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MEMORANDUM

To:	Keith Merkel (Plus Power Services, LLC)
From:	Mark Storm, INCE Bd. Cert. (Dudek)
Subject:	Gambit Battery Energy Storage (Angleton, Texas) **Operational Noise Study – August 2025**
Date:	September 26, 2025

Dudek is pleased to present Plus Power Services, LLC (PPS), the following operational noise study for its Gambit Battery Energy Storage Facility (Facility) located in the City of Angleton, Texas (City). This memorandum (memo) presents quantitative results of operational sound pressure level (SPL) data measured at the Facility site from August 18, 2025 to August 23, 2025 and compares these findings with the acoustical goals articulated in the Specific Use Permit (SUP) and associated Ordinances approving the SUP. Measurement locations of this recent field survey approximated those utilized for the 24-hour outdoor background sound level survey performed from February 12-13, 2020 to quantify the pre-Facility (a.k.a., baseline) conditions. Following an executive summary below, the contents of this memorandum are as follows: Introduction and Background, Operation-Period Sound Level Surveys, Conclusion, References, and Preparer Biography.

Executive Summary

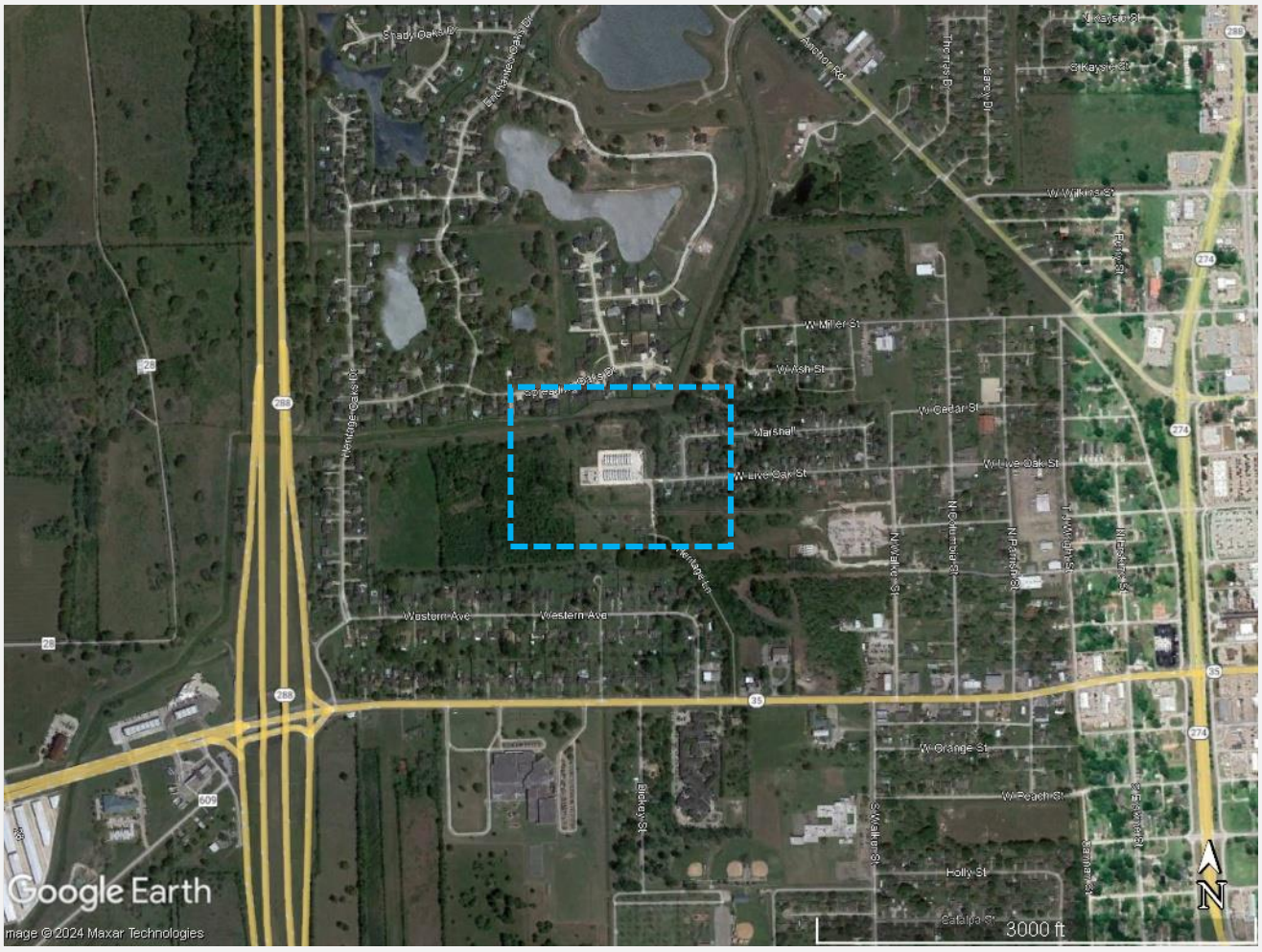
Having previously performed a baseline sound level survey of the Project vicinity in 2020 and thus prior to Facility construction, Dudek was hired to conduct a new sound level survey in response to a new requirement the City of Angleton included in an amended Specific Use Permit and corresponding Ordinance to authorize installation of a noise and visual barrier at the Facility. Dudek conducted this study, as detailed herein, to compare Facility operational sound emission to the baseline conditions established in 2020. The results of the comparison indicate that the sound emitted during Facility operations are compliant with the SUP.

