site **before** approval. This also provides baseline information to assess post-construction impacts and mortality on migratory bird populations. Data should be collected under various types of weather conditions.

Spring migration recommended monitoring window is **March 15 - June 7**, and fall migration is **July 15 – November 30**. These extended monitoring windows allow the proponent to assess landbirds, waterfowl/sea duck and shorebird migration movements, especially important in coastal areas or along known migration routes (e.g., Bay of Fundy, Tantramar Marsh, Strait of Canso, and Cape Sable Region).

The breeding season window in Atlantic Canada varies from region to region (i.e. nesting zones) which have corresponding nesting calendars showing variation in nesting intensity by habitat type. Information regarding regional nesting periods can be found at [ECCC's General Nesting Periods – Avoiding Harm To Migratory Birds](#). Each site should be visited at least twice during this time to establish which species are breeding in the area and to determine if there are any migratory bird species at risk and/or species that have aerial mating displays.

If provincial regulatory processes do not require pre-construction monitoring, the proponent should initiate monitoring as soon as possible (for a minimum 2-year period). Although not ideal, monitoring could start during the construction year to assess impacts on migratory bird populations and determine the need for additional mitigation and/or inform future guidance.

Data Analysis

Data analysis guidance is available in the 2007 national guidance (Environment Canada 2007a, Environment Canada 2007b). ECCC-CWS-ATL recommends consolidating site-specific avian baseline and habitat assessment with radar and acoustic monitoring data into one report. In addition, this report should include and detail an overall assessment of the risk to migratory birds.

The report should include, at minimum, the following:

- List of potential breeding birds (following breeding bird atlas protocols)
- Volume estimates of birds (i.e. targets) at a fine scale of altitudinal resolution on a nightly basis;
- Altitudinal information;
- Time period monitored (note: monitoring should take place at the same time every day);
- Weather data;
- Tidal and lunar cycles (note: shorebird movements increase during bright nights);
- Summary of overall bird activity, including how bird activity:
 - changed through the night and the season.
 - changed across the study area.

Post-Construction Monitoring

ECCC-CWS-ATL recommends that post-construction mortality surveys (Environment Canada 2007b) and radar and acoustic monitoring be consistent with baseline pre-construction methods. The proponent (for any approved project) should complete a minimum of 2 years (consecutive) of monitoring. ECCC-CWS-ATL may recommend additional monitoring based on reported findings.

The mortality survey data should be paired with radar and acoustic monitoring to provide context for the localized impacts on birds. Additionally, the proponent should compare the pre-construction and post-construction results to assess and quantify any changes in migratory bird species assemblage, density, and behaviours.

Permits are required to handle or collect any dead birds or bats found during post-construction monitoring activities (e.g. carcass searches or used as part of observer efficiency or scavenging trials) (ECCC, s.10.4 2007). Under the Migratory Bird Regulations, a scientific permit is required for the collection of a migratory bird (dead or alive), feathers, or part of a migratory bird, as defined in the MBCA (contact: Permi.Atl@ec.gc.ca). Proponents should also contact the appropriate provincial territorial wildlife department for information related to requirement to collect species under provincial jurisdiction (bats and bird species such as raptors not covered by the MBCA). Proponents should review and carefully note the conditions in permits, including annual reporting and mortality incident reporting. Proponents will need to ensure they remain in compliance with all permitting conditions and requirements.

Data and Report Submission

Please provide ECC-CWS-ATL with the monitoring reports. Reports must be provided to CWS by December 31 of the same calendar year in which monitoring took place. Submit reports ECCC's environmental assessment window for coordination at: FCR_Tracker@ec.gc.ca.

ECCC-CWS-ATL recommends that the proponent submit all wind energy monitoring (migratory birds and bats) data to the [Wind Energy Bird & Bat Monitoring Database](#) (Birds Canada 2022). The proponent should retain raw data (e.g., information on individual tracks) until appropriate data standards have been developed.

Best Approach

ECCC-CWS-ATL considers the best approach to be a regional BACI (Before-After/Control Impact) study design (i.e., paired-site design) or an impact-gradient design for smaller developments. The BACI design is designed to help isolate the potential effect of development from natural variability. Proposed turbine sites should be paired with similar reference sites to provide comparative assessments. This comparative site assessment should compare bird density, flight height variance/altitude levels, activity patterns, timing, consistency of movements, habitat variables between control (reference) and treatment (turbines) sites during the breeding period and during migration. Data should be collected under various types of weather conditions.

