APPENDIX C
SOUND LEVEL ASSESSMENT

Natural Forces

SOUND LEVEL IMPACT ASSESSMENT STUDY

01.21.2022

Westchester Wind Project

Natural Forces Developments LP
1801 Hollis Street Suite 1205
Halifax, NS B3J 3N4
P +1 (902) 422 9663
F +1 (902) 422 9780

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1 Introduction

Natural Forces has undertaken a sound level impact assessment study for the proposed Westchester Wind Project (the Project) site to assess the impact of the sound emissions on the dwellings, seasonal homes, and local businesses surrounding the Project during both construction and operation. This assessment includes all 16 proposed turbine locations, of which only up to 12 will be constructed. A map of the Project area with the proposed wind turbine generator (WTG) layout is included in Appendix A.

While several turbine models are being considered, this assessment has been completed using the Enercon E-138 turbine. This model has a nameplate capacity of 4.2 MW and a hub height of 131 m.

The operational sound assessment was conducted using the ISO 9613-2: Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation model within the Decibel module of the software package, windPRO version 3.5. The *Guide to Preparing an EA Registration Document for Wind Power Projects* was consulted during this assessment.

The construction sound assessment was conducted using standard methodology. Construction noise is not always constant and can produce impulsive and variable sounds at different noise levels, which could create heightened annoyance levels in the surrounding community. The construction noise assessment has considered the maximum noise levels produced by various construction equipment to determine maximum sustained noise levels when all equipment is running.

1.1 Operational Sound Guidelines

The *Guide to Preparing an EA Registration Document for Wind Power Projects in Nova* Scotia requires that wind farm design and siting does not cause sound levels to exceed 40 dBA at the exterior of receptors. The more detailed recommendations included in the New Brunswick guidance document *Additional Information Requirements for Wind Turbines* created to outline additional requirements to the *Environmental Impact Assessment Regulation* are outlined in Table 1.

TABLE 1: RECOMMENDED SOUND CRITERIA FOR WIND TURBINES (*ADDITIONAL INFORMATION REQUIREMENTS FOR WIND TURBINES*).

Wind Speed (m/s)	4	5	6	7	8	9	10	11
Wind Turbine Sound Criteria [dB(A)]	40	40	40	43	45	49	51	53

Using both the Nova Scotia and New Brunswick guidance documents, a threshold of 40 dB(A) for sound levels at the exterior of a receptor for all wind speeds was selected.

1.2 Receptors

There are 61 receptors located within 2 km of the turbine locations that consist of year-long dwellings and seasonal dwellings. They have been identified based on online geographical

data from the Data Catalogue available from the Government of Nova Scotia and cross referenced with aerial photography, as well as site visits. The geographical coordinates of these receptors are included in Appendix B. A map of the Project area with the receptors is included in Appendix A.

1.3 Turbine Model

The turbine model used for the assessment is the Enercon E-138 4.2 MW machine. The E-138 model has a hub height of 131 m and a rotor diameter of 138 m. The geographical coordinates of the 16 proposed turbines are included in Appendix B.

Should an alternate turbine model be selected, a new sound assessment will be conducted.

1.4 Siting

All turbines have been set back over a kilometer from the nearest dwellings. There are no schools, care homes, or other sensitive receptors within 2 km of the turbines and no other wind turbines within 3 km of the Project.

The area is currently used for blueberry farming and forestry purposes. As some areas are covered in trees and thick shrubs that will aid in the absorption of sound from both construction and operation of the Project. The Project is not near the ocean.

2 Construction Sound Assessment

General construction activities include those associated with vegetation clearing, road building, foundations, and turbine erection. These activities will likely involve the use of backhoes, concrete mixers and pumps, cranes, dump trucks, excavators and light-duty pick-up trucks with the associated sound levels predicted in Table 2.

TABLE 2: SOUND POWER LEVELS ASSOCIATED WITH CONSTRUCTION EQUIPMENT (WASHINGTON STATE DEPARTMENT OF TRANSPORTATION, 2017)

Equipment	Max Sound Power Level (dB{A})
Backhoe	78
Concrete Mixer	79
Concrete Pump	81
Crane	81
Dump Truck	76
Excavator	81
Pick-up Truck	75

It is not expected that all equipment would be running at the same time, but to determine maximum expected sound levels during construction, the WSDoT (2017) guidelines for decibel addition were used to determine that 86 dB[A] is the highest expected sound level during combined construction activities (Washington State Department of Transportation, 2017).

The environment in which the Project construction will occur is considered a soft environment with normal unpacked earth. The normal unpacked earth and topography will facilitate attenuation of noise emissions at shorter distances. Table 3 identifies the sound levels predicted to be observed at various distances from the construction site determined using WSDoT (2017) guidelines.

TABLE 3: WORST-CASE SOUND LEVELS IN THE SURROUNDING ENVIRONMENT CALCULATED USING WSDOT (WASHINGTON STATE DEPARTMENT OF TRANSPORTATION, 2017) GUIDELINES AND ASSUMING SOUND LEVELS IN SOFT ENVIRONMENT ATTENUATES AT -7.5 DB[A] PER DOUBLING OF DISTANCE.

Distance	Construction Sound Level (dB[A])
50 ft (15.2 m)	86
100 ft (30.5 m)	78.5
200 ft (61 m)	71
400 ft (122 m)	63.5
800 ft (244 m)	56
1600 ft (488 m)	48.5
3200 ft (975 m)	41

Many sound level scales refer to 70 dB[A] as an arbitrary base of comparison where levels above 70 dB[A] can be considered annoying to some people (Purdue University). As indicated in Table 3, at 61 m from the construction site, noise levels are approximately 70 dB[A], similar to that of a car travelling at 100 km/h and just at the threshold of possible annoyance (Purdue University, 2000). Also indicated in Table 3, sound levels from the construction site reach ~40 dB[A] at 1 km from the site. With the nearest dwelling located ~1.5 km from a proposed turbine, construction noise is not expected to impact dwellings in the area. Further, the construction noise is not expected to be annoyingly high beyond 61 m from the construction site as sound levels at this distance have already attenuated to approximately 70 dB[A].

Additionally, this site has been chosen due to its excellent wind resource. Wind generally increases ambient sound levels in an area and in combination with the vegetative cover will aid in making construction noise less noticeable at even shorter distances (Washington State Department of Transportation, 2017).

3 Operational Sound Assessment Methodology

The operational sound pressure level was calculated at each point of reception using the Decibel module of WindPRO v.3.5, which uses the ISO 9613-2 model "Attenuation of sound during propagation outdoors, Part 2: A general method of calculation".

3.1 Worst Case Sound Assessment

The worst-case sound assessment followed a conservative methodology in calculating sound levels by assuming downwind propagation is occurring simultaneously in all directions of the wind turbines. Sound propagation in an upwind direction would result in a significant reduction of sound levels at any receptor located upwind from the turbine. This means that the resulting sound levels from the assessment are likely calculated as higher than they would be experienced.

As another conservative measure, no attenuation was considered from topographical shielding for objects (such as barns, trees, buildings, etc.) located between the turbines and receptors. A global ground attenuation of 0 was input, which represents a ground area that is covered in glass, to produce the worst-case scenario for sound impacts.

