POLYSONICS
Acoustics & Technology Consulting

January 9, 2023

Mike Connell
Corgan
401 North Houston Street
Dallas, TX 75202

Project: Noise Level Impact Analysis for Warrenton Data Center
Location: Town of Warrenton, Virginia
Report #6246

Dear Mr. Connell,

Polysonics performed a noise impact analysis for the proposed Amazon Warrenton Data Center (DCA062) in the Town of Warrenton, VA.

The Town of Warrenton Zoning Ordinance (April 2002) provides maximum permissible noise levels for the property line. The noise level limits are presented in octave bands and have decibel correction for various site conditions.

Polysonics created a SoundPLAN model to determine the noise levels of the proposed mechanical equipment at the site.

Through our analysis, we determined that the proposed mechanical equipment will meet the Zoning Ordinance, provided the proposed mitigation is used at the chillers and generators.

Please let me know if you would like any further information.

Sincerely,
Polysonics

Christopher Karner
Senior Consultant
Direct line: 540-341-4988 x-2102

POLYSONICS

Acoustics & Technology Consulting

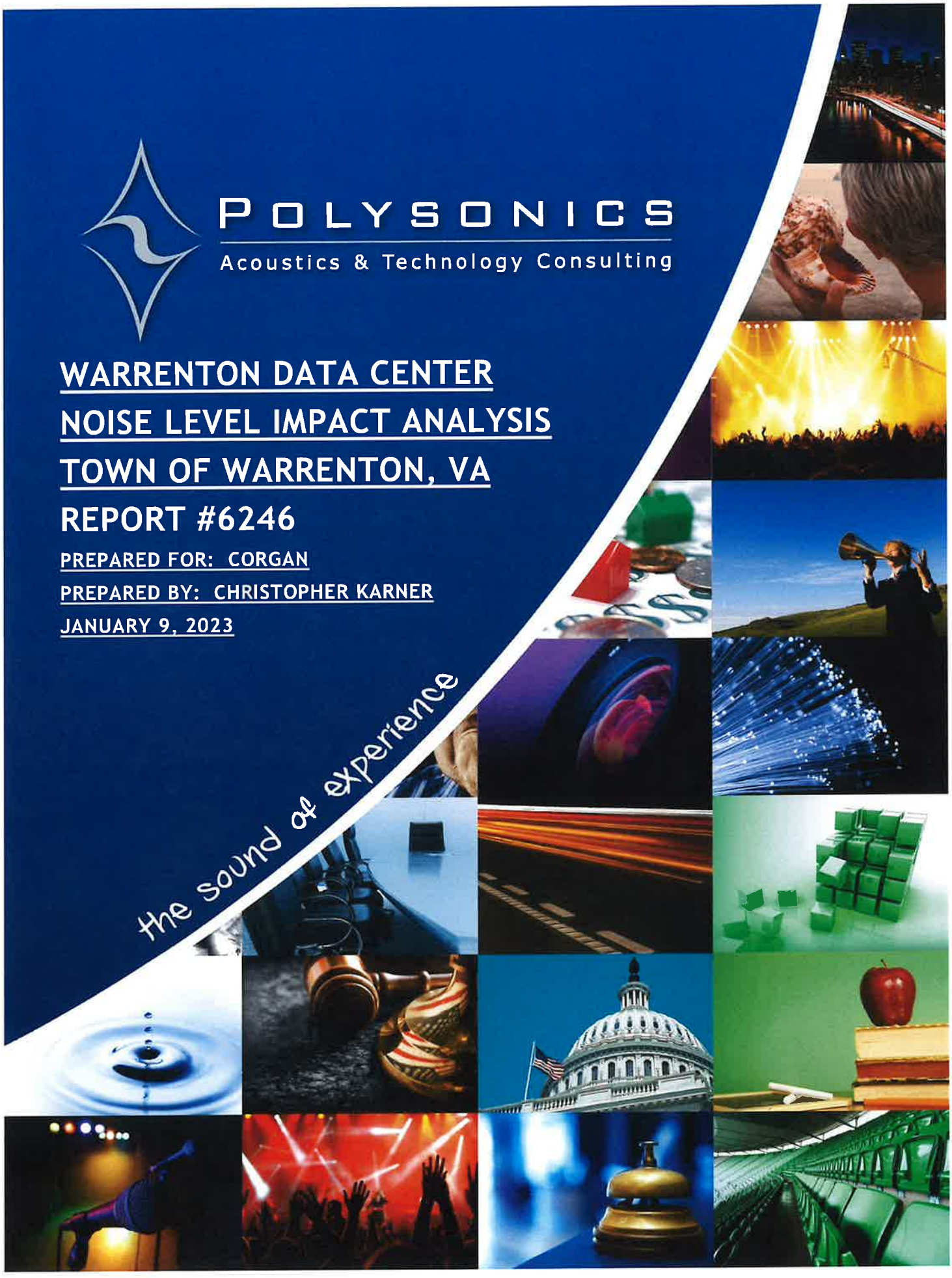
WARRENTON DATA CENTER
NOISE LEVEL IMPACT ANALYSIS
TOWN OF WARRENTON, VA
REPORT #6246