Reference sites should be located at minimum 500m from proposed turbine sites. These reference sites should be placed in habitats similar to the paired turbine site. ECCC-CWS-ATL recommends that this approach be factored into the pre-construction and post-construction monitoring designs. All study design recommendations presented above should be used for this approach (e.g., pre-construction monitoring should be completed before site approval, be done for two years, etc.). Additionally, all sampling considerations (e.g., migration timing windows, data collection, reporting) should be consistent with the minimum standard.

Bats

Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) are small, insectivorous bats that are listed as Endangered (Species at Risk Act, Schedule 1). ECCC-CWS-ATL recommends that the proponents consider bats in their pre-construction and post-construction monitoring and their data and report submissions. However, the proponent should contact Provincial representatives for additional information on bats and wind energy developments, as they are the jurisdiction responsible for the conservation and protection of bat species.

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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



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 *Pseudogymnoascus 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 (MNR) 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 MNR 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 MNR 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 ≥ 10 cm dbh
- any maple tree ≥ 10 cm dbh IF the tree includes dead/dying leaf clusters
- any maple tree ≥ 25 cm 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 $\geq 10\text{cm}$ 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 $>10\text{cm}$ dbh with suitable roost features should be documented. For trees with cavities, the entrance can be high or low (“chimney-like”) on the tree.

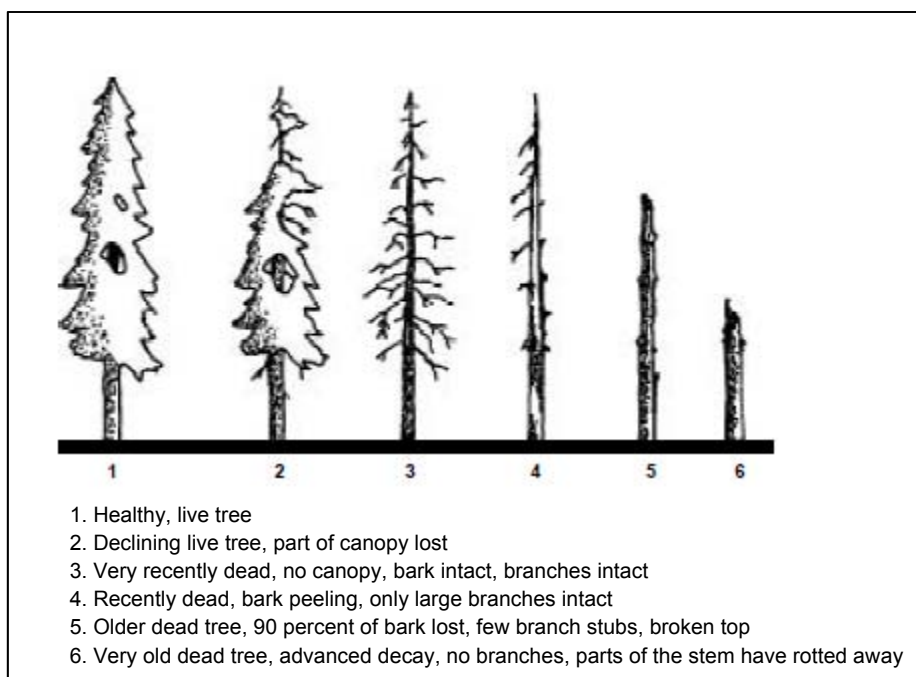


Figure 1: Snag classification (Decay Class 1-3 is considered an early decay stage)¹

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 $\geq 10\text{cm}$ 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.

