DILLON CONSULTING

NATURAL FORCES DEVELOPMENTS LP

Bat and Bat Habitat Appendix 2021-2022

Benjamins Mill Wind Project

December 2022 – 22-4064

December 14, 2022

Natural Forces Developments LP
Benjamins Mill Wind Project
1801 Hollis Street, Suite 1205
Halifax, NS
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Attention: Megan MacIsaac

Bat and Bat Habitat Appendix: 2021-2022 Assessment for the Benjamins Mills Wind Project

Dillon Consulting Limited (Dillon) is pleased to provide you with the final report for the bat and bat habitat assessments conducted as part of the environmental assessment for the Benjamins Mills Wind Project.

We trust the following meets your present needs. If you have any questions or comments, please contact the undersigned at (902)-450-4000 ext. 5052 at your convenience.

Sincerely,

DILLON CONSULTING LIMITED

Kelly Regan, M.Sc.
Project Manager, Associate

KSR:jb:vrt

Our file: 22-4064

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1.0 Introduction

Dillon Consulting (Dillon) was retained by Natural Forces Developments Limited Partnership (the Proponent) on behalf of the Benjamins Mill Wind Limited Partnership to complete natural environment surveys in support of the development of a Nova Scotia Environmental Assessment Registration Document (EARD) and associated Addendum for the Benjamins Mill Wind Project (the Project). The Project is being developed and will be owned and operated by the Benjamins Mill Wind Limited Partnership, a partnership between the Proponent and Wskijnu'k Mtmo'taqnuow Agency Limited (the Agency), a corporate body wholly owned by the 13 Mi'kmaw bands in Nova Scotia. Natural Forces acts on behalf of the Benjamins Mill Wind Limited Partnership for many aspects of Project development.

The proposed Project consists of up to 28 wind turbine generators (WTGs) capable of producing up to 150 MW of renewable energy that will be connected to the existing Nova Scotia Power transmission grid via an overhead transmission line, as well as a substation (Figure 1). The Project is located in an undeveloped fragmented forested area in Hants County near the communities of Smiths Corner and Falls Lake. The WTGs are proposed to be located in areas that have been previously clear-cut through forestry activities, creating a highly fragmented habitat.

The proposed project is located in an area where bat and bat habitat are present and a key environmental concern associated with wind projects is the potential for effects to birds (e.g., barotrauma). Bats, including species at risk (SAR) and species of conservation concern (SoCC), are considered important features and valued environmental components (VECs) related to the proposed Project. Bats and their habitat are valued in their relationship with other wildlife and wildlife habitat, including other biological and physical components addressed as VECs in this environmental assessment (EA). Natural environment surveys for the Project were conducted for VECs that were identified based on an understanding of the environmental features of the proposed project area, the nature of the Project, and the potential interactions that may occur between the proposed project and the environment/VECs.

Taking into consideration the objectives of the EARD, this report provides an effects assessment on bats and bat habitat, and includes: a summary of the baseline bat surveys conducted in support of the Benjamins Mill Wind Project EARD and Addendum, and includes: a brief description of the proposed project; a description of the scope and methodology used for the bat surveys, a summary of the survey results, and, an assessment of residual effects (including potential interactions and mitigation) of the proposed project on bat populations and bat habitat.

1.1 Background

Bats and bat habitat, as well as other wildlife have the potential to be present with the same ecodistrict that the Project is located. The Project is located within the South Mountain eco-district is generally

dominated by Acadian forest tree species. Locally, the site consists of two eco-elements; the spruce hemlock pine hummocks and hills eco-element, and the red and black spruce hummocks eco-element (NSDLF 2019). The majority of the site is covered by the spruce hemlock pine hummocks and hills eco-element, which consists of well drained coarse grained soils. This eco-element is dominated by red spruce (Picea rubens), eastern hemlock (Tsuga canadensis) and eastern white pine (Pinus strobus) in areas with slightly moist soils; and by eastern white pine, red oak (Quercus rubus) and red pine (Pinus resinosa) on the drier hilltops. The remaining portions of the site, which tend to be wetter and consist of imperfectly drained course-grained soils (NSDLF 2019), are characterized by the red and black spruce hummocks eco-element. This eco-element includes late successional shade-tolerant softwoods, such as red spruce and eastern hemlock, along with eastern white pine (NSDFL 2019).

Resident and migratory bat species are known to reside within Nova Scotia and the forest habitats within the Cobequid Hills ecodistrict have the potential to support the life stages of these both populations. Resident (i.e., non-migratory) bats known to reside in Nova Scotia include the little brown myotis (Myotis lucifugus), northern myotis (M. septentrionalis), and tri-coloured bat (Pipistrellus subflavus). All three are small-bodied bats typical of the plain-nosed bats and all three are listed as Endangered under the federal Species at Risk Act (SARA) and the Nova Scotia Endangered Species Act (NSESA). These resident bats live in three different roosting sites: day roosts, night roosts, and hibernacula. Day and night roosts are used during the spring, summer, and fall months, whereas hibernacula sites are used during the winter months. Common hibernacula sites are typically caves and old mining shafts, whereas day and night roosts commonly include tree hollows, spaces between tree bark, rock crevices, buildings, and tree foliage. Migratory bats in Nova Scotia include the hoary bat (Lasiurus cinereus), eastern red bat (Lasiurus borealis), and silver-haired bat (Lasionycteris noctivagans). Migratory bat species are less common in Nova Scotia; however, are known to live in the province for a portion of the year (Moseley 2007). One other bat species, big brown bat (Eptesicus fuscus), is also known to reside in Nova Scotia; however, few sightings have been recorded.

The SARA provides the federal legal protection of wildlife species and the conservation of their biological diversity that aims to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery (GOC 2022). The NSESA protects species in Nova Scotia that have been assessed and determined to be at risk of extinction and prohibits the killing or disturbing species at risk, destroying or disturbing its residence, and destroying or disturbing of core habitat (NSDNRR 2021).

The SARA listing for resident bats is the result of drastic bat population declines that have occurred due to a fungal infection (i.e., white nose syndrome, or WNS) that appears to severely affect cave-dwelling hibernating bats. It is believed that mortalities affecting up to 90% of populations result from interference with hibernation and starvation during the winter period. The syndrome was first observed in 2006 in New York and has been since confirmed in Ontario, Québec, New Brunswick and Nova Scotia (EC 2014).

The existing landscape surrounding the Project location consists of a combination of rolling hills, forested areas in various stages of regeneration due to harvesting activities, lakes, and open fields. The land has largely been forested and therefore has a network of existing forestry access roads throughout and impacted vegetation; however, forested portions of the Project site do exist that are not impacted by forestry activity.

1.2 Purpose and Objectives of the Report

This report provides a summary of the bat and bat habitat surveys that were conducted as part of the biophysical surveys undertaken in support of the Project EARD. The report includes:

- Brief description of the Project;
- Description of the scope and methodology used for the surveys;
- Results of the desktop and field assessments; and
- An assessment of residual effects (including potential interactions and mitigation) of the Project on bats and bat habitat.