No correction for special audible characteristics, such as clearly audible tones, impulses, or modulation of sound levels, was made as part of this assessment. These are not common characteristics of modern WTGs in a well-designed wind farm. It is common that WTG manufacturers guarantee the absence of tonal sound produced by the WTG. Furthermore, impulses and modulation of sound levels from the wind farm under normal conditions would not be of a level to necessitate the application of any penalty.

Additionally, all 16 proposed turbine locations were included in the worst-case sound assessment, whereas only up to 12 will be constructed.

4 Results of Operational Sound Assessment

The results of the worst-case sound prediction model for the receptors that are predicted to receive the highest sound levels are summarized in Table 4. The full results from windPRO are included in Appendix B. All receptors adhere to the *Guide to Preparing an EA Registration Document for Wind Power Projects in Nova* Scotia in that the sound levels do not exceed 40 dBA at the receptors.

Table 4 shows the maximum modeled sound levels that are predicted to be experienced at each of the 10 receptors predicted to receive the highest sound levels for any wind speed from

4.0 m/s to 12.0 m/s. The highest perceived sound is anticipated to be 36.6 dB(A) according to the current modelling.

TABLE 4: OPERATIONAL SOUND LEVEL SUMMARY OF THE 10 RECEPTORS PREDICTED TO RECEIVE THE HIGHEST SOUND LEVELS FOR ANY WIND SPEED MODELLED BETWEEN AND INCLUDING 4 TO 12 M/S.

Receptor ID	Worst Case Max Sound Level from WTG [dB(A)]	Compliance with Nova Scotia's Requirements (under worst case assessment)
BE	36.6	Yes
BI	35.2	Yes
BC	35	Yes
AH	34.9	Yes
BD	34.9	Yes
AF	34.8	Yes
AG	34.3	Yes
AE	33.9	Yes
AC	33.7	Yes
BH	33.7	Yes

4.1 Low Frequency Sound

Infrasound describes sounds with a frequency less than 20 Hz and can occur when large masses are in motion. The movement of wind turbine blades has generated infrasound in the local environment in some cases. An additional assessment was completed through the Finland Low Frequency module of windPRO v3.5. This assessment showed a minimum frequency of 80 Hz observed at all receptors, 60 Hz higher than the threshold for infrasound.

The details of this assessment have been included in Appendix C.

5 Conclusion and Mitigation

While heightened sound levels during construction activities are unavoidable, the sound level assessment for the construction period shows that sounds levels at nearby residences are not expected to be significant. Various mitigation measures will be put in place during construction to limit the heightened sound levels.

The operational sound level modelling for the Project demonstrates that the sound levels expected to be experienced at receptors under worst case conditions adhere to the Nova Scotia guidance. Should excessive sound emissions from the Project be reported during operation at nearby receptors, screening mitigations will be explored for feasibility in the area. Such mitigation measures for heightened sound levels could include increasing vegetation between

the receptor and emitting source, and any other appropriate technology available at the time of the required mitigation.

6 References

Enercon GmbH ed. (2017). Data Sheet - Enercon Wind Energy Converter E-138. Germany.

Government of Nova Scotia Environmental Assessment Branch. (2021, October). *Guide to Preparing an EA Registration Document for Wind Power Projects in Nova Scotia.* Retrieved from Government of Nova Scotia: https://www.novascotia.ca/nse/ea/docs/EA.Guide-Proponents-WindPowerProjects.pdf

Purdue University. (2000). *Noise Sources and Their Effects.* Retrieved from Purdue: https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm

Purdue University. (n.d.). *Hearing Conservation Program.* Retrieved from https://www.purdue.edu/ehps/rem/documents/programs/HCP.pdf

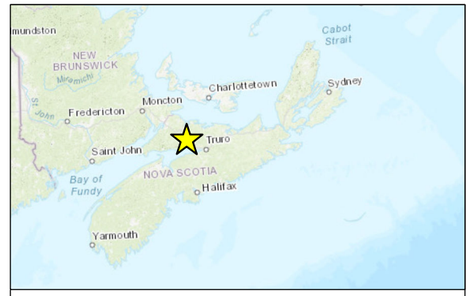
van Kamp, I., & van den Berg, F. (2018). Health Effects Related to Wind Turbine Sound, Including Low-Frequency Sound and Infrasound. *Acoustics Austalia*, 31-57.

Washington State Department of Transportation. (2017). *Chapter 7 - Noise Impact Assessment.* Retrieved from Biological Assessment Preparation for Transportation Projects - Advanced Training Manual: http://www.wsdot.wa.gov/NR/rdonlyres/448B609A-A84E-4670-811B-9BC68AAD3000/0/BA_ManualChapter7.pdf

Appendix A: Project Map with Modelled Operational Sound Assessment Contours

Westchester Wind Project

Sound Assessment



Legend

- Turbines
- Receptors
- Existing Transmission Lines

Sound Contours

- 35 dB(A)
- 40 dB(A) [regulated max.]
- 45 dB(A)
- 50 dB(A)

Notes

1. The regulated maximum perceived sound at a receptor is 40 dB(A) according to the *Guide to Preparing an EA Registration Document for Wind Power Projects in Nova Scotia*.
2. All receptors are outside the 40 dB(A) regulated maximum contour line.

Sources

- Basedata provided by the Province of Nova Scotia
- Basemap: Maxar World Imagery

N

1:25,000

0 500 1,000 1,500

Metres

WGS 1984 UTM Zone 19N

Page Size: 11" x 17"

Production Date: Jan 25, 2022	Prepared By: J. Byrne

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Appendix B: WindPRO v.3.5 Decibel Module Calculation Results: Worst Case

Project:
Westchester Wind Project

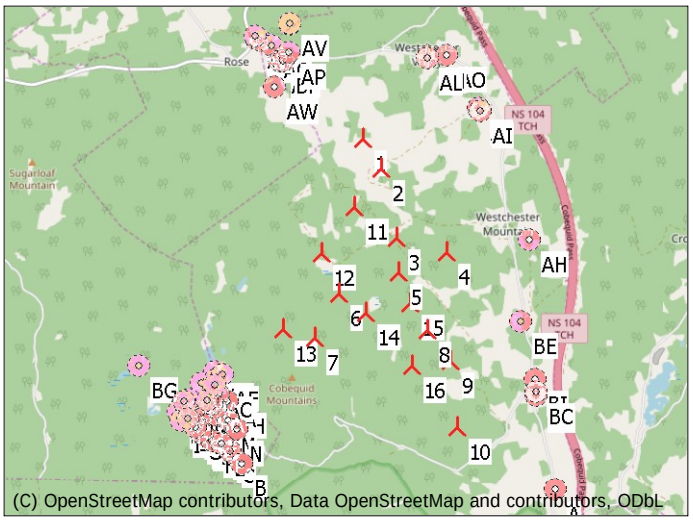
Licensed user:
Natural Forces Development Limited Partnership
1801 Hollis Street, Suite 1205
CA-HALIFAX, Nova Scotia B3J 3N4
902 422 9663
Jill Byrne / jbyrne@naturalforces.ca
Calculated:
1/21/2022 1:35 PM/3.5.552