1 Introduction and Background

1.1 Project Setting

As shown by Exhibit A, the Facility is located in Angleton, TX on a site at the western terminus of W. Live Oak Street, approximately a half-mile east-northeast of the Texas State Route 288 and Route 35 (W. Mulberry Street) interchange and surrounded by a mix of overhead electric transmission lines, undeveloped land, and residential land uses, such as homes to the north along Spreading Oaks Drive and to the east on W. Live Oak Street.

Exhibit A. Vicinity of Facility site (subsequent Exhibit B bounded with light blue dashes) in Angleton, TX



Sources: Google 2024

1.2 Facility Description

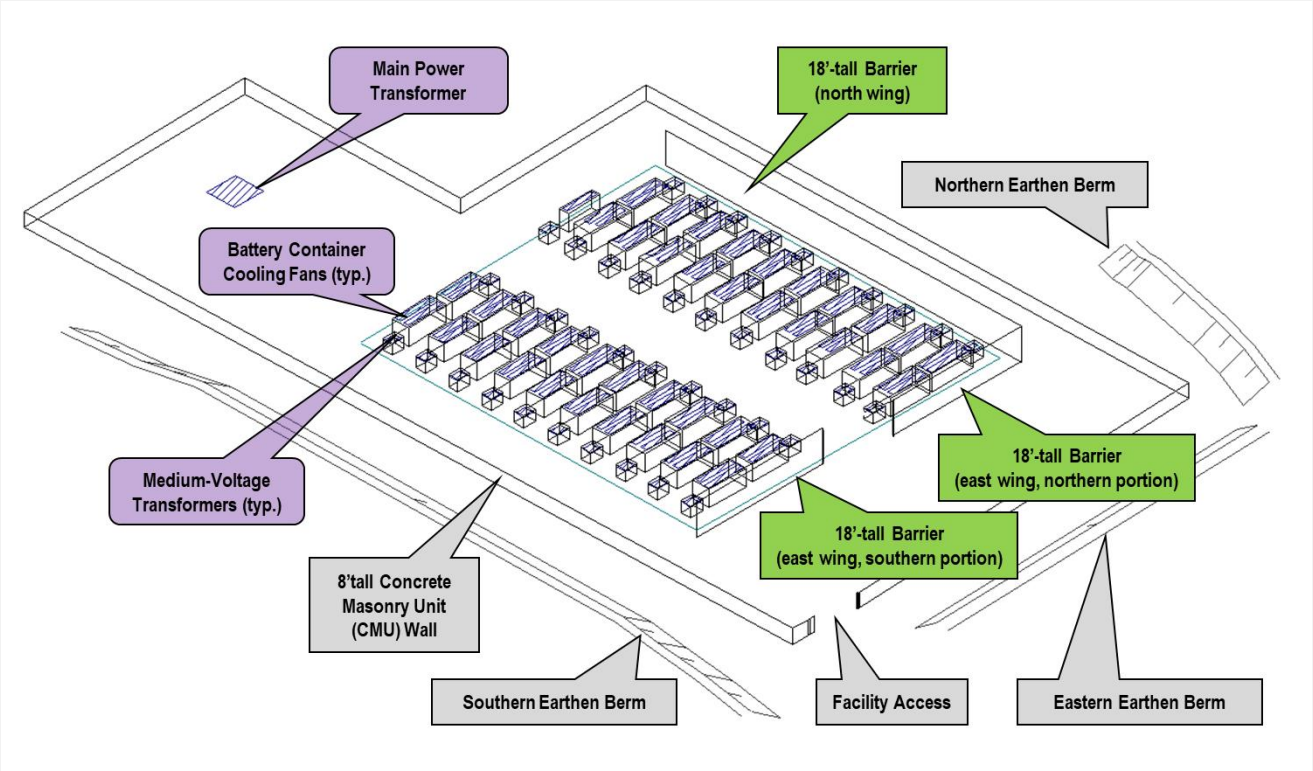
Surrounded by an 8-foot-tall perimeter CMU wall, the Facility features eighty-one (81) battery containers with cooling fans, forty-one (41) medium-voltage transformers (MVT), and an onsite Main Power Transformer (MPT) that connects to an offsite electrical substation approximately a quarter mile west on N. Walker Street. Exhibit B presents an aerial view of the site, prior to onsite erection of an 18'-tall L-shaped noise-reducing wall.