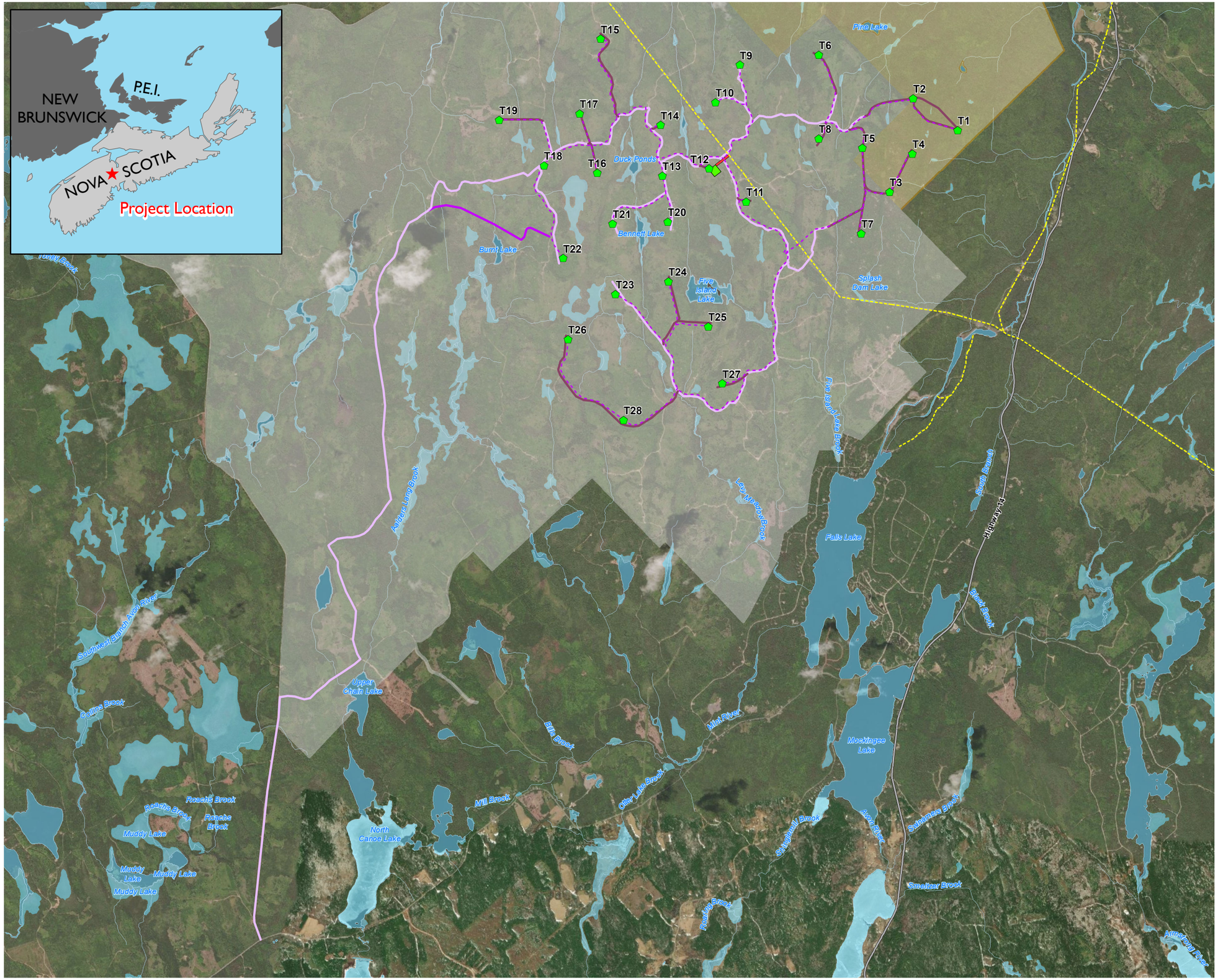
2.0 Project Description

The following is a high-level summary of the Project. Please refer to the Benjamins Mill Wind Project Environmental Assessment Registration Document Addendum (the Addendum) dated December 2022 for further information.

The Benjamins Mill Wind Project (the Project) is located in Hants County, Nova Scotia, approximately 10 km southwest of Windsor, Nova Scotia. The Project is proposed to have an installed capacity of up to 150 MW, amounting to up to 28 wind turbine generators and associated infrastructure, including an electrical substation, collector lines, and overhead transmission line (Figure 1).

The Project will be located predominantly on privately-owned land with only four wind turbine generators (WTGs) located on provincial Crown lands near Highway 14. The privately-owned site lands have undergone several generations of wood harvesting and have a network of existing forestry roads. The provincial Crown lands are largely undisturbed with few existing roads that access the property. In addition, the Project site met crucial factors that determined suitability, which included features such as the strength and consistency of the wind resources and its proximity to existing electrical and civil infrastructure The Project site was selected due to the existing mixed anthropogenic land uses and historical anthropogenic impacts in these areas, in order to minimize impacts to undeveloped lands to the extent feasible.

The purpose of the Project is to contribute to Nova Scotia achieving their renewable electricity targets through the generation of clean and renewable energy. Not only will this have environmental benefits, but will also reduce Nova Scotia's reliance on imported energy sources through the development of a localized renewable energy generation (Renewable Electricity Regulations 2021).



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BENJAMINS MILL PROJECT

PROJECT LOCATION AND SITE LAYOUT

FIGURE 1

- Proposed Turbine Location
- Proposed Substation Location
- Crown Land
- Privately Owned Land
- Proposed Collector Network
- Roads to be Upgraded
- Proposed Access Road
- Proposed Alternative Access Road
- Proposed Interconnection Line
- Transmission Line
- Highway
- Watercourse
- Waterbodies

0 0.25 0.5 1 km

SCALE 1:50,000

N W E S

MAP DRAWING INFORMATION:
DATA PROVIDED BY DILLON CONSULTING, GEONB, NATURAL FORCES

MAP CREATED BY: DU
MAP CHECKED BY: KB
MAP PROJECTION: NAD 1983 UTM ZONE 20N

DILLON CONSULTING

PROJECT: 21-1329
STATUS: DRAFT
DATE: 2022-12-14

FILE LOCATION: K:\2021\211329\Product\Internal\Benjamin_Mills_Figures_2022\BM_F01_ProjectLocation_SiteLayout_2022.mxd

3.0 Scope of Work

The scope of work for the bat and bat habitat biophysical assessments is based upon an understanding of the nature of the assessment areas, as well as the field biologists' experience in assessing similar landscapes. The following surveys protocols and guidance were considered in the design and implementation of the biophysical assessments for bats and bat habitat for the Project:

- During consultation, Nova Scotia Department of Natural Resources and Renewables (NSDNRR) recommended two survey periods: a spring period (May 1 to June 30), and a fall period (August 15 to October 31) (GNS 2022);
- According to the Ontario Ministry of Natural Resources and Forestry Bat Survey Protocol (OMNRFF 2017), acoustic monitoring for breeding bats should occur in the evenings between June 1 and June 30 in order to capture the full suite of migratory and resident bat species that may be present on site;
- The 2009 Pre-Construction Bat Survey Guidelines for Wind Farm Development in New Brunswick (NBDNRE 2009) require acoustic bat surveys for a minimum of one year prior to construction during both the breeding season (June 1 to June 30) and the late summer – early fall migratory period (August 15 to September 15). The guidance advises 40 hours of surveys distributed over a minimum of 10 nights, having a minimum of 4 hours/night for each of the breeding and fall migration season (NBDNRE 2009); and
- The 2009 NBDNRE guidelines require additional pre-construction bat acoustic survey effort if the proposed wind facility and surrounding areas contain high risk habitat features (i.e., within 5 km of a known hibernacula, or potential cave or abandoned mine; within 500 m from a coast line or other major water bodies; or located on or near forested ridge habitats).

The scope of work included surveys conducted over the two survey periods (May 1 to June 30 and August 15 to October 31) over the years 2021 and 2022:

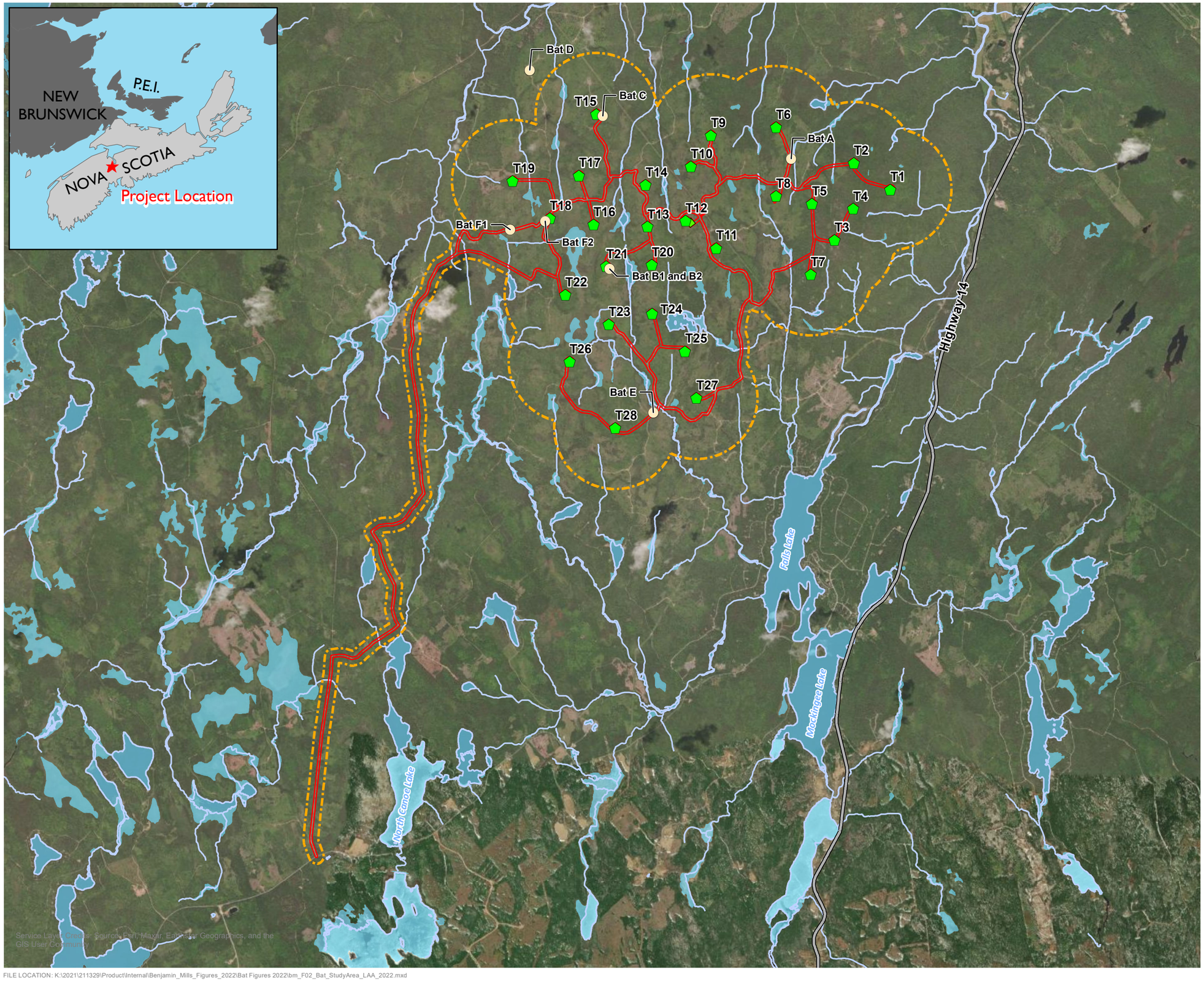
- Background and desktop analysis;
- A high-level assessment of suitable maternity roosting habitat; and
- Pre-construction acoustic monitoring surveys designed to capture the entirety of the breeding season and extend through the fall to capture the migration period. This approach allowed for collection of data which could capture bat activity levels during the vulnerable periods (i.e., breeding and migration) while considering seasonal and temporal variations. The monitoring of two breeding and two migratory periods (2021 and 2022) allowed for a more detailed understanding of the local bat movements and activities in the area.