DECIBEL - Main Result

Calculation: Westchester Wind Project - 16Ta Layout E-138 WC Noise

Noise calculation model:
ISO 9613-2 General
Wind speed (in 10 m height):
4.0 m/s - 12.0 m/s, step 1.0 m/s
Ground attenuation:
Fixed values, Agr: 0.0, Dc: 0.0
Meteorological coefficient, C0:
0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Fixed penalty added to source noise of WTGs with pure tones
Model: 5.0 dB(A)
Height above ground level, when no value in NSA object:
1.5 m; Don't allow override of model height with height from NSA object
Uncertainty margin:
0.0 dB; Uncertainty margin in NSA has priority
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0.0 dB(A)

All coordinates are in
Geo [deg]-WGS84



Scale 1:100,000

New WTG

Noise sensitive area

WTGs

	Longitude	Latitude	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Noise data Creator	Name	First wind speed	LwaRef	Last wind speed	LwaRef
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]	[m/s]	[dB(A)]
1	-63.747512° E	45.582799° N	300.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
2	-63.744478° E	45.579227° N	282.7	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
3	-63.741819° E	45.571063° N	318.3	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
4	-63.733222° E	45.569255° N	319.8	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
5	-63.741558° E	45.566780° N	330.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
6	-63.751559° E	45.564326° N	320.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
7	-63.755795° E	45.559117° N	300.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
8	-63.736569° E	45.560017° N	308.5	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
9	-63.732593° E	45.556378° N	307.3	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
10	-63.731539° E	45.548478° N	280.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
11	-63.748992° E	45.574598° N	306.8	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
12	-63.754519° E	45.569098° N	300.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
13	-63.761049° E	45.560081° N	290.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
14	-63.747043° E	45.561965° N	308.8	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
15	-63.739500° E	45.563238° N	320.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0
16	-63.739287° E	45.555804° N	303.9	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	4.0	100.3	12.0	106.0

Calculation Results

Sound level

Noise sensitive area No.	Name	Longitude	Latitude	Z	Immission height	Demands Min Noise	Sound level Max From WTGs	Distance to noise demand	Demands fulfilled ? Noise
				[m]	[m]	[dB(A)]	[dB(A)]	[m]	
A	Noise sensitive point: Demands defined in calculation setup. (1)	-63.714789° E	45.540936° N	193.9	1.5	40.0	30.1	1,098	Yes
B	Noise sensitive point: Demands defined in calculation setup. (2)	-63.768057° E	45.544068° N	214.8	1.5	40.0	30.8	1,268	Yes
C	Noise sensitive point: Demands defined in calculation setup. (3)	-63.769933° E	45.545567° N	210.0	1.5	40.0	31.0	1,183	Yes
D	Noise sensitive point: Demands defined in calculation setup. (4)	-63.770785° E	45.546132° N	210.0	1.5	40.0	31.0	1,162	Yes
E	Noise sensitive point: Demands defined in calculation setup. (5)	-63.771545° E	45.546533° N	210.0	1.5	40.0	31.0	1,156	Yes
F	Noise sensitive point: Demands defined in calculation setup. (7)	-63.773104° E	45.546866° N	210.0	1.5	40.0	30.7	1,195	Yes
G	Noise sensitive point: Demands defined in calculation setup. (8)	-63.775921° E	45.548454° N	210.9	1.5	40.0	30.5	1,205	Yes
H	Noise sensitive point: Demands defined in calculation setup. (9)	-63.776380° E	45.549091° N	210.0	1.5	40.0	30.6	1,181	Yes
I	Noise sensitive point: Demands defined in calculation setup. (10)	-63.778338° E	45.549330° N	214.7	1.5	40.0	30.1	1,279	Yes
J	Noise sensitive point: Demands defined in calculation setup. (11)	-63.777118° E	45.549491° N	210.0	1.5	40.0	30.5	1,194	Yes
K	Noise sensitive point: Demands defined in calculation setup. (12)	-63.777395° E	45.549504° N	210.2	1.5	40.0	30.4	1,209	Yes
L	Noise sensitive point: Demands defined in calculation setup. (13)	-63.772787° E	45.549955° N	210.0	1.5	40.0	32.1	915	Yes
M	Noise sensitive point: Demands defined in calculation setup. (15)	-63.770329° E	45.549249° N	213.8	1.5	40.0	32.6	853	Yes
N	Noise sensitive point: Demands defined in calculation setup. (16)	-63.768946° E	45.548176° N	211.0	1.5	40.0	32.5	894	Yes
O	Noise sensitive point: Demands defined in calculation setup. (17)	-63.771421° E	45.546465° N	210.0	1.5	40.0	31.0	1,157	Yes
P	Noise sensitive point: Demands defined in calculation setup. (18)	-63.776859° E	45.549322° N	210.0	1.5	40.0	30.5	1,191	Yes

To be continued on next page...

Licensed user:
Natural Forces Development Limited Partnership
1801 Hollis Street, Suite 1205
CA-HALIFAX, Nova Scotia B3J 3N4
902 422 9663
Jill Byrne / jbyrne@naturalforces.ca
Calculated:
1/21/2022 1:35 PM/3.5.552

