



# Project Heartland

Preliminary Environmental Noise Study

## CLIENT

Aligned Data  
Centers

## CLIENT CONTACT

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## DATE

16 October 2026

We have reviewed the proposed equipment layout and associated sound data for the Aligned Data Centers campus in Coal City, Illinois, located at the southeast corner of S Carbon Hill Road and E Reed Road in Grundy County. The campus consists of eleven data center buildings with supporting mechanical yards and electrical infrastructure. This report summarizes the applicable noise regulations, the results of our ambient noise survey, our acoustic model analyses of the proposed equipment, and the noise mitigation measures incorporated into the design. With the mitigation measures described in this report, the projected noise levels comply with the applicable Illinois Pollution Control Board limits at all evaluated receptors.

## 1.0 Applicable Noise Ordinances

### 1.1 Illinois Pollution Control Board Standards

The statewide noise standard enforced by the Illinois Pollution Control Board (IL PCB) applies to the site (35 Ill. Adm. Code Parts 900/901). The Illinois code classifies land into three classes based on use (35 Ill. Adm. Code 901.101): Class A includes residential and other noise-sensitive uses; Class B generally includes commercial uses; and Class C includes industrial, utility, and agricultural uses. Several of the receptors surrounding the site are commercial (Class B) or agricultural (Class C) properties. For sound emitted to receiving Class B land, the code establishes the following limits (35 Ill. Adm. Code 901.103), which apply at all hours.

We understand the site to be classified as Class B land, with the nearest noise-sensitive receivers being residential (Class A) properties. Under the Illinois code, noise emitted from a Class B property-line noise source to receiving Class A land must not exceed the following octave-band sound pressure levels, measured at any point within the receiving Class A land (and no less than 25 ft. from the noise source property line):

**Table 1: IL PCB Maximum Permissible Sound Levels (Class B to Class A)**

| Period                    | SPL (dB) at Octave Band Center Frequency (Hz) |    |     |     |     |    |    |    |    | dBA* |
|---------------------------|-----------------------------------------------|----|-----|-----|-----|----|----|----|----|------|
|                           | 31.5                                          | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |      |
| Daytime (7am to 10pm)**   | 72                                            | 71 | 65  | 57  | 51  | 45 | 39 | 34 | 32 | 55   |
| Nighttime (10pm to 7am)** | 63                                            | 61 | 55  | 47  | 40  | 35 | 30 | 25 | 25 | 44   |

\* Overall dBA levels are not specifically listed in the IL code; the equivalent dBA levels shown are calculated from the octave band data.

\*\* Technically the standard defines daytime as "any continuous 16 hour period between 6:00 a.m. and 11:00 p.m. local time" with the other 8 hours considered nighttime, but in practice the 7am to 10pm daytime window is usually used.

Note that there are also Class B and C receivers in the immediate vicinity. Class B receivers are subject to the following limits:

**Table 2: IL PCB Maximum Permissible Sound Levels (Class B to Class B)**

| Period    | SPL (dB) at Octave Band Center Frequency (Hz) |    |     |     |     |    |    |    |    | dBA* |
|-----------|-----------------------------------------------|----|-----|-----|-----|----|----|----|----|------|
|           | 31.5                                          | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |      |
| All hours | 79                                            | 78 | 72  | 64  | 58  | 52 | 46 | 41 | 39 | 62   |

\* Overall dBA levels are not specifically listed in the IL code; the equivalent dBA level shown is calculated from the octave band data.

The code does not establish numeric limits for sound emitted to receiving Class C land; as described in Section 1.5, we have conservatively evaluated both the commercial and agricultural receptors against a 55 dBA limit at all hours, which is more stringent than the Class B receiving-land limits below.

These levels apply at the receiving property, with the additional proviso that noise levels are to be measured no less than 25 ft. from the property line containing the noise source. It is possible to comply with the overall dBA rating while failing to comply with the levels in individual octave bands; compliance is therefore evaluated on an octave-band basis.

The 31.5 Hz octave band was not included in the equipment noise analysis, as manufacturer sound data for the proposed equipment is not available at that frequency. The 31.5 Hz band is reported for the measured ambient conditions in Section 1.3.

Section 901.106 of the Illinois code addresses prominent discrete tones. In our experience the sound from the transformers and generators is highest in the 125 Hz octave band; however, this does not make the sound strictly tonal under the common definition, which relates to a one-third octave-band level that projects prominently above the adjacent bands. Section 901.106 does not establish a formal numeric definition of a prominent discrete tone. Based on the modeled spectra, we do not identify a prominent discrete tone as addressed by the code.

## 1.2 Village of Coal City Performance Standards

We understand that the project is being processed as a Planned Unit Development through the Village of Coal City, and that the Village has requested that the project demonstrate how it satisfies the Illinois Pollution Control Board standards. The Village of Coal City Zoning Code additionally contains a noise performance standard (§ 156-207, amended by Ord. No. 99-13): no operation or activity may create noise above a sound pressure level of 75 decibels (unweighted, slow response) measured at the boundaries of the nearest residentially zoned lot, as adjusted by Table 18 of the Zoning Code:

