



## NOISE EVALUATION

### I. Introduction

To determine the acoustic impact of the proposed equipment, Lodestar first determined the property line sound pressure levels from the inverters. All proposed inverters are designed to be installed on a single equipment pad at the southern edge of the array. The equipment pad's closest proximity to a property line is 160' to the western boundary as shown in Figure 1. In order to comply with Enfield Town Code Section 6A-6, the inverter noise levels at the property line must comply with the residential requirements of Table 1.

*Figure 1: Inverter location*

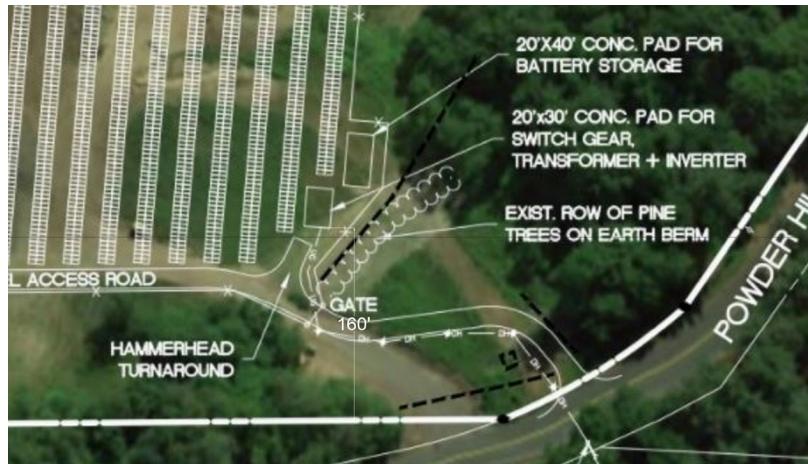


Table 1: Enfield Town Code Section 6A-6. Noise Levels

ZONE IN WHICH RECEPTOR IS LOCATED				
Zone in Which Emitter is located	Industrial (dBA)	Business (dBA)	Residential Day-time hours (dBA)	Residential night-time hours (dBA)
Industrial	70	66	61	51
Business	62	62	55	45
Residential	62	55	55	45

## II. Analysis

The proposed Project design includes the installation of (12) Solectria XGI 1500-166 kW inverters. According to the equipment specification sheet (as set forth in Exhibit 3 of the Petition) this unit has an acoustic noise output of 56 dBA at 3 meters (9.84 ft) from the unit. To quantify the reduction in sound from the point of origin to the closest property boundary (160 feet away), the formula utilizes the inverse square law for sound intensity. This formula states that the reduction in sound pressure is relative to the distance from the source. The formula is set forth below in equation 1 and applied to the instant case in which proposed site conditions are calculated:

$$\text{Equation 1. } DL = L_{P2} - L_{P1}$$

### Calculation

$$DL = 10 \log(R_2/R_1)^2$$

$$DL = 20 \log(R_2/R_1)$$

$$DL = 20 \log(160/9.84)$$

$$DL = 24.22 \text{ dBA}$$

$$56 \text{ dBA} - 24.22 \text{ dBA} = 31.78 \text{ dBA}$$

Variables:

$DL$  = difference in sound pressure (dBA)

$L_{P1}$  = Sound pressure level at location 1

$L_{P2}$  = Sound pressure level at location 2

$R_1$  = distance from source to location 1

$R_2$  = distance from source to location 2

### **III. Conclusion**

In conclusion, taking into account the closest property line at 160' from the inverter pad (point of origin of noise emanation), the noise levels emitted from the inverters will be 31.78 dBA at the property line. Therefore, the proposed solar facility and its components comply with the Town Code.