DECIBEL - Main Result

Calculation: Westchester Wind Project - 16Ta Layout E-138 WC Noise

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Noise sensitive area No.	Name	Longitude	Latitude	Z [m]	Immission height [m]	Demands Min Noise [dB(A)]	Sound level Max From WTGs [dB(A)]	Distance to noise demand [m]	Demands fulfilled ? Noise
Q	Noise sensitive point: Demands defined in calculation setup. (19)	-63.774991° E	45.547762° N	210.0	1.5	40.0	30.5	1,211	Yes
R	Noise sensitive point: Demands defined in calculation setup. (20)	-63.775076° E	45.547830° N	210.0	1.5	40.0	30.5	1,210	Yes
S	Noise sensitive point: Demands defined in calculation setup. (21)	-63.778840° E	45.550265° N	210.6	1.5	40.0	30.2	1,245	Yes
T	Noise sensitive point: Demands defined in calculation setup. (22)	-63.772606° E	45.550776° N	215.1	1.5	40.0	32.5	840	Yes
U	Noise sensitive point: Demands defined in calculation setup. (23)	-63.775787° E	45.550911° N	210.0	1.5	40.0	31.4	1,014	Yes
V	Noise sensitive point: Demands defined in calculation setup. (24)	-63.773036° E	45.551150° N	211.6	1.5	40.0	32.5	834	Yes
W	Noise sensitive point: Demands defined in calculation setup. (25)	-63.773528° E	45.551328° N	210.0	1.5	40.0	32.4	848	Yes
X	Noise sensitive point: Demands defined in calculation setup. (26)	-63.778103° E	45.551326° N	210.8	1.5	40.0	30.8	1,130	Yes
Y	Noise sensitive point: Demands defined in calculation setup. (27)	-63.777810° E	45.551599° N	214.1	1.5	40.0	30.9	1,094	Yes
Z	Noise sensitive point: Demands defined in calculation setup. (28)	-63.772223° E	45.552354° N	215.9	1.5	40.0	33.4	697	Yes
AA	Noise sensitive point: Demands defined in calculation setup. (29)	-63.772035° E	45.552367° N	216.5	1.5	40.0	33.4	685	Yes
AB	Noise sensitive point: Demands defined in calculation setup. (30)	-63.772897° E	45.553087° N	220.0	1.5	40.0	33.4	687	Yes
AC	Noise sensitive point: Demands defined in calculation setup. (31)	-63.772747° E	45.553543° N	220.0	1.5	40.0	33.7	646	Yes
AD	Noise sensitive point: Demands defined in calculation setup. (32)	-63.774967° E	45.553675° N	227.3	1.5	40.0	32.7	783	Yes
AE	Noise sensitive point: Demands defined in calculation setup. (33)	-63.772768° E	45.554071° N	220.0	1.5	40.0	33.9	614	Yes
AF	Noise sensitive point: Demands defined in calculation setup. (34)	-63.771428° E	45.554759° N	223.6	1.5	40.0	34.8	485	Yes
AG	Noise sensitive point: Demands defined in calculation setup. (35)	-63.772632° E	45.555014° N	220.0	1.5	40.0	34.3	551	Yes
AH	Noise sensitive point: Demands defined in calculation setup. (36)	-63.719113° E	45.570841° N	260.0	1.5	40.0	34.9	585	Yes
AI	Noise sensitive point: Demands defined in calculation setup. (37)	-63.727526° E	45.586078° N	257.3	1.5	40.0	32.8	928	Yes
AJ	Noise sensitive point: Demands defined in calculation setup. (39)	-63.727829° E	45.586422° N	256.1	1.5	40.0	32.8	926	Yes
AK	Noise sensitive point: Demands defined in calculation setup. (40)	-63.761678° E	45.592055° N	156.4	1.5	40.0	31.0	1,025	Yes
AL	Noise sensitive point: Demands defined in calculation setup. (41)	-63.736553° E	45.592374° N	225.9	1.5	40.0	32.2	845	Yes
AM	Noise sensitive point: Demands defined in calculation setup. (42)	-63.761778° E	45.592225° N	154.5	1.5	40.0	30.9	1,043	Yes
AN	Noise sensitive point: Demands defined in calculation setup. (43)	-63.736525° E	45.592509° N	224.3	1.5	40.0	32.1	859	Yes
AO	Noise sensitive point: Demands defined in calculation setup. (44)	-63.733306° E	45.592659° N	226.6	1.5	40.0	31.3	1,026	Yes
AP	Noise sensitive point: Demands defined in calculation setup. (45)	-63.760032° E	45.593046° N	150.0	1.5	40.0	30.9	1,018	Yes
AQ	Noise sensitive point: Demands defined in calculation setup. (46)	-63.762993° E	45.593857° N	146.8	1.5	40.0	29.8	1,240	Yes
AR	Noise sensitive point: Demands defined in calculation setup. (47)	-63.764889° E	45.594486° N	147.3	1.5	40.0	29.2	1,393	Yes
AS	Noise sensitive point: Demands defined in calculation setup. (48)	-63.765453° E	45.594721° N	149.0	1.5	40.0	28.9	1,442	Yes
AT	Noise sensitive point: Demands defined in calculation setup. (49)	-63.765922° E	45.594907° N	149.2	1.5	40.0	28.8	1,483	Yes
AU	Noise sensitive point: Demands defined in calculation setup. (50)	-63.759863° E	45.596380° N	147.0	1.5	40.0	29.3	1,310	Yes
AV	Noise sensitive point: Demands defined in calculation setup. (51)	-63.759912° E	45.596458° N	146.9	1.5	40.0	29.2	1,319	Yes
AW	Noise sensitive point: Demands defined in calculation setup. (52)	-63.762598° E	45.588932° N	181.5	1.5	40.0	32.2	868	Yes
AX	Noise sensitive point: Demands defined in calculation setup. (53)	-63.761277° E	45.592233° N	155.5	1.5	40.0	31.0	1,016	Yes
AY	Noise sensitive point: Demands defined in calculation setup. (54)	-63.765594° E	45.594713° N	148.7	1.5	40.0	28.9	1,450	Yes
AZ	Noise sensitive point: Demands defined in calculation setup. (55)	-63.772780° E	45.553427° N	220.0	1.5	40.0	33.6	656	Yes
BA	Noise sensitive point: Demands defined in calculation setup. (56)	-63.773970° E	45.551696° N	211.7	1.5	40.0	32.4	848	Yes
BB	Noise sensitive point: Demands defined in calculation setup. (57)	-63.776993° E	45.551863° N	217.8	1.5	40.0	31.3	1,024	Yes
BC	Noise sensitive point: Demands defined in calculation setup. (58)	-63.718156° E	45.552683° N	199.0	1.5	40.0	35.0	602	Yes
BD	Noise sensitive point: Demands defined in calculation setup. (59)	-63.718087° E	45.552275° N	196.5	1.5	40.0	34.9	609	Yes
BE	Noise sensitive point: Demands defined in calculation setup. (60)	-63.720682° E	45.561094° N	220.0	1.5	40.0	36.6	424	Yes
BF	Noise sensitive point: Demands defined in calculation setup. (61)	-63.761067° E	45.592028° N	157.4	1.5	40.0	31.2	989	Yes
BG	Noise sensitive point: Demands defined in calculation setup. (62)	-63.785552° E	45.555718° N	210.0	1.5	40.0	29.1	1,467	Yes
BH	Noise sensitive point: Demands defined in calculation setup. (64)	-63.770487° E	45.551557° N	222.4	1.5	40.0	33.7	663	Yes
BI	Noise sensitive point: Demands defined in calculation setup. (65)	-63.718339° E	45.554217° N	204.3	1.5	40.0	35.2	558	Yes

Distances (m)

NSA	WTG 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A	5306	4844	3957	3460	3551	3872	3785	2717	2208	1553	4595	4405	4191	3435	3140	2527
B	4592	4318	3632	3902	3263	2593	1927	3030	3088	2893	3704	2975	1861	2578	3083	2597
C	4491	4235	3583	3890	3234	2530	1867	3059	3152	3015	3616	2878	1755	2552	3082	2649
D	4460	4211	3575	3898	3235	2518	1857	3084	3191	3075	3591	2850	1726	2555	3094	2683
E	4444	4202	3579	3914	3246	2518	1862	3114	3231	3131	3581	2837	1714	2568	3115	2721
F	4464	4233	3632	3985	3310	2567	1918	3204	3334	3250	3610	2865	1744	2637	3192	2820
G	4413	4208	3660	4055	3367	2593	1968	3329	3495	3465	3585	2837	1737	2708	3283	2974
H	4370	4172	3638	4045	3354	2573	1955	3336	3512	3501	3550	2802	1710	2700	3280	2990
I	4429	4245	3735	4159	3464	2673	2068	3470	3656	3654	3623	2877	1802	2817	3403	3132
J	4363	4172	3652	4069	3375	2588	1978	3374	3559	3560	3550	2803	1720	2726	3310	3035
K	4373	4184	3667	4087	3392	2604	1996	3394	3580	3581	3562	2816	1735	2744	3328	3056
L	4148	3932	3368	3759	3072	2301	1672	3040	3218	3224	3308	2561	1451	2412	2988	2694
M	4131	3894	3290	3651	2973	2225	1578	2894	3050	3029	3272	2527	1405	2302	2865	2530
N	4195	3943	3309	3641	2974	2250	1591	2849	2980	2920	3323	2583	1459	2296	2843	2465
O	4447	4204	3579	3912	3245	2518	1861	3109	3225	3121	3583	2840	1716	2566	3111	2715

To be continued on next page...