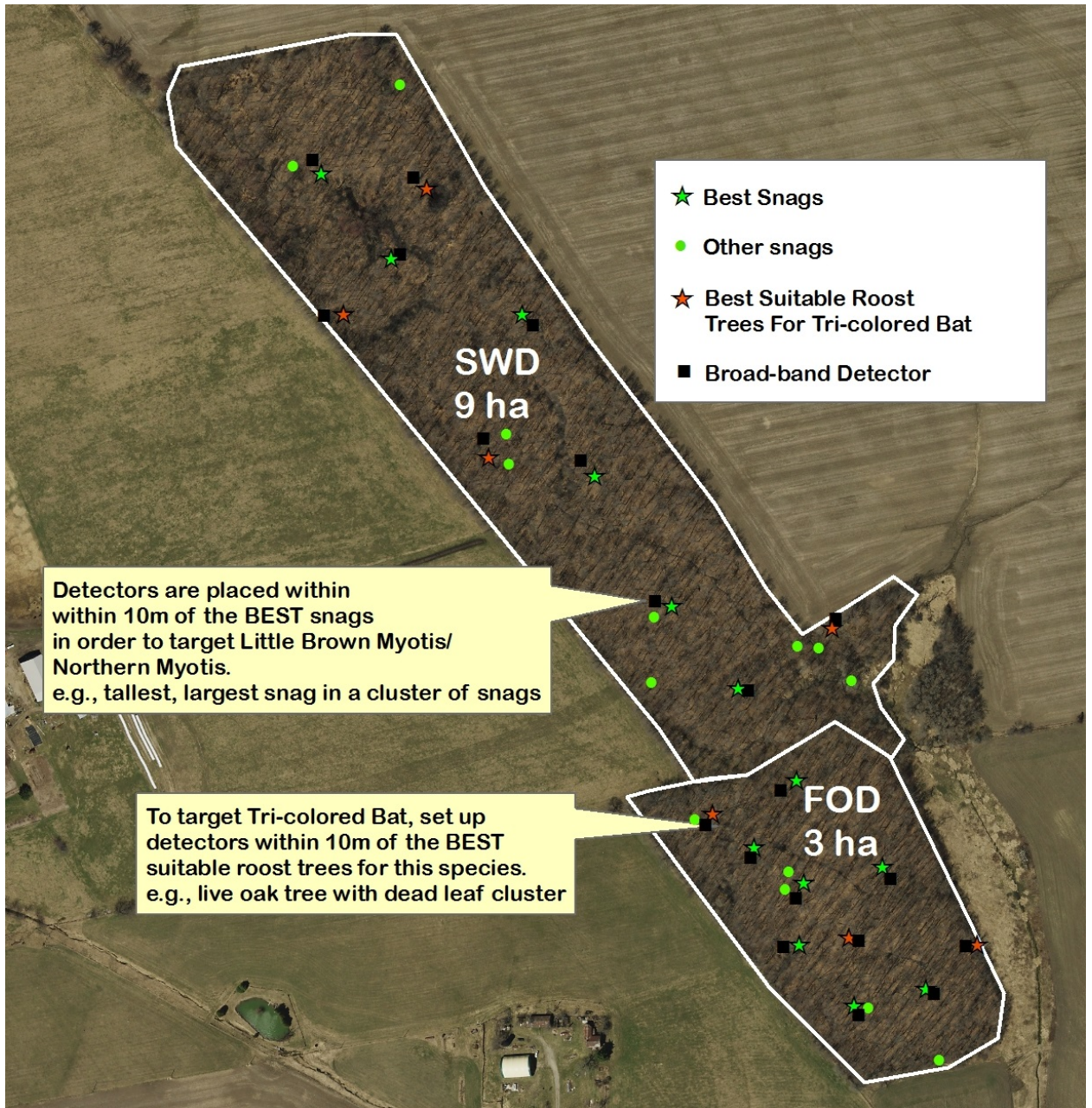


Figure 2: Hypothetical example illustrating the location and density of acoustic detectors i.e., 4/ha to a maximum of 10 per ELC ecosite.

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	$3.14(151.2m)^2 = 71784.9m^2 = 7.18 \text{ ha}$	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 $\geq 10\text{cm}$ dbh (if present). If oaks are absent, include maples $\geq 10\text{cm}$ dbh IF dead/dying leaf clusters are present; and maples $>25\text{cm}$ 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
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			

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

Include all live and dead standing trees $\geq 10\text{cm}$ 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
				<input type="checkbox"/> cavity ³ <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3? ⁴			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> 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



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

75 Treaty Trail
Truro, NS B6L 1W3

Tel (902) 843 3880 **Fax** (902) 843 3882

Toll Free 1 888 803 3880

Email info@mikmaqrighs.com

www.mikmaqrighs.com

Our Rights. Our Future.

June 15th, 2023

Candace Quinn
Environmental Assessment Officer
Environmental Assessment Branch
Nova Scotia Environment and Climate Change
Email: candace.quinn@novascotia.ca

RE: Consultation with the Mi'kmaq of Nova Scotia on the Ellershouse 3 Wind Project, Hants County, N.S.

Ms. Quinn,

I write in response to your letter dated May 15, 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.

The Kwilmu'kw Maw-Klusuaqn Negotiation Office (KMKNO) is pleased to see Annapolis Valley First Nation as a partner with Ellershouse 3 and Potentia Renewables Inc. on this proposed wind project. We recognize that more needs to be done in the transition away from fossil fuels and are encouraged to see that the Mi'kmaq are at the forefront in various renewable energy projects.

