SOUND LEVEL IMPACT ASSESSMENT STUDY

12.14.2021

Benjamins Mill Wind Project

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1 Introduction

Natural Forces has undertaken a sound level impact assessment study for the proposed 28 turbine Benjamins Mill 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. 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-160 EP5 E2 turbine. This model has a nameplate capacity of 5.5 MW and a hub height of 120 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 64 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-160 5.5 MW machine. The E-160 model has a hub height of 120 m and a rotor diameter of 160 m. The geographical coordinates of the 28 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 forestry. The current vegetation cover of trees and thick shrubs 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 it's 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.

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 20 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 32.3 dB(A) according to the current modelling.

TABLE 4: OPERATIONAL SOUND LEVEL SUMMARY OF THE 20 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)
BL	32.3	Yes
AG	31	Yes
AC	30.6	Yes
U	30.5	Yes
V	30.5	Yes
W	30.5	Yes
BB	30.4	Yes
AI	30.3	Yes
AP	30.3	Yes
BG	30.3	Yes
AE	30.2	Yes
AH	30.2	Yes
AK	30.2	Yes
AN	30.2	Yes
AO	30.2	Yes
T	30.1	Yes
X	30.1	Yes
AD	30.1	Yes
AF	30.1	Yes
AQ	30.1	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 experiences 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-160. 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.

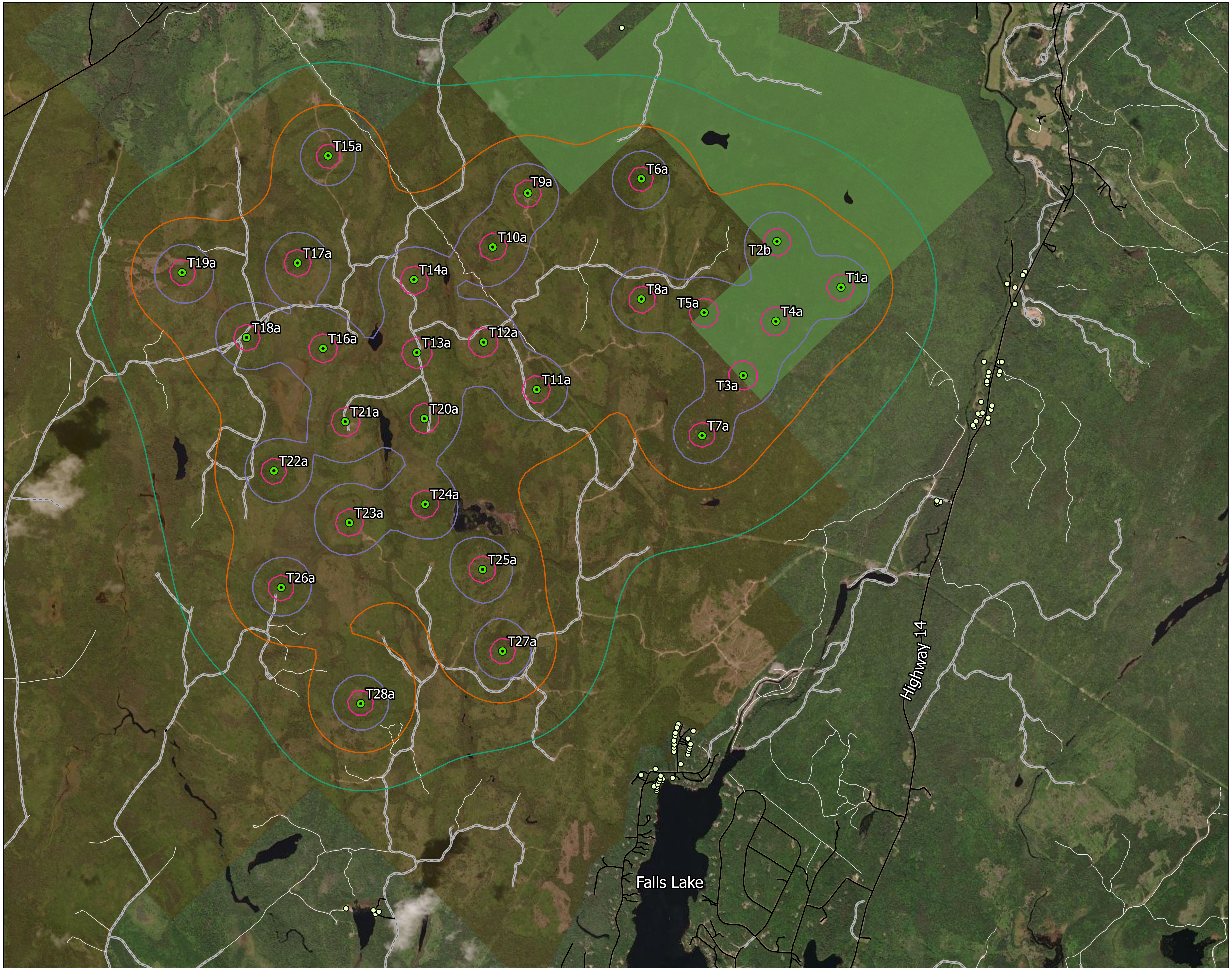
Washington State Department of Transportation. (2017). *Chapter 7 - Noise Impact Assessment.* Retrieved from Biological Assessment Preparation for Transportation Projects -

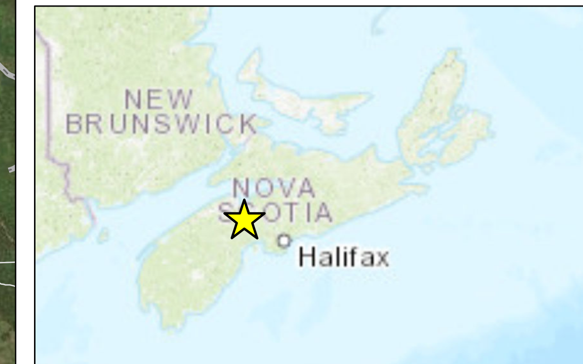
Advanced Training Manual:
http://www.wsdot.wa.gov/NR/rdonlyres/448B609A-A84E-4670-811B-9BC68AAD3000/0/BA_ManualChapter7.pdf

Appendix A: Project Map with Modelled Operational Sound Assessment Contours

Benjamins Mill Wind Project

Sound Assessment





Legend

- Preliminary Turbine Layout
- Receptors
- Trails
- Existing Resource Roads
- Existing Roads
- Crown Land
- Private Lands

Sound Assessment Contours

- 35 dB(A)
- 40 dB(A)
- 45 dB(A)
- 50 dB(A)

Notes

1. The threshold for sound perceived at a receptor from a wind turbine is 40 dB(A) as per the Guide to Preparing an *EA Registration Document for Wind Power Projects in Nova Scotia*

Sources

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

N

1:35,000

0 500 1,000 1,500

Metres

NAD 1983 UTM Zone 20N

Page Size: 11" x 17"

Production Date: Dec 15, 2021

Prepared By:

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

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Benjamins Mill

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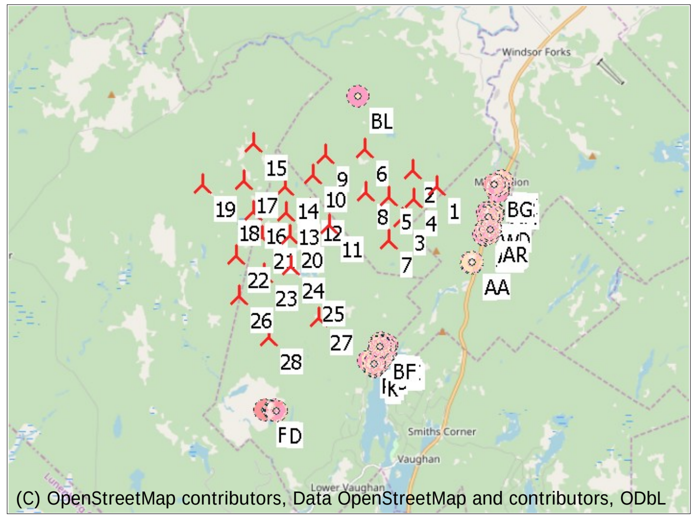
DECIBEL - Main Result