PREPARED FOR: CORGAN

PREPARED BY: CHRISTOPHER KARNER

JANUARY 9, 2023

the sound of experience



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EXECUTIVE SUMMARY

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The Town of Warrenton Zoning Ordinance (April 2002) provides maximum permissible noise levels for the property line. The noise level limits are presented in octave bands and have decibel correction for various site conditions.

Polysonics created a SoundPLAN model to determine the noise levels of the proposed mechanical equipment at the site.

Through our analysis, we determined that the proposed mechanical equipment will meet the Zoning Ordinance, provided the proposed mitigation is used at the chillers and generators.

Details of the noise impact analysis including discussion of applicable standards, analysis methodologies, and resultant noise impact are provided herein.

TOWN OF WARRENTON NOISE LIMITS

The Town of Warrenton Zoning Ordinance (April 2002) provides maximum permissible noise levels for the property line (Section 9-14). The sound levels are presented in octave bands and have decibel correction for various site conditions (Tables 9-1 and 9-2 in the Zoning Ordinance). Note there is not an overall dBA requirement.

The limits for this site are not based on the "Along Residential District Boundaries" category, but the "At Any Other Point on the Lot Boundary" category, as the site does not share a boundary with residential properties. As will be seen below, there is a correction for the site being across the street from a residential district.

The limits applicable to the site are summarized in Table 1 below.

TABLE 1: MAXIMUM NOISE LEVELS

Adjacency	Limit	Correction	63	125	250	500	1000	2000	4000	8000
n/a	Base Limits	n/a	72	70	65	59	55	51	47	44
Residential	Daytime	-5 R-District, -5 Tone	62	60	55	49	45	41	37	34
	Nighttime	-5 R-District -5 10pm-7am -5 Tone	57	55	50	44	40	36	32	29
	Generator	-5 R-District	67	65	60	54	50	46	41	39

The nighttime correction is only applied during evening hours (assumed to be a standard 10:00 p.m. to 7:00 a.m.).

As will be shown in the input data below, Polysonics is assuming a tone would be present and is applying the correction. A tone is defined by ASA/ANSI S12.9-2021/Part 4 as the sound level in a frequency exceeding the averaged adjacent frequencies by a constant level difference. The constants are 15 dB for 25-125 Hz, 8 dB for 160-400 Hz, and 5 dB for 500-10,000 Hz.

The emergency generator is only expected to run (1) while being tested or (2) during a power outage/emergency. Therefore, we are applying the limited time period correction.

Based on a meeting with the Town of Warrenton on October 3, 2022 and the Noise Determination letter from the County (dated December 16, 2022), Polysonics understands the following:

- The property line is considered a vertical plane, and that any measurement or modeling should be at the loudest height.
- The noise levels shown in Table 1 are only applicable to the property line, and not to any of the surrounding properties.
- The background noise at the surrounding properties and the audibility of the noise sources beyond the property line is not considered in the ordinance.
- The letter of determination states that any measurements along the subject property line must include the correction factor for residential adjacency.

SOUNDPLAN MODEL

Polysonics created an environmental noise model of site using SoundPLAN (Based on ISO 9613-2)version 8.2. This program is a three-dimensional computer model, which evaluates sound levels generated from a combination of sources. The model disperses the sound over the given terrain to determine sound level impact for the surrounding areas of interest. The model considers topography, type of sound source, sound source spectrum, and horizontal spacing of the parameters. Given these input parameters, it calculates average sound level at a grid of points or individual receivers.

Polysonics used civil drawings, architectural drawings, and mechanical drawings (8/12/2022 Issue for Bid set) to determine the location of the equipment and proposed building. Civil drawings and Google Earth were used to obtain topography within the site and the surrounding areas. A three-dimensional graphic of the SoundPLAN model can be seen in Figure 1 in the Appendix.

