September 25, 2013

Mr. Andy MacCallum
Natural Forces Wind Inc.
1801 Hollis Street, Suite 1205
Halifax, NS B3J 3N4

Dear Mr. MacCallum,

Re: Environmental Assessment Addendum
Gaetz Brook Wind Farm

INTRODUCTION

Natural Forces Wind Inc. has proposed to develop one 2.3 megawatt Project in the community of Gaetz Brook, Nova Scotia (the Project). The proposed Project location (*i.e.*, the Project site) is approximately 5.5 km southwest of Musquodoboit Harbour in the Halifax Regional Municipality (HRM) (44º45'28"N, 63º12'16"W) and will consist of leased, privately held lands (PIDs 00613083, 40018541, and 00614107).

The Gaetz Brook Wind Farm Environmental Assessment (EA) Registration Document was registered with Nova Scotia Environment (NSE) on July 17, 2013. On September 5, 2013 the Minister of the Environment determined that the information provided was insufficient to make a decision. Specifically, it was requested that further information related to the potential impacts to bat and bird species at risk be provided.

To address the items raised in the Minister's decision, the following information is provided:

- Results and interpretation of additional bat monitoring conducted in August and September 2013; and
- Additional commentary regarding potential impacts to wetland associated bird species at risk, including an updated site layout.

Since Project registration, additional field surveys were conducted to assess the potential for boreal felt lichen (*Erioderma pedicellatum*) at the Project site. The results are also presented as part of the EA Addendum for information purposes.

POTENTIAL IMPACTS TO BAT SPECIES AT RISK

Desktop and field assessment for bats was completed in 2012 and presented in Section 4.1.5 and Appendix C of the EA Registration Document (Natural Forces Wind Inc. 2013). As per Section 4.1.5 of the EA, the Proponent committed to completing additional bat surveys, in consultation with NSE and NS Department of Natural Resources to ensure the entire "ideal" bat monitoring time period was assessed. The 2012 bat survey did not indicate a high presence of bats at the Project site (*i.e.*, a total of 10 bat generated audio signals were recorded).

Anabat SD2 detectors were deployed at two locations in the vicinity of the proposed turbine location (127.5 m and 295 m from the turbine, respectively) (Drawing 1). Echolocation surveys were conducted over 26 nights between August 15th and September 9th, 2013. Of the 96 files that were recorded, eight were determined to be bat generated ultrasound. The remaining files detected were determined to be extraneous noise likely caused by wind gusts, precipitation, and/or equipment malfunction. Most of the "noisy files" (55 of 96 files) occurred on the night of September 2nd. Hourly weather data recorded at the Halifax Stanfield International Airport for that evening indicates that it was raining and winds were out of the southeast gusting up to 40 km/h (Environment Canada 2013), which could explain the extraneous noise detected on that particular night. Rustling vegetation and electrical interference caused by moisture infiltrating the protective cases of electronic equipment (*i.e.*, the Anabat detector) could also cause extraneous noise.

Four bat calls were detected at each of the two detector locations. All echolocation calls were recorded between August 18th and August 28th and had characteristics consistent with *Myotis* species bats [*i.e.*, Little brown bat (*Myotis lucifugus)* and Northern long-eared bat (*M. septentrionalis*)]. No attempt was made to identify each of the *Myotis* calls to species level because of the difficulty in achieving defensible identifications (Broders 2011).

Appendix C of the EA Registration Document (Natural Forces Wind Inc. 2013) provides extensive information on bat ecology and nearby hibernacula, as well as a lengthy evaluation of potential effects. Based on the results of the 2013 monitoring program, the analysis, conclusions, and recommendations presented in the EA Registration Document, with respect to bats, remain valid.

POTENTIAL IMPACTS TO WETLAND ASSOCIATED BIRD SPECIES AT RISK

A detailed wetland assessment was undertaken as part of the EA planning process to identify areas of wetland habitat coinciding with planned Project infrastructure. Multiple areas of wetland habitat, primarily treed and shrub swamps, were identified during the field assessment and were presented in the EA Registration Document (Natural Forces Wind Inc. 2013).