Calculation: Worst Case Sound Assessment E-160

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:
0.0 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 1:200,000
New WTG   Noise sensitive area

WTGs

	Longitude	Latitude	Z [m]	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data Creator	Name	First wind speed [m/s]	LwaRef [dB(A)]	Last wind speed [m/s]	LwaRef [dB(A)]
1	-64.225756° E	44.905495° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
2	-64.233462° E	44.909295° N	232.2	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
3	-64.237236° E	44.897905° N	248.4	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
4	-64.233444° E	44.902541° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
5	-64.242003° E	44.903180° N	260.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
6	-64.249728° E	44.914417° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
7	-64.242021° E	44.892764° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
8	-64.249506° E	44.904240° N	245.4	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
9	-64.263209° E	44.913060° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
10	-64.267282° E	44.908446° N	239.4	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
11	-64.261780° E	44.896452° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
12	-64.268193° E	44.900384° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
13	-64.276129° E	44.899419° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
14	-64.276611° E	44.905589° N	246.3	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
15	-64.287064° E	44.915942° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
16	-64.287294° E	44.899644° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
17	-64.290491° E	44.906835° N	260.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
18	-64.296416° E	44.900460° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
19	-64.304215° E	44.905873° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
20	-64.275101° E	44.893833° N	260.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
21	-64.284516° E	44.893480° N	259.6	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
22	-64.292906° E	44.889217° N	260.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
23	-64.283837° E	44.884932° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
24	-64.274849° E	44.886597° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
25	-64.267888° E	44.881154° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
26	-64.291824° E	44.879354° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
27	-64.265369° E	44.874268° N	230.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8
28	-64.282144° E	44.869642° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	4.0	100.7	12.0	106.8

Calculation Results

Sound level

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
A	Noise sensitive point: User defined (1)	-64.279986° E	44.851866° N	174.6	0.0	40.0	27.7	1,520	Yes
B	Noise sensitive point: User defined (2)	-64.246943° E	44.864508° N	119.4	0.0	40.0	29.4	1,334	Yes
C	Noise sensitive point: User defined (3)	-64.243966° E	44.864933° N	113.4	0.0	40.0	28.9	1,500	Yes
D	Noise sensitive point: User defined (4)	-64.279592° E	44.852052° N	180.0	0.0	40.0	27.8	1,502	Yes
E	Noise sensitive point: User defined (5)	-64.280237° E	44.852161° N	173.6	0.0	40.0	27.8	1,486	Yes

To be continued on next page...

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DECIBEL - Main Result

Calculation: Worst Case Sound Assessment E-160

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Noise sensitive area						Demands	Sound level		Demands fulfilled ?
No.	Name	Longitude	Latitude	Z	Immission height	Min Noise	Max From WTGs	Distance to noise demand	Noise
				[m]	[m]	[dB(A)]	[dB(A)]	[m]	
F	Noise sensitive point: User defined (6)	-64.283487° E	44.852290° N	180.0	0.0	40.0	27.8	1,470	Yes
G	Noise sensitive point: User defined (7)	-64.246775° E	44.862645° N	110.0	0.0	40.0	28.8	1,474	Yes
H	Noise sensitive point: User defined (8)	-64.246762° E	44.862820° N	110.0	0.0	40.0	28.8	1,462	Yes
I	Noise sensitive point: User defined (9)	-64.246795° E	44.862978° N	110.5	0.0	40.0	28.9	1,449	Yes
J	Noise sensitive point: User defined (10)	-64.247107° E	44.863024° N	112.7	0.0	40.0	29.0	1,427	Yes
K	Noise sensitive point: User defined (11)	-64.246665° E	44.863208° N	110.3	0.0	40.0	28.9	1,440	Yes
L	Noise sensitive point: User defined (12)	-64.246188° E	44.863465° N	110.0	0.0	40.0	28.9	1,451	Yes
M	Noise sensitive point: User defined (13)	-64.246478° E	44.863465° N	110.7	0.0	40.0	29.0	1,433	Yes
N	Noise sensitive point: User defined (14)	-64.246085° E	44.863645° N	110.0	0.0	40.0	29.0	1,445	Yes
O	Noise sensitive point: User defined (15)	-64.246401° E	44.863661° N	112.9	0.0	40.0	29.0	1,425	Yes
P	Noise sensitive point: User defined (16)	-64.244893° E	44.863763° N	110.4	0.0	40.0	28.8	1,514	Yes