**Table 3: Village of Coal City Adjustments to Permitted Sound Levels (Zoning Code Table 18)**

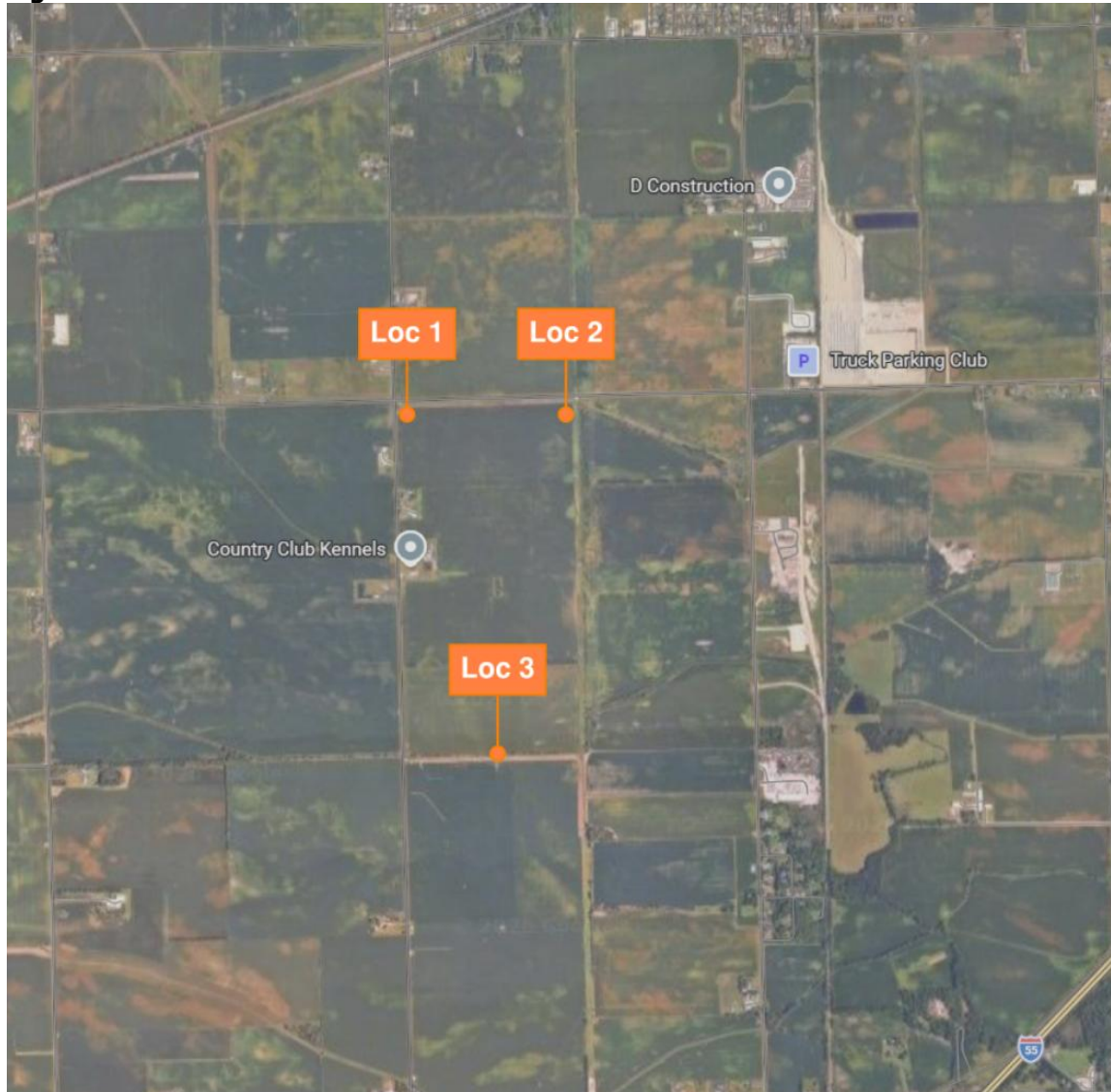
| Condition                                                                                | Adjustment    |
|------------------------------------------------------------------------------------------|---------------|
| Duration of noise under 12 minutes in any one-hour period (one duration adjustment only) | Add 5 dB      |
| Duration of noise under 3 minutes in any one-hour period                                 | Add 10 dB     |
| Duration of noise under 1/2 minute in any one-hour period                                | Add 15 dB     |
| At boundaries of nearest office or commercial zoned lot                                  | Add 5 dB      |
| Noise is impulsive in character (for example, hammering)                                 | Subtract 5 dB |
| Noise is periodic in character (for example, hum, screech)                               | Subtract 5 dB |
| Noise may be heard between the hours of 7:00 p.m. and 7:00 a.m.                          | Subtract 5 dB |

For continuously operating data center equipment audible during nighttime hours, the operative Village limit would be 70 dB (unweighted); if the noise were judged "periodic in character," the limit would be 65 dB (unweighted). For continuous broadband equipment noise, the IL PCB octave-band limits summarized in Table 1 are substantially more stringent than the Village performance standard. Compliance with the IL PCB limits is therefore the governing design condition, and demonstrating compliance with the IL PCB standards also demonstrates compliance with the Village of Coal City noise performance standard.

### 1.3 Ambient Noise Survey

We measured ambient noise levels at four locations around the project site over an approximately 24-hour period from 6 to 7 July 2026; locations are shown in Figure 1.

**Figure 1: Ambient Noise Measurement Locations**



The noise levels measured on site were recorded in 1-second increments and analyzed over 1-hour periods. In each 1-hour period we determined the L90 noise level – the level exceeded 90% of the time, or the statistical minimum level – which represents the underlying background level of noise when the louder, more intermittent sounds are ignored.

For comparison to a noise ordinance, the L90 is typically used to determine whether the existing ambient noise should supersede the level published in the ordinance. The measured hourly L90 levels are summarized below; nighttime hours per the IL PCB definition are the 10:00 p.m. through 6:00 a.m. hours. There is no industry-wide standard specifying the metric for measuring

ambient noise; we use the LA90, which is the most conservative measure (it yields the lowest ambient level) and has been our firm's standard for several decades. The few codes that provide guidance on this point (such as the Commonwealth of Massachusetts) specify the LA90.

