

NATURAL FORCES DEVELOPMENTS LP

Wildlife Appendix 2021-2022

Westchester Wind Project





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December 9, 2022

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Attention: Megan MacIsaac

Wildlife Appendix: 2021 -2022 Wildlife and Wildlife Habitat Assessment for the Westchester Wind Project

Dillon Consulting Limited (Dillon) is pleased to provide you with the final report for the wildlife and wildlife habitat assessments conducted as part of the environmental assessment for the Westchester 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 Enclosure

Our file: 22-4065

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1.0 Introduction

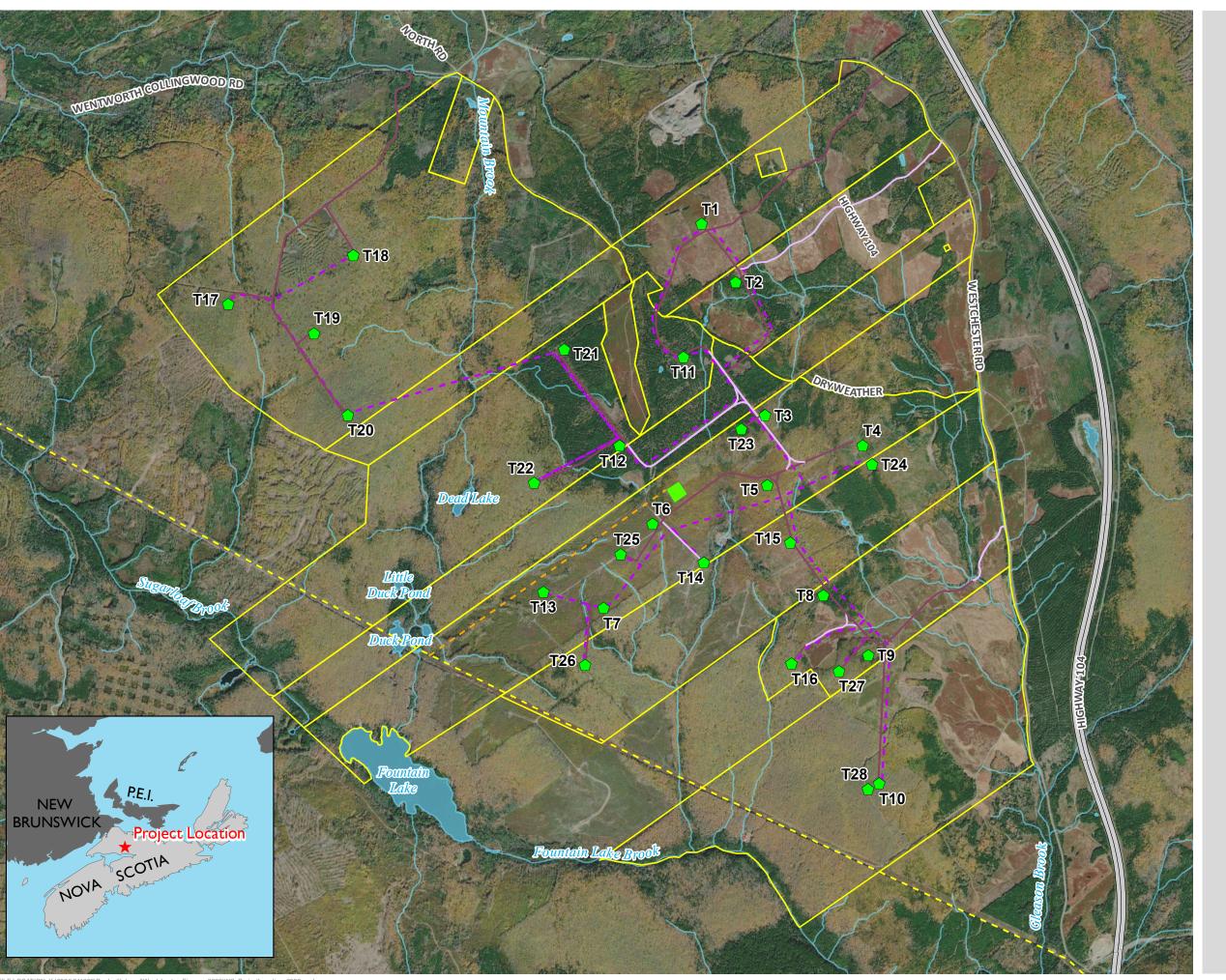
Dillon Consulting (Dillon) was retained by Natural Forces Developments Limited Partnership (the Proponent) on behalf of the Westchester Wind Limited Partnership to complete natural environment surveys in support of the development of a Nova Scotia Environmental Assessment Registration Document (EARD) and associated Addendum for the Westchester Wind Project (the Project). The Project is being developed and will be owned and operated by the Westchester Wind Limited Partnership, a partnership between Natural Forces Developments Limited Partnership (referred to herein as the Proponent or Natural Forces) 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 Westchester Wind Limited Partnership for many aspects of Project development.

The Project consists of up to 12 wind turbine generators (WTGs) capable of producing up to 50 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 on a mixture of privately owned blueberry fields, previously forested land and undeveloped forested land in Cumberland County near the communities of Westchester Station, Rose, and Londonderry. It is located in an area where wildlife and wildlife habitat are present and a key environmental concern associated with wind projects is the potential for effects to wildlife and wildlife habitat. Wildlife and wildlife habitat, 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.

The proposed project is located in an area where wildlife and wildlife habitat are present. Wildlife and wildlife habitat are considered important features and valued environmental components (VECs) because they 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 wildlife and wildlife habitat, and includes: a brief overview of the proposed Project; a description of the scope and methodology used for the wildlife and wildlife habitat surveys; a summary of the survey results; and, an assessment of residual effects (including potential interactions and mitigation) of the proposed Project on wildlife and wildlife habitat.





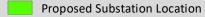


WESTCHESTER WIND PROJECT

PROJECT LOCATION AND SITE LAYOUT

FIGURE 1

Proposed Turbine Location



Property Lines

Roads to be Upgraded Proposed Access Roads

- - · Proposed Collector Network

Proposed Interconnection Line

Transmission Line

— Highway

Watercourse

Waterbody

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

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PROJECT: 21-1329

STATUS: DRAFT DATE: 2022-12-09

1.1 Background

1.2

The Project is located in an area that are highly fragmented habitat consisting of active and historical forestry activities, privately owned blueberry fields and undeveloped forested land. The Project site was selected due to the existing mixed anthropogenic land uses and impacts over these areas, in order to minimize impacts to undeveloped lands as much as feasible. The region where the Project site is located within is generally characterized by late successional Acadian shade tolerant hardwood forests (Neily et al. 2017). At higher elevations within this ecodistrict, such as those within the proposed Potential Development Area (PDA), softwood stands occur on moist, level terrain, with shade tolerant mixedwood forests found along steep-sided ravines (Neily et al. 2017).

