THE STATE OF NEW HAMPSHIRE
BEFORE THE
SITE EVALUATION COMMITTEE

DOCKET NO. 2010-01

APPLICATION OF GROTON WIND, LLC
FOR A CERTIFICATE OF SITE AND FACILITY

SECOND SUPPLEMENTAL PREFILED TESTIMONY OF ROBERT D. O'NEAL ON BEHALF OF GROTON WIND, LLC

December 30, 2010

Qualifications

Q. Please state your name, business address and qualifications.

A. My name is Robert D. O'Neal, INCE, CCM. My business address is 3 Clock Tower Place, Maynard, Massachusetts. My qualifications have not changed since the filing of my prefiled direct testimony in March of 2010.

Purpose of Second Supplemental Prefiled Testimony

Q. What is the purpose of your second supplemental prefiled testimony?

A. The purpose of this testimony is to provide information regarding potential sound impacts of the voltage step-up facilities that will be needed to interconnect the 34.5 kV line bringing power from the Groton Wind Project ("the Project") with the regional power grid. These facilities are proposed to be located in Holderness and are described in the Third Supplemental Prefiled Testimony of Edward Cherian.

Q. Please describe any studies you have conducted regarding the above-referenced interconnection facilities.

A. A sound level modeling study was conducted for the substation. The primary source of sound at the substation will be the transformer. Sound level data from a typical transformer manufacturer were used to predict future operational sound levels at the nearest residents in all directions around the substation. The worst-case (loudest) mode of transformer cooling was assumed in the modeling. In order to provide a conservative estimate of noise impacts from the transformer, the modeling study included no barrier walls around the transformer.

Q. Have you prepared a report of your above-described studies?

A. Yes. Attached to this prefiled testimony is a memorandum dated December 23, 2010 from Epsilon Associates, Inc. to Iberdrola Renewables which summarizes the results from the above-described study. Worst-case sound levels from the transformer are expected to be 29 dBA or less at any residence around the substation. These are very low sound levels and are well below the 45 dBA sound level guideline limit discussed in Epsilon's January 14, 2010 Sound Level Assessment Report which is contained in Appendix 35 to the Groton Wind Application. These sound levels are likely as low as or lower than existing sound levels in the area from traffic, and other natural or man-made sources.

Q. Based on your studies, what is your opinion regarding the above-referenced interconnection facilities' potential impact on sound?

A. Operation of the interconnection facility should not have any impact on sound levels at the nearest noise-sensitive locations.

Q. Does this conclude your testimony?

A. Yes, it does.

MEMORANDUM

Date: December 23, 2010

To: Kristen Goland, Iberdrola Renewables

From: Robert O'Neal, Epsilon Associates, Inc.

Subject: Groton, NH Noise Report Addendum No. 2
Prescott Property Substation, Holderness, NH

Epsilon Associates, Inc. (Epsilon) conducted a sound level assessment on the step-up transformer station associated with the Groton Wind Project. The substation will be located on the Prescott property off Route 175 in Holderness, NH. The property is zoned commercial and contains an existing sand pit, log yard, and metal plating shop. The substation is more than 6 miles east of the nearest wind turbine in Groton.

The transformer is rated at 50 megavolt-ampere (MVA). Sound level data have been provided by a typical manufacturer of these transformers (Prolec GE). A transformer has various cooling mechanisms which have a modest impact on their sound levels. This transformer utilizes ONAN (oil natural air natural), ONAF1 (oil natural air forced stage 1), and ONAF2 (oil natural air forced stage 2). The manufacturer's sound power levels for these three stages of cooling are 85 dBA, 86 dBA, and 88 dBA respectively. The only octave band sound level data provided was for 125 Hz. Therefore, the techniques in the Electric Power Plant Environmental Noise Guide (Edison Electric Institute), Table 4.5 Sound Power Levels of Transformers, were used to calculate octave bands from 31.5 Hz to 8000 Hz. Table 1 summarizes the sound power level data used in the modeling.

Future sound levels of the transformer were modeled using the Cadna/A software, including the effects of terrain. To be conservative, the worst-case cooling condition data (ONAF2) were used. No barrier walls around the transformers were included in the modeling. A detailed discussion of Cadna/A is found in section 7.2 of the Sound Level Assessment Report prepared by Epsilon Associates, Inc. dated January 14, 2010. Based on a review of the aerial orthophoto, the nearest residences are as follows:

- To the west: along and west of Route 175, approximately 1400 feet or more from the transformer,

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- To the north: along Trapper Road, approximately 675 feet or more from the transformer,
- To the east: along Oak Hill Road, approximately 950 feet or more from the transformer,
- To the south: along Huckins Hill Road, approximately 2500 feet or more from the transformer.