**Table 4: Measured Ambient Noise Levels (hourly L90, dBA)**

| Hour                                | Location 1 | Location 2 | Location 3 |
|-------------------------------------|------------|------------|------------|
| 9:00 AM                             | 36         | 39         | –          |
| 10:00 AM                            | 38         | 42         | 41         |
| 11:00 AM                            | 38         | 42         | 37         |
| 12:00 PM                            | 36         | 40         | 36         |
| 1:00 PM                             | 39         | 39         | 35         |
| 2:00 PM                             | 42         | 40         | 33         |
| 3:00 PM                             | 40         | 40         | 35         |
| 4:00 PM                             | 41         | 42         | 35         |
| 5:00 PM                             | 37         | 42         | 37         |
| 6:00 PM                             | 37         | 41         | 38         |
| 7:00 PM                             | 33         | 40         | 33         |
| 8:00 PM                             | 34         | 38         | 31         |
| 9:00 PM                             | 29         | 45         | 30         |
| 10:00 PM                            | 29         | 37         | 30         |
| 11:00 PM                            | 31         | 36         | 31         |
| 12:00 AM                            | 28         | 36         | 29         |
| 1:00 AM                             | 30         | 37         | 30         |
| 2:00 AM                             | 30         | 41         | 30         |
| 3:00 AM                             | 31         | 37         | 31         |
| 4:00 AM                             | 34         | 52         | 33         |
| 5:00 AM                             | 40         | 52         | 36         |
| 6:00 AM                             | 42         | 49         | 38         |
| 7:00 AM                             | 41         | 43         | 38         |
| 8:00 AM                             | 38         | 42         | 37         |
| <b>Lowest Daytime Hourly LA90</b>   | <b>29</b>  | <b>38</b>  | <b>30</b>  |
| <b>Lowest Nighttime Hourly LA90</b> | <b>28</b>  | <b>36</b>  | <b>29</b>  |

Ambient levels at Locations 1 and 3 are well below the IL PCB limits during both daytime and nighttime periods. At Location 2, levels during the early-morning hours (approximately 4:00 a.m. to 6:00 a.m.) were elevated, at roughly 49 to 52 dBA, which we attribute to existing transportation-related activity rather than to a continuous ambient condition. The lowest nighttime hourly LA90 levels were 28, 36 and 29 dBA at Locations 1, 2 and 3, respectively.

The primary conclusion of the survey is that existing ambient levels do not supersede the code limits: the IL PCB levels remain the operative standard, and equipment noise from the data center will be quieter than, or comparable to, the quietest existing conditions only if substantial noise control is incorporated in the design.

**Table 5: Design Ambient — Octave-Band LA90 for the Lowest Qualifying Nighttime Hour (dB)**

| Location   | Octave-Band LA90 at Center Frequency (Hz) |    |     |     |     |    |    |    |    | LA90 |
|------------|-------------------------------------------|----|-----|-----|-----|----|----|----|----|------|
|            | 31.5                                      | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |      |
| Location 1 | 47                                        | 44 | 35  | 28  | 26  | 19 | 13 | 15 | 14 | 28   |
| Location 2 | 52                                        | 47 | 40  | 33  | 31  | 27 | 26 | 26 | 23 | 36   |
| Location 4 | 48                                        | 44 | 37  | 26  | 25  | 22 | 12 | 14 | 14 | 29   |

Design ambient is the lowest qualifying nighttime hour at each location. The 31.5 Hz band is reported here to establish the ambient environment, but is not referenced in our equipment analyses as no manufacturers provide 31.5Hz data to use in calculations.

#### 1.4 Summary of Applicable Criteria

Upon review of the above we observe the following:

- Normal data center operations occur 24 hours per day, and so should be evaluated against more stringent nighttime standards.
- Generator testing can be scheduled at the operator's convenience and therefore should be evaluated against the less-stringent daytime standards.
- The Village of Coal City performance standard (75 dB unweighted, with adjustments) is less stringent than the IL PCB limits for continuous equipment noise and is satisfied where the IL PCB limits are met.
- Ambient noise levels do not exceed IL PCB limits, so the levels listed in the code should be the operative standard for evaluating relative to IL PCB.

As a result, we conclude that that **the following noise limits should be applied to the evaluation of the proposed data center:**

- Typical day-to-day data center operations should be evaluated relative to the IL PCB nighttime limits (44 dBA with octave band levels per Table 1) at residential (Class A) receivers.
- Generator testing is expected to occur during daytime hours, and may be evaluated against the IL PCB daytime limits (55 dBA with octave band levels per Table 1).
- Emergency operations do not typically fall under IL PCB restrictions, but generator usage under a full power outage will be compared to both IL PCB and Coal City (75dB) levels for reference.
- Non-residential receivers (commercial and agricultural properties) should be evaluated relative to the 55 dBA limit established for Class B and C land.

## 2.0 Acoustic Model Analysis

To analyze the potential acoustic impact of the campus on surrounding properties, we developed a computer model in the CadnaA noise prediction software. The model projects the combined effect of all noise sources on site, taking into account site topography, building screening, and barrier walls. Once preliminary site noise impact is determined, noise mitigation measures can be tested within the model.

### 2.1 Model Parameters & Assumptions

The following section outlines the geometric and acoustic parameters defined in our model.

#### .1 Geometric Inputs

The overall site configuration is based on the PUD Combined Plan provided by Aligned Data Center (June 2026), the APEX Footprint Options prepared by Aligned (11 May 2026), and the Preliminary Elevations and Renderings package prepared by Woolpert (5 June 2026).