There is potential for interactions between wildlife, its habitat, and the proposed Project activities. Particular focus is placed on wildlife species at risk (SAR) and species of conservation concern (SOCC) as identified by provincial and federal regulatory agencies. SAR/SOCC are often susceptible to changes in the environment and, therefore, are useful indicators of ecosystem health and regional biodiversity. Both provincial and federal legislation provides protections to designated fauna SAR. SAR are protected under the federal *Species at Risk Act* (SARA) and the Nova Scotia *Endangered Species Act* (ESA). . Although the Project layout was designed to minimize the disturbance of naturalized areas as well as prioritizing development in areas with existing anthropogenic disturbance, some areas within the proposed footprint for the Project will extend through less disturbed habitat types, including areas with mature trees, wetlands, and watercourses.

Purpose and Objectives of the Report

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

- Brief description of the Project;
- Description of the scope and methods used for the surveys;
- The results of the desktop and field assessment; and,
- An assessment of residual effects (including potential interactions and mitigation) of the proposed
 Project on wildlife and wildlife habitats.



2.0 **Project Description**

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

The Project is located on Westchester Mountain in Cumberland County, Nova Scotia. The Project is proposed to have an installed capacity of up to 50 MW, amounting to up to 12 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 lands used for blueberry farming, forestry, maple groves, and recreation (i.e., snowmobile trails). An easement will be required over a 300 m stretch of Crown land along an existing access road. The forestry activities include previously forested land at varying stages of regeneration, as well as undeveloped forested lands owned by forestry companies. 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).



3.0 Scope of Work

The scope of work for the wildlife surveys is based on the recommended approach outlined in the Guide to Preparing an EA Registration Document for Wind Power Projects in Nova Scotia (NSECC 2021), as well as in the Guide to Addressing Wildlife Species and Habitat in an EA Registration Document (NSECC 2009). Due to the complexity of the specific assessments conducted for birds, bats, and moose, the details of those surveys are included in their respective dedicated sections.

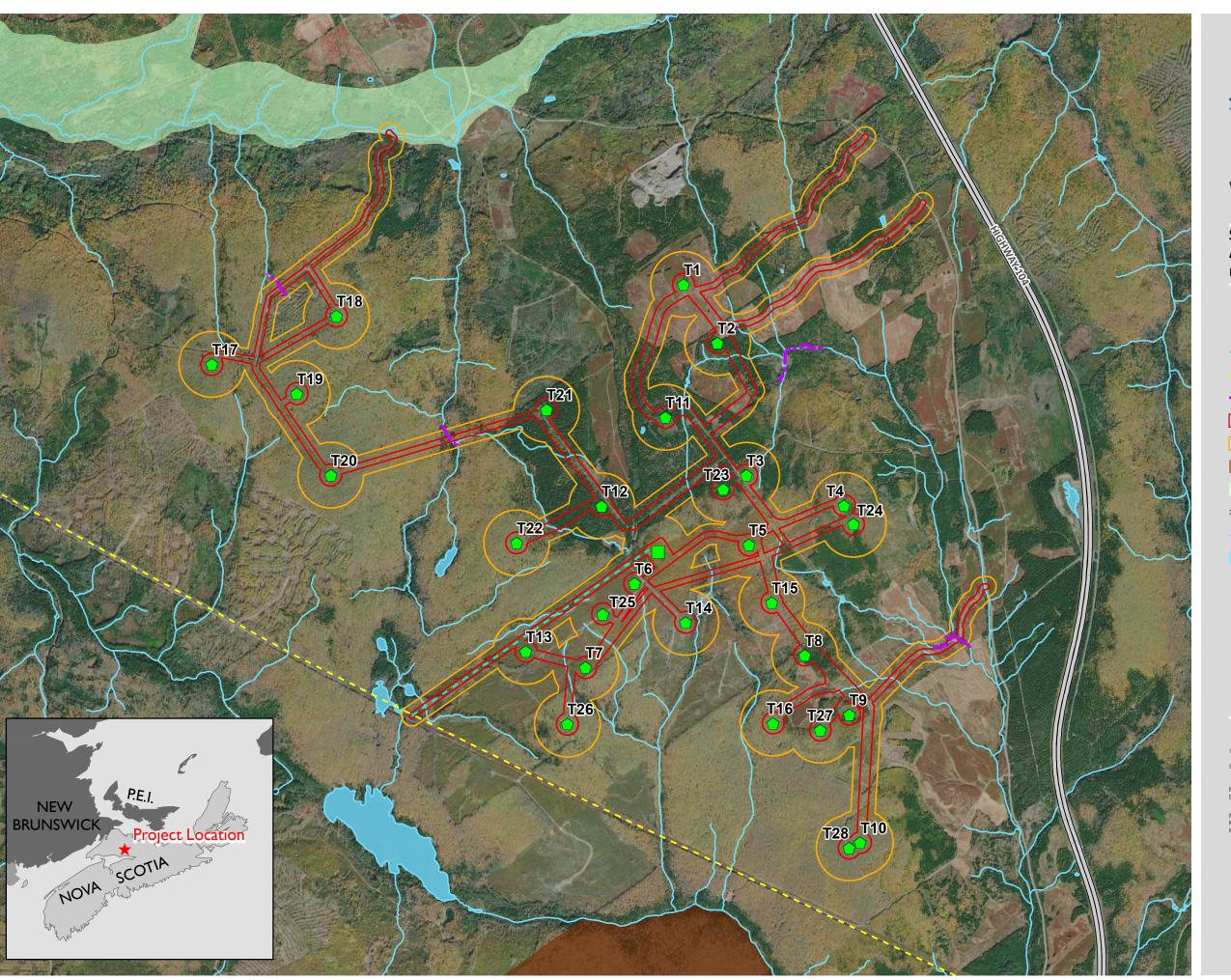
The scope of work for the wildlife and wildlife habitat surveys included the following:

- An initial desktop assessment of habitats within the Local Assessment Area (LAA);
- A desktop assessment of wildlife SAR and SOCC with the potential to occur within the PDA;
- Targeted habitat searches of reptiles and amphibians within the LAA; and,
- Incidental observations of terrestrial wildlife, signs and habitat documentation during the 2021 and 2022 field surveys.