Q	Noise sensitive point: User defined (17)	-64.246333° E	44.863937° N	112.1	0.0	40.0	29.1	1,410	Yes
R	Noise sensitive point: User defined (18)	-64.248663° E	44.863972° N	127.2	0.0	40.0	29.6	1,265	Yes
S	Noise sensitive point: User defined (19)	-64.203879° E	44.907028° N	35.3	0.0	40.0	29.4	1,250	Yes
T	Noise sensitive point: User defined (20)	-64.244316° E	44.868311° N	120.0	0.0	40.0	30.1	1,302	Yes
U	Noise sensitive point: User defined (21)	-64.208186° E	44.897521° N	20.0	0.0	40.0	30.5	1,153	Yes
V	Noise sensitive point: User defined (22)	-64.208213° E	44.897730° N	20.0	0.0	40.0	30.5	1,139	Yes
W	Noise sensitive point: User defined (23)	-64.208060° E	44.898196° N	20.0	0.0	40.0	30.5	1,125	Yes
X	Noise sensitive point: User defined (24)	-64.206819° E	44.898302° N	22.8	0.0	40.0	30.1	1,206	Yes
Y	Noise sensitive point: User defined (25)	-64.213934° E	44.887302° N	30.0	0.0	40.0	29.7	1,548	Yes
Z	Noise sensitive point: User defined (26)	-64.213786° E	44.887357° N	30.0	0.0	40.0	29.7	1,554	Yes
AA	Noise sensitive point: User defined (27)	-64.213570° E	44.887456° N	30.0	0.0	40.0	29.7	1,561	Yes
AB	Noise sensitive point: User defined (28)	-64.213984° E	44.887565° N	30.0	0.0	40.0	29.8	1,528	Yes
AC	Noise sensitive point: User defined (29)	-64.208021° E	44.898497° N	20.0	0.0	40.0	30.6	1,112	Yes
AD	Noise sensitive point: User defined (30)	-64.206700° E	44.898591° N	20.0	0.0	40.0	30.1	1,200	Yes
AE	Noise sensitive point: User defined (31)	-64.206765° E	44.899360° N	20.0	0.0	40.0	30.2	1,159	Yes
AF	Noise sensitive point: User defined (32)	-64.206471° E	44.899381° N	23.0	0.0	40.0	30.1	1,180	Yes
AG	Noise sensitive point: User defined (33)	-64.208595° E	44.899371° N	20.0	0.0	40.0	31.0	1,027	Yes
AH	Noise sensitive point: User defined (34)	-64.209662° E	44.893838° N	23.1	0.0	40.0	30.2	1,301	Yes
AI	Noise sensitive point: User defined (35)	-64.209813° E	44.893976° N	21.4	0.0	40.0	30.3	1,282	Yes
AJ	Noise sensitive point: User defined (36)	-64.208032° E	44.894216° N	30.3	0.0	40.0	29.7	1,374	Yes
AK	Noise sensitive point: User defined (37)	-64.209429° E	44.894324° N	20.0	0.0	40.0	30.2	1,281	Yes
AL	Noise sensitive point: User defined (38)	-64.207986° E	44.894647° N	29.2	0.0	40.0	29.8	1,348	Yes
AM	Noise sensitive point: User defined (39)	-64.205016° E	44.904299° N	27.1	0.0	40.0	29.9	1,158	Yes
AN	Noise sensitive point: User defined (40)	-64.208975° E	44.894828° N	20.0	0.0	40.0	30.2	1,274	Yes
AO	Noise sensitive point: User defined (41)	-64.208942° E	44.894872° N	20.0	0.0	40.0	30.2	1,273	Yes
AP	Noise sensitive point: User defined (42)	-64.209211° E	44.894978° N	20.0	0.0	40.0	30.3	1,249	Yes
AQ	Noise sensitive point: User defined (43)	-64.208681° E	44.895062° N	20.0	0.0	40.0	30.1	1,276	Yes
AR	Noise sensitive point: User defined (44)	-64.207692° E	44.895328° N	33.2	0.0	40.0	29.9	1,320	Yes
AS	Noise sensitive point: User defined (45)	-64.243139° E	44.865769° N	116.9	0.0	40.0	29.0	1,509	Yes
AT	Noise sensitive point: User defined (46)	-64.244782° E	44.865983° N	111.5	0.0	40.0	29.4	1,384	Yes
AU	Noise sensitive point: User defined (47)	-64.243041° E	44.866054° N	117.4	0.0	40.0	29.1	1,501	Yes
AV	Noise sensitive point: User defined (48)	-64.242962° E	44.866249° N	117.8	0.0	40.0	29.1	1,496	Yes
AW	Noise sensitive point: User defined (49)	-64.244794° E	44.866340° N	112.6	0.0	40.0	29.6	1,363	Yes
AX	Noise sensitive point: User defined (50)	-64.242899° E	44.866448° N	118.1	0.0	40.0	29.2	1,491	Yes
AY	Noise sensitive point: User defined (51)	-64.244746° E	44.866595° N	113.0	0.0	40.0	29.6	1,353	Yes
AZ	Noise sensitive point: User defined (52)	-64.242832° E	44.866633° N	118.4	0.0	40.0	29.2	1,487	Yes
BA	Noise sensitive point: User defined (53)	-64.207579° E	44.895675° N	32.1	0.0	40.0	29.9	1,304	Yes
BB	Noise sensitive point: User defined (54)	-64.208872° E	44.895978° N	20.0	0.0	40.0	30.4	1,202	Yes
BC	Noise sensitive point: User defined (55)	-64.205032° E	44.905697° N	23.7	0.0	40.0	29.9	1,149	Yes
BD	Noise sensitive point: User defined (56)	-64.244798° E	44.866926° N	113.9	0.0	40.0	29.7	1,333	Yes
BE	Noise sensitive point: User defined (57)	-64.243162° E	44.867109° N	117.6	0.0	40.0	29.4	1,441	Yes
BF	Noise sensitive point: User defined (58)	-64.244659° E	44.867328° N	115.7	0.0	40.0	29.8	1,324	Yes
BG	Noise sensitive point: User defined (59)	-64.205990° E	44.905994° N	20.0	0.0	40.0	30.3	1,075	Yes
BH	Noise sensitive point: User defined (60)	-64.244649° E	44.867585° N	116.6	0.0	40.0	29.9	1,312	Yes
BI	Noise sensitive point: User defined (61)	-64.242513° E	44.867780° N	120.0	0.0	40.0	29.5	1,456	Yes
BJ	Noise sensitive point: User defined (62)	-64.244485° E	44.868028° N	118.6	0.0	40.0	30.0	1,302	Yes
BK	Noise sensitive point: User defined (63)	-64.204126° E	44.906757° N	32.6	0.0	40.0	29.5	1,228	Yes
BL	Noise sensitive point: User defined (64)	-64.252324° E	44.927168° N	180.0	0.0	40.0	32.3	928	Yes