- The campus includes eleven data center buildings (Buildings 1 through 11), each with an attached administration block and mechanical equipment yards located along the data halls. All buildings included in the Planned Unit Development submission were modeled in this study. Building footprints and heights are summarized below:

**Table 6: Building Geometric Inputs**

| Building | MW | Data Hall L × W (ft.) | Parapet Ht. (ft.) |
|----------|----|-----------------------|-------------------|
| Bld 1    | 72 | 961 × 322             | 30                |
| Bld 2    | 72 | 961 × 322             | 30                |
| Bld 3    | 72 | 961 × 322             | 30                |
| Bld 4    | 72 | 961 × 322             | 30                |
| Bld 5    | 72 | 961 × 322             | 30                |
| Bld 6    | 72 | 961 × 322             | 30                |
| Bld 7    | 72 | 961 × 322             | 30                |
| Bld 8    | 72 | 961 × 322             | 30                |
| Bld 9    | 72 | 961 × 322             | 30                |
| Bld 10   | 72 | 961 × 322             | 30                |
| Bld 11   | 72 | 961 × 322             | 30                |

Data hall approximately 961 ft. long × 322 ft. wide, with an 83 ft. mechanical yard along one long side and an attached admin block. Data hall parapet approximately 30 ft. and admin parapet approximately 36 ft. above grade.

- Screen walls at mechanical yards are per the architectural design.
- Finished floor elevations (572.5 ft. to 574.5 ft.) and site grading are per the PUD grading plan, and local topography is included in the model.

## .2 Sound Source Data

The following sound data was used for the analysis.

- Manufacturer octave-band sound power data for the chillers was taken from the Munters chiller submittal; the manufacturer's A-weighted octave-band sound power levels were converted to unweighted octave-band levels for use in the model. Chiller noise was modeled as separate sub-sources (inlet, discharge, and compressor/casing) to represent the source locations accurately and to allow noise-control options to be evaluated independently for each sub-source; the discharge is the dominant source path and is shown in the table below.
- Generator sound data reflects the Caterpillar 3516E generator with the specified acoustic enclosure and exhaust silencer; the silenced exhaust sound pressure data from the silencer manufacturer was converted to sound power for use in the model.
- Transformer sound data is based on the level reported by the manufacturer, "(specification 75 dB, up to ~79 dB observed in the field). As the octave-band distribution is not provided, the level was conservatively assigned to the 125 Hz band based on prior experience with similar units.

This analysis addresses the fixed mechanical and electrical equipment at the site; mobile sources associated with site operation, such as vehicular traffic and deliveries, are not part of the data center's fixed equipment and are not within the scope of this study.

Current equipment selections are as follows:

- Chillers: Munters TMA (Geoclima) 2.0MW HA air-cooled chillers
- Emergency Generators: Caterpillar 3516E, 3,000 kW standby, in walk-in acoustic enclosures with critical-grade exhaust silencers
- Transformers: pad-mounted power transformers per Aligned specification (12 units campus-wide). Note that transformer data is only available from manufacturers at dBA ratings; while not strictly accurate, we have modeled the transformers as if all acoustic energy were in the 125Hz octave band, where transformers are loudest.

**Table 7: Modeled Sound Source Sound Power Levels (Lw, dB re 10<sup>-12</sup> W)**

| Source                                     | PWL (dB) at Octave Band Center Frequency (Hz) |     |     |     |     |    |    |    | dBA | Lin |
|--------------------------------------------|-----------------------------------------------|-----|-----|-----|-----|----|----|----|-----|-----|
|                                            | 63                                            | 125 | 250 | 500 | 1k  | 2k | 4k | 8k |     |     |
| Chiller Discharge (per chiller)*           | 97                                            | 104 | 99  | 100 | 101 | 97 | 93 | 88 | 105 | 109 |
| Emergency Generator, silenced (per unit)** | 106                                           | 105 | 95  | 95  | 94  | 91 | 93 | 92 | 101 | 111 |
| Transformer (per unit)                     | -                                             | 79  | -   | -   | -   | -  | -  | -  | 63  | 79  |

\* Unattenuated (base chiller) values converted from manufacturer A-weighted octave-band sound power data; see Section 3.0 for silencer insertion losses applied in the mitigated scenarios. Chiller inlet and casing/fan sub-sources are modeled separately and are not shown.

\*\* Derived from silenced exhaust sound pressure levels published by the silencer manufacturer, converted to sound power. Values reflect the generator within its acoustic enclosure with exhaust silencer.

Overall dBA and Lin values reflect the full modeled spectrum, which includes energy below the 63 Hz band where applicable.

### .3 Operational Scenarios

Chillers are designed for N+2 redundancy and operate at approximately 86% capacity under typical conditions. Equipment quantities are as provided by Aligned Data Centers: 462 (42x11 buildings) chillers and 462 (42x11 buildings) transformers across the campus, which operate continuously. The campus includes approximately 462 (42x11 buildings) emergency standby generators, which do not operate during normal conditions; routine generator exercise/testing is scheduled during daytime hours.

The following scenarios were evaluated:

- Normal Operations – all continuously operating cooling equipment at typical design capacity, plus transformers. Evaluated against nighttime limits.
- Generator Testing Operations – Generators are tested on a scheduled basis for short durations and are exercised sequentially (one generator at a time at each building). Because the campus will have multiple tenants, simultaneous testing across buildings cannot be formally precluded; for a conservative analysis we modeled one generator at each building operating at full load at the same time. All generators operate simultaneously only during an emergency (loss of utility power), addressed in Section 3.4.

### .4 Area of Study

The computer model maps noise levels over a region extending beyond the site and allows detailed analyses at specific discrete receptors. Receptors were placed at the nearest residences and occupied commercial and agricultural properties surrounding the site; where a residence has building faces oriented toward different portions of the campus, north (N) and south (S) receptors were evaluated. Receptor locations are listed below and shown in Figure 2.