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Natural Forces Development Limited Partnership
1801 Hollis Street, Suite 1205
CA-HALIFAX, Nova Scotia B3J 3N4
902 422 9663
Jill Byrne / jbyrne@naturalforces.ca

DECIBEL - Main Result

Calculation: Westchester Wind Project - 16Ta Layout E-138 WC Noise

...continued from previous page

	WTG															
NSA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
P	4368	4174	3649	4063	3370	2584	1972	3362	3543	3539	3552	2805	1718	2718	3301	3020
Q	4444	4230	3661	4041	3358	2595	1959	3294	3445	3393	3607	2859	1749	2692	3260	2927
R	4441	4227	3661	4042	3358	2594	1959	3297	3449	3399	3604	2856	1747	2693	3262	2931
S	4364	4189	3700	4139	3440	2641	2050	3473	3673	3698	3569	2825	1766	2802	3392	3148
T	4061	3848	3294	3696	3006	2228	1606	2994	3185	3216	3225	2477	1372	2351	2932	2660
U	4174	3983	3470	3897	3201	2408	1807	3224	3426	3465	3361	2615	1537	2558	3146	2900
V	4041	3834	3291	3702	3009	2226	1611	3012	3210	3253	3211	2463	1364	2358	2942	2685
W	4043	3840	3306	3723	3029	2242	1632	3042	3244	3293	3217	2470	1376	2381	2967	2719
X	4234	4061	3582	4030	3329	2526	1944	3383	3596	3649	3442	2699	1649	2697	3291	3070
Y	4196	4023	3545	3995	3294	2489	1911	3352	3569	3629	3404	2662	1612	2663	3258	3043
Z	3894	3688	3155	3576	2880	2091	1486	2910	3125	3205	3065	2317	1224	2237	2826	2599
AA	3885	3678	3143	3563	2867	2078	1473	2896	3111	3190	3055	2307	1212	2223	2812	2585
AB	3850	3654	3142	3580	2880	2082	1494	2938	3167	3269	3032	2285	1208	2246	2840	2641
AC	3800	3607	3101	3544	2844	2042	1461	2914	3150	3265	2985	2238	1167	2214	2810	2624
AD	3881	3704	3229	3689	2986	2177	1614	3079	3321	3439	3084	2342	1299	2366	2965	2795
AE	3751	3562	3066	3517	2815	2010	1438	2902	3146	3278	2940	2195	1132	2191	2789	2620
AF	3632	3437	2936	3389	2687	1880	1313	2783	3037	3191	2815	2069	1003	2065	2664	2511
AG	3657	3473	2994	3459	2755	1943	1391	2869	3129	3289	2853	2109	1065	2141	2743	2604
AH	2584	2187	1772	1115	1809	2633	3145	1817	1921	2667	2369	2770	3484	2392	1801	2296
AI	1601	1526	2007	1921	2407	3059	3720	2980	3323	4189	2105	2827	3897	3082	2704	3486
AJ	1587	1525	2026	1953	2431	3075	3737	3012	3359	4226	2110	2836	3909	3103	2732	3517
AK	1510	1958	2800	3368	3217	3180	3688	4063	4568	5383	2177	2611	3553	3533	3639	4390
AL	1365	1586	2403	2582	2870	3329	3988	3595	4011	4893	2201	2942	4065	3476	3245	4069
AM	1528	1977	2820	3388	3237	3201	3708	4083	4588	5403	2198	2631	3572	3553	3660	4411
AN	1378	1601	2418	2596	2885	3344	4003	3610	4026	4907	2215	2956	4079	3491	3260	4084
AO	1558	1728	2490	2600	2946	3455	4119	3636	4031	4911	2350	3097	4217	3575	3304	4121
AP	1500	1957	2826	3371	3255	3259	3784	4101	4602	5428	2223	2695	3663	3599	3679	4443
AQ	1723	2174	3024	3587	3442	3400	3900	4288	4792	5607	2402	2829	3756	3756	3864	4615
AR	1877	2326	3164	3737	3576	3509	3993	4421	4927	5736	2534	2934	3834	3872	3997	4739
AS	1927	2375	3211	3785	3621	3547	4027	4466	4972	5779	2578	2972	3864	3913	4042	4782
AT	1968	2415	3249	3825	3658	3578	4054	4502	5009	5814	2614	3002	3888	3945	4078	4816
AU	1790	2252	3145	3661	3585	3620	4152	4430	4927	5763	2564	3060	4034	3952	4010	4785
AV	1800	2262	3155	3670	3595	3629	4161	4439	4937	5772	2574	3069	4043	3962	4020	4795
AW	1360	1778	2563	3167	2958	2866	3355	3801	4308	5106	1914	2292	3208	3233	3376	4106
AX	1501	1951	2799	3363	3219	3192	3704	4065	4569	5387	2181	2624	3572	3542	3642	4396
AY	1934	2382	3216	3792	3626	3549	4028	4471	4977	5784	2583	2974	3864	3916	4047	4786
AZ	3813	3619	3111	3553	2853	2052	1469	2920	3154	3266	2997	2250	1177	2221	2817	2628
BA	4025	3828	3305	3731	3034	2242	1641	3062	3271	3331	3205	2458	1373	2391	2980	2745
BB	4136	3960	3476	3925	3224	2420	1840	3283	3502	3568	3340	2597	1543	2593	3188	2976
BC	4055	3594	2753	2185	2406	2910	3024	1652	1199	1144	3423	3373	3447	2479	2037	1685
BD	4096	3634	2791	2226	2440	2936	3040	1680	1221	1132	3460	3403	3464	2503	2068	1701
BE	3193	2740	1987	1334	1747	2436	2749	1246	1067	1638	2671	2786	3152	2060	1488	1566
BF	1473	1923	2771	3335	3192	3166	3680	4038	4541	5359	2154	2598	3549	3515	3614	4369
BG	4227	4135	3815	4352	3647	2820	2353	3853	4134	4292	3541	2842	1973	3085	3690	3611
BH	3907	3684	3115	3511	2821	2048	1421	2809	3006	3059	3061	2313	1200	2165	2745	2481
BI	3907	3447	2619	2035	2287	2826	2974	1562	1138	1212	3294	3272	3397	2400	1932	1645

Appendix C: WindPRO v.3.5 Decibel Module Calculation Results: Finland Low Frequency Assessment

Project:

Westchester Wind Project

Licensed user:
Natural Forces Development Limited Partnership
1801 Hollis Street, Suite 1205
CA-HALIFAX, Nova Scotia B3J 3N4
902 422 9663
Jill Byrne / jbyrne@naturalforces.ca

Calculated:

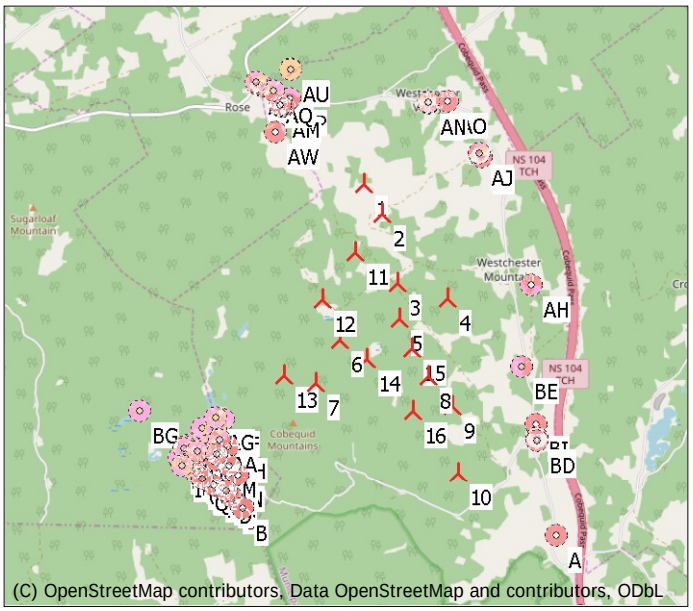
1/21/2022 2:12 PM/3.5.552

DECIBEL - Main Result

Calculation: Westchester Wind Project - 16Ta EA Layout Low Frequency

Noise calculation model:
Finland Low frequency
Wind speed (in 10 m height):
Highest noise value at receptor
Spectral distribution:
From 20.0 Hz to 200.0 Hz
Meteorological coefficient, C0:
0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Pure tone penalty is subtracted from demand
Model: 5.0 dB(A)
Height above ground level, when no value in NSA object:
4.0 m; Don't allow override of model height with height from NSA object
Uncertainty margin:
0.0 dB; Uncertainty margin in NSA has priority
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0.0 dB(A)

All coordinates are in
Geo [deg]-WGS84



Scale 1:100,000

New WTG Noise sensitive area

All coordinates are in
Geo [deg]-WGS84

WTGs

	Longitude	Latitude	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Noise data Creator	Name	First wind speed	LwaRef	Last wind speed	LwaRef
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]	[m/s]	[dB(A)]
1	-63.747512° E	45.582799° N	300.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
2	-63.744478° E	45.579227° N	282.7	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
3	-63.741819° E	45.571063° N	318.3	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
4	-63.733222° E	45.569255° N	319.8	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
5	-63.741558° E	45.566780° N	330.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
6	-63.751559° E	45.564326° N	320.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
7	-63.755795° E	45.559117° N	300.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
8	-63.736569° E	45.560017° N	308.5	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
9	-63.732593° E	45.556378° N	307.3	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
10	-63.731539° E	45.548478° N	280.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
11	-63.748992° E	45.574598° N	306.8	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
12	-63.754519° E	45.569098° N	300.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
13	-63.761049° E	45.560081° N	290.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
14	-63.747043° E	45.561965° N	308.8	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
15	-63.739500° E	45.563238° N	320.0	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6
16	-63.739287° E	45.555804° N	303.9	ENERCON E-138 EP3 E2 4...	Yes	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	130.3	EMD	Level 0 - OM 0s - 4200 kW	3.0	85.1	12.0	94.6

Calculation Results

Sound level

Noise sensitive area No.	Name	Longitude	Latitude	Z	Immission height	Most critical demand Frequency	Most critical demand Noise	Predicted sound level WTG noise	Demands fulfilled ? Noise
				[m]	[m]	[Hz]	[dB]	[dB]	
A	Noise sensitive point: Demands defined in calculation setup. (1)	-63.714789° E	45.540936° N	193.9	4.0	80.0	22.5	27.1	No
B	Noise sensitive point: Demands defined in calculation setup. (2)	-63.768057° E	45.544068° N	214.8	4.0	80.0	22.5	27.8	No
C	Noise sensitive point: Demands defined in calculation setup. (3)	-63.769933° E	45.545567° N	210.0	4.0	80.0	22.5	27.9	No
D	Noise sensitive point: Demands defined in calculation setup. (4)	-63.770785° E	45.546132° N	210.0	4.0	80.0	22.5	27.9	No
E	Noise sensitive point: Demands defined in calculation setup. (5)	-63.771545° E	45.546533° N	210.0	4.0	80.0	22.5	27.9	No
F	Noise sensitive point: Demands defined in calculation setup. (7)	-63.773104° E	45.546866° N	210.0	4.0	80.0	22.5	27.7	No
G	Noise sensitive point: Demands defined in calculation setup. (8)	-63.775921° E	45.548454° N	210.9	4.0	80.0	22.5	27.5	No
H	Noise sensitive point: Demands defined in calculation setup. (9)	-63.776380° E	45.549091° N	210.0	4.0	80.0	22.5	27.6	No
I	Noise sensitive point: Demands defined in calculation setup. (10)	-63.778338° E	45.549330° N	214.7	4.0	80.0	22.5	27.2	No
J	Noise sensitive point: Demands defined in calculation setup. (11)	-63.777118° E	45.549491° N	210.0	4.0	80.0	22.5	27.5	No
K	Noise sensitive point: Demands defined in calculation setup. (12)	-63.777395° E	45.549504° N	210.2	4.0	80.0	22.5	27.5	No
L	Noise sensitive point: Demands defined in calculation setup. (13)	-63.772787° E	45.549955° N	210.0	4.0	80.0	22.5	28.6	No
M	Noise sensitive point: Demands defined in calculation setup. (15)	-63.770329° E	45.549249° N	213.8	4.0	80.0	22.5	29.0	No
N	Noise sensitive point: Demands defined in calculation setup. (16)	-63.768946° E	45.548176° N	211.0	4.0	80.0	22.5	28.9	No

To be continued on next page...

Licensed user:
Natural Forces Development Limited Partnership
1801 Hollis Street, Suite 1205
CA-HALIFAX, Nova Scotia B3J 3N4
902 422 9663
Jill Byrne / jbyrne@naturalforces.ca
Calculated:
1/21/2022 2:12 PM/3.5.552

