ATTACHMENT B

SOUND ASSESSMENT STUDY OF NORTH BELLMORE SUBSTATION

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OF
NORTH BELLMORE SUBSTATION

Town of Hempstead, Nassau County, New York

Prepared for:

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May 2025

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Project No. 01315-1071

Education

Energy Utility

Healthcare

Public Works

Real Estate

Science & Technology

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EXECUTIVE SUMMARY

The North Bellmore Substation is located in the Town of Hempstead, Nassau County, New York and operated by PSEG Long Island (PSEGLI). The existing substation consists of one transformer bank and other substation equipment including, but not limited to, two switchgears, a battery enclosure and a control house. The subject project will include the expansion of the North Bellmore Substation and the replacement and installation of associated equipment. With respect to noise-generating equipment, one new transformer bank and a Gas Insulated Substation (GIS) enclosure with Heating, Ventilation, and Air Conditioning (HVAC) units will be installed.

PS&S performed this sound assessment to evaluate the predicted future sound levels at the nearby property lines of sensitive receptors once the project is completed. Sound level measurements were collected at five locations in the surrounding area to understand the ambient sound levels in the neighborhood and evaluate potential impacts from the substation.

PS&S modeled the future sound conditions and found that sound levels associated with the project will be in compliance with the New York State Department of Environmental Conservation (NYSDEC) guidance at the residential property lines adjacent to the substation.

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1.0 INTRODUCTION

PS&S performed this Sound Assessment Study for the proposed substation improvements at the North Bellmore Substation in the Town of Hempstead, Nassau County, New York. PS&S assessed the existing ambient sound levels and modeled future sound levels at the property line of the closest sensitive receptors.

PS&S compared the existing and future sound levels with the NYSDEC "Assessing and Mitigating Noise Impacts" dated October 6, 2000, last revised February 2, 2001 (NYSDEC Code).

2.0 SITE LOCATION & DESCRIPTION

The substation is located at the northwest corner of the North Jerusalem Road and Bellmore Road intersection. The Site is bound to the south by North Jerusalem Road, to the north by residential properties, and to the west and east by a mix of residential and commercial properties.

The existing substation consists of one transformer bank, two switchgears, a control house, battery enclosure and other substation equipment. With respect to sound-generating equipment, PSEGLI is proposing the installation of an additional transformer bank, and a GIS enclosure with three HVAC units. For the proposed substation improvements, the existing fence line will move further north.

Sound sources observed during the field measurements included traffic on North Jerusalem Road and Bellmore Road.

3.0 NOISE STANDARDS & CRITERIA

PS&S compared the existing and future sound levels with the NYSDEC "Assessing and Mitigating Noise Impacts" dated October 6, 2000, last revised February 2, 2001.

4.0 EXISTING SOUND LEVELS

4.1 Sound Monitoring

Sound measurements were collected by a trained professional using the following instrumentation:

- Bruel & Kjaer 2250 Type 1 Sound Level Meter, certified May 16, 2024;
- Wind Screen;
- Bruel & Kjaer Calibrator, certified May 14, 2024; and
- Wind Meter.

The certified sound-level meter was set to the "A-weighting" scale and "slow" measurement speed.

Weather conditions during the monitoring period were acquired from the local weather service and observed conditions were noted on field observation sheets at the time the readings were collected. Temperatures were in the mid to high 40's (degrees Fahrenheit) and winds (measured on-site) were generally between 1.4 to 3.2 miles per hour. There was no precipitation during the sound level monitoring. These conditions satisfy the meteorological requirement for the measurement of ambient sound.

Existing sound levels were measured at five locations in the vicinity of the substation on March 11, 2025 during the nighttime (10:00 PM – 7:00 AM) period. These sound monitoring locations were chosen to help understand the existing ambient sound in the neighborhood as well as measure sound levels at the property lines of sensitive receptors.

4.2 Sound Monitoring Results

A summary of the sound monitoring data is presented in Table 4-1 below. This table lists the observed total sound pressure levels at the monitoring locations during the nighttime period on March 11, 2025. The five monitoring locations were chosen based on their proximity to the proposed sound generating equipment and sensitive receptors Refer to Figure 1 for monitoring locations.

Table 4-1: Existing Sound Pressure Level Measurement Data Summary

Monitoring Location ID	Sound Pressure Levels (dBA)
1	47
2	52
3	55
4	52
5	51

5.0 SOUND MODELING

5.1 Model Inputs

The three HVAC units and the transformer bank were identified as the sound-generating equipment to be used in the model. The model assumes that the HVAC units are Bard Wall Mount Single Stage Heat Pump 3-ton units operating at a sound

pressure level of 67.1 dBA outdoors a distance of 10 feet from the equipment. The transformer was modeled as the Delta Star unit operating with the cooling type with greatest sound of 78.9 dBA sound power level. Included in the model are several buildings and structures which would affect the sound propagation. The proposed locations of the replacement equipment and equipment heights were taken from site plans for the project. Existing topography was also included in the modeling.

The locations of the proposed equipment and the sound receptor locations used in the computer sound propagation modeling, are shown in Figure 2.

5.2 Sound Modeling

Projections of future sound conditions were produced using the nationally recognized SoundPLAN Essential (V. 5.1) three-dimensional acoustic propagation model software.

The SoundPLAN software calculates anticipated future sound from multiple sound sources at multiple receivers while accounting for specific site sound radiation patterns and propagation effects of structures. The sound sources are identified in the propagation modeling with x and y coordinates and a relative height above terrain. The new equipment was modeled as point sources and digitized into a referenced coordinate system based on the proposed site plan that included site dimensions, equipment layout and heights of structures.