Exhibit B. Location of Facility site and adjoining existing land uses (prior to new noise barrier)

Sources: Google 2024

In early 2025, an 18'-tall L-shaped noise and visual barrier was constructed onsite. Exhibit C provides an isometric view of a three-dimensional rendering that illustrates the approximate location of the barrier installed, including the north wing and the east wing relative to other Facility features and their surroundings.

Exhibit C. Approximate locations of the L-shaped onsite barriers installed at the Facility



Sources: Dudek 2024

1.3 Acoustical Fundamentals

Although the terms may be used interchangeably in the right context, "sound" is defined as any gas or fluid pressure variation detected by the human ear, and "noise" is unwanted sound. The preferred unit for measuring sound is the decibel (dB), which by way of expressing the ratio of sound pressures to a reference value logarithmically enables a wide range of audible sound to be evaluated and discussed conveniently. On the low end of this range, zero dB is not the absence of sound energy, but instead corresponds approximately to the threshold of average healthy human hearing; and, on the upper end, 120–140 dB corresponds to an average person's threshold of pain.

The human ear is not equally responsive to all frequencies of the audible sound spectrum. An electronic filter is normally used when taking noise measurements that de-emphasizes certain frequencies in a manner that mimics the human ear's response to sound; this method is referred to as A-weighting. Sound levels expressed under the A-weighted system are often designated "dBA." All sound levels discussed in this report are A-weighted.

The equivalent continuous sound level (L_{eq}) is a single dB value which, if held constant during the specified time period, would represent the same total acoustical energy of a fluctuating noise level over that same time period. Percentile-exceed sound levels (L_{xx}) represent the sound level exceeded for a cumulative percentage of a specified period; for example, L_{90} ("L-ninety") is the sound level exceeded 90% of the time.

The L_{90} value is used herein as an industry-recognized way to help distinguish the acoustical contribution of aggregate Facility operation noise from the amalgam of sound sources (both near and far) comprising the measurable ambient environmental as detected by a sound level meter. In other words, and as stated by the Federal Highway Administration: "Where the noise emissions from a source of interest are constant (such as noise from a fan, air conditioner or pool pump) and the ambient noise level has a degree of variability (for example, due to traffic noise), the L90 descriptor may adequately describe the noise source." (FHWA 2017)

1.4 Acoustical Compliance Criteria

Condition F of the original SUP required a sound study ("baseline study") be performed "to determine the ambient noise level prior to the installation of the project." The baseline study was completed in 2020, with measured SPL at three locations (East, South, and North) collected over a concurrent 24-hour period from February 12, 2020 to February 13, 2020 that yielded energy-averaged day-night sound levels (L_{dn}) of 55.8 dBA, 58.3 dBA, and 56.6 dBA, respectively. No baseline SPL measurement was performed west of the proposed Facility site. Ordinance 20240326-005, which authorized amendment of the SUP, required that additional sound decibel monitoring be conducted at the Facility during operations, and further stipulated that operation of the Facility not exceed the baseline noise study results.