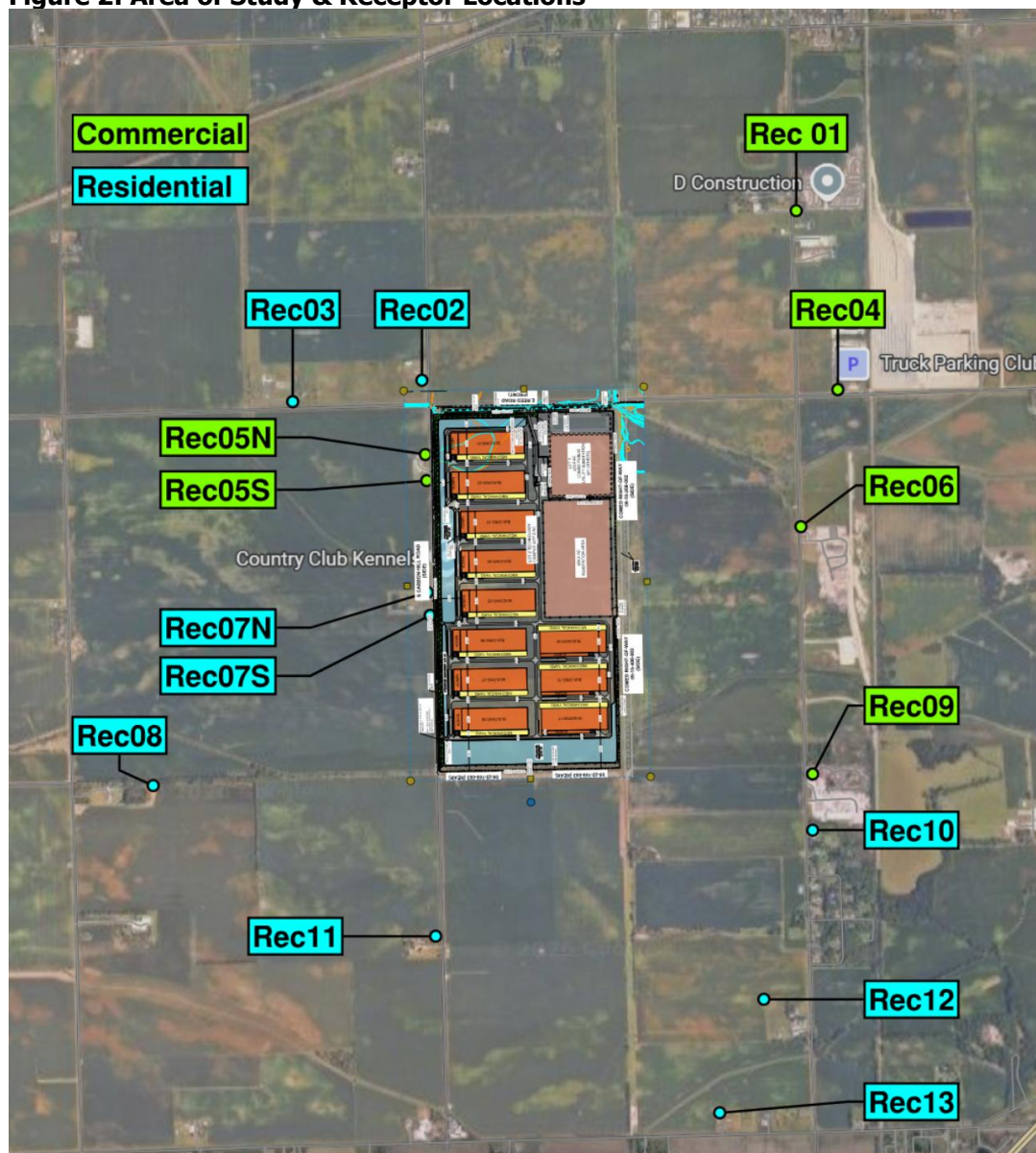
**Table 8: Receptor Locations**

| Rec | Description                            | Land Use      |
|-----|----------------------------------------|---------------|
| 01  | CY Landscaping (1630 S Broadway Rd)    | Commercial    |
| 02  | 1965 S Carbon Hill Rd                  | Residential   |
| 03  | 5680 E Reed Rd                         | Residential   |
| 04  | Cardinal Transport (7180 E Reed Rd)    | Commercial    |
| 05N | 2165 S Carbon Hill Rd                  | Agricultural* |
| 05S | 2165 S Carbon Hill Rd                  | Agricultural* |
| 06  | IL Recovery Group (2390 S Broadway Rd) | Commercial    |
| 07N | 2535 S Carbon Hill Rd                  | Residential   |
| 07S | 2535 S Carbon Hill Rd                  | Residential   |
| 08  | 3028 S Jugtown Rd                      | Residential   |
| 09  | Broadway Auto (3014 S Broadway Rd)     | Commercial    |

|    |                       |             |
|----|-----------------------|-------------|
| 10 | 3180 S Broadway Rd    | Residential |
| 11 | 3465 S Carbon Hill Rd | Residential |
| 12 | 3695 S Broadway Rd    | Residential |
| 13 | 6800 E Braceville Rd  | Residential |

\* Agricultural land is Class C under the IL PCB land-use classification (35 Ill. Adm. Code 901.101), for which the code does not establish numeric limits at the receiving land. We have conservatively evaluated agricultural and commercial receptors against a 55 dBA limit at all hours, corresponding to the IL PCB daytime level for Class A land. Should a dwelling on an agricultural parcel be occupied as a residence, the Class A limits would apply at that dwelling.