3.1 Spatial Boundaries

The spatial boundaries have been defined below in Table 1 and are shown on Figure 2. For the purpose of this assessment, the Local Assessment Area (LAA) has been defined as a 120 m buffer area encompassing the access roads and a 1,000 m buffer around each proposed WTG location. A buffer of 1,000 m around the WTG locations was selected as the LAA in alignment with the OMNRF advice to identify bat habitat components that may extend to or within 120 metres of the project location during the records review and in recognition that confirmed habitat can extend as much as 1000 metres beyond an identified point location (OMNR 2011).

Table 1: Spatial Boundaries for the Assessment of Bats and Bat Habitat

Assessment Area	Definition	Purpose of Assessment Area
Potential Development Area (PDA)	The PDA encompasses the Project footprint and a buffer of 15 m on either side of shoulders of the roadways (either existing or new), collector lines and transmission line; a 75 m buffer around the base of each turbine location; and a 25 m buffer around the substation.	Represents the extent of all anticipated areas that could undergo physical disturbance associated with the Project. This area encompasses all of the proposed 28 turbines locations and their associated infrastructure.
Study Area	The PDA and the representative locations selected for the placement of acoustic bat monitors.	The area covered on foot during surveys. Observations in the Study Area are applied to understand potential effects of the Project on the LAA.
Local Assessment Area (LAA)	A 120 m buffer area encompassing the access roads and a 1,000 m buffer around each proposed WTG location.	The anticipated maximum area where Project-specific environmental interactions can be predicted and measured with a reasonable degree of accuracy and confidence (i.e., the zone of influence of the Project phases on each VEC).



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BENJAMINS MILL WIND PROJECT

STUDY AREA AND LOCAL ASSESSMENT AREA FOR BATS

FIGURE 2

- Proposed Turbine Location
- Proposed Substation Location
- Bat Meter Locations
- Potential Development Area (PDA)
- Local Assessment Area (LAA)
- Highway
- Watercourse
- Waterbodies

0 0.25 0.5 1 km

SCALE 1:60,000

N W E S

MAP DRAWING INFORMATION:
DATA PROVIDED BY DILLON CONSULTING, NSDNRR, NATURAL FORCES

MAP CREATED BY: DU
MAP CHECKED BY: KB
MAP PROJECTION: NAD 1983 UTM ZONE 20N

DILLON CONSULTING

PROJECT: 21-1329

STATUS: DRAFT

DATE: 2022-12-14

FILE LOCATION: K:\2021\211329\Product\Internal\Benjamin_Mills_Figures_2022\Bat Figures 2022\bm_F02_Bat_StudyArea_LAA_2022.mxd

4.0 Methods

4.1 Desktop and Habitat Assessment Methods

4.1.1 Desktop Screening for Priority Species

Prior to conducting field work, a high-level desktop screening for priority bat species and habitats within the LAA was completed. The purpose of the screening was to aid in the planning of the field surveys and identify targeted species surveys to include in the bat biophysical assessments. The priority species screening included consultation with NSDNRR wildlife biologists and a desktop analysis, which includes data obtained from a site specific report provided by the Atlantic Canada Conservation Data Centre (AC CDC).

For this EARD, the following definitions apply:

- Species at Risk (abbreviated SAR): A species that is determined to be Endangered, Threatened, or Vulnerable/Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Nova Scotia *Endangered Species Act* (NSESA), or the federal *Species at Risk Act* (SARA); and
- Species of Conservation Concern (abbreviated SoCC): those species that are not SAR but are identified as regionally vulnerable or imperilled by the AC CDC (i.e., those species with AC CDC S-ranks of S1: Critically imperiled in province; S2: Imperiled in province; and S3: Vulnerable) in province of Nova Scotia.

Readily-available information from reputable sources was reviewed to evaluate the potential for bat SAR and SoCC within the LAA. Dillon completed a review of the following sources and data lists for the purpose of characterizing existing conditions at the Project site:

- Atlantic Canada Conservation Data Centre (AC CDC) reports for a list of historical observations of rare fauna and flora within 10 km of the Project centre (AC CDC 2021; 2022);
- The Recovery Strategy for the little brown myotis (*Myotis lucifugus*), the northern myotis (*Myotis septentrionalis*), and the tri-coloured bat (*Perimyotis subflavus*) in Canada (ECCC 2018);
- A review of known caves, mines, and other bat hibernacula (i.e., areas where bats hibernate) was conducted (Moseley 2007; NSDNR 2017); and
- Available mapping was consulted to develop a list of terrestrial habitat types with the potential to be impacted by Project activities and was used to inform the selection of monitoring stations. Approximate extents of different habitat types in the assessment area are presented on **Figure 3**.

Site specific AC CDC reports were generated on May 10, 2021 and September 22, 2022 and include rare and sensitive species historical observations that were reported within 100 km of the PDA Centre. As of May 2014, the AC CDC was mandated by the Nova Scotia Department of Lands and Forestry (NSDLF) to

consider records of certain species as "location-sensitive", including bat hibernacula. This was done in an attempt to reduce the risk that these species will be exploited; as such, the precise locations of these are not openly distributed. The AC CDC does; however, provide information regarding the presence of "location-sensitive" species or features occurring with a defined study area (e.g., within a 10 km search radius from the PDA centre).

4.1.2 Bat Maternity Roost Suitability Assessment

The Bat Maternity Roost Suitability Assessment is a desktop survey based on Phase 1 Bat Habitat Suitability Assessment as identified in the 2017 Ontario Ministry of Natural Resources and Forestry Bat Survey Protocol (OMNRFF 2017) for methods for evaluating wildlife habitat significant to bats. Available digital forestry data and Google Earth imagery were used to evaluate the potential for suitable bat maternity within the LAA. According to the OMNRFF 2017 Protocol, areas of suitable habitat for maternity roosts can be screened based on the presence of mixed-wood forests or hardwood forests and the presence of snags or cavity trees with ≥ 25 cm diameter at breast height (dbh). Ecological Land Classification (ELC) mapping (GNS 2017) was used to identify the locations of forests with ≥ 25 cm dbh within 1,000 m surrounding the PDA (OMNRFF 2017).

4.2 Field Survey Methods

Acoustic bat data were collected from eight acoustic survey stations in 2021 and 2022. The acoustic survey stations were installed at locations within the LAA that were selected to capture the data in representative terrain and habitat types, as well as capture locations that were in proximity to the proposed WTG locations (Figure 2). According to the OMNRFF (2017) Bat Survey Protocol, monitoring for breeding bats should occur in the evenings between June 1 and June 30 in order to capture the full suite of migratory and resident bat species that may be present on-site. Through the environmental assessment consultation process, NSDNRR recommended including two survey periods: a spring period (May 1 to June 30) and a fall period (August 15 to October 31).

Each survey station consisted of either a Wildlife Acoustics SM3BAT, SM4BAT or miniBAT (Wildlife Acoustics 2018, 2022a, 2022b) ultrasonic bat detector; that was equipped with an omni-directional microphone. The detection range for acoustic monitors is affected by humidity, temperature, source directionality, and background noise; in general, most bat species can be detected at a distance of 30 m with an estimated likely maximum of 100 m for a very loud, low frequency bat pointing directly at you in perfect conditions (Wildlife Acoustics 2022c). Bat detectors were programmed as follows:

- Trigger Frequency Minimum: 16 kHz;
- Trigger Frequency Maximum: 192 kHz;
- Trigger Level: Automatic (12dB);
- Sample Night: from dusk to 5 hours after dusk; and
- Gain Level: Automatic (12dB).

The 2021 initial acoustic detectors were mobilized on May 28, 2021 and demobilized on October 20, 2021, and programmed to collected bat activity from June 1 through to October 15 (inclusive) in accordance with the aforementioned parameters. The 2022 acoustic bat detectors were programmed to record bat calls from May 1, 2022 through October 31 (inclusive). The analysis focused on the breeding period (i.e., early May to June 30) and the migratory period (i.e., from August 15 to October 31). The periods of monitoring for each station within the survey dates are summarized in Table 2.

The acoustic monitoring program involved the collection of data within the entire height range of the proposed wind turbine blade sweep area (e.g., 25m – 110m) where feasible. To achieve this, two stations were associated with the existing meteorological tower (MET): one at ground level (< 2 m high) and one approximately 30 m above ground as a mechanism to capture activity data within the blade sweep area. The remaining six acoustic monitoring stations were mounted at ground level (< 2 m high) and the locations of stations were selected in order to capture activity data in the vicinity of turbine clusters and representative habitat types, giving representative coverage of the LAA.