Project:

Benjamins Mill

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:

12/8/2021 12:49 PM/3.5.552

DECIBEL - Main Result

Calculation: Worst Case Sound Assessment E-160

Distances (m)

	WTG																					
NSA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
A	7338	7363	6129	6724	6442	7349	5444	6297	6927	6366	5158	5470	5292	5974	7141	5339	6163	5553	6298	4678	4637	4273
B	4851	5088	3789	4358	4314	5549	3163	4419	5545	5139	3737	4325	4512	5130	6534	5039	5826	5588	6448	3945	4378	4552
C	4730	4998	3702	4260	4252	5516	3096	4389	5559	5173	3774	4379	4597	5201	6611	5156	5931	5722	6583	4044	4508	4714
D	7303	7329	6095	6690	6410	7319	5410	6266	6900	6340	5130	5445	5270	5953	7123	5322	6147	5540	6288	4655	4619	4261
E	7323	7344	6113	6708	6423	7324	5428	6274	6898	6336	5132	5441	5260	5943	7106	5305	6128	5516	6261	4648	4603	4237
F	7466	7465	6247	6841	6535	7399	5563	6365	6939	6369	5197	5478	5268	5946	7077	5270	6085	5448	6174	4663	4577	4169
G	5042	5288	3989	4556	4519	5757	3367	4626	5749	5340	3938	4521	4698	5321	6722	5210	6002	5747	6607	4125	4541	4690
H	5023	5269	3970	4537	4500	5737	3348	4607	5731	5322	3920	4504	4681	5304	6705	5195	5987	5733	6593	4109	4527	4678
I	5007	5252	3953	4520	4482	5720	3331	4589	5713	5304	3903	4486	4665	5287	6689	5179	5971	5719	6579	4093	4512	4665
J	5011	5252	3953	4521	4480	5713	3328	4583	5703	5292	3890	4472	4648	5272	6672	5160	5953	5698	6558	4075	4492	4643
K	4980	5225	3926	4493	4456	5694	3304	4564	5691	5283	3882	4467	4648	5269	6671	5166	5956	5707	6567	4077	4500	4658
L	4941	5190	3891	4456	4425	5668	3272	4538	5672	5268	3866	4455	4642	5261	6664	5167	5955	5713	6573	4074	4504	4670
M	4948	5194	3895	4462	4426	5666	3274	4536	5666	5260	3859	4446	4630	5250	6653	5153	5941	5697	6557	4061	4489	4652
N	4919	5169	3870	4435	4404	5648	3251	4518	5654	5251	3850	4439	4629	5247	6651	5157	5943	5704	6564	4062	4495	4664
O	4926	5172	3873	4439	4404	5645	3252	4515	5646	5242	3840	4428	4615	5234	6637	5140	5927	5685	6546	4047	4477	4643
P	4877	5138	3841	4402	4385	5641	3230	4512	5665	5270	3869	4465	4667	5279	6686	5206	5989	5761	6621	4105	4549	4731
Q	4895	5141	3842	4408	4373	5615	3221	4485	5618	5214	3813	4402	4591	5209	6613	5119	5906	5667	6527	4024	4458	4629
R	4955	5176	3876	4450	4388	5605	3242	4474	5573	5155	3754	4329	4496	5123	6522	5002	5796	5537	6397	3920	4332	4481
S	1736	2349	2822	2387	3040	3712	3403	3616	4732	5008	4720	5131	5767	5745	6641	6637	6838	7343	7923	5812	6543	7303
T	4383	4633	3335	3899	3878	5140	2723	4013	5191	4814	3417	4032	4273	4864	6277	4862	5623	5449	6308	3735	4231	4486
U	1646	2386	2294	2071	2743	3779	2724	3347	4675	4821	4234	4749	5369	5477	6555	6251	6581	6975	7639	5300	6044	6754
V	1632	2372	2292	2063	2736	3766	2726	3340	4664	4813	4232	4745	5366	5471	6546	6248	6575	6971	7634	5300	6044	6755
W	1615	2354	2304	2062	2737	3751	2749	3341	4657	4813	4246	4754	5377	5475	6542	6259	6579	6981	7640	5316	6060	6774
X	1695	2432	2402	2154	2831	3832	2847	3435	4745	4905	4345	4852	5474	5570	6632	6356	6674	7079	7736	5415	6159	6873
Y	2226	2889	2185	2289	2833	4131	2300	3381	4830	4823	3913	4525	5093	5350	6593	5953	6423	6676	7422	4885	5616	6241
Z	2226	2890	2192	2292	2838	4134	2309	3387	4836	4831	3923	4534	5102	5359	6600	5963	6432	6686	7431	4895	5627	6252
AA	2223	2890	2200	2296	2845	4138	2323	3396	4843	4840	3936	4546	5116	5370	6610	5977	6444	6700	7445	4911	5643	6269
AB	2198	2863	2166	2265	2812	4107	2288	3362	4809	4806	3902	4512	5081	5335	6575	5943	6410	6665	7410	4877	5609	6236
AC	1602	2340	2308	2057	2733	3738	2759	3337	4648	4808	4251	4756	5379	5473	6535	6261	6577	6983	7639	5322	6066	6782
AD	1689	2425	2412	2157	2834	3825	2863	3438	4742	4907	4356	4860	5483	5575	6631	6365	6679	7087	7742	5427	6171	6887
AE	1647	2379	2412	2136	2815	3782	2879	3418	4709	4884	4356	4852	5477	5558	6602	6359	6663	7080	7728	5431	6174	6895
AF	1667	2399	2435	2158	2837	3802	2902	3441	4730	4906	4380	4875	5500	5581	6624	6382	6685	7103	7751	5454	6198	6918
AG	1516	2252	2267	1993	2672	3653	2740	3275	4572	4742	4212	4707	5333	5415	6463	6214	6519	6936	7584	5288	6031	6753
AH	1814	2546	2224	2112	2757	3903	2558	3352	4737	4830	4126	4679	5285	5445	6586	6164	6544	6890	7585	5168	5911	6594
AI	1795	2527	2209	2095	2740	3885	2547	3335	4719	4814	4113	4665	5272	5430	6569	6151	6529	6876	7570	5156	5900	6583
AJ	1879	2615	2342	2209	2861	3984	2689	3459	4833	4938	4252	4800	5408	5561	6690	6288	6660	7014	7704	5297	6041	6726
AK	1789	2523	2232	2105	2754	3887	2580	3351	4729	4830	4141	4689	5297	5450	6583	6177	6550	6903	7594	5186	5930	6617
AL	1850	2587	2338	2193	2848	3961	2696	3447	4816	4927	4253	4797	5407	5553	6677	6287	6654	7013	7700	5301	6045	6733
AM	1643	2313	2641	2253	2923	3705	3191	3513	4696	4938	4566	5007	5641	5655	6605	6517	6754	7229	7834	5655	6392	7140
AN	1778	2514	2258	2114	2768	3885	2620	3367	4737	4846	4174	4717	5327	5473	6597	6208	6573	6933	7620	5223	5967	6658
AO	1776	2513	2260	2114	2769	3884	2623	3368	4737	4847	4176	4719	5329	5474	6597	6210	6575	6935	7621	5226	5970	6661
AP	1753	2489	2237	2090	2745	3860	2603	3344	4713	4823	4155	4696	5307	5451	6573	6188	6552	6913	7599	5205	5949	6641
AQ	1778	2516	2277	2125	2782	3889	2645	3381	4747	4860	4196	4736	5348	5490	6609	6229	6591	6954	7639	5247	5991	6683
AR	1819	2559	2350	2186	2846	3939	2726	3447	4806	4926	4273	4810	5423	5560	6672	6304	6662	7029	7711	5326	6070	6764
AS	4622	4896	3601	4157	4157	5430	3000	4304	5488	5110	3713	4325	4557	5154	6565	5131	5899	5706	6567	4012	4490	4716
AT	4640	4894	3596	4159	4138	5395	2983	4267	5429	5041	3642	4246	4464	5068	6477	5026	5799	5595	6456	3913	4380	4595
AU	4590	4863	3568	4124	4125	5399	2969	4273	5460	5084	3687	4300	4536	5130	6543	5113	5880	5691	6551	3992	4474	4705
AV	4567	4841	3546	4101	4104	5378	2947	4252	5441	5066	3670	4284	4521	5115	6528	5102	5867	5681	6541	3980	4464	4699
AW	4603	4855	3557	4121	4099	5355	2944	4227	5390	5004	3604	4210	4431	5033	6443	4996	5768	5567	6428	3881	4352	4572
AX	4545	4818	3523	4079	4082	5357	2924	4231	5421	5048	3652	4267	4506	5099	6512	5089	5853	5670	6530	3966	4453	4691
AY	4575	4827	3529	4092	4070	5328	2915	4199	5364	4979	3580	4186	4409	5010	6421	4978	5748	5551	6411	3861	4335	4560
AZ	4523	4797	3502	4058	4061	5337	2904	4211	5403	5031	3635	4251	4493	5084	6497	5078	5841	5660	6520	3953	4443	4684
BA	1803	2543	2355	2180	2843	3926	2739	3445	4798	4923	4281	4815	5429	5561	6667	6310	6663	7035	7714	5336	6081	6777
BB	1702	2441	2250	2073	2736	3821	2642	3337	4691	4815	4178	4710	5325	5454	6560	6206	6557	6931	7608	5235	5980	6679
BC	1636	2280	2686	2270	2932	3659	3255	3515	4665	4924	4597	5022	5657	5651	6575	6530	6748	7239	7831	5688	6421	7176
BD	4541	4791	3493	4057	4034	5290	2879	4162	5328	4943	3544	4151	4377	4976	6387	4948	5717	5523	6383	3830	4306	4536
BE	4481	4749	3453	4011	4008	5281	2852	4155	5345	4972	3576	4192	4435	5025	6438	5021	5784	5605	6465	3896	4388	4634
BF	4495	4746	3447	4011	3989	5247	2834	4119	5288	4905	3507	4116	4346	4943	6355	4922	5689	5501	6361	3802	4284	4521
BG	1562	2200	2626	2201	2861	3578	3202	3441	4585	4847	4531	4951	5586	5576	6495	6458	6672	7166	7755	5622	6355	7112
BH	4468	4717	3419	3983	3960	5218	2805	4090	5260	4879	3481	4091	4323	4919	6331	4902	5668	5482	6342	3780	4265	4506
BI	4394	4667	3373	3928	3933	5213	2776	4088	5289	4923	3530	4151	4405	4990	6404	5004	5761	5595	6454	3873	4377	4639
BJ	4418	4667	3368	3932	3910	5170	2755	4043	5217	4838	3441	4053	4291	4884	6296	4875	5638	5460	6319	3751	4242	4491
BK	1713	2333	2793	2362	3017	3699	3372	3594	4717	4990	4694	5108	5743	5724	6627	6614	6819	7320	7903	5785	6517	7276
BL	3193	2482	3462	3116	2787	1431	3908	2557	1787	2392	3493	3229	3610	3070	3012	4120	3766	4574	4730	4117	4524	5296