The L_{dn} values from the baseline study represent the "ambient noise level prior to installation of the project" and quantitatively define the threshold of "shall be no louder" with respect to aggregate Facility operation noise "as measured at 100 feet outside the parcel boundary and the nearest existing receptor" as required in the Specific Use Permit approved in Ordinance 20240326-005. The next section describes the operational-period sound level surveys conducted in early 2025 in response to the SUP modification.

The day-night sound level (L_{dn}) acoustical descriptor used herein is defined by the U.S. Environmental Protection Agency (EPA) as the A-weighted average sound level in decibels during a 24-hour period with a 10 dB penalty applied to nighttime (i.e., from 10:00 p.m. to 7:00 a.m.) sound levels (EPA 1974).

2 Operation-Period Sound Level Surveys

2.1 Survey Procedure

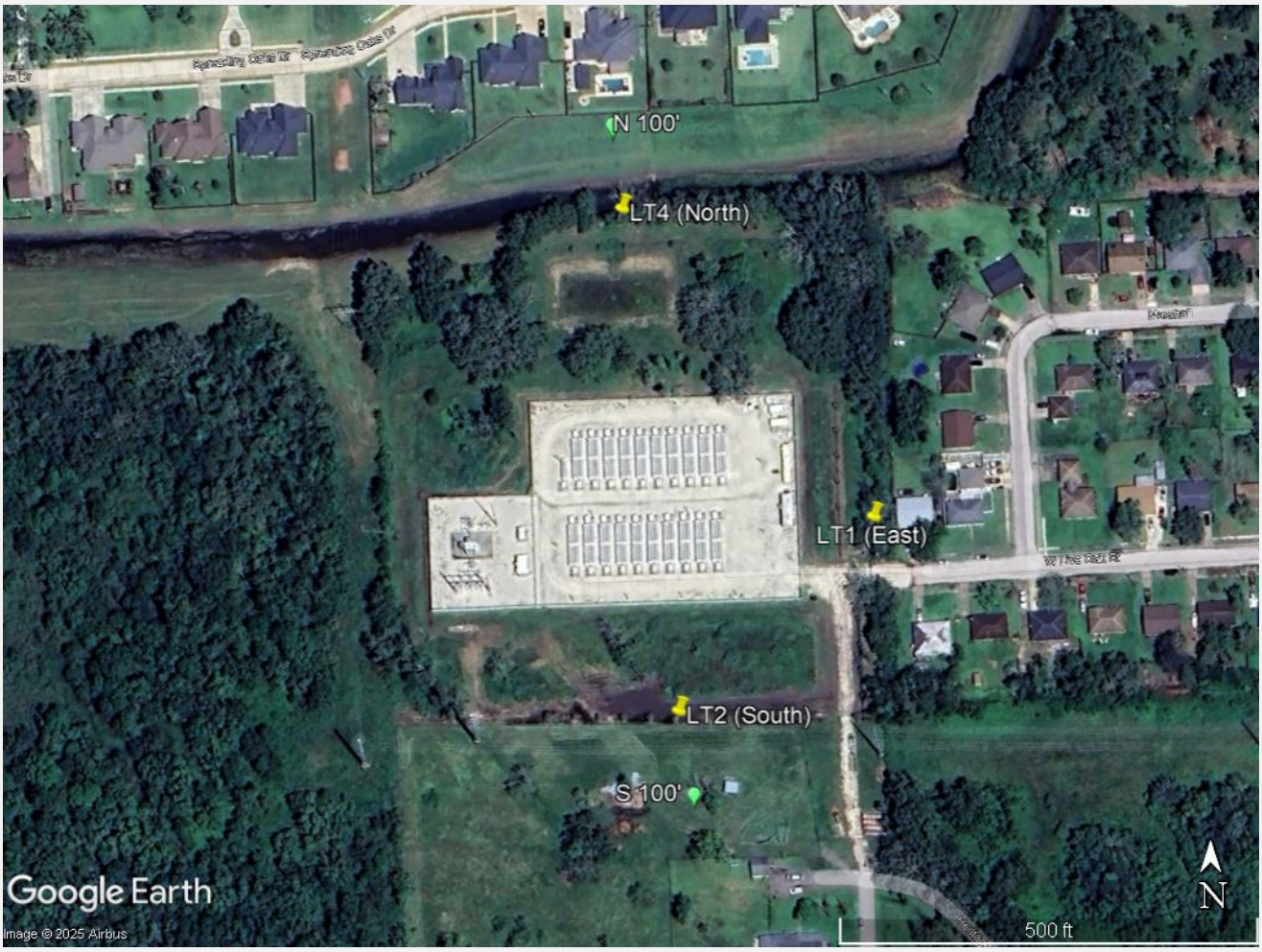
Dudek deployed three unattended sound level monitors (SLM) that collected SPL data in successive one-minute intervals over a total 120-hour duration from approximately 8:00 a.m. (Central Standard Time [CST]) on August 18, 2025 to 8:00 a.m. CST on August 23, 2025. Exhibit D illustrates the locations of these unattended SLM, which include the following: LT1 (east of the Facility), LT2 (south of the Facility), and LT4 (north of the Facility). Survey locations LT1, LT2, and LT4 were fixed SLM deployment positions for the entirety of the field survey. According to operational status data provided by PPS subsequent to the field survey, the Gambit Energy Storage Facility was operational throughout the survey period.