The deployment periods varied through the survey program for reasons such as meter malfunctions, meter relocation and the addition of a survey location during the fall migratory period. A minimum of one year is required for a pre-construction survey in New Brunswick (NBDNRE 2009) In addition to this, following the recommendations provided by NSDNRR on the EARD, two years of survey data were collected in order to ensure sufficient coverage of multiple seasons. Table 2 includes a spatial description and the periods of monitoring for each monitoring station relative to the PDA. Representative photos are presented in Appendix B and the locations of the acoustic monitoring stations are shown on Figure 2.

Table 2: Summary Table of Bat Monitoring Stations and their Location in the Study Area

Acoustic Station ID	Description	Monitoring Periods:
Bat A	Elevation: 1.8 m Equipment: Wildlife Acoustics SM3BAT/SM miniBAT Habitat: Located in an open area on the northeast corner of the subject property. Habitat includes some small immature birch trees, and next to a sizable cliff of bedrock outcropping, which could be a potential bat roosting location.	June 1 – October 15, 2021 Early May – October 31, 2022
Bat B (Ground Level)	Elevation: 1.8 m Equipment: Wildlife Acoustics SM3BAT Habitat: Attached to the MET tower near the centre of the LAA in a relatively flat and open area that was recently clear-cut with minimal re-vegetation	June 1 – October 15, 2021 Early May – October 31, 2022

Acoustic Station ID	Description	Monitoring Periods:
Bat B (Elevated via MET Tower)	Elevation: 30 m Equipment: Wildlife Acoustics SM3BAT Habitat: Attached to the MET tower near the centre of the LAA in a relatively flat and open area that was recently clear-cut with minimal re-vegetation.	June 1 – October 15, 2021 Early May – October 31, 2022
Bat C	Elevation: 1.8 m Equipment: Wildlife Acoustics SM3BAT Habitat: Located in an open area that was part of a clear-cut hardwood stand. The area is revegetated by immature deciduous trees and shrubs.	N/A in 2021 (Location added to 2022 field program to increase study coverage of representative habitats) Early May – October 31, 2022
Bat D	Elevation: 2.3 m Equipment: Wildlife Acoustics SM3Bat Habitat: Located in an open area that was part of a clear-cut hardwood stand in the northwest corner of the subject property. The area is revegetated by immature deciduous trees and shrubs.	June 1 – October 15, 2021 N/A in 2022 (Location discontinued in favour of locations added to program in 2022)
Bat E	Elevation: 1.8 m Equipment: Wildlife Acoustics SM3BAT/ SM miniBAT Habitat: Located in an open area adjacent to a treed swamp and a watercourse. South of the subject property.	June 1 – October 15, 2021 N/A in 2022 (Location discontinued in favour of locations added to program in 2022)
Bat F1	Elevation: 1.8 m Equipment: Wildlife Acoustics SM3BAT/ SM miniBAT Habitat: Located in an open area next to the road with exposed boulders and adjacent to mature softwood trees. East side of the subject property.	June 1 – October 15, 2021 N/A in 2022 (Location discontinued in favour of locations added to program in 2022)
Bat F2	Elevation: 1.8 m Equipment: Wildlife Acoustics SM3BAT/ SM miniBAT Habitat: Located in an open area next to the road with exposed boulders and adjacent to mature softwood trees. East side of the subject property.	N/A in 2021 (Location added to 2022 field program to increase study coverage of representative habitats) Early May – October 31, 2022

Bat acoustic data was analyzed using the automated software Kaleidoscope Pro (Wildlife Acoustics 2022d) with the following settings:

- Minimum number of pulses = 2;
- Division Ratio = 8;
- Time Expansion Factor = 1;
- Duration = 2 – 500 m/s; and
- Frequency Range = 16 – 120 kHz.

Using the automated species identification feature provided by Kaleidoscope Pro, each acoustic file was first identified to species and species groups (where possible), or identified as either NOID (i.e., pulses recorded but unable to identify species) or NOISE (i.e., no pulse recorded). Species/species groups were identified based on maximum frequency, minimum frequency, call duration and shape (Jones and Siemers 2010).

When bats are far from the detectors or at an angle that reduces detectability, calls can become fragmented where the higher frequency components of the calls are not recorded. This confounds the ability to differentiate several species with overlapping call parameters reliably. For example, several myotis species can be differentiated based on the maximum frequency of their calls but not the minimum frequency (Agranat 2012). Although call shape can also aid in differentiating myotis species, shape varies considerably with habitat structure. Bats modify their calls for better long-distance detection in more open habitats and to reduce interference from echoes generated in more cluttered habitat (i.e., within woodlands) (Jones and Siemers 2010). As such, based on the auto ID generated by Kaleidoscope Pro, each of the acoustic files (including NOISE and NOID) was manually reviewed and subsequently classified as follows (van Zyll de Jong 1985):

- LANO/LABO – Silver-haired bat (abbreviated LANO) and eastern red bat (abbreviated LABO). Both of these species are migratory and were assessed together as a group based on similarities of their calls. Silver-haired bats produce calls with a constant frequency (CF) tail around 22 – 25 kHz. Although eastern red bats produce calls with a minimum frequency between 30 – 35 kHz, they also produce calls with lower minimum frequencies within the range of silver-haired Bats; therefore, these species were grouped together. Although big brown bat (abbreviated EPFU) also produces calls with a CF similar to silver-haired bat and are generally reported as EPFU/LANO, given the few sightings reported to date in Nova Scotia, all potential EPFU/LANO calls were assumed LANO; hence the species grouping of LANO/LABO. Both silver-haired bat and eastern red bat are considered migratory species.
- LACI – Hoary bat (abbreviated LACI) is a migratory bat with calls that are reliably differentiated from all other species. Hoary Bat calls have lower frequency (ranging from 25 to 18 kHz) and are noticeably longer in duration compared to other bat species known to occur within the LAA.
- MYOTID SSP – (abbreviated MYOTID) is a species group that includes resident (i.e., non-migratory) bat species in Nova Scotia including little brown myotis, northern myotis, and the tri-colored bat. Unlike the migratory species outlined above, the MYOTID species group of bats produce shorter duration calls with a minimum frequency between 40 – 45 kHz, and maximum frequencies ranging between 120 kHz and 80 kHz. Occasionally, myotis calls can have a minimum call frequency of 35 kHz.

Ecologically, these classifications make sense as hoary bats are typically confined to more open habitat, the LANO/LABO group typically forage in the open and along woodland edges, and the MYOTID SSP are the most agile and therefore may be found in more cluttered environments, near water bodies, and along woodland edges (van Zyll de Jong 1985).

5.0 Results

5.1 Desktop Survey Results

5.1.1 Desktop Screening for Priority Species

According to the AC CDC custom site report, bat hibernaculum and bat species historical occurrences have been recorded within 10 km of the PDA centre (AC CDC 2022). Table 3 summarizes the historical observations of bat SAR and SoCC within 100 km of the PDA reported by the AC CDC.

Table 3: Rare and/or Endangered Bats within 100 km from the PDA Centre (AC CDC 2021; 2022)

Common Name	Scientific Name	S-rank and Conservation Status	No. of Obs.	Distance from PDA Centre to the closest observation (km)
Little Brown Myotis	Myotis lucifugus	S1, Endangered (SARA and NS ESA)	694	9.2
Northern Myotis	Myotis septentrionalis	S1, Endangered (SARA and NB ESA)	84	17.8
Tricolored Bat	Perimyotis subflavus	S1, Endangered (SARA and NS ESA)	200	17.8
Hoary Bat*	Lasiurus cinereus	S1S2B,S1M (no SARA, NS ESA, or COSEWIC listing)	63	17
Vespertilionidae family. Bat species*	Vespertilionidae sp.	S1S2 (no SARA, NS ESA, or COSEWIC listing)	420	6.7

Notes:
Bold indicates a species is considered a SAR
* indicates a species is considered a SoCC
S-rank refers to the Sub-national (Provincial) rank provided by the AC CDC and includes the following: S1 Critically Imperiled, S2 Imperiled, S3 Vulnerable, S4 Apparently Secure, S5 Secure and SU Unrankable. Rankings are frequently paired with the following breeding status qualifiers: B Breeding, N Non-breeding and M Migrant

As mentioned previously, species associated with the MYOTID species group of bats (which include little brown myotis, northern myotis, and tri-coloured bat) were detected during the 2021 and 2022 bat surveys. These bats are known to inhabit much of Nova Scotia, and all three are listed as endangered under both the federal SARA and the NS ESA. Additionally, all three migratory bat SoCC currently undergoing assessment by COSEWIC (i.e., silver-haired bat, eastern red bat, and hoary bat) were detected at the site in 2021.