Modeled receptors were located at the nearest property lines at an average ear level height of 1.8 meters above ground level. Proposed equipment locations in the project area were digitized based on actual dimensions, where possible, and were included in the model calculations. The modeled sound levels were then compared to the applicable NYSDEC Code.

5.3 Modeling Results

Figure 1 shows the modeled results at the closest residential property lines. Table 5-1 presents a summary of the sound modeling results for future sound levels from proposed equipment operating simultaneously at maximum capacity, compared to observed sound monitoring data.

Table 5-1: Measured Existing Conditions and Modeled Sound Levels

Monitoring Location ID	Measured Existing Condition Sound Pressure Level (dBA)	Modeled Sound Pressure Level (dBA)
1	47	47
2	52	53
3	55	58
4	52	53
5	51	51

6.0 FUTURE CONDITIONS

The greatest difference between modeled future sound level and existing ambient sound (existing condition sound pressure) level was observed at Monitoring Location 3, across Bellmore Road directly facing the proposed HVAC units. The predicted future sound level at this residential property line is approximately 58 dBA, which is 3 dBA greater than the measured ambient sound without the effect of the substation improvements.

7.0 SUMMARY & CONCLUSIONS

The NYSDEC Code states a 0-3 dBA increase in sound pressure level should have no appreciable effect on receptors. Based on this guidance, PS&S believes the predicted increase in sound pressure level does not trigger a mitigation requirement.

FIGURES

Figure 1 -
Sound Monitoring Results

Sound measured on March 11, 2025.

Legend

- Property Line
- Existing Building/Structure
- Measured Sound Pressure Level (dBA) at Location

1 : 772

0 3.757.5 15 22.5 30 m

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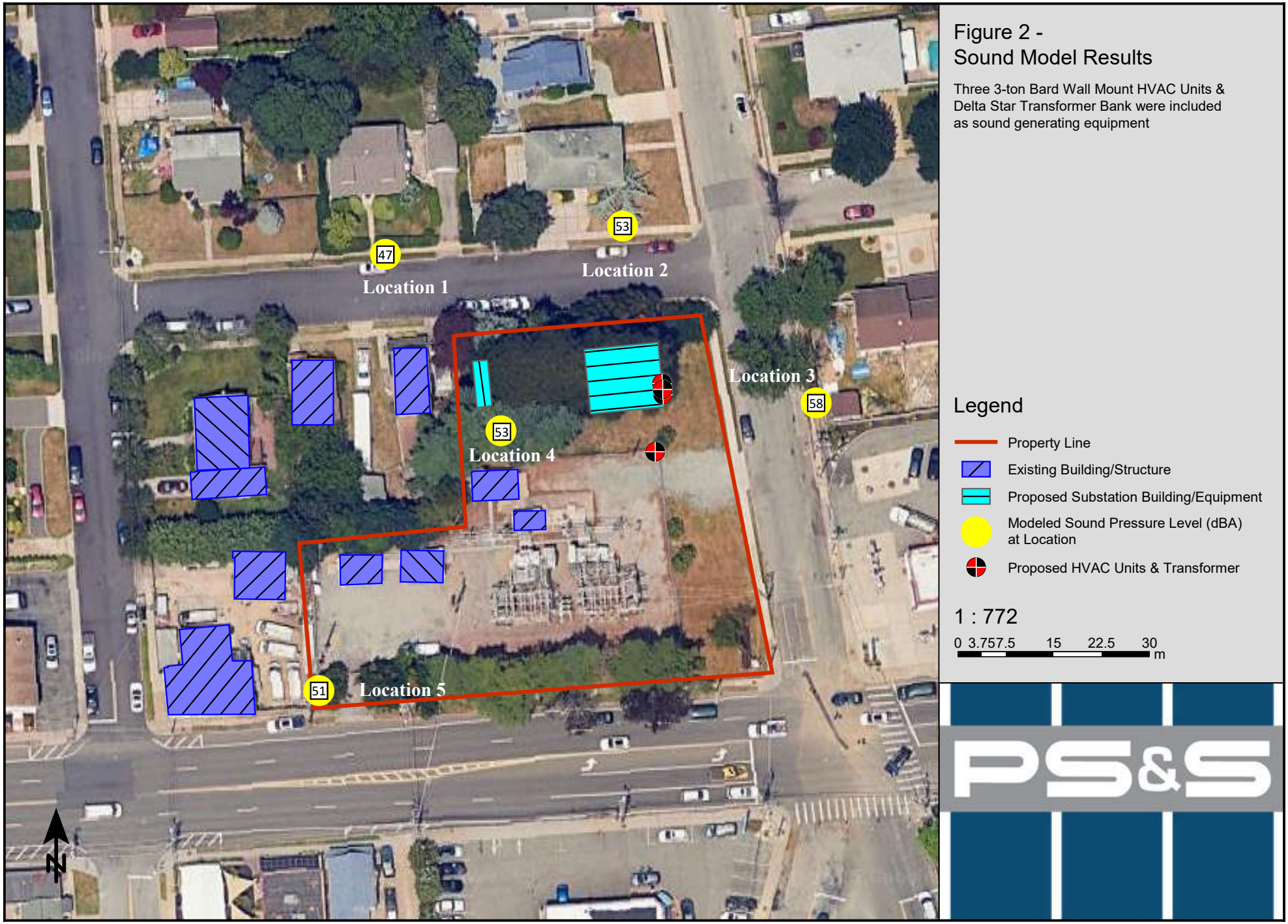

Figure 2 -
Sound Model Results

Three 3-ton Bard Wall Mount HVAC Units & Delta Star Transformer Bank were included as sound generating equipment

Legend

- Property Line
- Existing Building/Structure
- Proposed Substation Building/Equipment
- Modeled Sound Pressure Level (dBA) at Location
- Proposed HVAC Units & Transformer

1 : 772

0 3.757.5 15 22.5 30 m

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