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Subject: *Anamite Solar, LLC - Noise Assessment
Kane County, Illinois*

Executive Summary

The purpose of this technical memorandum is to evaluate potential noise levels associated with the operational equipment located at the proposed Anamite Solar, LLC Solar Site in Kane County, IL. The proposed solar photovoltaic project site is located within the jurisdiction of Plato Center, just outside the jurisdiction of Elgin, approximately 1.5 miles north of Campton Hills, approximately 2 miles northwest of South Elgin, and approximately 3 miles southeast of Pingree Grove.

The proposed Anamite Solar, LLC Solar Site will be developed on nearly 20 acres of an approximately 63-acre parcel of agricultural land in an unincorporated portion of Kane County, IL, with Bowes Road (CR-17) to the south, Nesler Road to the east, Russel Road (CR-33) to the north, Muirhead Road to the west (CR-17), as well as other residential streets to the south and northwest of the project site. Additionally, Chicago Central and Pacific Railroad Company (CC) railroad tracks are located directly south of the site. The site will consist of solar arrays throughout the project area and two (2) inverters towards the northern portion of the site.

Noise Regulations

Chapter 25, Article V, Section 25-5-4-9 of the Kane County, IL Code of Ordinance states that “Noise levels from Commercial Solar Energy Facilities shall be in compliance with applicable Illinois Pollution Control Board (IPCB) regulations.”

The IPCB noise regulations are based on allowable octave band sound pressure levels during daytime and nighttime hours. According to Title 35 (Environmental Protection), Subtitle H (Noise), Chapter I (Pollution Control Board), Part 901 (Sound Emission Standards and Limitations for Property Line-Noise Sources), a facility operating in an agricultural field (Class C Land) cannot cause an exceedance of sound levels at any point within a residential, religious institution, or natural/recreational park land use (Class A Land) during daytime hours as shown in **Table 1**.

Table 1: Maximum Allowable Sound Emitted to Class A Land During Daytime Hours

Octave Band Center Frequency (Hertz)	Allowable Octave Band Sound Pressure Levels (dB) of Sound Emitted to any Receiving Class A Land from		
	Class C Land	Class B Land	Class A Land
31.5	75	72	72
63	74	71	71
125	69	65	65
250	64	57	57
500	58	51	51
1000	52	45	45
2000	47	39	39
4000	43	34	34
8000	40	32	32
8000	45	39	32

Since the solar array does not generate power at night, the equipment will not operate at night and will comply with the IPCB nighttime hour limits.

Noise Assessment

Noise levels from anticipated operational equipment likely to be installed at the proposed Anamite Solar, LLC Solar Site were evaluated to assist with determining a conservative distance that the equipment should be located from the closest Class A land use.

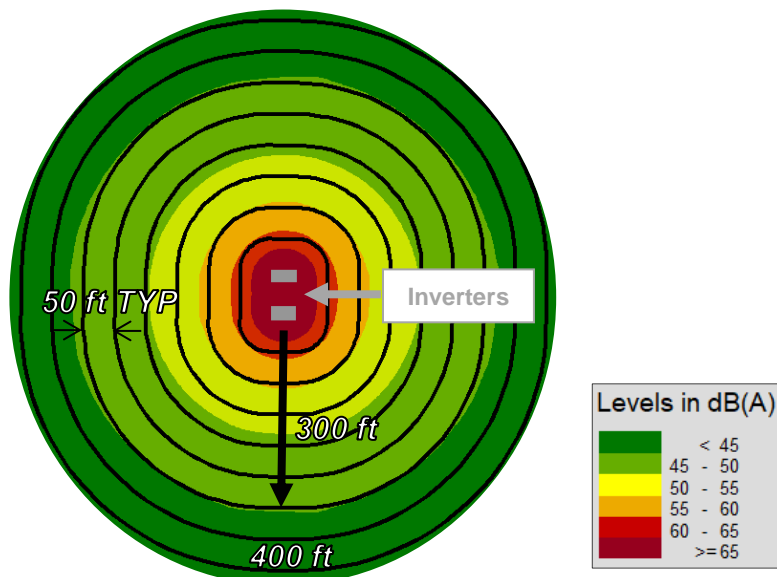
Inverters

Photovoltaic (PV) inverter equipment can generate steady, unvarying noise that may create issues when located near noise-sensitive uses. Based on noise emission levels for typical inverter equipment, such as the Sungrow SG3150U, a reference sound level of approximately 79 dB(A) at 1 meter (i.e., 3 feet) for an inverter was used. **Table 2** shows the octave band emission levels for the Sungrow SG3150U inverter used for reference. The sound emissions from the operation of the SG3150U inverter were calculated using SoundPLAN. The anticipated noise level contours from the operation of inverter equipment are shown in **Figure 1**.

Table 2: Sound Emissions for Inverter

Octave Band Center Frequency	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Frequency Sound Level	68	73	81	78	75	72	70	71	63

Figure 1: Anticipated Noise Level Contours for Inverter Operations



Recommendations and Conclusions

Based on the analysis of this memo, if the equipment pad is located approximately 300 feet or greater from the closest Class A land use, then operational noise levels are anticipated to be in compliance with the IPCB noise regulations. See **Table 3** below for the SoundPLAN-predicted octave band noise levels at a distance of approximately 300 feet from the inverter equipment pad.

Table 3: Predicted Octave Band Sound Emissions for Inverter Operations at 300 feet

Octave Band Center Frequency	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Maximum Octave Band SPLs from Inverters	8.7	24.8	30.3	22.3	34.8	39.2	41.7	38.2	22.9

The inverter equipment at the Anamite Solar, LLC Solar Site is located just over 800 feet from the closest Class A land use; therefore, noise emission levels from the inverter equipment are anticipated to comply with the applicable IPCB allowable octave band sound pressure level limits shown in **Table 1** at the Class A land uses that surround the site. Noise mitigation measures are not recommended at this time.