Subsequent to Project Registration, a decision was made to utilize an alternate access route, referred to as Access Road Option 2, which runs north of the original road layout. This new route, while discussed in the EA Registration Document, was not assessed for wetland habitat prior to Project registration. Follow-up wetland assessments were completed in August 2013 to select a road alignment with minimal disturbance. Identified wetlands included treed and shrub swamps (Drawing 1).

Avifauna surveys completed at the Project site in 2012 identified one species listed under the federal *Species at Risk Act* (*SARA*) and/or the NS *Endangered Species Act* (NS *ESA*). Canada Warbler (*Cardellina canadensis*) was identified during two surveys: once during the spring migration; and once during the breeding season (approximately 872 m and 849 m west of the proposed turbine location, respectively) (Drawing 1). It is expected that the former observation represented a migrant individual using the area as a stopover. The latter observation, consisting of an adult pair in suitable breeding habitat during the breeding season, suggests that it is probable that Canada Warblers breed at that location.

Both Canada Warbler observations were greater than 200 m away from the closest identified wetland at the Project site, which is identified as an open shrub swamp. Given that research suggests that Canada Warbler breeding territories typically encompass an area of less than 2 ha (Reitsma *et al*. 2008), it is unlikely that the territory of the observed nesting pair extends into this wetland. Furthermore, no alteration of this wetland will be required for Project development, as it is situated over 1 km from the proposed turbine location and over 700 m from the nearest point on Access Road Option 2. In addition, a desktop review of the Wet Areas Mapping (WAM) database does not suggest that this wetland maintains a hydrological connection with any wetlands identified during the additional August 2013 assessment.

The new proposed road layout has been designed to minimize disturbance to existing conditions, primarily by making use of an existing road along the majority of its length (Figure 1). The results of the wetland assessment have also been taken into consideration, and no wetland alteration is expected to be required for road construction under the Nova Scotia Wetland Conservation Policy. Additional mitigation measures, including conducting all clearing/construction activities during the winter, and outside of peak breeding season for birds, will also be employed.

Figure 1: Photo of existing road, looking west.

Multiple lines of evidence combine to suggest a low likelihood that the Project will exert adverse impacts on the Canada Warbler. The decision to utilize Access Road Option 2 has afforded a substantial buffer

between known Canada Warbler locations and Project infrastructure and ensures that wetlands in proximity to the breeding season observation will not require alteration.

BOREAL FELT LICHEN ASSESSMENT

Boreal felt lichen is an endangered cyanolichen found within 30 km of the Atlantic coast in Nova Scotia. It enjoys a particular micro habitat described as cool and humid. It is found on mature balsam fir (*Abies balsamea*) on north facing slopes often associated with a sphagnum/cinnamon fern (*Osmunda cinnamomea*) dominated wetland at the base. There are a number of other cyanolichens which are used as indicator species that enjoy a similar habitat which include *Coccocarpia palmicola* and *Moeleropsis nebulosa*. These species tend to be more common, so their presence in suitable habitat may indicate the presence of boreal felt lichen.

GIS predictive mapping was reviewed to identify the potential for suitable boreal felt lichen habitat at the Project site. A very small area of mapped habitat was identified along the access road (Drawing 2). A site visit was conducted on September 9, 2013 by Tom Neily, which quickly revealed that there is no suitable habitat for boreal felt lichen. Extensive harvesting has occurred in recent years over the entire Project site, which has eliminated any possibility of finding boreal felt lichen or habitat.

SUMMARY

As per the Minister's decision letter dated September 5, 2013, additional bat surveys were completed. Results were consistent with the findings of the 2012 monitoring program and, as such, the bat related analysis, conclusions and recommendations presented in the EA Registration Document remain valid.