The deployed SLM were SoftdB "Piccolo II" models, which are American National Standards Institute (ANSI) Type 2 instruments expected to have a +/-3 dB tolerance. Each SLM was contained within a protective weather-resistant outdoor enclosure, from which the SLM wind-screened microphone could protrude to be adequately exposed to the

environment for SPL measurement. The enclosures were secured, via coated cables and padlocks, to fixed features (e.g., trees) around the Facility. All monitoring locations were approximately along or within the Facility property boundary.

Exhibit D also illustrates offsite and Facility property boundary locations representing locations where Facility noise emission levels would be evaluated from the collected measurement data and compared directly with the SUP condition. These assessment positions include as follows: 100 feet north of the property boundary (N 100') and 100 feet south of the property (S 100'). To the east, LT1 adjoins the "nearest existing receptor" and thus serves as the assessment location in that cardinal direction.

Exhibit D. Outdoor Ambient Sound Level Survey Locations



Sources: Google Earth 2025; Dudek 2025

2.2 Data Analysis

2.2.1 Methodology

Facility Noise Attribution

When active, Facility operation noise, including cooling fans, is one of many acoustical contributors to the outdoor ambient sound environment as measured by the unattended SLM deployments; and, because of the proximity of the deployed SLM around the Facility and due to steady-state operating characteristics of onsite battery container cooling systems and onsite electrical transformers (both MVT and the MPT), their aggregate noise emission can be captured with the L_{90} statistical descriptor. This is consistent with FHWA guidance as mentioned in Section 1.3.

However, non-Facility or "background" sound that was part of the measurable and audible outdoor ambient sound environment during the multi-day field survey included an amalgam of nearby and distant natural sound sources that were consistent with summer seasonal conditions, such as insect song. Such insect song and other natural sources are classified by American National Standard (ANS) S3/SC1.100 as "high-frequency natural sounds" (HFNS) and "contain significant spectral energy above the 1 kHz octave band, such as sounds produced by many insect, frog, and bird species" (ANSI 2014). Consistent with relevant content from ANS S3/SC1.100, a filter was thus applied to the one-minute interval collected data, after which "ANS L_{90}" values were calculated based upon the decibel difference between the measured L_{eq} and the measured L_{90} values. These ANS L_{90} values were then used as the basis to derive hourly and corresponding 24-hour L_{dn} values, the latter of which can be directly compared with the aforementioned SUP criteria in Section 1.4.

Compliance Assessment

Due to encountered site conditions surrounding the Facility, unattended SLM deployment positions on Project property were the closest that could be safely accessed for data collection. Hence, in order to quantify the Facility noise emission levels at positions more consistent with the SUP, which requires a location 100 feet from the parcel boundary and in cardinal directions corresponding with the nearest existing receptor(s), the sound levels at a "North Assessment Position" (appearing as "N 100'" in Exhibit D) and "South Assessment Position" (appearing as "S 100'" in Exhibit D) were extrapolated from the ANS L_{90} data by applying a decibel (dB) adjustment. This dB adjustment was calculated from the combined noise-reducing effects of geometric divergence (i.e., the Facility operation sound attenuates with increasing distance as it travels farther from the surveyed positions), atmospheric absorption, and ground surface acoustical absorption as predicted with Datakustik CadnaA (a commercially available outdoor sound propagation prediction model, based on International Organization of Standardization [ISO] 9613-2 2024 algorithms and relevant reference data) for the Facility operating at effectively full capacity. The extrapolated sound level at location S 100' should be 2.3 dB less than the ANS L_{90} at LT2; and the extrapolated sound level at N 100' should be 1.7 dB less than the ANS L_{90} at LT4. The ANS L_{90} at LT1, being co-located at the assessment position, would not be adjusted by decibel extrapolation.