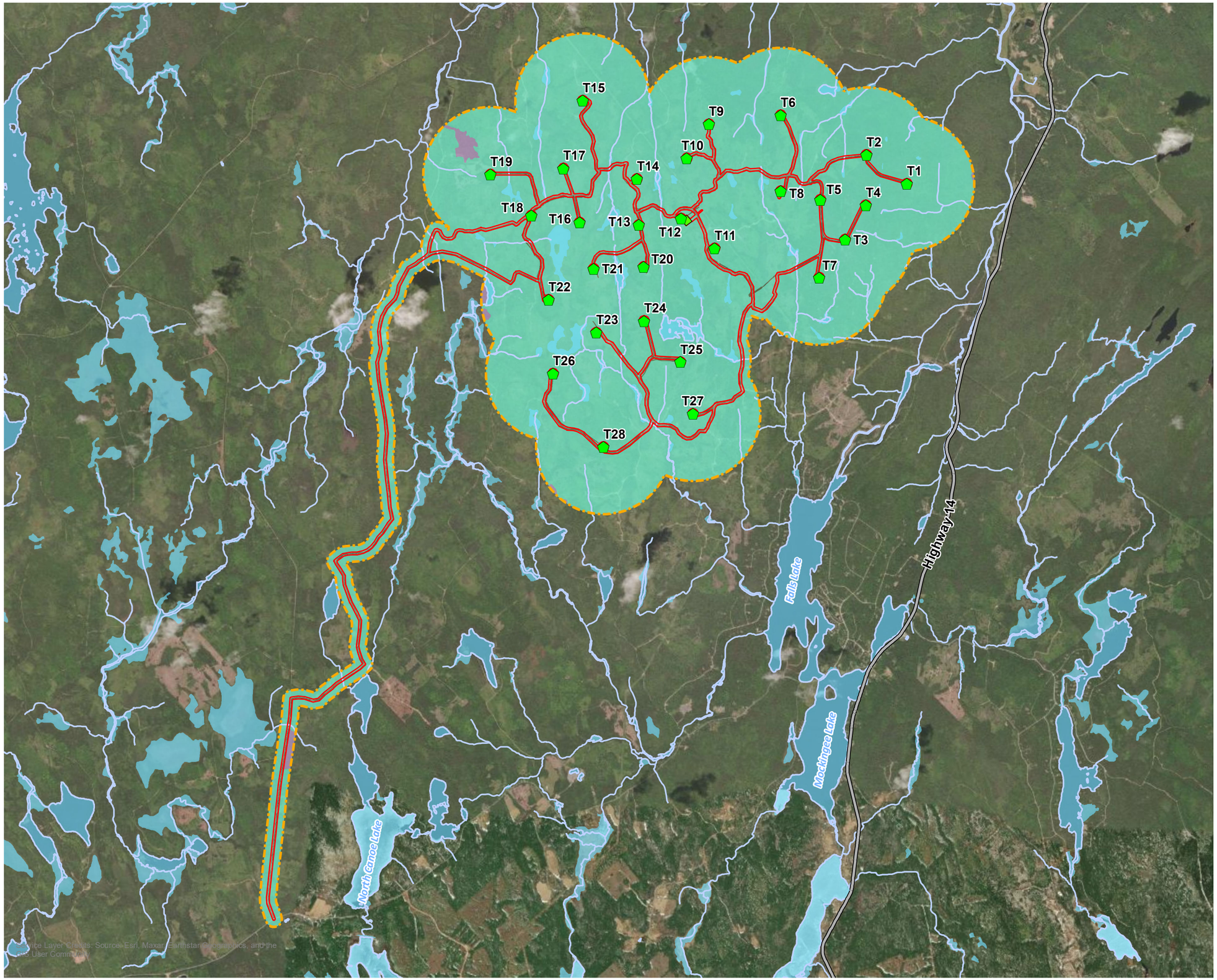
Critical habitat for little brown myotis, northern myotis, and/or tri-coloured bat includes any site where hibernation by these bat species has been observed at least once between 1995 and 2018 (ECCC 2018). Hibernacula are required for these bats to survive when ambient temperatures decline and insects are unavailable (Ontario Ministry of Natural Resources 2010, COSEWIC 2013). Hibernacula for these species can include caves, abandoned mines, hand-dug wells, cellars, tunnels, rock crevices, or tree root hollows where light and noise levels are low and can support relatively stable temperatures (2-10˚C) and high humidity levels (> 80 %) (ECCC 2018). Maternity roosts are used for giving birth and rearing young and are considered to be important habitat but are not yet officially recognized as critical habitat (ECCC 2018).

Critical habitat for bats in Atlantic Canada are mapped but the locations are not shared publicly. The AC CDC did not identify any known bat hibernacula within 10 km of the PDA centre (AC CDC 2021; 2022). Based on the Environment and Climate Change Canada (ECCC) Recovery Plan for little brown myotis, northern myotis, and tri-coloured bat (ECCC 2018), which uses a 10 km x 10 km grid to buffer known locations of hibernacula, critical bat habitat is present approximately 6 km east of the nearest Project WTG location.

5.1.2 Bat Maternity Roost Suitability Desktop Assessment

To date, only hibernacula sites (and not maternity-roosting sites) have been designated as critical habitat for bats (ECCC 2018). Hibernacula are used by SAR bats to survive when temperatures decline and insects are unavailable (ECCC 2018) and therefore are necessary for the ongoing survival and eventual recovery of these species. The importance of maternity roosts to the survival and recovery of these three species of bats is evident; however, the locations of the vast majority of maternity roosts are currently either unknown or undocumented, or the data are unavailable to ECCC. The criteria for identifying which maternity roosts would be considered as critical habitat would likely consider species, number of individuals using the roost, whether the roost is within a WNS-affected area, and the number of other known maternity roosts in the vicinity (ECCC 2018).

Little brown myotis and northern myotis are known to form roosts in forests and swamps with softwood trees (Foster and Kurta 1999). The locations of mixed-wood or hardwood forest stands with average dbh large enough are shown on Figure 3, based on available digital forestry data. Although the stand boundaries were reviewed using and Google Earth imagery and observations from the field surveys conducted in 2021 and 2022, there are active forestry practices in the area and the forest stands are expected to change. With the exception of a stand identified along an existing road (Hingley Road), none of the desktop identified stands with average dbh over 25 cm were identified within the PDA.



Natural Forces

BENJAMINS MILL WIND PROJECT

ASSESSMENT OF POTENTIAL SUITABLE BAT MATERNITY ROOST STANDS

FIGURE 3

- Proposed Turbine Location
- Proposed Substation
- Potential Development Area (PDA)
- Local Assessment Area (LAA)
- Highway
- Watercourse
- Waterbodies
- Forest (Average DBH > 25 cm)
- Forest (Average DBH < 25 cm)

0 0.25 0.5 1 km

SCALE 1:55,000

N W E S

MAP DRAWING INFORMATION:
DATA PROVIDED BY DILLON CONSULTING, NSDNRR, NATURAL FORCES

MAP CREATED BY: DU
MAP CHECKED BY: KB
MAP PROJECTION: NAD 1983 UTM ZONE 20N

DILLON CONSULTING

PROJECT: 21-1329
STATUS: DRAFT
DATE: 2022-12-14

FILE LOCATION: K:\2021\211329\Product\Internal\Benjamin_Mills_Figures_2022\Bat Figures 2022\bm_F03_Bat_Potential_Suitable_Maternity_Roost_Stands_2022.mxd