3.1 Spatial Boundaries

For the purpose of this assessment, the spatial boundaries have been defined below in **Table 1** and shown on **Figure 2**. The LAA, which is described below in **Table 1**, encompasses the terrestrial habitats located adjacent to the PDA for the assessment of terrestrial wildlife and habitats that are most likely to be impacted by the Project. Around turbine bases, substations and ancillary equipment, the LAA includes a larger buffer (i.e., 150 m) to assess current disturbances and understand the potential effects of the Project on wildlife and wildlife habitats.







WESTCHESTER WIND PROJECT

STUDY AREA AND LOCAL ASSESSMENT AREA FOR WILDLIFE

FIGURE 2

Proposed Turbine Location

Proposed Substation Location

- - · Proposed Interconnection Line

- - Transmission Line

Turtle Transect

Potential Development Area (PDA)

Local Assessment Area (LAA)

Portapique River Wilderness Area

Deer Wintering Area

=== Highway

Watercourse

Waterbody

0 0.25 0.5 1 k SCALE 1:25,000

1 km

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

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Table 1: Spatial Boundaries for the Assessment of Wildlife and Wildlife Habitats

Assessment Area	Definition	Purpose of Boundary
Potential Development Area	Area encompasses the Project footprint and a buffer of 15 m on either side of shoulders of the roadways (either existing or new) and 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. The Project would consist of up to 12 of those locations and their associated infrastructure.
Study Area	Transect-based survey areas within the LAA targeting representative habitats.	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	Area encompasses a buffer of 150 m surrounding the Project footprint of the proposed turbine locations, substation, and a 50 m buffer surrounding connector lines, road upgrades and transmission line corridor.	The 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). The LAA for wildlife was selected to identify wildlife and wildlife habitats that are most likely to interact with the Project.



4.0 Methods

The methods of the desktop survey and field surveys are described below.

4.1 Desktop Habitat Assessment

Prior to completing the terrestrial field surveys, Dillon reviewed readily available information from reputable sources. The information was reviewed to evaluate the potential for wildlife and wildlife habitat within the LAA for the Project and to assist in scoping the field program. The information was reviewed, along with information on habitats present in the LAA to determine preliminary potential for at risk wildlife species and/or their Critical Habitat. Dillon completed a review of the following sources and data lists prior to completing the field surveys:

- Guide to Addressing Wildlife Species and Habitat in an EA Registration Document (NSE 2009);
- Fauna Desktop Study by Strum Environmental (Strum 2013);
- Available mapping to develop a list of potential terrestrial habitat types from:
 - Nova Scotia Department of Natural Resources and Renewables (NS DNRR) forest inventory database;
 - NS DNRR ownership and restricted/limited land-use database;
 - NS DNRR wet areas mapping (WAM);
 - Publicly available GIS map layers (e.g., ecological land classification, forest and non-forest inventory, wetland inventory, Protected Natural Areas, Wildlife Management Zones);
 - NS Provincial Landscape Viewer; and
 - Google Earth® satellite imagery.

4.1.1 Habitat Assessment Map

As previously discussed, the Project is located on privately owned lands used for blueberry farming, maple groves, recreation (i.e. snowmobile trails), and is in Cumberland County near the community of Westchester Station. The forestry activities include previously forested land at varying stages of regeneration, as well as undeveloped forested lands owned by forestry companies. To confirm that the PDA layout minimizes the use of non-anthropic and forested areas, the following assessment of lands was carried out within the LAA.

Available mapping through the NSDNRR was reviewed to identify forest types, general land use, and habitats within the LAA. Furthermore, the area and percentage covered by each habitat or land use type within the PDA were determined. This data is based on available mapping and Google® Satellite imagery.



Field Surveys

4.2

4.2.1 Incidental Wildlife Reporting

Field studies of terrestrial habitats were conducted between April and October in 2021 and 2022, in collaboration with other targeted field surveys (i.e., bird surveys, wetlands, watercourses, baseline vegetation and rare plants). Biologists focused on the general characterization of available terrestrial habitats within the survey area, as well as the potential for sensitive species or their critical habitats occurring in the survey area. The following criteria were documented:

- Occurrence of SAR/SoCC;
- Potential habitat for SAR/SoCC; and
- Incidental observation and documentation of observed wildlife (regardless of conservation status),
 signs of wildlife and their habitat.

4.3 Wildlife Species at Risk Assessment

The proposed PDA will span several landscapes and include areas that have the potential to provide habitat for wildlife SAR and SoCC populations. Natural Forces is committed to protecting SAR, SoCC, and their habitat as important features and VECs related to the Project.

For this EA, the following definitions of SAR and SoCC apply:

- Species at Risk (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 (SoCC): those species that are not SAR but are identified as regionally vulnerable or imperilled by the Atlantic Canada Conservation Data Centre (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).

Dillon reviewed information to evaluate the potential for fauna SAR and SoCC within 100 km of the Project. Dillon completed a review of the following sources and data lists for the purpose of characterizing existing conditions at the Project site:

- Custom AC CDC reports (AC CDC 2021, AC CDC 2022);
- The federal SAR registry;
- The provincial Endangered Species registry;
- Publicly-available governmental Geographic Information Systems (GIS) map layers and databases;
- Nova Scotia Provincial Landscape Viewer mapping resource.



Other available background information sources and mapping reviewed to identify and assess SAR and SoCC and their habitats within the LAA included:

- Provincial Parks and Protected Areas mapping; and
- Environmentally Sensitive Areas (ESAs) database.



5.0 Results

The results of both the desktop and field assessments for terrestrial wildlife, excluding moose, turtles, birds, and bats which are provided in their own separate reports, are presented below.