2.2.2 Results Presentation

Table 1 summarizes the 24-hour L_{dn} values calculated from hourly ANS L_{90} at each of three indicated assessment positions as appearing in Exhibit D. The first four 24-hour survey periods shown are sequential, with the fifth period having an earlier starting time due to the availability of data collected. The term "starting hour" refers to the

beginning of the 24-hour period; for example, a 10:00 a.m. starting hour means the collected data within that 24-hour period representing 10:00 a.m. to 10:00 a.m. on the following day.

Table 1. August 18-23, 2025 Unattended SPL Monitoring of Facility Operations

Date (mm/dd/yyyy) and Starting Hour (hh:mm, CST) of 24-hour Period	East Assessment Position (LT1) (L_{dn}, dBA)	South Assessment Position (S 100') (L_{dn}, dBA)	North Assessment Position (N 100') (L_{dn}, dBA)
08/18/2025, 10:00 a.m.	54.2	53.9	50.5
08/19/2025, 10:00 a.m.	n/a[1]	56.9	54.1
08/20/2025, 10:00 a.m.	55.4	56.2	54.2
08/21/2025, 10:00 a.m.	53.4	55.9	53.8
08/22/2025, 7:00 a.m.	n/a[2]	54.3	53.7
SUP threshold (L_{dn} Limit)*	55.8	58.3	56.6
Compliance for all survey periods?	*yes*	*yes*	*yes*

Source: Dudek 2025.
Notes: L_{dn} = 24-hour day-night sound level; dBA = A-weighted decibel; SUP = specific use permit; CST = central standard time; n/a = not available; LT = long-term; S = south; N = north.
[1] data collection was interrupted during this period, resulting in less than full 24 hours.
[2] data collection included apparent extraneous multi-hour duration sound unrelated to Facility operation during this period.
* As established by 24-hour background sound level monitoring in February 12-13, 2020 prior to Facility installation. No monitoring was performed west of the proposed Facility site in 2020.

3 Conclusion

The SUP states that the noise emitted from the Facility shall be no louder at "100 feet outside of the parcel boundary and the nearest existing receptor." As shown in Table 1, 24-hour L_{dn} values based on measurement data collected during the monitoring period in August 2025 are below the SUP thresholds and therefore compliant with the SUP and corresponding Ordinance.

4 References

American National Standards Institute (ANSI). 2014. ANSI/ASA S3/SC1.100-2014/ANSI/ASA S12.100-2014. Methods to Define and Measure the Residual Sound in Protected Natural and Quiet Residential Areas. Accessed September 14 at https://webstore.ansi.org/preview-pages/ASA/preview_ANSI+ASA+S3+SC1.100-2014+ANSI+ASA+S12.100-2014.pdf

Federal Highway Administration (FHWA). 2017. Sound Level Descriptors. FHWA-HEP-17-053. Updated May 26th. Accessed August 25, 2022 at https://www.fhwa.dot.gov/Environment/noise/resources/sound_descr.cfm

U.S. Environmental Protection Agency (EPA). 1974. Information On Levels Of Environmental Noise Requisite To Protect Public Health and Welfare With An Adequate Margin Of Safety. Office of Noise Abatement and Control. March. Accessed March 17, 2025 at https://nepis.epa.gov.

5 Preparer Biography

This technical memo has been prepared by Mark Storm, an Institute of Noise Control Engineering (INCE) Board Certified member and the Acoustic Services Manager within the Environmental Technical Group at Dudek. Prior to joining Dudek in 2018, Mr. Storm was a senior acoustician with URS Corporation (acquired by AECOM in 2016) for twelve years after a decade that included noise control and sound abatement design leadership roles with HVAC and sound attenuation product manufacturers. He currently leads a team of full-time acousticians, including those who have contributed to the preparation of content (e.g., field-collected SPL data) presented herein.

Dudek trusts that the results and findings presented in this technical memo meet your needs for the Facility at this time. Should you have any questions or would like to discuss the data and findings herein, please do not hesitate to contact Mr. Storm at the contact information below.

Sincerely,

Mark Storm, INCE Bd. Cert.
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