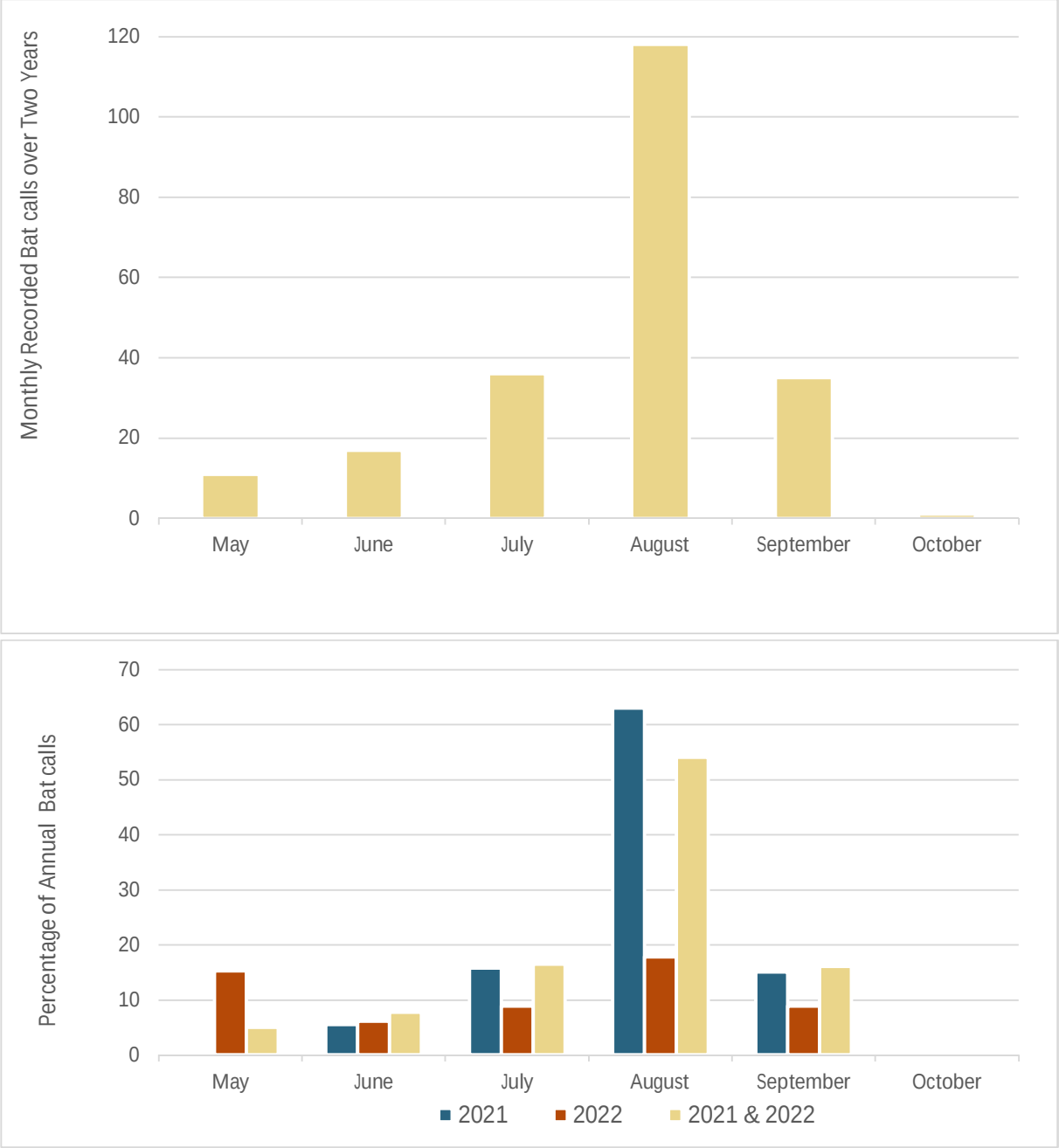
5.2 Field Survey Results

The results of the two-year acoustic survey are presented in the sections below. A survey data summary, including a breakdown of the number of bat passes by month and monitoring year are included in Appendix A.

The number of passes per month recorded during the 2021 and 2022 bat monitoring programs are presented below in Figure 4. Based on data collected in 2021, peak bat activity was recorded between August and September 2021. Of the 146 bat passes recorded during the June 1 to October 15, 2021 monitoring period, 79% (or 115 bat passes) were recorded between August 1 and October 15, 2021. The month of August alone was responsible for 63% (or 92 bat passes) of the 146 recorded bat passes. Fewer bat passes were recorded during the 2022 monitoring season, less than half of the number recorded in 2021 (72 in 2022 vs 146 in 2021). The monthly percentage of passes in 2022 also presented a more even distribution, with more activity recorded in May and August (15% and 17% respectively).

The comparatively high number of passes recorded during the month of August, 2021 may be attributed to the differences in station locations between monitoring years. As described in Table 2, acoustic stations Bat D, E, and F were discontinued in 2022 due to changes in the PDA. These three stations accounted for 45 of the 92 bat passes recorded in August 2021 (refer to Appendix A). The new monitoring locations chosen to reflect the PDA in 2022 may not have been in areas of as high bat activity as those three stations from 2021.

Figure 4: Percentage of Annual Recorded Bat Passes by Month in 2021 and 2022



Notes:
1. Top: Figure includes monthly recorded bat calls collected between June 1 2021 and October 31 2022.
2. Bottom: Figure includes monthly recorded bat calls collected between June 1 and October 15, 2021 and May 1 and October 31 2022.

5.2.1 2021 Results

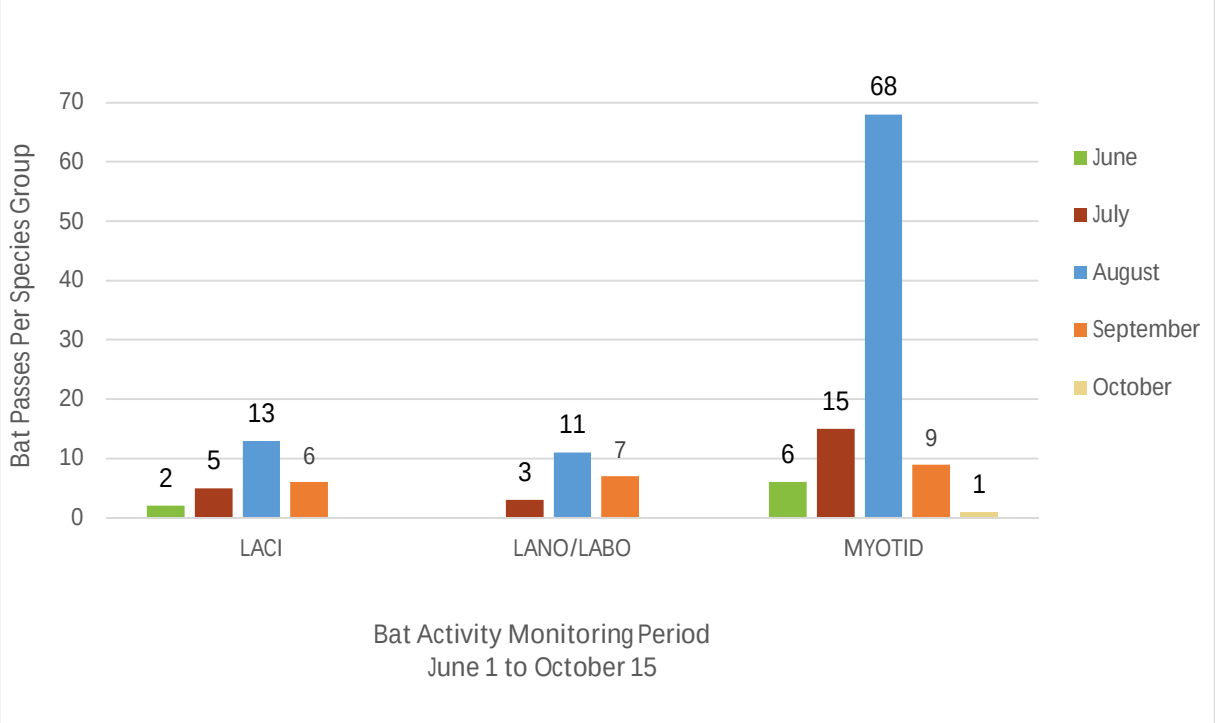
In 2021, 31 bat passes were detected during the breeding period (recorded June 1 through July 31 in 2021). The 31 passes comprised of 21 MYOTID bats species (i.e., resident species) and 10 migratory bats.

A total of 115 bat passes were recorded in 2021 between August 1 and October 15 (targeting the fall migration period for migratory bats), 37 bat passes were from migratory bat species.

The total number of bat passes per species/species group (and broken down by migratory and non-migratory species) per month in 2021 is presented in Figure 5. As illustrated in Figure 5, the MYOTID species group accounted for 68% (or 99 bat passes) of the 146 bat passes recorded during the survey period, of which 69% (or 68 bat passes) of the 99 MYOTID passes occurred during the month of August alone. Based on the automated species identification feature provided by Kaleidoscope Pro (Wildlife Acoustics), the majority of the MYOTID passes (94 passes, or 95%) were from the little brown myotis; the remaining five passes were identified as tri-coloured bat. These two-bat species are considered to be resident species on Nova Scotia and are listed as Endangered under both the federal SARA and the NS ESA

Migratory bats recorded in 2021 included 21 passes from either silver-haired bats or eastern red bats, which were assessed together as a group based on similarities of their passes (abbreviated as LANO/LABO), and 26 passes from hoary bats (abbreviated as LACI).

Figure 5: Number of Bat Passes Recorded in 2021 by Species and Species Grouping



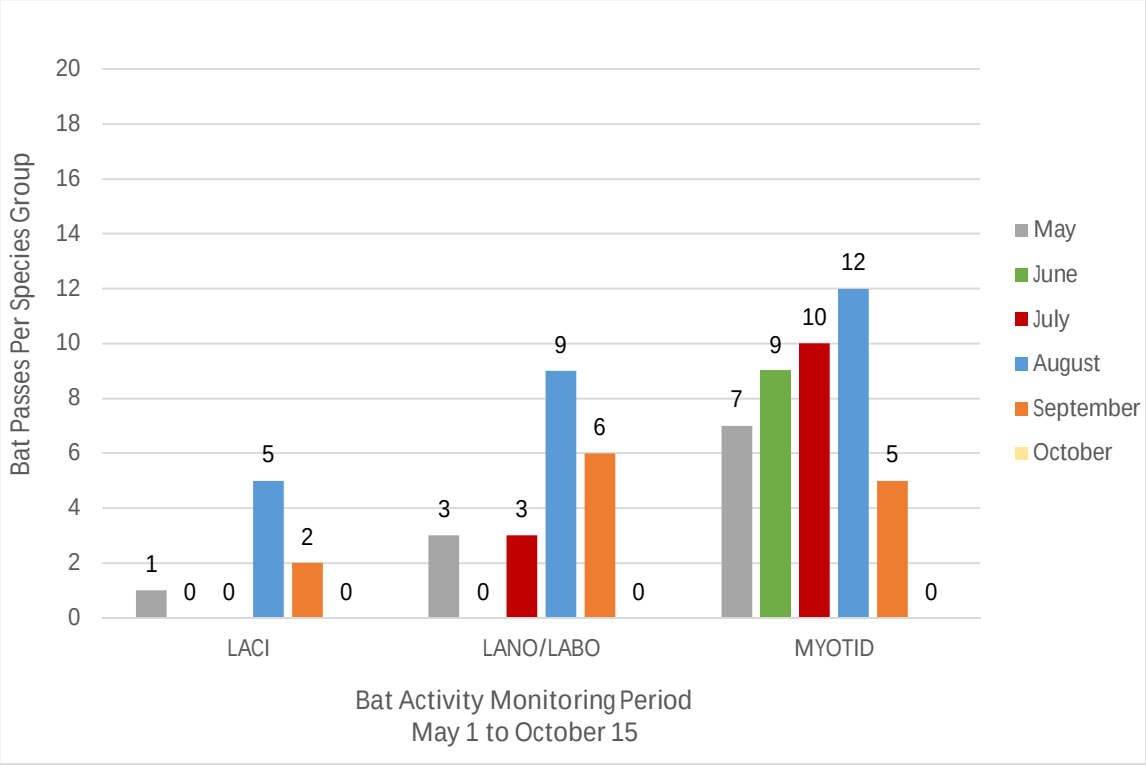
5.2.2 2022 Results

In 2022, 33 bat passes were detected during the breeding period (recorded May 1 through July 31, 2022). The 33 passes comprised of 25 MYOTID bats species (i.e., resident species) and 7 migratory bat passes. A total of 39 bat passes were recorded in 2022 between August 1 and October 31 (targeting the fall migration period for migratory bats), 22 passes were from migratory bat species.