5.1 Desktop Habitat Assessment

Readily available information from reputable sources (described above in section 4.3) was reviewed to evaluate the potential for wildlife and wildlife habitat within the general area of the Project. The following managed or protected habitats have been identified the within the 10 km PDA and surrounding areas:

- Portapique River Wilderness Area is 2,050 hectares of old growth hemlock (*Tsuga Canadensis*), red spruce (*Picea rubens*), hardwood mixed-wood forests (NSE 2022b). This Wilderness Area is approximately 1 km south from the PDA.
- A deer wintering area (DWA) is located approximately 1.5 km northeast of the PDA. During the
 winter, White-tailed Deer (Odocoileus virginianus) congregate in high density groups in areas which
 provide shelter from the prevailing wind, offer maximum exposure to the sun and offer cover as well
 as access to vegetation for browse (NSDNR 2012b). DWAs are identified by NSDNRR for identifying
 areas for special management practices in Nova Scotia. No designated DWAs are located within the
 PDA and deer wintering within the PDA is considered to be unlikely because the lands have been
 cleared in part for forestry and agricultural operations, providing limited protection from wind.
- An easement will be required over an approximately 300 m stretch of crown land along an existing access road for a proposed access route to the north of the PDA. Additional Crown Land Parcels are located approximately 400 metres to the west, 1.5 km southeast and 1.5 km east of the PDA.

5.1.1 Habitat Assessment Map

The habitats identified within the PDA based on available mapping and Google Satellite imagery are summarized in **Table 2** along with the estimated area and percentage within the PDA and shown on **Figure 3**.

Although the Project layout was designed to minimize the disturbance of naturalized areas as well as prioritizing development in areas with existing anthropogenic disturbance, some areas within the proposed footprint for the Project will extend through less disturbed habitat types, including areas with mature trees, wetlands, and watercourses. Approximately 38% of the PDA is located within areas that have been previously disturbed by forestry, agriculture, recreational trails, and access roads. As previously described, the PDA encompasses all of the proposed 28 turbines locations and their associated infrastructure. The Project would consist of up to 12 of those locations and their associated infrastructure. It is noted that the PDA was conservatively define (see **Table 1**, above) and includes areas



that are unlikely to be directly impacted by the Project (e.g., areas below collector lines that will be spanned using poles and buffered areas extending from the shoulders of access roads etc.).

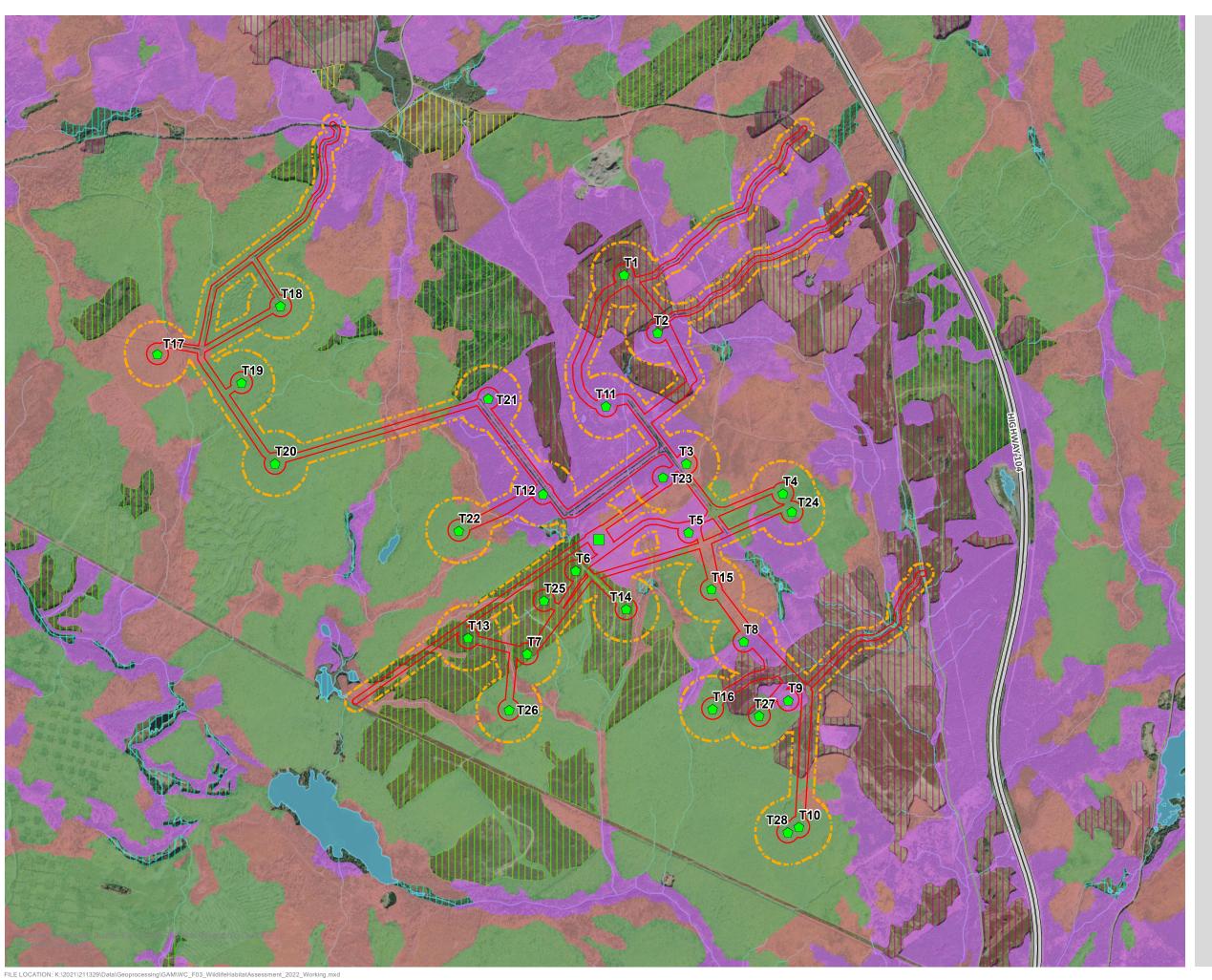
Table 2: Habitats within the Potential Development Area

Habitat	Area within the PDA (ha) ¹	Percentage of the PDA ²
Softwood Forest	53	31%
Mixedwood Forest	20	11%
Hardwood Forest	34	20%
Total Non-Disturbed Areas ³	107	62%
Recently Cut or Regenerating Woodlot	30	17%
Agriculture (Including Blueberry Fields)	26	15%
Powerline and Road Corridors	11	6%
Total Area with Anthropogenicl Disturbance	66	38%

Notes:

- 1. Area calculations are estimates and are based on NSDNRR mapping and observations recorded at the site during the 2021 and 2022 biophysical surveys.
- 2. As previously described, the PDA encompasses all of the proposed 28 turbines locations and their associated infrastructure. The Project would consist of up to 12 of those locations and their associated infrastructure.
- 3. Non-disturbed habitats include treated and un-cut forestry stands and plantations