DECIBEL - Main Result

Calculation: Worst Case Sound Assessment E-160

	WTG					
NSA	23	24	25	26	27	28
A	3686	3880	3391	3194	2744	1982
B	3694	3299	2481	3910	1815	2839
C	3854	3427	2611	4106	1984	3061
D	3668	3856	3363	3183	2712	1965
E	3652	3849	3366	3157	2723	1948
F	3627	3872	3435	3078	2830	1931
G	3834	3464	2648	4014	1956	2901
H	3823	3450	2633	4006	1944	2896
I	3809	3435	2618	3996	1930	2889
J	3787	3415	2598	3971	1908	2864
K	3801	3422	2605	3993	1922	2893
L	3812	3425	2608	4014	1933	2923
M	3794	3410	2593	3994	1915	2900
N	3806	3415	2598	4013	1927	2926
O	3786	3398	2580	3990	1906	2901
P	3872	3469	2652	4092	1995	3015
Q	3771	3378	2561	3981	1892	2899
R	3625	3255	2439	3814	1747	2719
S	6774	6046	5815	7595	6069	7447
T	3627	3153	2346	3949	1790	2992
U	6136	5403	5054	6907	5203	6612
V	6139	5406	5060	6912	5213	6621
W	6163	5430	5090	6939	5249	6656
X	6261	5528	5186	7036	5340	6748
Y	5527	4812	4316	6215	4313	5734
Z	5539	4823	4328	6228	4326	5747
AA	5557	4841	4347	6246	4346	5767
AB	5525	4808	4317	6215	4319	5740
AC	6174	5441	5106	6952	5269	6675
AD	6278	5544	5206	7054	5364	6771
AE	6294	5560	5234	7076	5403	6808
AF	6317	5584	5256	7099	5424	6829
AG	6155	5421	5101	6939	5281	6682
AH	5941	5211	4810	6686	4908	6325
AI	5932	5201	4803	6678	4904	6321
AJ	6075	5344	4945	6821	5042	6459
AK	5968	5237	4843	6717	4948	6365
AL	6087	5356	4963	6836	5066	6483
AM	6586	5855	5591	7394	5818	7206
AN	6014	5282	4895	6765	5006	6421
AO	6017	5285	4899	6769	5010	6426
AP	5998	5267	4882	6752	4997	6412
AQ	6041	5310	4925	6795	5038	6453
AR	6123	5392	5008	6878	5121	6536
AS	3856	3410	2597	4132	1994	3112
AT	3735	3299	2484	4002	1869	2980
AU	3845	3394	2582	4127	1986	3115
AV	3839	3385	2573	4126	1982	3118
AW	3712	3271	2457	3987	1849	2974
AX	3831	3374	2562	4122	1976	3121
AY	3699	3255	2441	3980	1839	2974
AZ	3824	3364	2554	4120	1972	3124
BA	6140	5407	5029	6896	5147	6561
BB	6046	5314	4943	6807	5072	6485
BC	6637	5907	5663	7453	5907	7289
BD	3676	3227	2414	3963	1818	2966
BE	3774	3310	2500	4078	1926	3093
BF	3661	3205	2393	3958	1809	2973
BG	6578	5849	5613	7396	5866	7245
BH	3646	3186	2375	3949	1797	2971
BI	3780	3301	2495	4102	1944	3138
BJ	3632	3164	2355	3946	1790	2981
BK	6745	6017	5783	7565	6035	7414
BL	5311	4845	5258	6160	5967	6811

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

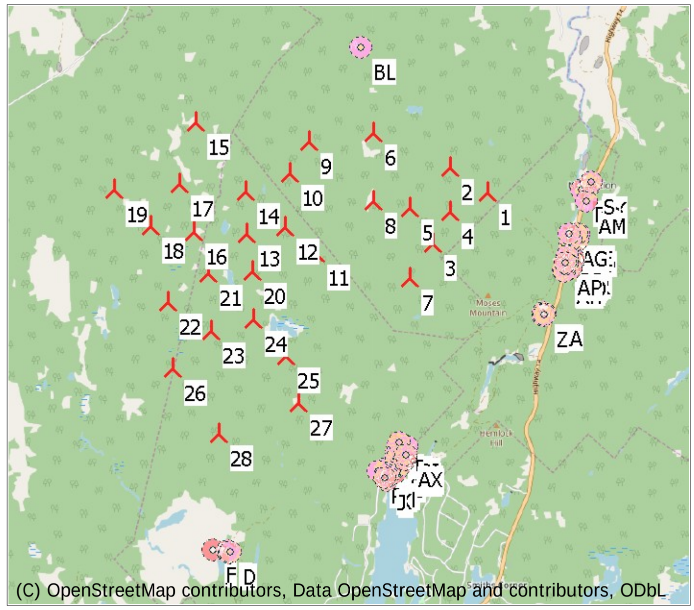
Licensed user:
Natural Forces Development Limited Partnership
1801 Hollis Street, Suite 1205
CA-HALIFAX, Nova Scotia B3J 3N4
902 422 9663
Jill Byrne / jbyrne@naturalforces.ca
Calculated:
12/14/2021 12:27 PM/3.5.552

DECIBEL - Main Result

Calculation: Worst Case Sound Assessment E-160 - 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



All coordinates are in
Geo [deg]-WGS84

Scale 1:125,000
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	-64.225756° E	44.905495° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
2	-64.233462° E	44.909295° N	232.2	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
3	-64.237236° E	44.897905° N	248.4	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
4	-64.233444° E	44.902541° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
5	-64.242003° E	44.903180° N	260.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
6	-64.249728° E	44.914417° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
7	-64.242021° E	44.892764° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
8	-64.249506° E	44.904240° N	245.4	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
9	-64.263209° E	44.913060° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
10	-64.267282° E	44.908446° N	239.4	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
11	-64.261780° E	44.896452° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
12	-64.268193° E	44.900384° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
13	-64.276129° E	44.899419° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
14	-64.276611° E	44.905589° N	246.3	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
15	-64.287064° E	44.915942° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
16	-64.287294° E	44.899644° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
17	-64.290491° E	44.906835° N	260.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
18	-64.296416° E	44.900460° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
19	-64.304215° E	44.905873° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
20	-64.275101° E	44.893833° N	260.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
21	-64.284516° E	44.893480° N	259.6	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
22	-64.292906° E	44.889217° N	260.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
23	-64.283837° E	44.884932° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
24	-64.274849° E	44.886597° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
25	-64.267888° E	44.881154° N	240.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
26	-64.291824° E	44.879354° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
27	-64.265369° E	44.874268° N	230.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4
28	-64.282144° E	44.869642° N	250.0	ENERCON E-160 EP5 E2 5...	Yes	ENERCON	E-160 EP5 E2-5,500	5,500	160.0	119.9	EMD	Mode 00 - OM 0 s (5500 kW)	3.0	83.8	12.0	95.4

Calculation Results

Sound level

Noise sensitive area No.	Name	Longitude	Latitude	Z	Immission height	Most critical demand Frequency	Noise	Predicted sound level WTG noise	Demands fulfilled ? Noise
				[m]	[m]	[Hz]	[dB]	[dB]	
A	Noise sensitive point: Demands defined in calculation setup. (1)	-64.279986° E	44.851866° N	174.6	4.0	80.0	62.5	26.0	Yes
B	Noise sensitive point: Demands defined in calculation setup. (2)	-64.246943° E	44.864508° N	119.4	4.0	80.0	62.5	27.4	Yes
C	Noise sensitive point: Demands defined in calculation setup. (3)	-64.243966° E	44.864933° N	113.4	4.0	80.0	62.5	27.1	Yes

To be continued on next page...