DECIBEL - Main Result

Calculation: Westchester Wind Project - 16Ta EA Layout Low Frequency

...continued from previous page

Noise sensitive area						Most critical demand		Predicted sound level	Demands fulfilled ?
No.	Name	Longitude	Latitude	Z	Immission height	Frequency	Noise	WTG noise	Noise
				[m]	[m]	[Hz]	[dB]	[dB]	
O	Noise sensitive point: Demands defined in calculation setup. (17)	-63.771421° E	45.546465° N	210.0	4.0	80.0	22.5	27.9	No
P	Noise sensitive point: Demands defined in calculation setup. (18)	-63.776859° E	45.549322° N	210.0	4.0	80.0	22.5	27.5	No
Q	Noise sensitive point: Demands defined in calculation setup. (19)	-63.774991° E	45.547762° N	210.0	4.0	80.0	22.5	27.6	No
R	Noise sensitive point: Demands defined in calculation setup. (20)	-63.775076° E	45.547830° N	210.0	4.0	80.0	22.5	27.6	No
S	Noise sensitive point: Demands defined in calculation setup. (21)	-63.778840° E	45.550265° N	210.6	4.0	80.0	22.5	27.3	No
T	Noise sensitive point: Demands defined in calculation setup. (22)	-63.772606° E	45.550776° N	215.1	4.0	80.0	22.5	28.9	No
U	Noise sensitive point: Demands defined in calculation setup. (23)	-63.775787° E	45.550911° N	210.0	4.0	80.0	22.5	28.1	No
V	Noise sensitive point: Demands defined in calculation setup. (24)	-63.773036° E	45.551150° N	211.6	4.0	80.0	22.5	28.9	No
W	Noise sensitive point: Demands defined in calculation setup. (25)	-63.773528° E	45.551328° N	210.0	4.0	80.0	22.5	28.8	No
X	Noise sensitive point: Demands defined in calculation setup. (26)	-63.778103° E	45.551326° N	210.8	4.0	80.0	22.5	27.7	No
Y	Noise sensitive point: Demands defined in calculation setup. (27)	-63.777810° E	45.551599° N	214.1	4.0	80.0	22.5	27.8	No
Z	Noise sensitive point: Demands defined in calculation setup. (28)	-63.772223° E	45.552354° N	215.9	4.0	80.0	22.5	29.5	No
AA	Noise sensitive point: Demands defined in calculation setup. (29)	-63.772035° E	45.552367° N	216.5	4.0	80.0	22.5	29.5	No
AB	Noise sensitive point: Demands defined in calculation setup. (30)	-63.772897° E	45.553087° N	220.0	4.0	80.0	22.5	29.5	No
AC	Noise sensitive point: Demands defined in calculation setup. (31)	-63.772747° E	45.553543° N	220.0	4.0	80.0	22.5	29.7	No
AD	Noise sensitive point: Demands defined in calculation setup. (32)	-63.774967° E	45.553675° N	227.3	4.0	80.0	22.5	29.0	No
AE	Noise sensitive point: Demands defined in calculation setup. (33)	-63.772768° E	45.554071° N	220.0	4.0	80.0	22.5	29.8	No
AF	Noise sensitive point: Demands defined in calculation setup. (34)	-63.771428° E	45.554759° N	223.6	4.0	80.0	22.5	30.5	No
AG	Noise sensitive point: Demands defined in calculation setup. (35)	-63.772632° E	45.555014° N	220.0	4.0	80.0	22.5	30.1	No
AH	Noise sensitive point: Demands defined in calculation setup. (36)	-63.719113° E	45.570841° N	260.0	4.0	80.0	22.5	30.7	No
AI	Noise sensitive point: Demands defined in calculation setup. (37)	-63.727526° E	45.586078° N	257.3	4.0	80.0	22.5	29.2	No
AJ	Noise sensitive point: Demands defined in calculation setup. (39)	-63.727829° E	45.586422° N	256.1	4.0	80.0	22.5	29.2	No
AK	Noise sensitive point: Demands defined in calculation setup. (40)	-63.761678° E	45.592055° N	156.4	4.0	80.0	22.5	27.8	No
AL	Noise sensitive point: Demands defined in calculation setup. (41)	-63.736553° E	45.592374° N	225.9	4.0	80.0	22.5	28.5	No
AM	Noise sensitive point: Demands defined in calculation setup. (42)	-63.761778° E	45.592225° N	154.5	4.0	80.0	22.5	27.7	No
AN	Noise sensitive point: Demands defined in calculation setup. (43)	-63.736525° E	45.592509° N	224.3	4.0	80.0	22.5	28.5	No
AO	Noise sensitive point: Demands defined in calculation setup. (44)	-63.733306° E	45.592659° N	226.6	4.0	80.0	22.5	28.0	No
AP	Noise sensitive point: Demands defined in calculation setup. (45)	-63.760032° E	45.593046° N	150.0	4.0	80.0	22.5	27.7	No
AQ	Noise sensitive point: Demands defined in calculation setup. (46)	-63.762993° E	45.593857° N	146.8	4.0	80.0	22.5	27.0	No
AR	Noise sensitive point: Demands defined in calculation setup. (47)	-63.764889° E	45.594486° N	147.3	4.0	80.0	22.5	26.5	No
AS	Noise sensitive point: Demands defined in calculation setup. (48)	-63.765453° E	45.594721° N	149.0	4.0	80.0	22.5	26.4	No
AT	Noise sensitive point: Demands defined in calculation setup. (49)	-63.765922° E	45.594907° N	149.2	4.0	80.0	22.5	26.3	No
AU	Noise sensitive point: Demands defined in calculation setup. (50)	-63.759863° E	45.596380° N	147.0	4.0	80.0	22.5	26.5	No
AV	Noise sensitive point: Demands defined in calculation setup. (51)	-63.759912° E	45.596458° N	146.9	4.0	80.0	22.5	26.5	No
AW	Noise sensitive point: Demands defined in calculation setup. (52)	-63.762598° E	45.588932° N	181.5	4.0	80.0	22.5	28.6	No
AX	Noise sensitive point: Demands defined in calculation setup. (53)	-63.761277° E	45.592233° N	155.5	4.0	80.0	22.5	27.8	No
AY	Noise sensitive point: Demands defined in calculation setup. (54)	-63.765594° E	45.594713° N	148.7	4.0	80.0	22.5	26.4	No
AZ	Noise sensitive point: Demands defined in calculation setup. (55)	-63.772780° E	45.553427° N	220.0	4.0	80.0	22.5	29.6	No
BA	Noise sensitive point: Demands defined in calculation setup. (56)	-63.773970° E	45.551696° N	211.7	4.0	80.0	22.5	28.8	No
BB	Noise sensitive point: Demands defined in calculation setup. (57)	-63.776993° E	45.551863° N	217.8	4.0	80.0	22.5	28.1	No
BC	Noise sensitive point: Demands defined in calculation setup. (58)	-63.718156° E	45.552683° N	199.0	4.0	80.0	22.5	30.6	No
BD	Noise sensitive point: Demands defined in calculation setup. (59)	-63.718087° E	45.552275° N	196.5	4.0	80.0	22.5	30.5	No
BE	Noise sensitive point: Demands defined in calculation setup. (60)	-63.720682° E	45.561094° N	220.0	4.0	80.0	22.5	32.0	No
BF	Noise sensitive point: Demands defined in calculation setup. (61)	-63.761067° E	45.592028° N	157.4	4.0	80.0	22.5	27.9	No
BG	Noise sensitive point: Demands defined in calculation setup. (62)	-63.785552° E	45.555718° N	210.0	4.0	80.0	22.5	26.6	No
BH	Noise sensitive point: Demands defined in calculation setup. (64)	-63.770487° E	45.551557° N	222.4	4.0	80.0	22.5	29.7	No
BI	Noise sensitive point: Demands defined in calculation setup. (65)	-63.718339° E	45.554217° N	204.3	4.0	80.0	22.5	30.8	No

*)Spectral distribution, please see details in report "Detailed results"

Distances (m)