The Environment Assessment Research Division (EARD) states six individual Black Ash trees were found in the Study Area, and that a 150-metre buffer would be asserted around said trees despite an existing road 90 metres from the species of concern. It is our request that in addition to the 150-meter buffer, there will be no change to water quality and that appropriate mitigation efforts such as sedimentation or silt fencing, where work upgrades are expected within the existing road. Further, if there are expected culvert removals, upgrades, or installation, we would ask that water levels within the Wetland 1, and immediate surrounding wetlands, be monitored for the duration to that work. We strongly discourage any changes to the hydrology of any one wetland due to the consequential disruption to the hydrological connectivity of these wetlands. Removal of vegetation from these wetlands will lead to the degradation of these sites and surrounding hydrology, and degradation of habitat. This may have devastating impacts to both the aquatic and terrestrial species that rely on the water courses/bodies within the Project area including Species at Risk. Because wetlands support a wide variety of niche habitats, including habitat for many sacred, ceremonial medicines and plants, flora and fauna species at risk, and promote healthy water quality, further alteration without a comprehensive cumulative effects study can not be acceptable.

With this proposed project being 200 meters away from the St. Croix First Nation Forestry Block, it is our expectation that concerns regarding the proximity be addressed between

Annapolis Valley First Nation and the proponent prior to the EARD submission. There is little mention in this EARD how this proposed project will interact with this Forestry Block. All efforts should be made to accommodate the impacts of this proposed project to this reserve.

Our office is encouraged to see a vegetation management plan being initiated to ensure that access roads and turbine locations remain clear of vegetation. The Nova Scotia Department of Environment and Climate Change (NS-ECC) or the proponent should send this plan to our office for review, comment, and collaboration.

It is encouraging to see this EARD assess the cumulative impacts of this project and its surrounding areas. With the large volume of proposed projects being submitted to regulators and approved in recent months, it is our expectation that NS-ECC is also monitoring the cumulative impacts of all projects within Mi'kma'ki (the unceded land of the Mi'kmaq).

The KMKNO Archaeological Research Division (ARD) has reviewed documentation for the Ellershouse 3 Wind Project EARD, particularly Section 9 of the EARD (pgs. 228-232), the Mi'kmaq Ecological Knowledge Study (MEKS), and two Archaeological Resource Impact Assessments (ARIA) (HRP A2022NS191, HRP A2023NS029), which has been conducted by Boreas Heritage Inc. We would like to recognize Annapolis Valley First Nation as a partner on the project.

A total of seven (7) high potential areas were identified in ARIAs A2022NS191 (HPA-01, HPA-02, & HPA-03) and A2023NS029 (HPA-01, HPA-02, HPA-03, & HPA-04). The Archaeological Research Division (ARD) can support, at this time, the recommendation that these areas of high archaeological potential “be avoided during any proposed development and/or ground disturbance activities associated with the proposed Project, to prevent accidental impacts to areas of potential archaeological sensitivity” (A2022NS191, 56; A2023NS029, 44). We cannot support the recommendation that the remainder of the Assessment Areas described and depicted in the ARIAs “be cleared of further requirement for archaeological investigation” (A2022NS191, 56; A2023NS029, 44). There was no subsurface testing. The MEKS identifies an archaeologically rich landscape connected to St. Croix “located downriver of the Trunk No. 1 bridge”, the “falls/dam” as a large seasonal fishing village that supported a significant population, and the project area location where hunting and fishing occurred historically and continues today (Ellershouse 3 Wind Project MEKS, April 2023, 4-5). We would like to emphasize that whenever a landscape has been used for hunting historically, there is a chance that cultural heritage may also be present.

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. The evidence of a lack of concern in impact areas does not exist without subsurface testing. 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.

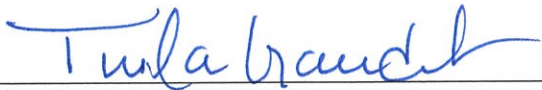
Although the remainder of the Assessment Area has been ascribed as exhibiting low archaeological resource potential and cleared for further archaeological investigation, we consistently recommend in areas that will undergo impact, that subsurface testing be undertaken to confirm the presence of archaeological heritage (A2022NS191, 56; A2023NS029, 44). One cannot conclusively eliminate potential for Mi'kmaw archaeological heritage without subsurface testing, regardless of current landscape conditions. 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.

KMKNO does not represent the communities of Membertou, Millbrook or Sipekne'katik First Nations.