DECIBEL - Main Result

Calculation: Worst Case Sound Assessment E-160 - 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]	
D	Noise sensitive point: Demands defined in calculation setup. (4)	-64.279592° E	44.852052° N	180.0	4.0	80.0	62.5	26.0	Yes
E	Noise sensitive point: Demands defined in calculation setup. (5)	-64.280237° E	44.852161° N	173.6	4.0	80.0	62.5	26.1	Yes
F	Noise sensitive point: Demands defined in calculation setup. (6)	-64.283487° E	44.852290° N	180.0	4.0	80.0	62.5	26.0	Yes
G	Noise sensitive point: Demands defined in calculation setup. (7)	-64.246775° E	44.862645° N	110.0	4.0	80.0	62.5	26.9	Yes
H	Noise sensitive point: Demands defined in calculation setup. (8)	-64.246762° E	44.862820° N	110.0	4.0	80.0	62.5	27.0	Yes
I	Noise sensitive point: Demands defined in calculation setup. (9)	-64.246795° E	44.862978° N	110.5	4.0	80.0	62.5	27.0	Yes
J	Noise sensitive point: Demands defined in calculation setup. (10)	-64.247107° E	44.863024° N	112.7	4.0	80.0	62.5	27.1	Yes
K	Noise sensitive point: Demands defined in calculation setup. (11)	-64.246665° E	44.863208° N	110.3	4.0	80.0	62.5	27.0	Yes
L	Noise sensitive point: Demands defined in calculation setup. (12)	-64.246188° E	44.863465° N	110.0	4.0	80.0	62.5	27.0	Yes
M	Noise sensitive point: Demands defined in calculation setup. (13)	-64.246478° E	44.863465° N	110.7	4.0	80.0	62.5	27.1	Yes
N	Noise sensitive point: Demands defined in calculation setup. (14)	-64.246085° E	44.863645° N	110.0	4.0	80.0	62.5	27.1	Yes
O	Noise sensitive point: Demands defined in calculation setup. (15)	-64.246401° E	44.863661° N	112.9	4.0	80.0	62.5	27.1	Yes
P	Noise sensitive point: Demands defined in calculation setup. (16)	-64.244893° E	44.863763° N	110.4	4.0	80.0	62.5	27.0	Yes
Q	Noise sensitive point: Demands defined in calculation setup. (17)	-64.246333° E	44.863937° N	112.1	4.0	80.0	62.5	27.2	Yes
R	Noise sensitive point: Demands defined in calculation setup. (18)	-64.248663° E	44.863972° N	127.2	4.0	80.0	62.5	27.5	Yes
S	Noise sensitive point: Demands defined in calculation setup. (19)	-64.203879° E	44.907028° N	35.3	4.0	80.0	62.5	27.0	Yes
T	Noise sensitive point: Demands defined in calculation setup. (20)	-64.244316° E	44.868311° N	120.0	4.0	80.0	62.5	27.9	Yes
U	Noise sensitive point: Demands defined in calculation setup. (21)	-64.208186° E	44.897521° N	20.0	4.0	80.0	62.5	27.8	Yes
V	Noise sensitive point: Demands defined in calculation setup. (22)	-64.208213° E	44.897730° N	20.0	4.0	80.0	62.5	27.8	Yes
W	Noise sensitive point: Demands defined in calculation setup. (23)	-64.208060° E	44.898196° N	20.0	4.0	80.0	62.5	27.8	Yes
X	Noise sensitive point: Demands defined in calculation setup. (24)	-64.206819° E	44.898302° N	22.8	4.0	80.0	62.5	27.5	Yes
Y	Noise sensitive point: Demands defined in calculation setup. (25)	-64.213934° E	44.887302° N	30.0	4.0	80.0	62.5	27.5	Yes
Z	Noise sensitive point: Demands defined in calculation setup. (26)	-64.213786° E	44.887357° N	30.0	4.0	80.0	62.5	27.5	Yes
AA	Noise sensitive point: Demands defined in calculation setup. (27)	-64.213570° E	44.887456° N	30.0	4.0	80.0	62.5	27.4	Yes
AB	Noise sensitive point: Demands defined in calculation setup. (28)	-64.213984° E	44.887565° N	30.0	4.0	80.0	62.5	27.5	Yes
AC	Noise sensitive point: Demands defined in calculation setup. (29)	-64.208021° E	44.898497° N	20.0	4.0	80.0	62.5	27.8	Yes
AD	Noise sensitive point: Demands defined in calculation setup. (30)	-64.206700° E	44.898591° N	20.0	4.0	80.0	62.5	27.5	Yes
AE	Noise sensitive point: Demands defined in calculation setup. (31)	-64.206765° E	44.899360° N	20.0	4.0	80.0	62.5	27.6	Yes
AF	Noise sensitive point: Demands defined in calculation setup. (32)	-64.206471° E	44.899381° N	23.0	4.0	80.0	62.5	27.5	Yes
AG	Noise sensitive point: Demands defined in calculation setup. (33)	-64.208595° E	44.899371° N	20.0	4.0	80.0	62.5	28.0	Yes
AH	Noise sensitive point: Demands defined in calculation setup. (34)	-64.209662° E	44.893838° N	23.1	4.0	80.0	62.5	27.7	Yes
AI	Noise sensitive point: Demands defined in calculation setup. (35)	-64.209813° E	44.893976° N	21.4	4.0	80.0	62.5	27.7	Yes
AJ	Noise sensitive point: Demands defined in calculation setup. (36)	-64.208032° E	44.894216° N	30.3	4.0	80.0	62.5	27.4	Yes
AK	Noise sensitive point: Demands defined in calculation setup. (37)	-64.209429° E	44.894324° N	20.0	4.0	80.0	62.5	27.7	Yes
AL	Noise sensitive point: Demands defined in calculation setup. (38)	-64.207986° E	44.894647° N	29.2	4.0	80.0	62.5	27.4	Yes
AM	Noise sensitive point: Demands defined in calculation setup. (39)	-64.205016° E	44.904299° N	27.1	4.0	80.0	62.5	27.3	Yes
AN	Noise sensitive point: Demands defined in calculation setup. (40)	-64.208975° E	44.894828° N	20.0	4.0	80.0	62.5	27.6	Yes
AO	Noise sensitive point: Demands defined in calculation setup. (41)	-64.208942° E	44.894872° N	20.0	4.0	80.0	62.5	27.6	Yes
AP	Noise sensitive point: Demands defined in calculation setup. (42)	-64.209211° E	44.894978° N	20.0	4.0	80.0	62.5	27.7	Yes
AQ	Noise sensitive point: Demands defined in calculation setup. (43)	-64.208681° E	44.895062° N	20.0	4.0	80.0	62.5	27.6	Yes
AR	Noise sensitive point: Demands defined in calculation setup. (44)	-64.207692° E	44.895328° N	33.2	4.0	80.0	62.5	27.4	Yes
AS	Noise sensitive point: Demands defined in calculation setup. (45)	-64.243139° E	44.865769° N	116.9	4.0	80.0	62.5	27.2	Yes
AT	Noise sensitive point: Demands defined in calculation setup. (46)	-64.244782° E	44.865983° N	111.5	4.0	80.0	62.5	27.4	Yes
AU	Noise sensitive point: Demands defined in calculation setup. (47)	-64.243041° E	44.866054° N	117.4	4.0	80.0	62.5	27.2	Yes
AV	Noise sensitive point: Demands defined in calculation setup. (48)	-64.242962° E	44.866249° N	117.8	4.0	80.0	62.5	27.3	Yes
AW	Noise sensitive point: Demands defined in calculation setup. (49)	-64.244794° E	44.866340° N	112.6	4.0	80.0	62.5	27.5	Yes
AX	Noise sensitive point: Demands defined in calculation setup. (50)	-64.242899° E	44.866448° N	118.1	4.0	80.0	62.5	27.3	Yes
AY	Noise sensitive point: Demands defined in calculation setup. (51)	-64.244746° E	44.866595° N	113.0	4.0	80.0	62.5	27.5	Yes
AZ	Noise sensitive point: Demands defined in calculation setup. (52)	-64.242832° E	44.866633° N	118.4	4.0	80.0	62.5	27.3	Yes
BA	Noise sensitive point: Demands defined in calculation setup. (53)	-64.207579° E	44.895675° N	32.1	4.0	80.0	62.5	27.4	Yes
BB	Noise sensitive point: Demands defined in calculation setup. (54)	-64.208872° E	44.895978° N	20.0	4.0	80.0	62.5	27.8	Yes
BC	Noise sensitive point: Demands defined in calculation setup. (55)	-64.205032° E	44.905697° N	23.7	4.0	80.0	62.5	27.3	Yes
BD	Noise sensitive point: Demands defined in calculation setup. (56)	-64.244798° E	44.866926° N	113.9	4.0	80.0	62.5	27.6	Yes
BE	Noise sensitive point: Demands defined in calculation setup. (57)	-64.243162° E	44.867109° N	117.6	4.0	80.0	62.5	27.5	Yes
BF	Noise sensitive point: Demands defined in calculation setup. (58)	-64.244659° E	44.867328° N	115.7	4.0	80.0	62.5	27.7	Yes
BG	Noise sensitive point: Demands defined in calculation setup. (59)	-64.205990° E	44.905994° N	20.0	4.0	80.0	62.5	27.5	Yes
BH	Noise sensitive point: Demands defined in calculation setup. (60)	-64.244649° E	44.867585° N	116.6	4.0	80.0	62.5	27.7	Yes
BI	Noise sensitive point: Demands defined in calculation setup. (61)	-64.242513° E	44.867780° N	120.0	4.0	80.0	62.5	27.5	Yes
BJ	Noise sensitive point: Demands defined in calculation setup. (62)	-64.244485° E	44.868028° N	118.6	4.0	80.0	62.5	27.8	Yes
BK	Noise sensitive point: Demands defined in calculation setup. (63)	-64.204126° E	44.906757° N	32.6	4.0	80.0	62.5	27.0	Yes
BL	Noise sensitive point: Demands defined in calculation setup. (64)	-64.252324° E	44.927168° N	180.0	4.0	80.0	62.5	29.3	Yes

