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June 23, 2020

Joseph Ruocco
SOM
2001 K Street NW, Suite 200
Washington, DC 20006

Re: US Army Corps of Engineers – Bureau of Engraving and Printing
Future Site Acoustic Study
C&A #33469

Dear Joseph,

Cerami visited the future site of the Bureau of Engraving and Printing located on Poultry Road between Powder Mill Road and Odell Road in Beltsville, MD on June 16, 2020. The purpose of our visit was to observe and measure the current ambient conditions of the site in order to aid our identification and evaluation of potential noise impacts to neighboring properties, and to guide the OITC requirements of the façade. As part of this study, we assume that potential environmental noise impacts associated with the operation of the Bureau of Engraving and Printing to include noise emissions from mechanical systems as well as from the firing range. The following presents our findings and comments.

1.0 Acoustic Terminology and Criteria

The following summarizes the commonly used acoustical terminology and criteria that are applicable to this project:

1.1 A-Weighted Sound Pressure Level (dBA)

A-weighted sound levels provide excellent correlation to the human response to noise at low to moderate sound levels. The A-weighting network approximates the sensitivity of the human ear at moderate sound levels by de-emphasizing high and low frequencies because the ear is less sensitive to these ranges. Unless otherwise indicated, all noise levels are expressed in decibels referenced to 20×10^{-6} Pa.

1.2 Outdoor-Indoor Transmission Class (OITC)

The Outdoor-Indoor Transmission Class (OITC) rating is a single number descriptor used to identify the noise transmission properties of an assembly between an indoor and outdoor space under laboratory conditions. A higher OITC rating corresponds to greater noise reduction for that assembly.

1.3 Prince George's Country Noise Ordinance

Section 19-122 – "Prohibition" states the following with regards to noise impacts to adjacent land use zones:

(a) Maximum allowable noise levels

(1) Except as otherwise provided in Section 19-122.01, a person must not cause or permit noise levels that exceed the following levels:

Maximum Allowable Noise Levels (dBA) for Receiving Land Use Categories			
Day/Night	*Industrial*	*Commercial*	*Residential*
Day	*75*	*67*	*65*
Night	*75*	*62*	*55*

(2) *A person must not cause or permit the emission of a prominent discrete tone or impulsive noise that exceeds a level, at the location on a receiving property where the noise from the source is greatest, that is 5 dBA lower than the level set in paragraph (1) for the applicable noise area and time. Impulsive noise may include, for example, noise from* ***weapons fire****, pile drivers, or punch presses.*

In summary, any continuous noise source (e.g. mechanical noise) must be at or less than 65 and 55 decibels during the day and night, respectively, as measured at the nearest residential property line.

Any impulsive noise source (e.g. weapons fire) must be at or less than 60 and 50 decibels during the day and night, respectively, as measured at the nearest residential property.

Section 19-123(b) states that "*any sound resulting from the operations of an instrumentality of the Federal, State, or County government, the Board of Education, a bi-county agency, or of a municipality*" is exempt from enforcement of this ordinance. That said, we do recommend aiming to achieve compliance with Section 19-122 (above) as good acoustical practice and to reduce the risk of generating future complaints from the community.

1.4 UFC 3-101-01 "Architecture" Section 3-7

Section 3-7 of the Unified Facilities Criteria (UFC)-3-101-01 - Architecture provides minimum acoustical performance values for the building façade based on measured exterior noise levels at the project site. These criteria are shown below:

Required Composite[1] Isolation of Building Façade and Roof Construction Based on Interior Background Noise Levels

Interior Background Noise Level [2]	Exterior Sound Level at the Site (DNL or CNEL)			
	< 65 dBA	65 dBA - 70 dBA	70 dBA - 75 dBA	> 75 dBA
NC-25 or Lower	OITC 35	OITC 40	OITC 45	OITC 50
NC-30	OITC 30	OITC 35	OITC 40	OITC 45
NC-35	OITC 28	OITC 30	OITC 35	OITC 40
Above NC-35	OITC 25	OITC 28	OITC 30	OITC 35

1. Composite calculations shall include all envelope elements including doors, windows, louvers, openings, etc.
2. Equivalent RC Mark II noise levels may be used.

2.0 Existing Conditions

The following describes the existing site conditions as they relate to our evaluation:

- The site was located behind Building 200 of the Beltsville Agricultural Research Center (BARC).
- The site consisted primarily of open fields with areas of thick tree coverage.
- The closest residential properties were to the North, 30-feet from the top edge of the parcel, and 500-feet from the Northernmost edge of the proposed production facility.
- The closest industrial property (BARC Building 200) was approximately 250-feet from the Southernmost edge of the proposed production facility.
- Our survey took place on a weekday at approximately 3:00 PM, sunny with low wind.

In order to determine current ambient levels at the existing site, various airborne sound level measurements were conducted. Measurements were taken with a calibrated, Type 1 sound level meter, Larson Davis type 831. Measurement durations were between 3 and 5-minutes and utilized the slow-weighting network. Our results are tabulated in **Figure 1** for the measurement locations defined in **Figure 2**.

Figure 1: Environmental Sound Level Measurement Results	
Measurement Location	**Measured Sound Pressure Level (dBA, L_{eq})**
1	50
2	48
3	49
4	46
5	44

Figure 2: Markup of site plan identifying measurement locations and results.

3.0 Comments

We offer the following comments:

- Noise levels at measurement locations 1, 2, and 3 were primarily influenced by light traffic on Odell Road.
- Locations 4 and 5 were minimally influenced by traffic. The primary noise source in these locations was the wind rustling the tall grass / foliage.
- The noise levels measured at our survey were significantly lower than the exterior levels presented in UFC-3-101-01 Section 3-7. Therefore, due to low ambient noise levels onsite, upgraded levels of façade attenuation (OITC 30 and above) will likely not be required.

  We note that ambient noise levels may be lower at night than those measured at the time of our visit (approximately 3:00 PM). As this is largely dependent on a site's proximity to other noise sources, in more metropolitan areas this difference could exceed 10-decibels. However, due to the following factors, we do not anticipate a very large difference between daytime and nighttime ambient noise levels at the project site:

  - Project site is in a rural area;
  - Site is not in close proximity to a major roadway;
  - Minimal artificial (manmade) noise sources were observed nearby;
  - The site is not impacted by an airfield / flightpath.

The observations and results presented above will be used to inform our analysis of noise generating activities associated with the new BEP facility throughout the design process. This completes our comments at this time. Please do not hesitate to reach out with any questions.

Kind Regards,

Chris Petropulos
Senior Associate