The total number of bat passes per species/species group (and broken down by migratory and non-migratory species) per month in 2022 is presented in Figure 6. As illustrated in Figure 6, the MYOTID species group accounted for 60% (or 43 bat passes) of the 72 bat passes recorded during the survey period, of which 28% (or 12 bat passes) of the 43 MYOTID passes occurred during the month of August. Based on the automated species identification feature provided by Kaleidoscope Pro (Wildlife Acoustics), all of the MYOTID passes were from the little brown myotis. These three-bat species are considered to be resident species on Nova Scotia and are listed as Endangered under both the federal SARA and the NSESA.

Migratory bats recorded in 2022 included 21 passes from either silver-haired bats or eastern red bats, which were assessed together as a group based on similarities of their passes (abbreviated as LANO/LABO), and 8 passes from Hoary Bats (abbreviated as LACI).

Figure 6: Number of Bat Passes Recorded in 2022 by Species and Species Grouping



5.3 Assessment Conclusions

The following bat species/species groups were detected during the 2021/2022 bat acoustic survey program:

- Silver-haired bat and eastern red bat, (these species were assessed together as a group based on similarities of their passes);
- Hoary bat; and
- MYOTID bat species (i.e., little brown myotis, northern myotis, and tri-coloured bat).

As mentioned previously, species associated with the MYOTID species group of bats (which include little brown myotis, northern myotis, and tri-coloured bat) were detected during the 2021 and 2022 bat surveys. These bats are known to inhabit much of Nova Scotia, and all three are listed as Endangered under both the federal SARA and the NS ESA. Critical habitat for little brown myotis, northern myotis, and/or tri-coloured bat (e.g., hibernacula) were not identified within the PDA. Hibernating bats are known to travel several hundreds of kilometres between overwintering and breeding locations. However, only approximately one third of detections of SARA-listed bats detected during the two-year acoustic monitoring program were during the breeding season (i.e., 47 passes or 33% of SARA-list bat species detected occurred May1-July-31 in 2021 and 2022).

All three migratory bat SoCC currently undergoing assessment by COSEWIC (i.e., Silver-haired Bat, Eastern Red Bat, and Hoary Bat) were detected at the site between 2021 and 2022. The locations of two mixed-wood or hardwood forest stands with average dbh large enough support bat maternity roosting were identified using and Google Earth imagery and observations from the field surveys conducted in 2021 and 2022 (see Figure 3). There are active forestry practices in the area and the forest stands are expected to change. Based on the information available, maternity roosts within 1,000 m of the WTGs are considered to be possible but unlikely. The majority of detections were recorded in the late summer/fall as bats move towards swarming and overwintering sites.

Based on Dillon's experience on similar bat acoustic programs throughout the country, the total number of bat passes (during the breeding period, fall migration, and entire survey period) are considered very low. Population benchmark guidelines for bats within Nova Scotia are not currently available; therefore, an assessment of how the bat populations in the PDA compare to the regional area is subjective and based on professional opinion only. As discussed above, drastic bat population declines that have occurred throughout Nova Scotia due to a fungal infection (i.e., white nose syndrome, or WNS) that appears to severely affect cave-dwelling hibernating bats. It is believed that mortalities affecting up to 90% of populations result from interference with hibernation and starvation during the winter period. The syndrome was first observed in 2006 in New York and has been since confirmed in Ontario, Québec, New Brunswick and Nova Scotia (EC 2014).

6.0 Effect Assessment and Mitigation Recommendations

6.1 Identification of Project Interactions

Bats have been identified as one of the biophysical VECs because of their relationship with other biological and physical components addressed as VECs, as well as the potential impacts on bats that the Project can have during all phases of the Project. Bat activity was surveyed in the field using acoustic bat monitors, as discussed above in Section 4.2. During the two-year acoustic bat monitoring program, 146 bat passes were detected in 2021 and 72 passes were detected in 2022. Both migratory and resident bat species were detected, all of which are either SAR or SoCC. Based on Dillon's experience on similar bat acoustic programs throughout the country, and in consideration of the survey level of effort (i.e., number of monitoring stations), the total number of bat passes (during the breeding period, fall migration, and entire survey period) are considered very low for both 2021 and 2022.

Anticipated effects to bats can be predicted based on the nature of the Project and effects to bats on similar projects in the region. The identification of anticipated potential interactions between the Project and bats or bat habitat is presented below.

6.1.1 Approach to Project Components

The Project has three main distinct phases, during each of which the potential interactions with the surrounding environment are considered distinct. Unplanned events are considered separately from the phases.

The phases of the Project include:

1. Planning, Site Preparation and Construction Phase;
2. Operation Phase; and
3. Decommissioning Phase.

The Project interaction matrix in Table 4 is used as an initial screening to assist in determining if it is possible that there could be an interaction between the activities being carried out in each phase of the Project and bats and their habitat.

Table 4: Project Interactions with Environmental Components

Valued Environmental Component	Project Phases			
	Planning, Site Preparation and Construction Phase	Operation Phase	Decommissioning Phase	Unplanned Events
Bats and Bat Habitat	✓	✓	✓	✓

Legend: ✓ = Potential interaction identified

Those Project phases for which a checkmark is provided indicates that the Project may interact with bats and bat habitat, and thus an environmental effects assessment is warranted. In this case, it is possible that interactions could occur during each phase of the Project, as well as due to unplanned events, which are all discussed below.

6.1.2 Identification of Potential Environmental Effects

The mortality rate of bats due to collision and/or habitat loss cannot be accurately predicted as there is little correlation between pre-construction activity levels and operational mortality. However, industry standards, technology and more robust biophysical assessments have improved understanding of the potential interactions between wind projects and wildlife. Without mitigation, the Project is anticipated to interact with bats and/or bat habitat and cause environmental effects in the following ways:

- Temporary disturbance, or displacement from surrounding habitat, during Project construction and decommissioning activities due to increased human presence, noise and anthropogenic footprint;
- Loss of habitat due to Project infrastructure and crane pads during construction, operation, and decommissioning;
- Fatalities due to barotrauma or collisions with turbine towers or blades or the transmission line infrastructure during the operation; and
- Modifications to existing flight paths as bats avoid the PDA or are attracted to the area by tower lights during the operation.

The potential interactions of the Project on bats and bat habitat and the proposed mitigation measures are summarized in Table 5.

6.1.3 Standard Mitigation for Potential Environmental Effects

Standard mitigation has been identified for the anticipated interaction and/or effect in relation to bats and bat habitat in an attempt to prevent the interaction from occurring if possible, or to reduce the magnitude, geographic extent, frequency, duration, reversibility, or ecological/socioeconomic context of the interaction. Best management practices (based on industry guidelines and regulatory guidance documents) have been proposed as mitigation measures. In addition, several acts, codes, regulations and guidelines may require appropriate actions be conducted to mitigate impacts prior to or during the interaction.

The federal and provincial legislation and codes that could apply to the Project include (but may not be limited to):

- *Canadian Environmental Protection Act* and regulations (EC 1999);
- *Species at Risk Act* (EC 2002);
- *Transportation of Dangerous Goods Act*, and regulations (TC 1992);
- Nova Scotia *Environment Act* and regulations (NSG 1994-95);
- Nova Scotia *Endangered Species Act*, and regulations (NSG 1998a);
- Nova Scotia *Wilderness Areas Protection Act* (NSG 1998b), and regulations; and
- Contingency Planning Guidelines (NSECC 2021).

Under the Species at Risk Act (SARA), general prohibitions apply regarding any SARA-listed bat (or other) species to the Proponent, staff and contractors. Personnel associated with all phases of the Project are to be made aware that no person shall:

- Kill, harm, harass, capture or take an individual species at risk (SAR);
- Possess, collect, buy, sell or trade an individual, or any part or derivative; and
- Damage or destroy the residence of one or more individuals.

To further reduce the likelihood of interactions between any phase of the Project and bats and bat habitat, the mitigation measures, summarized below in Table 5 will be followed.