WESTCHESTER WIND PROJECT

WILDLIFE HABITAT ASSESSMENT FIGURE 3

- Proposed Turbine Location
 Proposed Substation Location
 Watercourse
 Waterbody
 Wetland
 Local Assessment Area (LAA)
 Potential Development Area (PDA)
 Highway
 Habitat Type
 Softwood
 Mixedwood
- Hardwood Dominant Forest

 Anthropological Land Use Type
- Recently Cut Area or Regenerating Woodlot
- Agricultural Field
 - Blueberry Field

0.25 0.5 1 km

w of

SCALE 1:25,000

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Field Survey Results

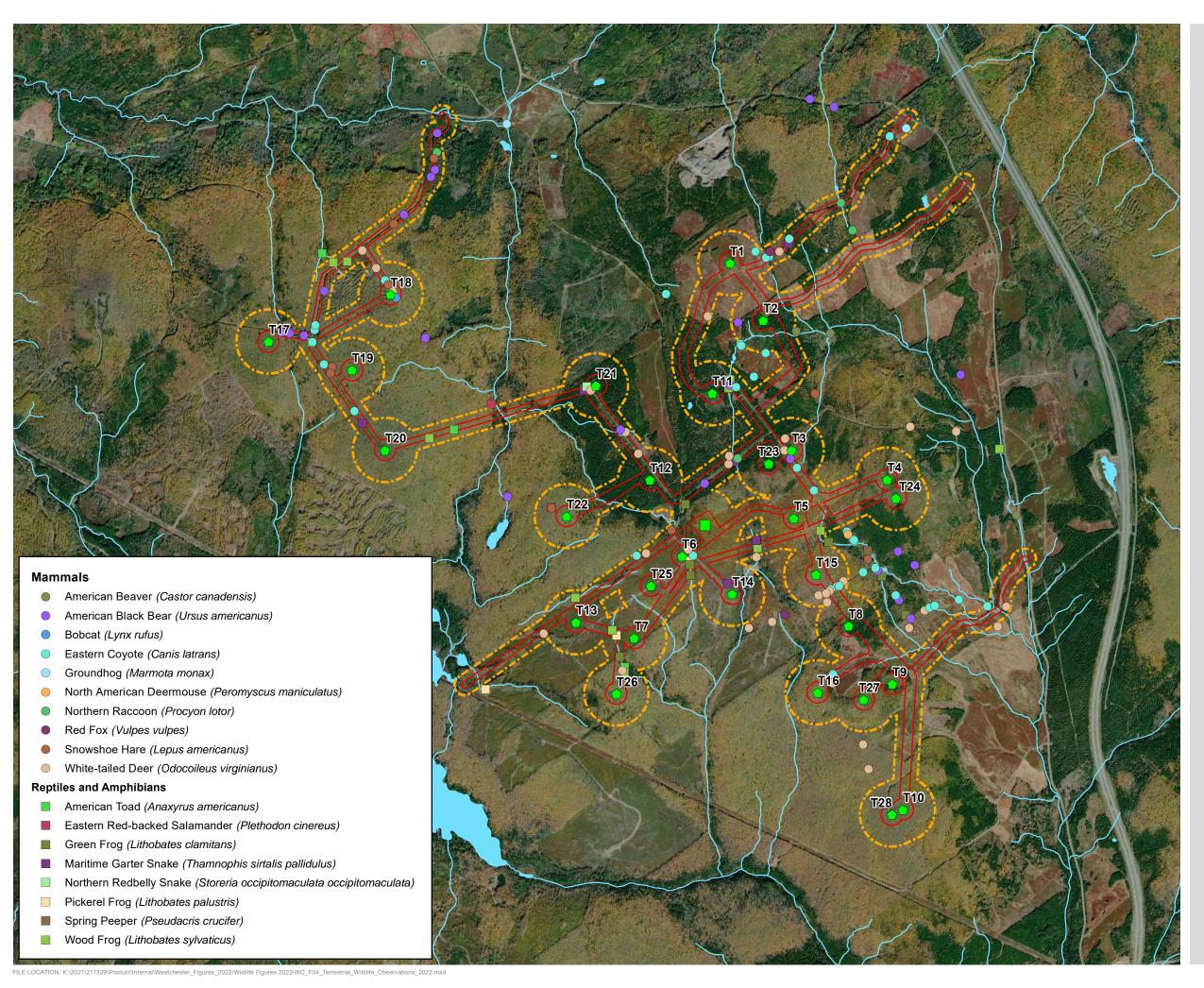
5.2.1 2021-2022 Field Season

5.2

During the 2021 and 2022 biophysical surveys for the EA of the Project, Dillon biologists recorded incidental observations or detections of wildlife during the course of other survey efforts and when possible, photographs were taken (see **Appendix A** for representative photos). Such detections are rarely direct observations or vocalizations, but rather proxy evidence that is left behind and remains identifiable to species for some time after the animal has moved on. This includes more readily detectable indicators such as animal tracks in snow/mud or animal scat, but also less obvious indicators such as browse marks, dens and/or burrow structures.

During the 2021 and 2022 field surveys, observations of ten mammal species and eight herptile species were identified within the assessment area by Dillon biologists. Where data are available, the locations where observations were reported are shown on **Figure 4**.







WESTCHESTER WIND PROJECT

TERRESTRIAL WILDLIFE OBSERVATIONS

FIGURE 4

Proposed Turbine Location

Proposed Substation Location

Potential Development Area (PDA)

Local Assessment Area (LAA)

Watercourse

Waterbody

0.25 0.5 1 km

w-\$

SCALE 1:25,000

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

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PROJECT: 21-1329

STATUS: DRAFT

DATE: 2022-12-10

The mammal species observed or detected include:

- White-tailed deer (Odocoileus virginianus);
- American beaver (Castor canadensis);
- American black bear (Ursus americanus);
- Eastern coyote (Canis latrans);
- Red fox (Vulpes vulpes);
- Bobcat (*Lynx rufus*)
- Northern raccoon (Procyon lotor);
- North American deer mouse (peromyscus maniculatus);
- Snowshoe hare (Lepus americanus); and
- Groundhog (Marmota monax).