*)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	17	18	19	20	21	22
A	7338	7363	6129	6724	6442	7349	5444	6297	6927	6366	5158	5470	5292	5974	7141	5339	6163	5553	6298	4678	4637	4273
B	4851	5088	3789	4358	4314	5549	3163	4419	5545	5139	3737	4325	4512	5130	6534	5039	5826	5588	6448	3945	4378	4552
C	4730	4998	3702	4260	4252	5516	3096	4389	5559	5173	3774	4379	4597	5201	6611	5156	5931	5722	6583	4044	4508	4714
D	7303	7329	6095	6690	6410	7319	5410	6266	6900	6340	5130	5445	5270	5953	7123	5322	6147	5540	6288	4655	4619	4261
E	7323	7344	6113	6708	6423	7324	5428	6274	6898	6336	5132	5441	5260	5943	7106	5305	6128	5516	6261	4648	4603	4237
F	7466	7465	6247	6841	6535	7399	5563	6365	6939	6369	5197	5478	5268	5946	7077	5270	6085	5448	6174	4663	4577	4169

To be continued on next page...

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Jill Byrne / jbyrne@naturalforces.ca
Calculated:
12/14/2021 12:27 PM/3.5.552

DECIBEL - Main Result

Calculation: Worst Case Sound Assessment E-160 - Low Frequency

...continued from previous page

	WTG																					
NSA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
G	5042	5288	3989	4556	4519	5757	3367	4626	5749	5340	3938	4521	4698	5321	6722	5210	6002	5747	6607	4125	4541	4690
H	5023	5269	3970	4537	4500	5737	3348	4607	5731	5322	3920	4504	4681	5304	6705	5195	5987	5733	6593	4109	4527	4678
I	5007	5252	3953	4520	4482	5720	3331	4589	5713	5304	3903	4486	4665	5287	6689	5179	5971	5719	6579	4093	4512	4665
J	5011	5252	3953	4521	4480	5713	3328	4583	5703	5292	3890	4472	4648	5272	6672	5160	5953	5698	6558	4075	4492	4643
K	4980	5225	3926	4493	4456	5694	3304	4564	5691	5283	3882	4467	4648	5269	6671	5166	5956	5707	6567	4077	4500	4658
L	4941	5190	3891	4456	4425	5668	3272	4538	5672	5268	3866	4455	4642	5261	6664	5167	5955	5713	6573	4074	4504	4670
M	4948	5194	3895	4462	4426	5666	3274	4536	5666	5260	3859	4446	4630	5250	6653	5153	5941	5697	6557	4061	4489	4652
N	4919	5169	3870	4435	4404	5648	3251	4518	5654	5251	3850	4439	4629	5247	6651	5157	5943	5704	6564	4062	4495	4664
O	4926	5172	3873	4439	4404	5645	3252	4515	5646	5242	3840	4428	4615	5234	6637	5140	5927	5685	6546	4047	4477	4643
P	4877	5138	3841	4402	4385	5641	3230	4512	5665	5270	3869	4465	4667	5279	6686	5206	5989	5761	6621	4105	4549	4731
Q	4895	5141	3842	4408	4373	5615	3221	4485	5618	5214	3813	4402	4591	5209	6613	5119	5906	5667	6527	4024	4458	4629
R	4955	5176	3876	4450	4388	5605	3242	4474	5573	5155	3754	4329	4496	5123	6522	5002	5796	5537	6397	3920	4332	4481
S	1736	2349	2822	2387	3040	3712	3403	3616	4732	5008	4720	5131	5767	5745	6641	6637	6838	7343	7923	5812	6543	7303
T	4383	4633	3335	3899	3878	5140	2723	4013	5191	4814	3417	4032	4273	4864	6277	4862	5623	5449	6308	3735	4231	4486
U	1646	2386	2294	2071	2743	3779	2724	3347	4675	4821	4234	4749	5369	5477	6555	6251	6581	6975	7639	5300	6044	6754
V	1632	2372	2292	2063	2736	3766	2726	3340	4664	4813	4232	4745	5366	5471	6546	6248	6575	6971	7634	5300	6044	6755
W	1615	2354	2304	2062	2737	3751	2749	3341	4657	4813	4246	4754	5377	5475	6542	6259	6579	6981	7640	5316	6060	6774
X	1695	2432	2402	2154	2831	3832	2847	3435	4745	4905	4345	4852	5474	5570	6632	6356	6674	7079	7736	5415	6159	6873
Y	2226	2889	2185	2289	2833	4131	2300	3381	4830	4823	3913	4525	5093	5350	6593	5953	6423	6676	7422	4885	5616	6241
Z	2226	2890	2192	2292	2838	4134	2309	3387	4836	4831	3923	4534	5102	5359	6600	5963	6432	6686	7431	4895	5627	6252
AA	2223	2890	2200	2296	2845	4138	2323	3396	4843	4840	3936	4546	5116	5370	6610	5977	6444	6700	7445	4911	5643	6269
AB	2198	2863	2166	2265	2812	4107	2288	3362	4809	4806	3902	4512	5081	5335	6575	5943	6410	6665	7410	4877	5609	6236
AC	1602	2340	2308	2057	2733	3738	2759	3337	4648	4808	4251	4756	5379	5473	6535	6261	6577	6983	7639	5322	6066	6782
AD	1689	2425	2412	2157	2834	3825	2863	3438	4742	4907	4356	4860	5483	5575	6631	6365	6679	7087	7742	5427	6171	6887
AE	1647	2379	2412	2136	2815	3782	2879	3418	4709	4884	4356	4852	5477	5558	6602	6359	6663	7080	7728	5431	6174	6895
AF	1667	2399	2435	2158	2837	3802	2902	3441	4730	4906	4380	4875	5500	5581	6624	6382	6685	7103	7751	5454	6198	6918
AG	1516	2252	2267	1993	2672	3653	2740	3275	4572	4742	4212	4707	5333	5415	6463	6214	6519	6936	7584	5288	6031	6753
AH	1814	2546	2224	2112	2757	3903	2558	3352	4737	4830	4126	4679	5285	5445	6586	6164	6544	6890	7585	5168	5911	6594
AI	1795	2527	2209	2095	2740	3885	2547	3335	4719	4814	4113	4665	5272	5430	6569	6151	6529	6876	7570	5156	5900	6583
AJ	1879	2615	2342	2209	2861	3984	2689	3459	4833	4938	4252	4800	5408	5561	6690	6288	6660	7014	7704	5297	6041	6726
AK	1789	2523	2232	2105	2754	3887	2580	3351	4729	4830	4141	4689	5297	5450	6583	6177	6550	6903	7594	5186	5930	6617
AL	1850	2587	2338	2193	2848	3961	2696	3447	4816	4927	4253	4797	5407	5553	6677	6287	6654	7013	7700	5301	6045	6733
AM	1643	2313	2641	2253	2923	3705	3191	3513	4696	4938	4566	5007	5641	5655	6605	6517	6754	7229	7834	5655	6392	7140
AN	1778	2514	2258	2114	2768	3885	2620	3367	4737	4846	4174	4717	5327	5473	6597	6208	6573	6933	7620	5223	5967	6658
AO	1776	2513	2260	2114	2769	3884	2623	3368	4737	4847	4176	4719	5329	5474	6597	6210	6575	6935	7621	5226	5970	6661
AP	1753	2489	2237	2090	2745	3860	2603	3344	4713	4823	4155	4696	5307	5451	6573	6188	6552	6913	7599	5205	5949	6641
AQ	1778	2516	2277	2125	2782	3889	2645	3381	4747	4860	4196	4736	5348	5490	6609	6229	6591	6954	7639	5247	5991	6683
AR	1819	2559	2350	2186	2846	3939	2726	3447	4806	4926	4273	4810	5423	5560	6672	6304	6662	7029	7711	5326	6070	6764
AS	4622	4896	3601	4157	4157	5430	3000	4304	5488	5110	3713	4325	4557	5154	6565	5131	5899	5706	6567	4012	4490	4716
AT	4640	4894	3596	4159	4138	5395	2983	4267	5429	5041	3642	4246	4464	5068	6477	5026	5799	5595	6456	3913	4380	4595
AU	4590	4863	3568	4124	4125	5399	2969	4273	5460	5084	3687	4300	4536	5130	6543	5113	5880	5691	6551	3992	4474	4705
AV	4567	4841	3546	4101	4104	5378	2947	4252	5441	5066	3670	4284	4521	5115	6528	5102	5867	5681	6541	3980	4464	4699
AW	4603	4855	3557	4121	4099	5355	2944	4227	5390	5004	3604	4210	4431	5033	6443	4996	5768	5567	6428	3881	4352	4572
AX	4545	4818	3523	4079	4082	5357	2924	4231	5421	5048	3652	4267	4506	5099	6512	5089	5853	5670	6530	3966	4453	4691
AY	4575	4827	3529	4092	4070	5328	2915	4199	5364	4979	3580	4186	4409	5010	6421	4978	5748	5551	6411	3861	4335	4560
AZ	4523	4797	3502	4058	4061	5337	2904	4211	5403	5031	3635	4251	4493	5084	6497	5078	5841	5660	6520	3953	4443	4684
BA	1803	2543	2355	2180	2843	3926	2739	3445	4798	4923	4281	4815	5429	5561	6667	6310	6663	7035	7714	5336	6081	6777
BB	1702	2441	2250	2073	2736	3821	2642	3337	4691	4815	4178	4710	5325	5454	6560	6206	6557	6931	7608	5235	5980	6679
BC	1636	2280	2686	2270	2932	3659	3255	3515	4665	4924	4597	5022	5657	5651	6575	6530	6748	7239	7831	5688	6421	7176
BD	4541	4791	3493	4057	4034	5290	2879	4162	5328	4943	3544	4151	4377	4976	6387	4948	5717	5523	6383	3830	4306	4536
BE	4481	4749	3453	4011	4008	5281	2852	4155	5345	4972	3576	4192	4435	5025	6438	5021	5784	5605	6465	3896	4388	4634
BF	4495	4746	3447	4011	3989	5247	2834	4119	5288	4905	3507	4116	4346	4943	6355	4922	5689	5501	6361	3802	4284	4521
BG	1562	2200	2626	2201	2861	3578	3202	3441	4585	4847	4531	4951	5586	5576	6495	6458	6672	7166	7755	5622	6355	7112
BH	4468	4717	3419	3983	3960	5218	2805	4090	5260	4879	3481	4091	4323	4919	6331	4902	5668	5482	6342	3780	4265	4506
BI	4394	4667	3373	3928	3933	5213	2776	4088	5289	4923	3530	4151	4405	4990	6404	5004	5761	5595	6454	3873	4377	4639
BJ	4418	4667	3368	3932	3910	5170	2755	4043	5217	4838	3441	4053	4291	4884	6296	4875	5638	5460	6319	3751	4242	4491
BK	1713	2333	2793	2362	3017	3699	3372	3594	4717	4990	4694	5108	5743	5724	6627	6614	6819	7320	7903	5785	6517	7276
BL	3193	2482	3462	3116	2787	1431	3908	2557	1787	2392	3493	3229	3610	3070	3012	4120	3766	4574	4730	4117	4524	5296