A data review of Canada Warbler sightings indicated that there is a significant buffer between the sightings and Project infrastructure, which has been increased due to a modified road layout. No alterations to wetland habitat are expected to be required under the Nova Scotia Wetland Conservation Policy.

Once you have had an opportunity to review this correspondence, please contact us to address any questions you may have.

Thank you,

Melanie Smith, MES
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Carys Burgess, MMM
Senior Environmental Specialist
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REFERENCES

Broders, H.G. 2011. Analysis of ultrasonic anabat recordings with inferences on bat species composition and activity at the site of the proposed wind turbine farm at Glen Dhu, Nova Scotia. 19 pp.

Environment Canada. 2013. Historical Weather Data - Halifax International Airport. Accessed from http://climate.weather.gc.ca/climateData/hourlydata_e.html?timeframe=1&Prov=NS&StationID=50620&hlyRange=2012-09-10%7C2013-09-18&Year=2013&Month=9&Day=2&cmdB1=Go#.

Reitsma, L.R., Hallworth, M.T., and P.M. Benham. 2008. Does age influence territory size, habitat selection, and reproductive success of male Canada Warblers in central New Hampshire? *The Wilson Journal of Ornithology* **120**: 446-454.

Natural Forces Wind Inc. 2013. *Gaetz Brook Wind Farm Environmental Assessment*. July 2013. Available at http://www.gov.ns.ca/nse/ea/gaetz-brook-wind-farm/Gaetz-Brook-Registration.pdf

N

Alexander Lane

Chezzetcook Lake

Gaetz Brook

Highway 7

Pine Hill Dr

Chezzetcook Lake Wa

Brook Point Rd

Gaetz Lane

Pearson Dr

Chezzetcook River

1

2

Petpeswick Lake

Highway 107

Breeding Season

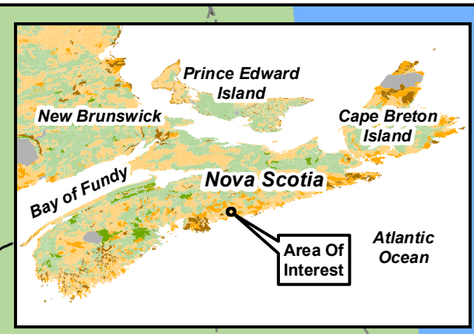
Spring Migration

Dunphy Lane

Brookside Lane

Motts Dr

0 100 200 400 600 800 1,000 Metres



Notes:

1. Reference: Digital Topographic Mapping By Nova Scotia Geomatics Centre.
2. Projection: NAD83(CSRS), UTM Zone 20 North.
3. GPS Points Taken are Typically to +/-5m Accuracy.