We included all major rooftop equipment in the model. The sound data for the equipment was obtained from Trane for the Chillers and Amazon for the other rooftop equipment. The generator equipment is based on an enclosure that can meet 65 dBA at 7 meters (25').

In order to be conservative, the Trane chiller data is based on high summertime ambient conditions, which is the loudest conditions.

The chiller sound mitigation is based on data received from qualified noise mitigation manufacturers, including Parklane Acoustics, Kinetics Noise Control, and VAW Systems Ltd. The mitigation includes compressor wraps and either louvers/baffles or a barrier around the equipment.

Tables 2 through 4 below show the input in the model, including the sound power data and mitigation applied to the chillers. All levels are unweighted (without A-weighting corrections). Table 3 is shown in one-third octave to demonstrate where tones would be applicable, but generally inputs and results use full octave band data.

TABLE 2: CHILLER SOUND MITIGATION

Frequency, Hz	Fan Mitigation	Compressor Wrap
63	9	4
125	11	7
250	13	12
500	1	23
1000	21	26
2000	19	22
4000	15	21
8000	9	15

TABLE 3: CHILLER SOUND POWER LEVELS – UNMITIGATED

Frequency, Hz	Daytime		Nighttime	
	Fan	Compressor	Fan	Compressor
50	72.6	74.8	76.9	73.6
63	88.6	84.9	90.5	85.8
80	100.1	77.9	87.8	78.0
100	96.8	75.2	86.2	73.3
125	90.2	77.5	99.8	75.3
160	102.5*	79.1	90.5	78.4
200	96.2	79.8	92.7	75.9
250	98.0	77.6	92.6	73.2
315	95.5	78.1	90.7	78.7
400	95.0	83.1	89.3	78.0
500	95.3	81.7	89.8	77.0
630	94.2	80.5	88.4	80.9
800	93.2	88.6*	87.2	79.2
1000	92.6	82.1	86.2	78.8
1250	90.2	85.2	84.2	75.7
1600	88.3	81.6	83.6	72.4
2000	86.9	84.7	81.0	74.2
2500	84.5	81.4	78.6	72.3
3150	82.4	79.8	76.7	74.0
4000	81.7	87.6*	76.2	77.5
5000	78.4	82.4	73.4	77.1
6300	78.0	82.0	73.1	76.6
8000	76.5	79.4	71.7	72.7
10000	76.1	78.1	70.9	73.0

*Potential tones

TABLE 4: CHILLER SOUND POWER LEVELS – MITIGATED

Frequency, Hz	Daytime		Nighttime	
	Fan	Compressor	Fan	Compressor
63	92	97	85	89
125	93	97	89	93
250	88	90	84	85
500	82	77	76	71
1000	77	72	70	65
2000	74	71	68	65
4000	76	70	69	63
8000	77	72	72	66

TABLE 5: OTHER SOUND POWER LEVELS

Frequency, Hz	DOAS (1-1, 1-2)	RTU (1-1 to 1-5)	MAUs	Computer Room Condensing		Generators
				80% (day)	50% (night)	
63	82	85	85	84	78	104
125	82	85	85	85	76	104
250	78	81	81	85	74	94
500	75	78	78	85	72	86
1000	79	76	76	83	69	87
2000	68	71	71	79	63	88
4000	61	64	64	73	57	86
8000	54	57	57	67	50	88

Polysonics considered the following scenarios in the model:

- Unmitigated Chillers
  - Daytime
  - Nighttime
- Mitigated Chillers
  - Daytime
  - Nighttime
- Generators and Mitigated Chillers
  - Daytime Testing

In all scenarios, the other rooftop equipment (Table 5) was included.

Noise levels were calculated at 59 feet above the ground, which is the height of the chiller fans. For the chillers, we calculated octave band results at the four loudest cardinal direction property line locations. For the generators, we included the generator nearest the property line, and calculated at that property line location.

The five calculation locations can be seen in Figure 2 in the Appendix.

We also calculated noise contours at 20' above the ground to show the calculated sound levels around the community.

MODELED RESULTS

Table 6 below shows the unmitigated results of the calculations, the applicable noise district, and the loudest noise source at the location (when considering overall dBA). Sound levels that exceed the Town of Warrenton noise limits are highlighted in orange.

