

January 18, 2023

Mr. Ron Coler  
168 Bailey Road  
Shelburne Falls, MA 01370

Ref 4818

***Re: Peer Review of Cavanaugh Tocci Associates Ambient Sound Study***

Dear Mr. Coler:

Tech Environmental, Inc. (Tech) is pleased to provide you with this peer review of the Cavanaugh Tocci Associates, Inc. (CTA), *Ambient Environmental Sound Measurements – Ridge Hill Area, Ashfield, MA, November 10, 2010* (herein referred to as the Sound Study) to assess whether the sound measurements still accurately represent ambient sound conditions in 2023.

CTA performed ambient sound measurements in accordance with the Massachusetts Department of Environmental Protection (MassDEP) noise regulations. The purpose of the measurements was to verify the existing ambient sound environment in the vicinity of Ridge Hill as part of wind turbine sound study. The MassDEP regulates noise through 310 CMR 7.10, "Air Pollution Control". In these regulations, "air contaminant" is defined to include sound, and a condition of "air pollution" includes the presence of an air contaminant in such concentration and duration as to "cause a nuisance" or "unreasonably interfere with the comfortable enjoyment of life and property."

Regulation 7.10 prohibits "unnecessary emissions" of noise. The MassDEP Noise Policy (Policy Statement 90-001, February 1, 1990) interprets a violation of this noise regulation to have occurred if the source causes either:

1. An increase in the broadband sound pressure level of more than 10 dBA above the ambient, or
2. A "pure tone" condition.

The ambient background level is defined as the  $L_{90}$  level, as measured during equipment operating hours. A "pure tone" condition occurs when any octave band sound pressure level exceeds both of the two adjacent octave band sound pressure levels by 3 dB or more.

The MassDEP Noise Policy does not define daytime and nighttime. The U.S. Environmental Protection Agency (EPA) defines daytime as 7:00 a.m. to 10:00 p.m. and nighttime as 10:00 p.m. to 7:00 a.m. I used the EPA definition of daytime and nighttime to evaluate daytime and nighttime ambient sound conditions in Ashfield based on the measurements presented in the Sound Study.

CTA performed unattended ambient sound measurements at four (4) monitoring locations over a week period from September 27 through October 4, 2010. A CTA staff member also performed attended ambient sound measurements simultaneously observing and listening to the environment and measuring

sound levels and frequency characteristics during selected 10-minute time intervals over two sequential days within the week-long monitoring time period at one (1) monitoring location. The five (5) monitoring locations included:

- 413 Ashfield Mountain Road
- 20 Bailey Road
- Graves Road
- 87 Beldingville Road
- 56 South Street (attended monitoring only)

A review of the monitoring locations using Google Maps shows a mix of rural residential and downtown land uses. Accordingly, it is my opinion that Sound Study provides a good representation of the town's overall ambient sound conditions.

The ambient sound measurement procedures are consistent with American National Standards Institute (ANSI) for performing long-term environmental sound measurements.<sup>1</sup> Table 2 in the Sound Study presents the lowest average ambient L<sub>90</sub> nighttime sound levels, which ranged from 24 to 30 dBA. The graphs in the Sound Study Appendix B present all the hourly L<sub>90</sub> sound levels. I estimated that the lowest average ambient L<sub>90</sub> daytime sound levels ranged from 25 to 30 dBA at the four (4) long-term monitoring locations.

The daytime and nighttime ambient sound levels are consistent with ambient sound conditions of a "quiet rural" residential and downtown area. Typically, when there is minimal human activity (i.e., traffic, aircraft, businesses, etc.), there is not a significant difference between daytime and nighttime ambient sound conditions. In comparison, in a "quiet suburban" area in Massachusetts, the average ambient L<sub>90</sub> daytime and nighttime sound levels range from 35 to 45 dBA, respectively.

Although the sound measurements were taken in 2010, there has not been any significant change in population or growth in commercial and/or industrial business in town over the past 12 years. Therefore, the ambient sound levels are likely to be the same in 2023.

Please call me at (781) 890-2220 x30 if you have any questions.

Sincerely yours,

TECH ENVIRONMENTAL, INC.



Marc C. Wallace, QEP, INCE

Vice President

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<sup>1</sup> American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound Part 2: Measurement of Long-Term, Wide-Area Sound Reaffirmed June 2018.