Table 5: Potential Interactions and Proposed Mitigation for Bats and Bat Habitat

Potential Interactions with Bats and Bat Habitat	Proposed Mitigation Measures
Temporary disturbance, or displacement from surrounding habitat, during Project construction and decommissioning activities due to increased human presence, noise and anthropogenic footprint. Loss of habitat due to Project infrastructure and crane pads during construction, operation, and decommissioning	1. The Project footprint will be limited to that which is necessary to enable the Project to be carried out. 2. Vegetation will be retained where possible to maintain bats and bat habitat. 3. Any revegetation of a reclaimed site will be either naturally occurring or using native local vegetation in consultation with the landowner. 4. Existing roads and trails will be utilized to limit disturbance outside the Project footprint and minimize the interactions with bats and bat habitat. 5. Workers, particularly the on-site environmental monitor, will be familiarized with the bat SAR/SoCC identified as having the potential to occur on site prior to work commencing. 6. Should a bat SAR/SoCC be identified during Project activities, a buffer will be maintained, and additional mitigation measures will be developed in consultation with NSDNRR. 7. Bat SAR observations will be submitted to the Atlantic Canada Conservation Data Centre, following the directions on how to contribute data found at http://accdc.com/en/contribute.html
Fatalities due to barotrauma or collisions with turbine towers or blades or the transmission line infrastructure during the operation.	1. A comprehensive Adaptive Management Plan will be developed and implemented in consultation with NSDNRR and CWS, including a follow up bat mortality survey will be conducted after the Project commissioning and appropriate actions will be taken in consultation with NSDNRR and Canadian Wildlife Service (CWS) should there be a significant negative impact to bats; 2. Non-operational towers shall be dismantled if not expected to be put back into operation; and 3. Lighting installed on the turbines will follow, but not exceed, the Transport Canada requirements.
Modifications to existing flight paths as bats avoid the PDA or are attracted to the area by tower lights during the operation	1. Mitigative measures #2 and #3 for potential bat fatalities are also applicable for potential modifications to flight paths.

A post-construction bird mortality survey will be conducted and appropriate actions will be taken in consultation with CWS and NSDNRR and in accordance to proposed mitigation measures described above in Table 5.

6.2 Residual Environmental Effects

A residual environmental effect is an environmental effect of a project that remains, or is predicted to remain, after mitigation measures have been implemented.

The mitigation measures listed in Table 5 (above) will minimize or prevent habitat loss, disturbance, or displacement of bats from surrounding habitat during Project construction and decommissioning

activities by limiting noise and prioritizing development within areas of existing anthropogenic disturbances.

Disturbance of bat habitat has the potential to occur during the construction and operation phases of the Project. However, due to the low number of bat passes recorded at the Project site, limited predicted impacts to the habitat, the implementation of planned mitigation, and careful development of contingency and emergency response plans, it is anticipated that effects related to the Project will not be substantive.

Fatalities due to barotrauma or collisions with turbine towers or blades or the transmission line infrastructure during the operation will be monitored. Post-construction monitoring for bat mortality during operation will also verify the effect the Project has on bats. Should a significant amount of bat mortality be observed following the post construction surveys, the Proponent will follow the Adaptive Management Plan presented with the Benjamins Mills Wind Project Addendum (2022) and engage regulatory authorities in applying additional mitigation measures.

6.3 Cumulative Environmental Effects

Cumulative effects are changes to the environment that are caused by an action in combination with other past, present and future human actions (Hegmann et al. 1999). Nearby wind energy projects to the Project include the South Canoe Lake Wind Energy Project, the Martock Ridge Wind Project and the Ellershouse Wind Project.

The South Canoe Lake Wind Energy Project is a 34-turbine project located approximately 8 km south-southwest of the Project. The Martock Ridge Wind Project (3 turbines) and the Ellershouse Wind Project (10 turbines) are located 8.6 km and 16 km east-northeast of the Project, respectively. The distances between these projects and the Project (i.e., outside of the LAAs for all VECs) suggests the potential for interaction between the residual effects of the combined projects is low. Regional population-wide effects due to the individual residual effects of each project could occur. However, population level impacts are unlikely, provided that highly sensitive or rare habitats, hibernacula, as well as concentration areas for species at risk, have been avoided by this Project.

In order to further mitigate risk to bats during the Project phases, there will be a concerted effort to use existing corridors found on-site, to limit over story removal, and vegetation management.

Additional anthropogenic activities and developments near the Project include, but are not limited to:

- Historic and ongoing forestry activities within and adjacent to the Project area;
- Historic operation of pits and quarries within and adjacent to the Project area;
- Existing major transmission line corridor adjacent to the Project area;
- Existing telecommunication towers and associated infrastructure, including overhead power lines and access roads;

- Existing local roads, provincial roads, and Trans-Canada highway;
- Hunting activities within and adjacent to the Project area; and
- Operation of motorized vehicles (heavy equipment, passenger vehicles, and recreational vehicles including All Terrain Vehicles and snowmobiles) within and adjacent to the Project area.

The anticipated cumulative effects to residential and migratory bats are anticipated to be low. By following the Adaptive Management Plan and through engagement of regulatory authorities regional population-wide effects due to the cumulative residual effects of each existing land uses are considered unlikely. In order to further mitigate risk to bat habitat during the Project phases, there will be a concerted effort to use existing corridors found on site, to limit over story removal, and vegetation management.

7.0 Summary and Conclusion

This report has been prepared for the EARD of the Benjamins Mill Wind Project. The Project is expected to provide renewable electricity to Nova Scotia and support Nova Scotia Power in attaining their future renewable energy targets.

The information provided in this document is based on the current available design/planning information and existing environment information obtained during focused field surveys conducted throughout 2021 and 2022. Based on the results of the desktop and field surveys for bats, it was concluded that the potential for bats to roost within the LAA is very low; however, they are known to be present in greater numbers during August. Based on the anticipated effects on bats, residual effects that may occur as a result of the construction and operation phases of the Project, although the effects are expected to be of low magnitude and be reversible.

In order to further mitigate risk to local and migratory bats during the Project phases, there will be a concerted effort to use existing corridors found on site, to limit over story removal, and vegetation management. Additionally, a comprehensive construction and post monitoring plan will be developed and will include monitoring for bat mortality.

8.0 Closure

This report was prepared by Dillon Consulting Limited (Dillon) for Natural Forces Developments Limited Partnership (the Proponent) on behalf of the Benjamins Mill Wind Limited Partnership, in support of the Benjamins Mill Wind Project Addendum (2022). Dillon has used the degree of care and skill ordinarily exercised under similar circumstances at the time the work was performed by reputable members of the environmental consulting profession practicing in Canada. Dillon assumes no responsibility for conditions which were beyond its scope of work. There is no warranty expressed or implied by Dillon.

The material in the report reflects Dillon's best judgment in light of the information available to Dillon at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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Appendix A

Data Summary

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Table A.1: Number of Bat Passes by Species/Species Group per Monitoring Station – 2021

LOCATION A	June	July	August	September	October -15	Total
LACI		1	3			4
LANO/LABO		1	1			2
MYOTID	1	2	13	2	1	19
total	1	4	17	2	1	25
LOCATION D	June	July	August	September	October - 15	Total
LACI		2		4		6
LANO/LABO			1	2		3
MYOTID		3	19	2		24
total	0	5	20	8	0	33
LOCATION E	June	July	August	September	October - 15	Total
LACI	2	2	3	1		8
LANO/LABO			4	1		5
MYOTID	4	3	6	1		14
total	6	5	13	3	0	27
LOCATION F	June	July	August	September	October - 15	Total
LACI			3	1		4
LANO/LABO		1	2	2		5
MYOTID	1	3	7	2		13
total	1	4	12	5	0	22
LOCATION MET (B)	June	July	August	September	October - 15	Total
GROUND LEVEL						
LACI			2			2
LANO/LABO				1		1
MYOTID		4	13	1		18
total	0	4	15	2	0	21
~30 m ABOVE GROUND						
LACI			2			2
LANO/LABO		1	3	1		5
MYOTID			10	1		11
total	0	1	15	2	0	18
TOTAL	8	23	92	22	1	146

Table A.2: Number of Bat Passes by Species/Species Group per Monitoring Station – 2022

LOCATION A	May	June	July	August	September	Grand Total
LACI				4		4
LANO/LABO			1	2	2	5
MYLU		1	1			2
total	0	1	2	6	2	11
LOCATION B (MET)	**May**	**June**	**July**	**August**	**September**	**Grand Total**
Ground Level						
LANO/LABO				1	1	2
MYLU	2	2	5	4	2	15
total	2	2	5	5	3	17
Elevated Level						
LANO/LABO				1	1	2
MYLU	2	2	1	4	0	9
total	2	2	1	5	1	11
LOCATION C	**May**	**June**	**July**	**August**	**September**	**Grand Total**
LACI				1		1
LANO/LABO	1			3	1	5
MYLU	2	3	3	4	2	14
total	3	3	3	8	3	20
LOCATION F2	**May**	**June**	**July**	**August**	**September**	**Grand Total**
LACI	1				2	3
LANO/LABO	2		2	2	1	7
MYLU	1	1			1	3
total	4	1	2	2	4	13

Appendix B

Photographs

DILLON CONSULTING

Bat A: open area in the northeast corner of the PDA. Some small immature trees present. Near bedrock outcropping (potential bat roosting location)

Bat B: open area in the center of the PDA (Met Tower). Flat, recently clear-cut, minimal revegetation.

Bat C: open area in the northern part of the PDA. Part of clear-cut hardwood stand. Revegetated by immature deciduous trees and shrubs

Bat F2: open area in the eastern part of the PDA. Next to a road with exposed boulders and mature softwood trees.