**Figure 2: Area of Study & Receptor Locations**



### 3.0 Noise Mitigation

#### 3.1 Noise Mitigation Measures

Noise mitigation measures are still preliminary at this phase of the project, as the design of the facility will continue to be refined up to the point of construction. At this phase of design, however, we have taken a “snapshot” of preliminary equipment selections and preliminary noise mitigation options to confirm that the building is able to meet all applicable codes. All noise mitigation options presented in this report are based on actual products and – if the design were frozen today – would represent a viable constructible solution. As the design develops, there may be adjustments due to changes in cooling loads, airflow studies, etc. With those adjustments, however, the proof of concept at this stage will apply to any necessary adaptations in noise mitigation strategy, and any such changes in strategy will be reflected in updated reports as the design progresses.

The following measures are incorporated into the design and reflected in the mitigated model results:

- Chiller inlet acoustic louvers – 8 in. acoustic louvers on all chillers, with the following modeled insertion loss:

**Table 9: Louver Insertion Loss (dB)**

| Mitigation Equipment | Insertion Loss (dB) at Octave Band Center Frequency (Hz) |    |     |     |     |    |    |    |    |
|----------------------|----------------------------------------------------------|----|-----|-----|-----|----|----|----|----|
|                      | 31.5                                                     | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 8 in. inlet louver   | 7                                                        | 7  | 8   | 8   | 12  | 19 | 20 | 19 | 18 |

Insertion loss values are per manufacturer published data for the selected products.

- Chiller compressor acoustic wraps – acoustic wraps on all chiller compressors. The following insertion losses are assumed for the inlet louvers and compressor wraps:

**Table 10: Compressor Wrap Insertion Loss (dB)**

| Mitigation Equipment | Insertion Loss (dB) at Octave Band Center Frequency (Hz) |    |     |     |     |    |    |    |    |
|----------------------|----------------------------------------------------------|----|-----|-----|-----|----|----|----|----|
|                      | 31.5                                                     | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| Compressor wrap      | -2                                                       | -2 | 0   | 0   | 2   | 5  | 6  | 7  | 7  |

Insertion loss values are per manufacturer published data for the selected products.

- Chiller discharge silencers – 48 in. discharge silencers on the chillers at Buildings 1, 4, 5 and 6, and 36 in. discharge silencers on the chillers at Buildings 2, 3 and 7 through 11 (by building per Table 11). The following insertion losses are assumed for the two silencer options:

**Table 11: Silencer Insertion Loss (dB)**

| Mitigation Equipment      | Insertion Loss (dB) at Octave Band Center Frequency (Hz) |    |     |     |     |    |    |    |    |
|---------------------------|----------------------------------------------------------|----|-----|-----|-----|----|----|----|----|
|                           | 31.5                                                     | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| 48 in. discharge silencer | 5                                                        | 5  | 9   | 14  | 17  | 25 | 29 | 11 | 9  |
| 36 in. discharge silencer | 5                                                        | 5  | 7   | 10  | 13  | 22 | 21 | 7  | 7  |

Insertion loss values are per manufacturer published data for the selected products.

- Rooftop barrier walls – Up to 25 ft. acoustic barrier walls around the rooftop chiller yards (shown in Figure 3), integrated with the architectural screen wall design. The barriers were included in the CadnaA model; final barrier construction (including density and transmission loss) will be specified during construction documents.
- Generator acoustic packages – walk-in acoustic enclosures with critical-grade exhaust silencers on all emergency generators (reflected in the generator source levels in Table 7).

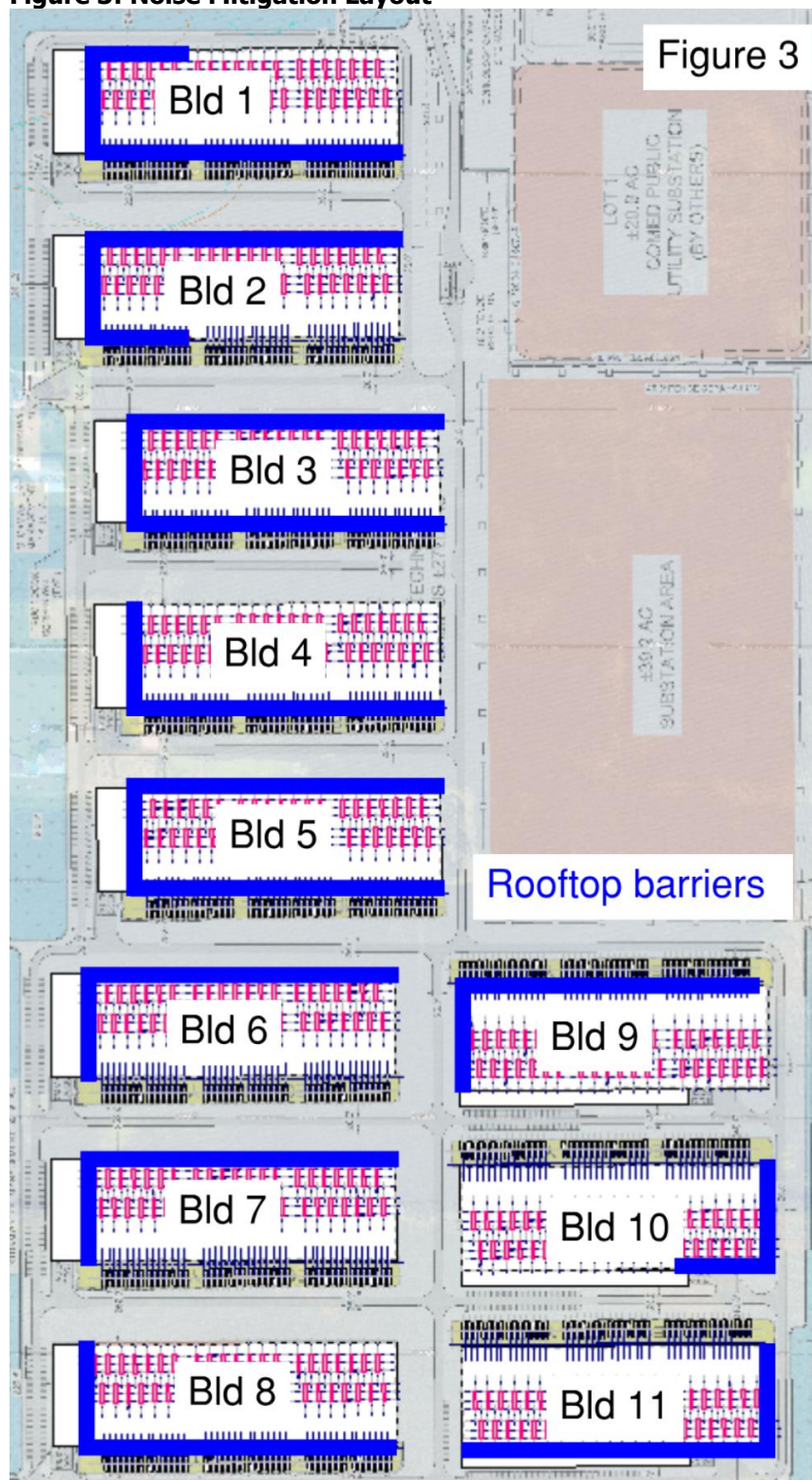
The discharge silencer size varies by building, as summarized below:

**Table 12: Noise Mitigation by Building**

| Building | Discharge Silencer | Inlet Louver | Compressor    | Barrier Wall |
|----------|--------------------|--------------|---------------|--------------|
| Bld 1    | 48 in.             | 8 in.        | Acoustic wrap | Yes          |
| Bld 2    | 36 in.             | 8 in.        | Acoustic wrap | Yes          |
| Bld 3    | 36 in.             | 8 in.        | Acoustic wrap | Yes          |
| Bld 4    | 48 in.             | 8 in.        | Acoustic wrap | Yes          |
| Bld 5    | 48 in.             | 8 in.        | Acoustic wrap | Yes          |
| Bld 6    | 48 in.             | 8 in.        | Acoustic wrap | Yes          |
| Bld 7    | 36 in.             | 8 in.        | Acoustic wrap | Yes          |
| Bld 8    | 36 in.             | 8 in.        | Acoustic wrap | Yes          |
| Bld 9    | 36 in.             | 8 in.        | Acoustic wrap | Yes          |
| Bld 10   | 36 in.             | 8 in.        | Acoustic wrap | Yes          |
| Bld 11   | 36 in.             | 8 in.        | Acoustic wrap | Yes          |

Barrier wall extents are per Figure 3.

**Figure 3: Noise Mitigation Layout**



### 3.2 Model Results with Mitigation – Normal Operations

We modeled the campus with the mitigation measures described in Section 3.1. Noise levels for Normal Operations are evaluated relative to the IL PCB nighttime standards.

**Table 13: Model Results – Normal Operations with Mitigation**

| Rec | SPL (dB) at Octave Band Center Frequency (Hz) |     |     |     |    |    |    |    | dBA | Meets IL PCB? |
|-----|-----------------------------------------------|-----|-----|-----|----|----|----|----|-----|---------------|
|     | 63                                            | 125 | 250 | 500 | 1k | 2k | 4k | 8k |     |               |
| 01  | 18                                            | 27  | 26  | 29  | 24 | 10 | –  | –  | 33  | Yes           |
| 02  | 24                                            | 34  | 33  | 36  | 32 | 25 | 23 | –  | 40  | Yes           |
| 03  | 21                                            | 31  | 30  | 33  | 28 | 19 | 7  | –  | 37  | Yes           |
| 04  | 19                                            | 28  | 27  | 31  | 26 | 14 | –  | –  | 35  | Yes           |
| 05N | 26                                            | 37  | 36  | 38  | 32 | 25 | 23 | –  | 42  | Yes           |
| 05S | 27                                            | 38  | 36  | 39  | 33 | 26 | 24 | –  | 43  | Yes           |
| 06  | 21                                            | 31  | 30  | 34  | 30 | 20 | 1  | –  | 38  | Yes           |
| 07N | 27                                            | 38  | 37  | 39  | 34 | 27 | 23 | –  | 44  | Yes           |
| 07S | 28                                            | 38  | 37  | 40  | 34 | 27 | 24 | –  | 44  | Yes           |
| 08  | 18                                            | 27  | 26  | 29  | 24 | 11 | –  | –  | 33  | Yes           |
| 09  | 20                                            | 30  | 30  | 33  | 29 | 20 | 4  | –  | 37  | Yes           |
| 10  | 19                                            | 29  | 29  | 32  | 28 | 18 | –  | –  | 36  | Yes           |
| 11  | 20                                            | 30  | 29  | 33  | 29 | 20 | 4  | –  | 37  | Yes           |
| 12  | 18                                            | 27  | 26  | 29  | 25 | 13 | –  | –  | 33  | Yes           |
| 13  | 16                                            | 25  | 24  | 27  | 22 | 8  | –  | –  | 31  | Yes           |

With the mitigation measures in place, projected sound levels comply with the applicable IL PCB limits at all evaluated receptors. The highest level at a residential receiver is 44 dBA at Receptors 07N and 07S, equal to the 44 dBA nighttime limit; all modeled octave-band levels are within the applicable band limits.

### 3.3 Model Results with Mitigation – Generator Testing Operations

For Generator Testing Operations, we have evaluated noise levels relative to the IL PCB daytime standards, assuming generator testing is performed only during daytime hours.