We also request in follow up to this letter, a consultation meeting with NS-ECC. Please coordinate with Mise'l Abram, to identify a mutually suitable date. Our office would like additional information on how this project will interact with the St. Croix First Nation Forestry Block and mitigation plans for the Black Ash in the project area.

Please contact Patrick Butler, Senior Mi'kmaw Energy and Mines Advisor at KMKNO for any further questions.

Yours in Recognition of Mi'kmaw Rights and Title,



Twila Gaudet, B.A., LL.B.
Director of Consultation
Kwilmu'kw Maw-Klusuaqn Negotiation Office

c.c.:

Patrick Butler, Kwilmu'kw Maw-klusuaqn Negotiation Office
Beata Dera, Nova Scotia Office of L'nu Affairs
Gillian Fielding, Nova Scotia Office of L'nu Affairs
Barry Gillis, Nova Scotia Environment and Climate Change, ICE Division
Michael McLean, Nova Scotia Environment and Climate Change, ICE Division

From: @gmail.com
To: [Environment Assessment Web Account](#)
Subject: Proposed Project Comments
Date: May 18, 2023 8:42:18 AM

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: ellershouse-3-wind-project Comments: Where will the construction materials and labour be sourced? It is imperative Nova Scotians receive these benefits. Name:

Email: @gmail.com Address: Municipality:
Masstown email_message: Privacy-Statement: agree x: 59 y: 22

From:
To: [Land Use](#)
Cc: [Quinn, Candace M](#); [English, Scott](#); [Jonathan Bitoun](#)
Subject: RE: 23-1893 (22-1684 EA Proposal)
Date: May 10, 2023 6:05:00 PM
Attachments: [image001.png](#)

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Good afternoon Derek,

As discussed with your colleague Scott English in March 2023, we are still in negotiations with turbine manufacturers but we expect to secure a final turbine model for the project in the coming months. We understand the turbine dimensions provided in the Ellershouse 3 environmental assessment differ from those submitted to NAV CANADA in May 2022 in land use file 22-1684. However, as reflected in the EA section 6 (Engagement), we will submit the final turbine model dimensions to all interested stakeholders once the final turbine model has been confirmed. For purposes of the EA, please note that the turbine dimensions submitted reflect the tallest turbine height under consideration.

If you have any questions or concerns, I'd be happy to discuss further.

Thank you,

Manager, Environment and Community Consultation

Potentia Renewables Inc.

200 Wellington Street West
Suite 1102, PO Box 169
Toronto, Ontario M5V 3C7

M • 647.618.2117 | www.potentiarenewables.com

From: Land Use <LandUse@navcanada.ca>
Sent: Wednesday, May 10, 2023 10:35 AM
To: Quinn, Candace M <Candace.Quinn@novascotia.ca>
Cc: Ryan Hearn <rhearn@potentiarenewables.com>
Subject: RE: 23-1893 (22-1684 EA Proposal)

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good Morning,

NAV CANADA has not received an amended submission for this project. You're note below that the turbines will be "to 206.5 m tall" exceeds the previously assessed 194m in file 22-1684.

Please have the revised Ellershouse 3 Wind Project submitted to NAV CANADA Land Use for assessment. File 23-1893 has been created for the submission.

Regards,

Derek Garbutt

Land Use Specialist / Spécialiste d'utilisation de terrains

AERONAUTICAL INFORMATION MANAGEMENT (AIM) NAV CANADA

[Redacted signature block containing multiple lines of blue horizontal bars]

From:
To: [Environment Assessment Web Account](#)
Subject: Proposed Project Comments
Date: May 25, 2023 5:13:16 PM

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: ellershouse-3-wind-project Comments: I have read that by painting one of the turbine blades black makes them much more visible to the birds and greatly reduces the number of bird deaths. Has this been considered and investigated in the planning for this possible turbine development? Name:

Email:

Address:

Municipality: Lahave email_message: Privacy-

Statement: agree x: 57 y: 15

From: [Environment Assessment Web Account](#)
To: [Quinn, Candace M](#)
Subject: FW: Proposed Project Comments
Date: June 15, 2023 7:43:49 AM

From: Environment <Environment@novascotia.ca>
Sent: Wednesday, June 14, 2023 3:36 PM
To: Environment Assessment Web Account <EA@novascotia.ca>
Subject: Proposed Project Comments

Project: ellershouse-3-wind-project Comments: ddfd Name: Email: Address: Municipality:
email_message: Privacy-Statement: agree x: 72 y: 13