Reptiles and amphibian (i.e., herptile) species observed, or detected, include:

- Wood Frog (Lithobates sylvaticus);
- Green Frog (Lithobates clamitans);
- Pickerel Frog (Lithobates palustris);
- Spring peeper (Pseudacris crucifer);
- American toad (Anaxyrus americanus);
- Eastern red-backed salamander (Plethodon cinereus);
- Maritime garter snake (Thamnophis sirtalis pallidulus); and
- Northern Red-bellied Snake (Storeria occipitomaculata occipitomaculata).

A list of recorded observations of wildlife species from the 2021 and 2022 field surveys (excluding bats, birds and moose which are included in their own reports) is presented in **Table 3** and includes their AC CDC S-ranks. All wildlife species observed have secure populations (S4 or S5) within Nova Scotia according to the AC CDC (2022).



Table 3: Wildlife Observations from 2021-2022 Field Surveys (Excluding Bats, Birds and Turtles)

Species and S-Rank	S-Rank	Date	Observations
		14-May-21	Fresh tracks
		21-May-21	Fresh tracks
		7-Jun-21	Fresh tracks
		28-Jun-21	Direct observation at four locations, including a doe was fawn in two locations
		28-Jun-21	Fresh tracks in three locations
		25-Aug-21	Direct observation
		25-Aug-21	French tracks w/ young
		30-Aug-21	Doe w/ two fawns
		15-Sep-21	Fresh tracks
		27-Sep-21	Doe w/ 2 fawns
White-tailed deer		27-Sep-21	Fresh tracks
Odocoileus virginianus)	S5	5-Oct-21	Fresh tracks, young
		8-Oct-21	Fresh tracks
		29-Apr-22	Tracks
		29-Apr-22	Fresh tracks at two locations
		29-Apr-22	Scat
		11-May-22	Fresh tracks
		11-May-22	Direct observation
		24-May-22	Direct observation
		31-May-22	Direct observation
		14-Jul-22	Direct observation
		27-Jul-22	Fresh tracks
		28-Jul-22	Tracks at four locations
		7-Jun-21	Beaver dam
American Beaver	S5 -	5-Oct-21	Old dam, small
(Castor canadensis)		29-Jul-22	Damming activity – no direct beaver observation, may no longer be active



Species and S-Rank	S-Rank	Date	Observations
		7-Jun-21	Fresh scat
		25-Aug-21	Fresh scat
		25-Aug-21	Direct observation
		7-Sep-21	Fresh scat
		27-Sep-21	Fresh scat at two locations
		5-Oct-21	Fresh scat
		8-Oct-21	Fresh scat
		29-Apr-22	Scat
		29-Apr-22	Fresh scat
		29-Apr-22	Scat
		29-Apr-22	Fresh Scat
		29-Apr-22	Scat
		29-Apr-22	Scat
	\$5	5-May-22	Scat
Eastern Coyote		11-May-22	Scat – full of bones
(Canis latrans)		11-May-22	Scat
		19-May-22	Scat
		19-May-22	Fresh tracks
		19-May-22	Direct observation
		19-May-22	Scat
		19-May-22	Scat
		24-May-22	Scat
		31-May-22	Fresh tracks
		14-Jun-22	Fresh scat
		13-Jul-22	Scat
		13-Jul-22	Scat
		28-Jul-22	Scat



Species and S-Rank	S-Rank	Date	Observations
		15-Jul-21	Direct observation
		19-Jul-21	Scat
		19-Jul-21	Skull and other bones
		7-Sep-21	Fresh scat
		27-Sep-21	Fresh scat
		27-Sep-21	Fresh tracks
		27-Sep-21	Young bear tracks
		29-Apr-22	Scat – bear? Horse?
		5-May-22	Scat – confirm ID
		11-May-22	Scat – bear? Horse?
American black bear	S5	11-May-22	Scat – unusual size and colour, similar to other scat observed on this date – unsure which mammal it belongs to
(Ursus americanus)		11-May-22	Unusual scat – unsure which mammal
		19-May-22	Young bear track
		19-May-22	Scat
		19-May-22	Scat
		24-May-22	Fresh scat
		24-May-22	Yearling direct observation
		30-May-22	Scat
		31-May-22	Semi-fresh track
		31-May-22	Scat
		14-Jul-22	Direct observation – mom and cub
		14-Jul-22	Scat
		28-Jul-22	Young cub tracks



Species and S-Rank	S-Rank	Date	Observations
		26-May-21	Direct observation
		5-May-22	Scat
		24-May-22	Direct observation
		24-May-22	Observation
Snowshoe hare (Lepus americanus)	S5	26-May-22	Direct observation
(Lepus americanus)		31-May-22	Direct observation
		7-Jun-22	Direct observation at two locations
		14-Jul-22	Direct observation
		14-Jul-22	Direct observation
Red fox	0.5	14-May-21	Direct observation
(Vulpes vulpes)	S5	11-May-22	Fresh track – could be other mammal
Bobcat	65	19-May-22	Tracks – not confirmed but possible
(Lynx rufus)	S5	13-Jun-22	Track
Groundhog	0.5	24-May-22	Direct observation
(Marmota monax)	S5	12-Jul-22	Direct observation
North American Deer Mouse (Peromyscus maniculatus)	S5	31-May-22	Tracks
		5-Oct-21	Fresh tracks
Northern Raccoon	0.5	14-Jul-22	Direct observation
(Procyon lotor)	S5	15-Jul-22	Tracks
		28-Jul-22	Tracks
		25-Aug-21	Direct observation
		7-Sep-21	Direct observation
		13-Jul-22	Auditory observation, egg masses
Green Frog (Lithobates clamitans)	S5	14-Jul-22	Direct observation – adults and tadpoles
(Litilobates cialilitaris)		14-Jul-22	Direct observation – tadpoles
		26-Jul-22	Observation
		27-Jul-22	Observation