**Table 14: Model Results – Generator Testing Operations with Mitigation**

| Rec | SPL (dB) at Octave Band Center Frequency (Hz) |     |     |     |    |    |    |    | dBA | Meets IL PCB? |
|-----|-----------------------------------------------|-----|-----|-----|----|----|----|----|-----|---------------|
|     | 63                                            | 125 | 250 | 500 | 1k | 2k | 4k | 8k |     |               |
| 01  | 21                                            | 28  | 26  | 30  | 26 | 12 | –  | –  | 34  | Yes           |
| 02  | 25                                            | 34  | 33  | 36  | 33 | 25 | 23 | –  | 41  | Yes           |
| 03  | 25                                            | 32  | 30  | 33  | 30 | 20 | 7  | –  | 38  | Yes           |
| 04  | 23                                            | 29  | 28  | 32  | 29 | 17 | –  | –  | 36  | Yes           |
| 05N | 32                                            | 39  | 37  | 41  | 42 | 40 | 37 | 21 | 48  | Yes           |
| 05S | 32                                            | 40  | 37  | 41  | 41 | 38 | 35 | 16 | 47  | Yes           |
| 06  | 26                                            | 32  | 31  | 35  | 34 | 24 | 2  | –  | 40  | Yes           |
| 07N | 33                                            | 40  | 38  | 41  | 42 | 38 | 34 | 14 | 48  | Yes           |
| 07S | 34                                            | 41  | 38  | 42  | 43 | 40 | 36 | 16 | 48  | Yes           |
| 08  | 24                                            | 29  | 27  | 30  | 29 | 18 | –  | –  | 35  | Yes           |
| 09  | 25                                            | 31  | 30  | 34  | 32 | 24 | 5  | –  | 39  | Yes           |
| 10  | 24                                            | 30  | 29  | 33  | 30 | 21 | 0  | –  | 37  | Yes           |
| 11  | 25                                            | 31  | 30  | 34  | 32 | 24 | 5  | –  | 38  | Yes           |
| 12  | 22                                            | 28  | 27  | 30  | 27 | 15 | –  | –  | 34  | Yes           |
| 13  | 20                                            | 27  | 25  | 28  | 24 | 10 | –  | –  | 32  | Yes           |

With the mitigation measures in place, projected sound levels during generator testing comply with the applicable IL PCB daytime limits at all evaluated receptors, with a maximum of 48 dBA at the nearest residential receivers relative to the 55 dBA daytime limit.

### 3.4 Emergency Operations (Power Failure)

During a loss of utility power, the campus standby generators may operate simultaneously. Noise emissions during an emergency loss of utility power are exempt from the IL PCB limits and from the Village of Coal City performance standard, consistent with our reading of the applicable regulations; we recommend the Village confirm this treatment. Because this condition is temporary and exempt, it is presented for information only and is not evaluated against the code limits.

**Table 15: Model Results – Emergency Operations (For Reference Only)**

| Rec | SPL (dB) at Octave Band Center Frequency (Hz) |     |     |     |    |    |    |    | dBA | dBZ |
|-----|-----------------------------------------------|-----|-----|-----|----|----|----|----|-----|-----|
|     | 63                                            | 125 | 250 | 500 | 1k | 2k | 4k | 8k |     |     |
| 01  | 56                                            | 50  | 40  | 38  | 36 | 21 | –  | –  | 41  | 57  |
| 02  | 57                                            | 54  | 45  | 43  | 40 | 30 | 18 | –  | 45  | 59  |
| 03  | 58                                            | 53  | 44  | 43  | 41 | 31 | 9  | –  | 45  | 59  |
| 04  | 58                                            | 52  | 42  | 41  | 38 | 26 | –  | –  | 43  | 59  |
| 05N | 65                                            | 61  | 51  | 50  | 48 | 43 | 38 | 19 | 53  | 67  |
| 05S | 64                                            | 60  | 51  | 49  | 47 | 40 | 34 | 14 | 52  | 66  |
| 06  | 61                                            | 55  | 45  | 44  | 42 | 32 | 7  | –  | 47  | 62  |
| 07N | 65                                            | 62  | 53  | 52  | 51 | 44 | 37 | 14 | 55  | 67  |
| 07S | 66                                            | 62  | 53  | 52  | 51 | 44 | 38 | 16 | 55  | 68  |
| 08  | 59                                            | 52  | 42  | 41  | 39 | 26 | –  | –  | 44  | 60  |
| 09  | 60                                            | 54  | 44  | 43  | 40 | 29 | 5  | –  | 45  | 61  |
| 10  | 59                                            | 52  | 43  | 41  | 38 | 26 | –  | –  | 44  | 60  |
| 11  | 60                                            | 53  | 44  | 43  | 41 | 31 | 11 | –  | 45  | 61  |
| 12  | 57                                            | 50  | 40  | 39  | 35 | 21 | –  | –  | 41  | 58  |
| 13  | 54                                            | 49  | 38  | 36  | 32 | 15 | –  | –  | 38  | 55  |

### 4.0 Summary

Based on the equipment selections, campus layout, and noise mitigation measures described in this report, projected sound levels at all surrounding receptors comply with the Illinois Pollution Control Board maximum permissible sound levels under typical 24-hour operation and during routine generator testing. Predicted A-weighted levels at the nearest residential (Class A) receivers are at or below the 44 dBA nighttime limit during typical operation and at or below the 55 dBA daytime limit during generator testing, with the corresponding modeled octave-band levels within the allowable values. Mitigation measures will be refined as design progresses.

This concludes our review at this time. Please advise regarding any comments or questions that arise while reviewing this report.

### End of Report