# MEMORANDUM

Date: June 21, 2023

To: Paul Williamson, Lara Rippeon – Key Capture Energy

From: Clint Cyr, PE, INCE – Epsilon Associates, Inc.

**Subject: Overview of the Sound Level Impact Assessment for the Proposed KCE CT 8 BESS Project in East Hampton, Connecticut**

Key Capture Energy (KCE) is proposing to construct a battery energy storage system (BESS) west of Skinner Street (Route 196) and south of Forest Street in the Town of East Hampton, Connecticut (the Project). Epsilon Associates, Inc. (Epsilon) has been retained by KCE to conduct a sound level impact assessment for the Project.

The assessment included sound level modeling of operational sound from the proposed BESS and an evaluation against the Connecticut Department of Energy and Environmental Protection (DEEP) regulatory standards, specifically CGS §22a-69. The Project is considered an industrial sound source (Class C). A brief overview of the modeling and the sound level evaluation is provided herein.

**Modeling Methodology**

The primary sources of sound from the BESS project will be the battery containers and the inverters ("PCS"). There are 12 containers and 2 PCS proposed for the Project. The model utilized sound level data from the proposed manufacturer. The locations of the modeled equipment overlaying aerial imagery are shown in Figure 1.

Sound levels from the facility were predicted using the Cadna/A noise calculation software developed by DataKustik GmbH. This software uses the ISO 9613-2 international standard for sound propagation (Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation). The benefits of this software are a refined set of computations due to the inclusion of topography, ground attenuation, multiple building reflections, drop-off with distance, and atmospheric absorption. Elevation contours for the modeling domain were directly imported into Cadna/A which allowed for consideration of terrain shielding where appropriate.

Epsilon used Cadna/A, the proposed site plan, and the sound level data from the manufacturer to predict "Project-only" sound levels. A modeling grid with a 10-meter spacing was calculated for the area

surrounding the Project. The grid was modeled at a height of 1.5 meters above ground level to mimic the ears of a typical standing person. This modeling grid allowed for the creation of sound level isolines as shown in Figure 1. The figure also shows 8 discrete modeling receptor locations that represent the closest neighboring properties. The receptors were also modeled at a height of 1.5 meters.

To reduce sound from the Project in the community and demonstrate sound level compliance with the DEEP standards, the Project will include a 4-sided sound wall arrangement as shown in Figure 1. The walls have a total approximate length of 490 feet with a height of either 10 or 12 feet as shown in the figure. The sound model conservatively assumed the sound walls are completely reflective (no sound absorption) and are sufficiently robust such that sound transmission through them is negligible.

**Sound Level Evaluation**

Table 1 presents an evaluation of broadband sound levels at each of the 8 modeling receptors. Because the BESS will be able to operate at any time of day, the more stringent, i.e., nighttime standards have been evaluated. The nighttime broadband sound level standard from an industrial source (Class C) at a residential zone (Class A) is 51 dBA.

Modeled Project-only broadband $L_{eq}$ sound levels are provided in the table that range from 41 to 49 dBA. The highest sound level from the Project at a receptor in a residential zone as defined by the CT DEEP is 48 dBA (R07). KCE has also limited the Project to the residential standard at the property line of the Airline Trail that directly abuts the Project to the north. The modeled sound level at this property is 49 dBA which is below 51 dBA. As shown in the table, all predicted levels are below the Connecticut DEEP broadband sound standard for industrial sources.

The CT DEEP also considers prominent discrete tones (tones) as excessive noise under certain conditions. Prominent discrete tones are defined in the regulation using one-third octave band sound levels. One-third octave band sound levels from the Project were calculated in the model using data from the manufacturer. According to the regulation, a tone is considered excessive when a broadband sound level that is 5 dBA below the applicable broadband standard is exceeded when the tone is present. The modeling shows tones at receptors R04, R05, and R06; however, Table 1 shows that the broadband levels at these receptors are 5 dBA, 6 dBA, and 5 dBA below the standard, respectively. Therefore, and in summary, the Project meets the Connecticut DEEP regulatory standards with respect to noise.