	WTG															
NSA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A	5306	4844	3957	3460	3551	3872	3785	2717	2208	1553	4595	4405	4191	3435	3140	2527
B	4592	4318	3632	3902	3263	2593	1927	3030	3088	2893	3704	2975	1861	2578	3083	2597
C	4491	4235	3583	3890	3234	2530	1867	3059	3152	3015	3616	2878	1755	2552	3082	2649
D	4460	4211	3575	3898	3235	2518	1857	3084	3191	3075	3591	2850	1726	2555	3094	2683
E	4444	4202	3579	3914	3246	2518	1862	3114	3231	3131	3581	2837	1714	2568	3115	2721
F	4464	4233	3632	3985	3310	2567	1918	3204	3334	3250	3610	2865	1744	2637	3192	2820
G	4413	4208	3660	4055	3367	2593	1968	3329	3495	3465	3585	2837	1737	2708	3283	2974
H	4370	4172	3638	4045	3354	2573	1955	3336	3512	3501	3550	2802	1710	2700	3280	2990
I	4429	4245	3735	4159	3464	2673	2068	3470	3656	3654	3623	2877	1802	2817	3403	3132
J	4363	4172	3652	4069	3375	2588	1978	3374	3559	3560	3550	2803	1720	2726	3310	3035
K	4373	4184	3667	4087	3392	2604	1996	3394	3580	3581	3562	2816	1735	2744	3328	3056
L	4148	3932	3368	3759	3072	2301	1672	3040	3218	3224	3308	2561	1451	2412	2988	2694
M	4131	3894	3290	3651	2973	2225	1578	2894	3050	3029	3272	2527	1405	2302	2865	2530
N	4195	3943	3309	3641	2974	2250	1591	2849	2980	2920	3323	2583	1459	2296	2843	2465
O	4447	4204	3579	3912	3245	2518	1861	3109	3225	3121	3583	2840	1716	2566	3111	2715
P	4368	4174	3649	4063	3370	2584	1972	3362	3543	3539	3552	2805	1718	2718	3301	3020
Q	4444	4230	3661	4041	3358	2595	1959	3294	3445	3393	3607	2859	1749	2692	3260	2927
R	4441	4227	3661	4042	3358	2594	1959	3297	3449	3399	3604	2856	1747	2693	3262	2931

To be continued on next page...

Licensed user:
Natural Forces Development Limited Partnership
1801 Hollis Street, Suite 1205
CA-HALIFAX, Nova Scotia B3J 3N4
902 422 9663
Jill Byrne / jbyrne@naturalforces.ca

DECIBEL - Main Result

Calculation: Westchester Wind Project - 16Ta EA Layout Low Frequency

...continued from previous page

	WTG															
NSA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
S	4364	4189	3700	4139	3440	2641	2050	3473	3673	3698	3569	2825	1766	2802	3392	3148
T	4061	3848	3294	3696	3006	2228	1606	2994	3185	3216	3225	2477	1372	2351	2932	2660
U	4174	3983	3470	3897	3201	2408	1807	3224	3426	3465	3361	2615	1537	2558	3146	2900
V	4041	3834	3291	3702	3009	2226	1611	3012	3210	3253	3211	2463	1364	2358	2942	2685
W	4043	3840	3306	3723	3029	2242	1632	3042	3244	3293	3217	2470	1376	2381	2967	2719
X	4234	4061	3582	4030	3329	2526	1944	3383	3596	3649	3442	2699	1649	2697	3291	3070
Y	4196	4023	3545	3995	3294	2489	1911	3352	3569	3629	3404	2662	1612	2663	3258	3043
Z	3894	3688	3155	3576	2880	2091	1486	2910	3125	3205	3065	2317	1224	2237	2826	2599
AA	3885	3678	3143	3563	2867	2078	1473	2896	3111	3190	3055	2307	1212	2223	2812	2585
AB	3850	3654	3142	3580	2880	2082	1494	2938	3167	3269	3032	2285	1208	2246	2840	2641
AC	3800	3607	3101	3544	2844	2042	1461	2914	3150	3265	2985	2238	1167	2214	2810	2624
AD	3881	3704	3229	3689	2986	2177	1614	3079	3321	3439	3084	2342	1299	2366	2965	2795
AE	3751	3562	3066	3517	2815	2010	1438	2902	3146	3278	2940	2195	1132	2191	2789	2620
AF	3632	3437	2936	3389	2687	1880	1313	2783	3037	3191	2815	2069	1003	2065	2664	2511
AG	3657	3473	2994	3459	2755	1943	1391	2869	3129	3289	2853	2109	1065	2141	2743	2604
AH	2584	2187	1772	1115	1809	2633	3145	1817	1921	2667	2369	2770	3484	2392	1801	2296
AI	1601	1526	2007	1921	2407	3059	3720	2980	3323	4189	2105	2827	3897	3082	2704	3486
AJ	1587	1525	2026	1953	2431	3075	3737	3012	3359	4226	2110	2836	3909	3103	2732	3517
AK	1510	1958	2800	3368	3217	3180	3688	4063	4568	5383	2177	2611	3553	3533	3639	4390
AL	1365	1586	2403	2582	2870	3329	3988	3595	4011	4893	2201	2942	4065	3476	3245	4069
AM	1528	1977	2820	3388	3237	3201	3708	4083	4588	5403	2198	2631	3572	3553	3660	4411
AN	1378	1601	2418	2596	2885	3344	4003	3610	4026	4907	2215	2956	4079	3491	3260	4084
AO	1558	1728	2490	2600	2946	3455	4119	3636	4031	4911	2350	3097	4217	3575	3304	4121
AP	1500	1957	2826	3371	3255	3259	3784	4101	4602	5428	2223	2695	3663	3599	3679	4443
AQ	1723	2174	3024	3587	3442	3400	3900	4288	4792	5607	2402	2829	3756	3756	3864	4615
AR	1877	2326	3164	3737	3576	3509	3993	4421	4927	5736	2534	2934	3834	3872	3997	4739
AS	1927	2375	3211	3785	3621	3547	4027	4466	4972	5779	2578	2972	3864	3913	4042	4782
AT	1968	2415	3249	3825	3658	3578	4054	4502	5009	5814	2614	3002	3888	3945	4078	4816
AU	1790	2252	3145	3661	3585	3620	4152	4430	4927	5763	2564	3060	4034	3952	4010	4785
AV	1800	2262	3155	3670	3595	3629	4161	4439	4937	5772	2574	3069	4043	3962	4020	4795
AW	1360	1778	2563	3167	2958	2866	3355	3801	4308	5106	1914	2292	3208	3233	3376	4106
AX	1501	1951	2799	3363	3219	3192	3704	4065	4569	5387	2181	2624	3572	3542	3642	4396
AY	1934	2382	3216	3792	3626	3549	4028	4471	4977	5784	2583	2974	3864	3916	4047	4786
AZ	3813	3619	3111	3553	2853	2052	1469	2920	3154	3266	2997	2250	1177	2221	2817	2628
BA	4025	3828	3305	3731	3034	2242	1641	3062	3271	3331	3205	2458	1373	2391	2980	2745
BB	4136	3960	3476	3925	3224	2420	1840	3283	3502	3568	3340	2597	1543	2593	3188	2976
BC	4055	3594	2753	2185	2406	2910	3024	1652	1199	1144	3423	3373	3447	2479	2037	1685
BD	4096	3634	2791	2226	2440	2936	3040	1680	1221	1132	3460	3403	3464	2503	2068	1701
BE	3193	2740	1987	1334	1747	2436	2749	1246	1067	1638	2671	2786	3152	2060	1488	1566
BF	1473	1923	2771	3335	3192	3166	3680	4038	4541	5359	2154	2598	3549	3515	3614	4369
BG	4227	4135	3815	4352	3647	2820	2353	3853	4134	4292	3541	2842	1973	3085	3690	3611
BH	3907	3684	3115	3511	2821	2048	1421	2809	3006	3059	3061	2313	1200	2165	2745	2481
BI	3907	3447	2619	2035	2287	2826	2974	1562	1138	1212	3294	3272	3397	2400	1932	1645