	WTG					
NSA	23	24	25	26	27	28
A	3686	3880	3391	3194	2744	1982
B	3694	3299	2481	3910	1815	2839
C	3854	3427	2611	4106	1984	3061
D	3668	3856	3363	3183	2712	1965
E	3652	3849	3366	3157	2723	1948

To be continued on next page...

Licensed user:
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Calculated:
12/14/2021 12:27 PM/3.5.552

DECIBEL - Main Result

Calculation: Worst Case Sound Assessment E-160 - Low Frequency

...continued from previous page

	WTG					
NSA	23	24	25	26	27	28
F	3627	3872	3435	3078	2830	1931
G	3834	3464	2648	4014	1956	2901
H	3823	3450	2633	4006	1944	2896
I	3809	3435	2618	3996	1930	2889
J	3787	3415	2598	3971	1908	2864
K	3801	3422	2605	3993	1922	2893
L	3812	3425	2608	4014	1933	2923
M	3794	3410	2593	3994	1915	2900
N	3806	3415	2598	4013	1927	2926
O	3786	3398	2580	3990	1906	2901
P	3872	3469	2652	4092	1995	3015
Q	3771	3378	2561	3981	1892	2899
R	3625	3255	2439	3814	1747	2719
S	6774	6046	5815	7595	6069	7447
T	3627	3153	2346	3949	1790	2992
U	6136	5403	5054	6907	5203	6612
V	6139	5406	5060	6912	5213	6621
W	6163	5430	5090	6939	5249	6656
X	6261	5528	5186	7036	5340	6748
Y	5527	4812	4316	6215	4313	5734
Z	5539	4823	4328	6228	4326	5747
AA	5557	4841	4347	6246	4346	5767
AB	5525	4808	4317	6215	4319	5740
AC	6174	5441	5106	6952	5269	6675
AD	6278	5544	5206	7054	5364	6771
AE	6294	5560	5234	7076	5403	6808
AF	6317	5584	5256	7099	5424	6829
AG	6155	5421	5101	6939	5281	6682
AH	5941	5211	4810	6686	4908	6325
AI	5932	5201	4803	6678	4904	6321
AJ	6075	5344	4945	6821	5042	6459
AK	5968	5237	4843	6717	4948	6365
AL	6087	5356	4963	6836	5066	6483
AM	6586	5855	5591	7394	5818	7206
AN	6014	5282	4895	6765	5006	6421
AO	6017	5285	4899	6769	5010	6426
AP	5998	5267	4882	6752	4997	6412
AQ	6041	5310	4925	6795	5038	6453
AR	6123	5392	5008	6878	5121	6536
AS	3856	3410	2597	4132	1994	3112
AT	3735	3299	2484	4002	1869	2980
AU	3845	3394	2582	4127	1986	3115
AV	3839	3385	2573	4126	1982	3118
AW	3712	3271	2457	3987	1849	2974
AX	3831	3374	2562	4122	1976	3121
AY	3699	3255	2441	3980	1839	2974
AZ	3824	3364	2554	4120	1972	3124
BA	6140	5407	5029	6896	5147	6561
BB	6046	5314	4943	6807	5072	6485
BC	6637	5907	5663	7453	5907	7289
BD	3676	3227	2414	3963	1818	2966
BE	3774	3310	2500	4078	1926	3093
BF	3661	3205	2393	3958	1809	2973
BG	6578	5849	5613	7396	5866	7245
BH	3646	3186	2375	3949	1797	2971
BI	3780	3301	2495	4102	1944	3138
BJ	3632	3164	2355	3946	1790	2981
BK	6745	6017	5783	7565	6035	7414
BL	5311	4845	5258	6160	5967	6811