Species and S-Rank	S-Rank	Date	Observations	
	S5	05-Oct-21	Direct observation	
Pickerel Frog (Lithobates palustris)		27-Jul-22	Observation	
(Entrioduces parastris)		27-Jul-22	Direct observation	
		15-Jul-21	Direct observation	
		19-Jul-21	Direct observation at two locations	
Wood Frog	C.F.	13-Jul-22	Direct observation at four locations	
(Lithobates sylvaticus)	S5	14-Jul-22	Observation	
		27-Jul-22	Direct observation at two locations	
		28-Jul-22	Direct observation at two locations	
Spring Peeper (Pseudacris crucifer)	S5	31-May-22	Auditory observation of multiple individuals	
American Toad	S5	13-Jul-22	Direct observation at two locations	
(Anaxyrus americanus)		27-Jul-22	Observation	
	N/A	05-May-22	Unknown egg mass	
Miscellaneous Amphibian Observations		31-May-22	Egg masses – possibly green frog	
Ampinibian Observations		31-May-22	Hundreds of tadpoles – possibly green frog	
		11-May-22	Direct Observation – dead on road	
Maritime Garter Snake	65	14-Jun-22	Direct observation	
(Thamnophis sirtalis pallidulus)	S5	13-Jul-22	Direct observation at two locations	
, ,		28-Jul-22	Direct observation	
Eastern Red-backed		5-May-22	Direct observation	
Salamander (Plethodon cinereus)	S5	13-Jul-22	Direct observation	
Northern Red-bellied Snake (Storeria occipitomaculata occipitomaculata)	\$5	13-Jul-22	Direct observation	

Notes:

Sub-national (provincial) ranks (S-ranks) retrieved from the Atlantic Canada Conservation Data Centre (AC CDC) and are up to date as of September 2022 for the province of Nova Scotia.

S1 Critically Imperiled; S2 Imperiled; S3 Vulnerable; S4 Apparently Secure; S5 Secure.



Wildlife Species at Risk Assessment

Site-specific AC CDC reports were generated on May 7, 2021 and September 20, 2022, and included historical observations of SAR and SoCC reported within 5 km of the PDA. Due to the size of the PDA, a search of the AC CDC database was requested to include results from a radius of 10 km from the PDA Centre in 2022. For information purposes, the AC CDC report included SAR and SoCC observations from 100 km from the PDA centre. (in 2021 and 2022, respectively), and within 100 km of the Project, therefore it is important to note that some of wildlife species observed further from the PDA may not have suitable habitat present within the LAA. Excluding birds, bats, fish, turtles and moose, which are reported separately, long tail shrew was the only fauna species reported by the AC CDC with historical observances reported within 10 km of the PDA center. **Table 4** summarizes the historical observations of mammal (excluding bats and moose) and herptlie (excluding turtles) SAR and SOCC within 100 km of the Study Area reported by the AC CDC.

Table 4: Historical Observations of SAR and SOCC within 100 km of the PDA

Species	Ranking	Number of Observations	Distance from PDA
Mammals			
Canada lynx Lynx canadensis	SARA: Not listed COSEWIC: Not at risk NS ESA: Endangered AC CDC: S2S3	5	72.5 km ± 1 km (observations in NB)
Long-tailed shrew Sorex dispar	SARA: Not listed COSEWIC: Not at risk NS ESA: Not listed AC CDC: S2	6	10 ± 0 km
Southern flying squirrel Glaucomys volans	SARA: Not listed COSEWIC: Not at risk NS ESA: Not listed AC CDC: S3S4	6	69.4 ± 10 km
American marten Martes americana	SARA: Not listed NS ESA: Endangered AC CDC: S2S3	3	94.9 ± 0 km (observations in NB)
Maritime shrew Sorex maritimensis	SARA: Not listed NS ESA: Not listed AC CDC: S3	105	58.3 ± 1 km (observations in NB)
Southern bog lemming Synaptomys cooperi	SARA: Not listed NS ESA: Not listed AC CDC: S3	17	62.9 ± 0 km



Species	Ranking	Number of Observations	Distance from PDA	
American water shrew Sorex palustris	SARA: Not listed NS ESA: Not listed AC CDC: S3S4	2	58.3 ± 1 km (observations in NB)	
Fisher Pekania pennanti	SARA: Not listed NS ESA: Not listed AC CDC: S3	6	52.1 ± 0 km	

Notes:

5.4

Sub-national (provincial) ranks (S-ranks) retrieved from the Atlantic Canada Conservation Data Centre (AC CDC) and are up to date as of September 2022 for the province of Nova Scotia.

S1 Critically Imperiled; S2 Imperiled; S3 Vulnerable; S4 Apparently Secure; S5 Secure.

Field Assessments

Based on the results of the terrestrial wildlife observations completed in 2021 and 2022, all populations of wildlife found within the PDA are secure according to the AC CDC (2022). In addition, observations of the terrestrial wildlife species (excluding birds) encountered during field studies only included species that are considered to be native to Nova Scotia and no invasive wildlife species were encountered.

To minimize the potential impact of the Project on existing landscapes and undisturbed wildlife habitat, approximately 38% of the proposed locations for the WTGs and associated infrastructure were selected because they have been previously cut through forestry activities and used for agricultural operations. The Project aims to benefit the site by providing an environmentally friendly and productive source of renewable energy for Nova Scotia while limiting potential impacts to the natural environment and the disturbance of environmental features.



Effects Assessment and Mitigation Recommendations

The following discussion includes the potential impacts of the Project to wildlife and wildlife habitat, proposed mitigation measures, as well as potential residual and cumulative impacts of the Project to wildlife and wildlife habitat.

Identification of Potential Environmental Effects 6.1

Wildlife and wildlife habitats were assessed over two years, as discussed above in Section 5. The identification of anticipated potential interactions between the Project and wildlife and wildlife habitat is presented below.

Approach to Project Components 6.1.1

6.0

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;
- 2. Operation; and
- 3. Decommissioning.

The Project interaction matrix in **Table 5** 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 wildlife and wildlife habitats.

Table 5: Project Interactions with Environmental Components

Valued	Project Phases					
Environmental Component	Planning, Site Preparation and Construction Phase	Operation Phase	Decommissioning Phase	Unplanned Events		
Wildlife and Wildlife Habitat	~	~	v	v		

Legend: \checkmark = Potential interaction identified



Those Project phases for which a checkmark is provided indicates that the Project may interact with wildlife, 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 discussed below. Mitigation measures for unplanned events (including but not limited to potential accidents, malfunctions or severe weather events) are also included in **Table 6** below.