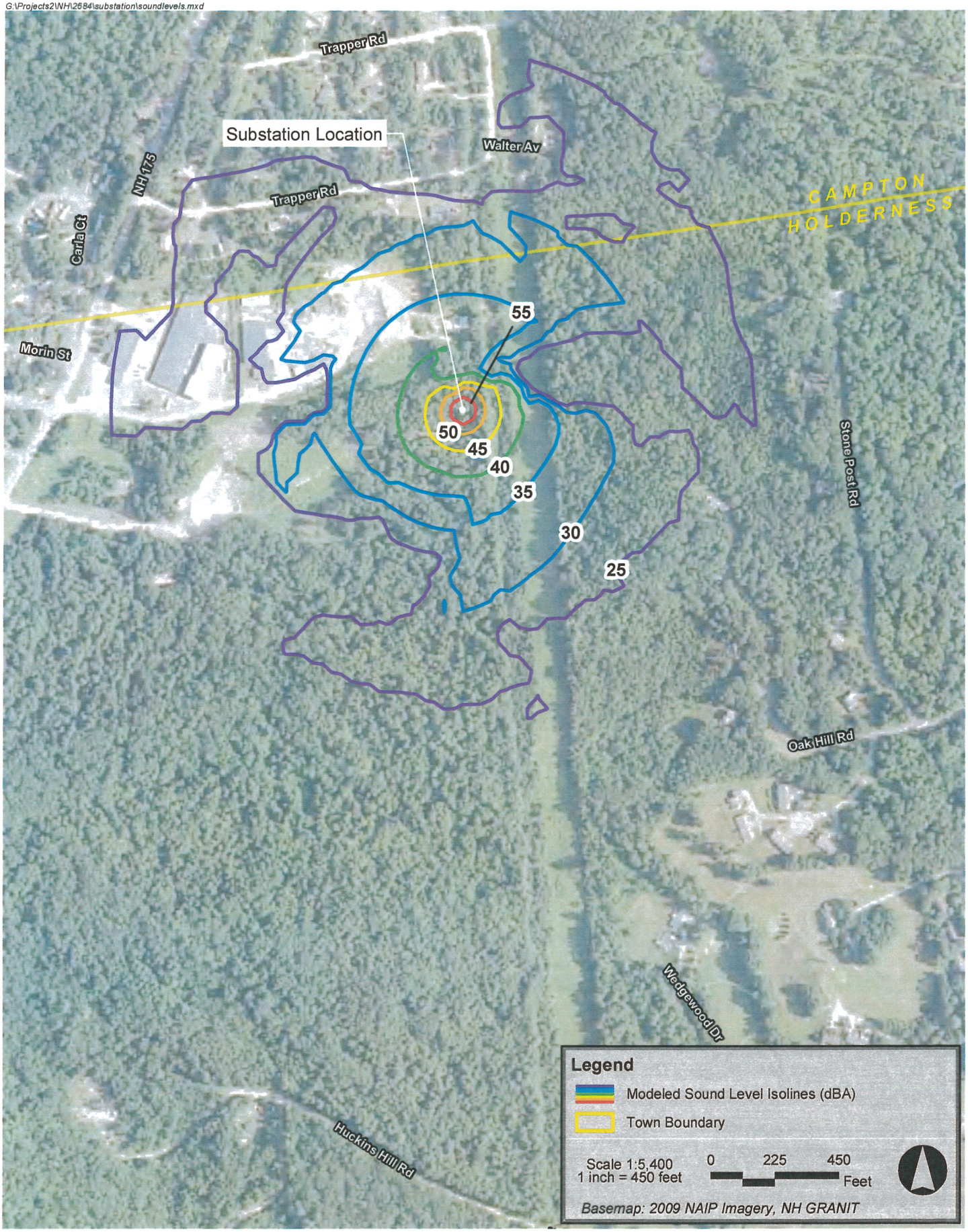
Figure 1 presents sound level contours out to 25 dBA around the substation site. Based on a review of Figure 1, worst-case sound levels at each of the nearest residences are as follows:

- To the west: 24 dBA,
- To the north: 29 dBA,
- To the east: <20 dBA,
- To the south: <20 dBA.

These sound levels are very low and well below the 45 dBA guideline value put forth in the January 14, 2010 Epsilon report. Due to the large separation between the wind farm and substation (more than 6 miles), the sound levels from the substation will not be additive to the wind farm and vice versa.

Table 1 Sound Power Levels (dB) – Prescott Property Substation Transformer, Holderness, NH

Transformer condition	A-wtd	31.5	63	125	250	500	1k	2k	4k	8k
50 MVA ONAF2	88	85	91	93	88	88	82	77	72	65



Groton Wind Project Groton, New Hampshire

Epsilon Associates Inc

Figure 1

Modeled Substation Only Sound Levels - Prescott Property, Holderness