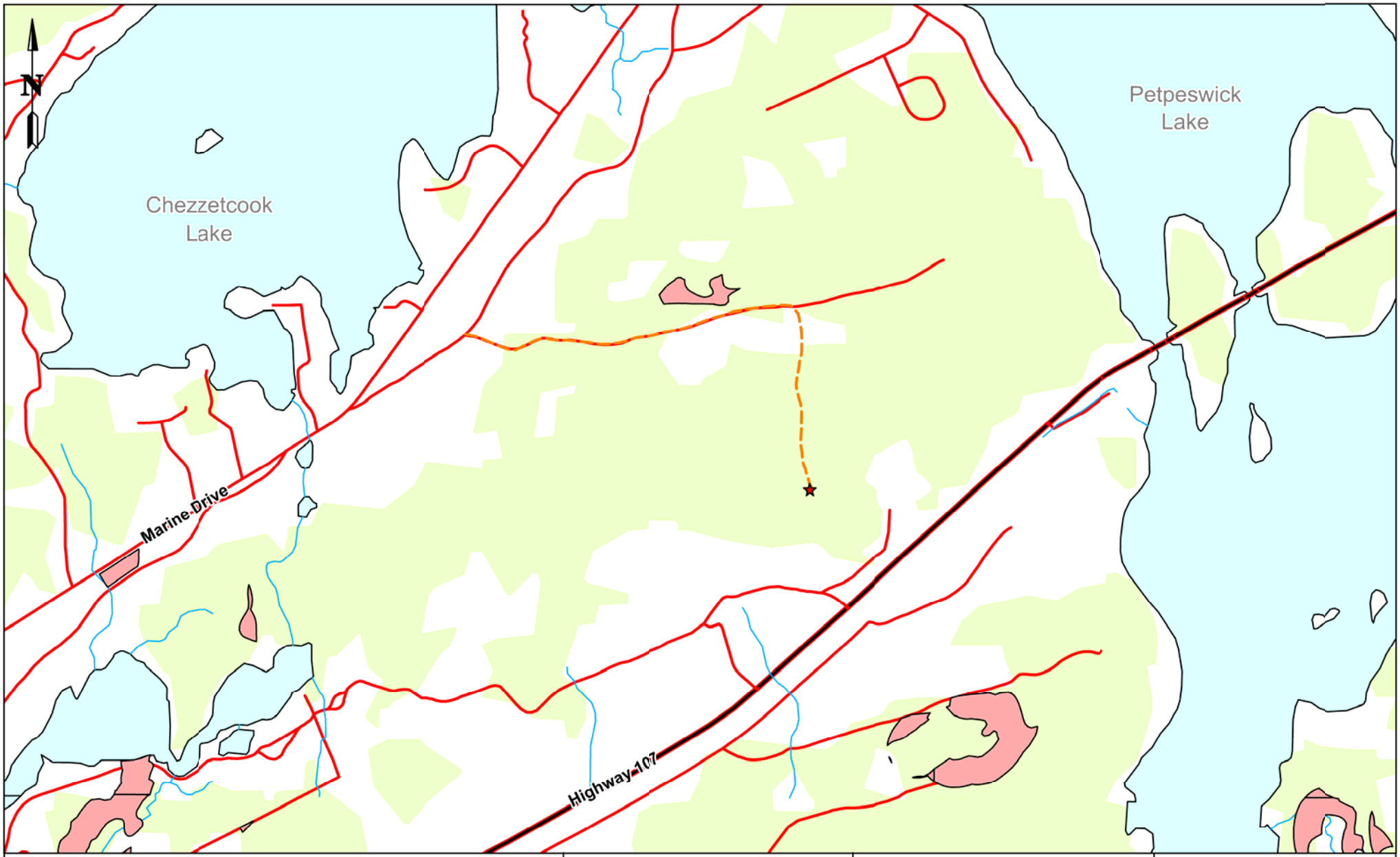
Legend:

- Project Site Boundary
- Proposed Turbine Location
- Access Road Option #2
- Bat Detector Locations - 2013
- Canada Warbler Observations
- Confirmed Wetland Boundary
- Wetland Habitat
- Buildings
- Major Roads and Highways
- Roads
- Access Roads / Trails
- Existing Transmission Lines
- Mapped Stream
- Indefinite Stream
- Water Bodies
- Cleared Area

Canada Warbler Observations and Bat Detector Locations

Strum Environmental

Date: Sept. 2013	Project #: 12-4428
Scale: 1:7500	Drawing #: 1
Drawn By: G. Gregory	
Checked By: M. Smith	



LEGEND

- Water
- Vegetation
- Boreal Felt Lichen predicted habitat (NSDNR)
- Proposed wind turbine generator
- Arterial & minor road
- Highway
- Proposed Access Road

Source: Nova Scotia Department of Natural Resources

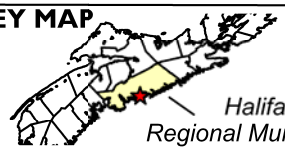
SCALE

0 250 500

metres

1:15,000

KEY MAP



PROJECT

Gaetz Brook Wind Farm

DRAWING 2

Boreal Felt Lichen predicted habitat

DATE

September 23, 2013

naturalforces

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