Table 6: Potential Interactions and Proposed Mitigation for Wildlife

Potential Interactions with Wildlife	Proposed Mitigation Measures		
hort-term, reversible disturbance of oraging fauna and loss of breeding and oraging habitat during construction and lecommissioning due to increased human presence, noise and anthropogenic pootprint	 Vegetation will be retained where possible to maintain wildlife habitat; The Project footprint will be limited to that which is necessary to enable the Project to be carried out; Existing roads and trails will be utilized to limit disturbance outside the Project footprint and minimize the interactions with wildlife and wildlife habitat; The site and working areas will be kept clean of food scraps, and garbage will be removed from the site frequently to minimize wildlife encounters; In the case of wildlife encounters, the following will be implemented: (1) no attempt will be made by any worker at the Project site to chase, catch, divert, follow or otherwise harass wildlife by vehicle or on foot; (2) equipment and vehicles will yield the right-of-way to wildlife; and (3) if a SAR is encountered during activities, work around the SAR shall cease until a biologist is dispatched to assess the situation and appropriate mitigation is applied; To minimize disruptions with wildlife activity at night, the Project construction activities will be limited to daylight hours when possible; Equipment shall be kept in good working order and maintained to minimize noise disturbances; To minimize impacts to wildlife use of watercourses and movement in corridors, construction activities within 30m of a watercourse will be limited where feasible; All workers will adhere to the provincial Nova Scotia Endangered Species Act and federal Species at Risk Acts; Erosion and sediment control measures will be installed and checked regularly during the construction phase and prior to, and after, storm events to confirm they are continuing to operate properly to minimize potential effects to adjacent habitat; and Reduced speeds, dust suppression, and noise and lighting restrictions will be implemented to minimize disturbance to Moose 		





Potential Interactions with Wildlife	Proposed Mitigation Measures		
	7.	Decommissioning/reclamation activities following the Project will be undertaken to improve interconnections between landscapes in the PDA.	

6.1.2 Identification of Potential Environmental Effects

Without mitigation, the Project has the potential to cause a minor reduction of some wildlife habitat due to linear infrastructure and turbine foundations. While the construction and decommissioning phases present potential for negative impact, impacts are reversible once the decommissioning phase has started and land reclamation activities restore the Project site to its previous state. Without mitigation, the Project is anticipated to interact with wildlife and their habitats 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;
- Temporary disturbance of potential foraging and basking turtles due to increased human presence and noise within the Project footprint.

6.1.3 Standard Mitigation of Potential Environmental Effects

Standard mitigation has been identified for the anticipated interaction and/or effect in relation to wildlife and wildlife 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 as mitigation measures 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 (ECCC 1999);
- Species at Risk Act (ECCC 2002);
- Transportation of Dangerous Goods Act, and regulations (TC 1992);
- Nova Scotia Environment Act and regulations (GNS 1994-95);
- Nova Scotia Water Resources Protection Act, and regulations(GNS 2000);
- Nova Scotia Endangered Species Act, and regulations (GNS 1998a);
- Nova Scotia Wilderness Areas Protection Act (GNS 1998b), and regulations; and
- Contingency Planning Guidelines (NSECC 2021).



To further reduce the likelihood of interactions between any phase of the Project and wildlife, the mitigation measures, summarized above in **Table 6** will be followed.

Residual Environmental Effects

6.2

6.3

A residual environmental effect is an environmental effect of a project that remains, or is predicted to remain, after mitigation measures have been implemented (GOC 2022).

The Project has the potential to cause short-term, reversible disturbances of foraging fauna and loss or fragmentation of potential breeding and foraging habitat during construction and decommissioning due to increased human presence, noise and anthropogenic footprint. The effects of the Project activities on terrestrial wildlife are expected to be limited to only the Project footprint and disturbance of fauna habitat as a result of the Project will be minimized through turbine and infrastructure siting and by employing the proposed mitigation measures. Noise associated with the construction may deter wildlife, but potential effects are expected to be short term. With the proposed mitigation, residual interactions of the Project with terrestrial fauna species are anticipated to be short in duration and to not be substantive, as they are limited to construction and reclamation phases and are already occurring already in an area with ongoing anthropogenic activities including, but not limited to agriculture and forestry.

In consideration of the above and planned mitigation, the residual environmental effects of the Project on terrestrial wildlife (excluding birds, bats, turtles and moose, which are evaluated in their separate reports) is predicted to be negligible in terms of the significance of the environmental effect. A significant environmental effect would result if a considerable change to wildlife populations such as a decline in abundance and/or a change in distribution, beyond which natural recruitment (i.e., reproduction and immigration from unaffected areas) would not return the population to its former level within several generations. No follow-up or monitoring is proposed to monitor environmental interactions with the watercourses and fish habitat, unless required under permit from NSECC.

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 (GOC 2022). Specific to the nature of the undertaking, cumulative effects are combined impacts that may occur when wind power projects or other types of projects are located in the same region (NSECC 2021).



This area of the province has a number of existing wind energy developments. The nearest wind farms are as follows:

- Higgins Mountain Wind Phase I, a 3.6 MW project located approximately 9 km east from the Project. This project was commissioned in 2006;
- Fitzpatrick Mountain Wind, a 0.8 MW project located approximately 28 km from the Project. This project was commissioned in 2007;
- Nuttby Mountain Wind, a 50.6 MW project located approximately 40 km east from the Project. This project was commissioned in 2010; and
- Amherst Wind, a 32 MW project located approximately 45 km from the Project. This project was commissioned in 2012.

The anticipated cumulative effects to wildlife and wildlife habitats 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 wildlife habitats 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. The Project is located in an area with ongoing agricultural and forestry land uses, including the following anthropogenic activities and developments:

- A quarry that has proposed an expansion from 4 hectares (ha) to 40.36 ha to the north of the site, and is situated approximately 0.5 km from the PDA;
- Public roads including highway 104;
- Roads for agricultural and forestry activities;
- All-Terrain Vehicle (ATV) and snowmobile trails; and
- Telecommunication towers and the associated overhead power lines and access routes.



Summary and Conclusions 7.0

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 wildlife, it was concluded that many of the wildlife species observed are generalists and will continue to populate the area post-construction.

This report has been prepared for the Environmental Assessment and associated Addendum of the Westchester 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 Project site was selected due to the existing mixed anthropogenic land uses and impacts over these areas, in order to minimize impacts to undeveloped lands as much as feasible. In order to further mitigate risk to terrestrial wildlife during the Project phases, there will be a concerted effort to use existing corridors found on site and to limit vegetation removal. Though there will be interactions between Project activities and terrestrial wildlife, by implementing the proposed mitigation measures, impacts to mammal and herptile populations are expected to be minimal. Based on a consideration of the current conditions and anticipated residual effects, no monitoring programs are currently recommended for wildlife and wildlife habitat.



8.0 Closure

This report was prepared by Dillon Consulting Limited (Dillon) for Natural Forces Developments Limited Partnership (the Proponent) on behalf of the Westchester Wind Limited Partnership, in support of the Westchester 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.



9.0 References

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Appendix A

Photographs