**Table 1 CT DEEP Evaluation of Broadband Sound Levels**

| ID | Receptor Type | Modeled Project Only $L_{eq}$ Sound Level (dBA) | CT DEEP Nighttime Standard for Industrial Source (dBA) | Meets CT DEEP Standard? |
|---|---|---|---|---|
| R01 | Residential | 41 | 51 | YES |
| R02 | Residential | 47 | 51 | YES |
| R03 | Residential | 46 | 51 | YES |
| R04 | Residential | 46 | 51 | YES |
| R05 | Residential | 45 | 51 | YES |
| R06 | Residential | 46 | 51 | YES |
| R07 | Residential | 48 | 51 | YES |
| R08 | Residential | 49 | 51 | YES |

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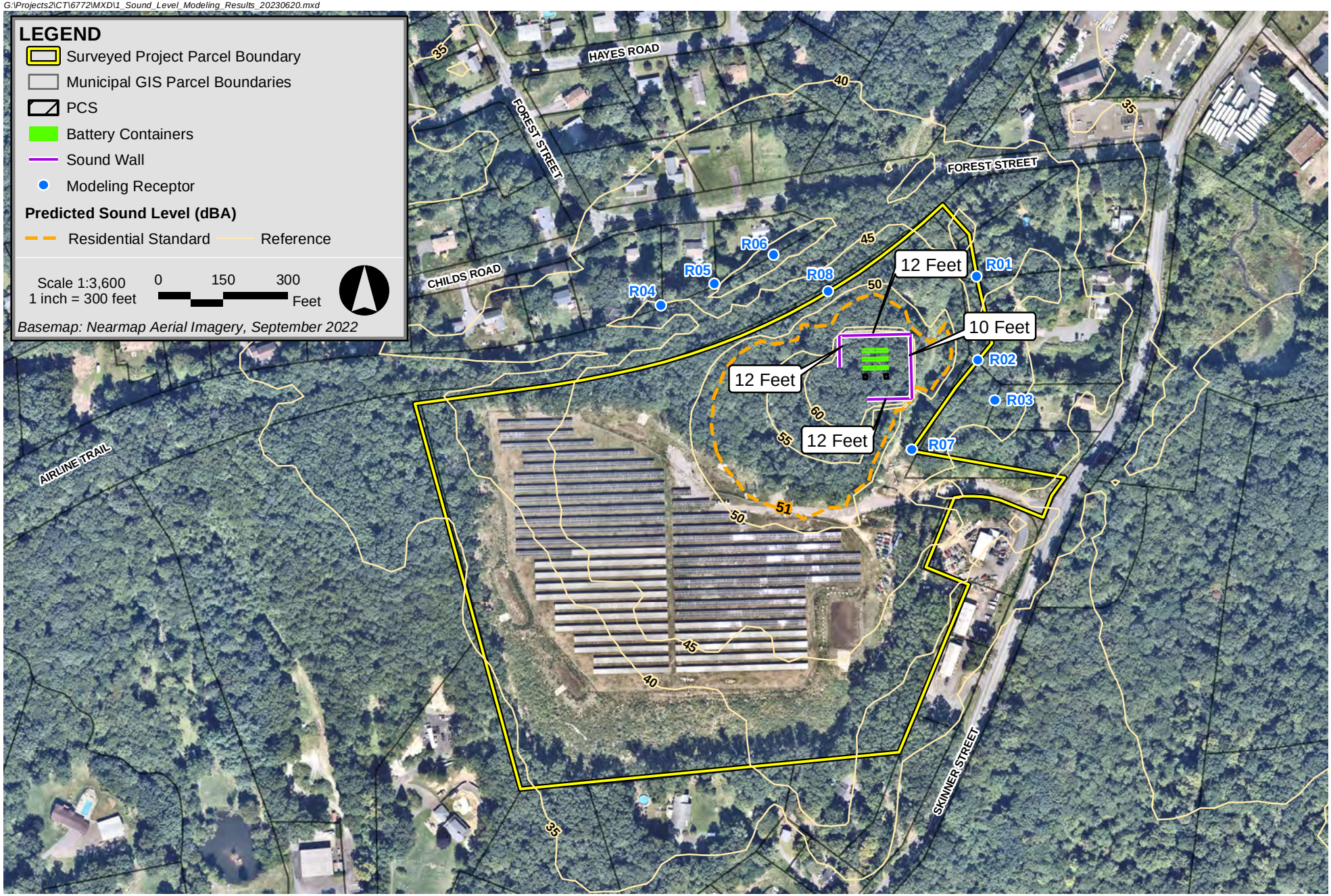


**KCE CT 8 East Hampton, Connecticut**

Epsilon Associates Inc.

**Figure 1**

*Sound Level Modeling Results*