TABLE 6: MODELED NOISE LEVELS - UNMITIGATED

Scenario	Receiver	dBA	63	125	250	500	1000	2000	4000	8000
Town Limits	-	-	**62**	**60**	**55**	**49**	**45**	**41**	**37**	**34**
Day	North	63	67	67	63	61	59	53	48	36
	South	59	60	61	58	58	55	49	41	26
	East	61	64	64	61	59	57	52	46	35
	West	55	59	59	55	53	51	44	35	16
Town Limits	-	-	**57**	**55**	**50**	**44**	**40**	**36**	**32**	**29**
Night	North	58	58	62	58	56	53	47	42	32
	South	54	52	56	53	52	49	44	36	22
	East	56	54	59	56	54	51	46	40	30
	West	49	49	55	51	48	44	38	29	11

As seen in Table 6, without mitigation the Town of Warrenton noise level limits will be exceeded at the property line (at 59 feet above the ground).

Table 7 below shows the mitigated results.

TABLE 7: MODELED NOISE LEVELS - MITIGATED

Scenario	Receiver	dBA	63	125	250	500	1000	2000	4000	8000
Town Limits	-	-	**62**	**60**	**55**	**49**	**45**	**41**	**37**	**34**
Day	North	49	58	57	52	45	41	37	34	23
	South	46	55	53	48	43	40	35	30	14
	East	47	56	55	50	43	39	35	32	24
	West	41	51	50	44	37	33	28	21	0
Town Limits	-	-	**57**	**55**	**50**	**44**	**40**	**36**	**32**	**29**
Night	North	44	51	53	47	40	38	32	27	18
	South	42	48	49	44	38	37	29	23	9
	East	42	49	51	45	37	35	30	26	18
	West	36	43	46	40	32	30	22	14	0

As seen in Table 7, all of the sound levels at each frequency meets the Town of Warrenton Limits. The sound levels are between 2 and 11 dB below the Town limits.

Table 8 below shows the generator results (using the 65 dBA at 7 meters generator).

TABLE 8: MODELED NOISE LEVELS - GENERATOR

Scenario	Receiver	dBA	63	125	250	500	1000	2000	4000	8000
Town Limits	-	-	**67**	**65**	**60**	**54**	**50**	**46**	**41**	**39**
Generator	Gen	49	61	58	50	41	41	41	39	37

As seen in Table 8, all of the sound levels at each frequency meets the Town of Warrenton Limits.

ADJACENT PROPERTY RESULTS

Polysonics is including an expanded analysis to show the chiller noise level impacts to the surrounding properties. This analysis includes the resultant noise levels from the data center and a comparison between the data center and the background noise levels at surrounding properties.

In order to provide context for the overall noise levels, Polysonics has included a graphic which shows common sound levels and their perception in Figure 3 in the Appendix.

Noise Levels Around Property

A graphic showing the overall dBA mitigated noise levels can be seen in Figure 4 and 5 in the Appendix.

As seen in Figure 4 and 5, the noise levels at the residences are generally:

- Daytime
  - 35 to 40 dBA to the north and east
  - 35 to 42 dBA to the south
- Nighttime
  - 30 to 35 dBA to the north and east
  - 30 to 37 dBA to the south

When compared to the common sound levels in Figure 3, the data center noise levels would be considered "faint" or "moderate."

Background Noise Levels

In order to establish the background noise levels around the adjacent properties, Polysonics performed measurements at 5 nearby locations between June 1 and June 6, 2022.

A map showing the measurement locations can be found in Figure 6 in the Appendix.

The equipment used for the measurement included one Larson Davis LXT sound level meter. The units meet ANSI S1.4 standards for Type I Sound Level Meters and were calibrated prior to the measurement, traceable to the National Institute of Standards and Technology.

Weather data was obtained from the weather station at Warrenton/Fauquier Airport. Table 9 below summarizes the periods of rain and wind gusts over 10 mph that occurred during the measurement.

TABLE 9: WEATHER DATA

Date	Rain	Wind
6/1/22	17:55-18:15	17:55-18:15
6/2/22	15:35-23:55	15:35-15:55 16:35-16:55 20:55-21:00
6/3/22	00:00-00:15	11:35-12:15
6/4/22	-	-
6/5/22	-	-
6/6/22	-	

Polysonics used the same receiver locations in our SoundPLAN model to calculate the day/night sound levels.

Figures 7 through 11 in the Appendix compare the measurements at each location and the calculated data center noise level. Please note that since the Ordinance only applies to the property line, the sound data presented in these figures is overall dBA, not octave band.

As seen in Figure 7 through 11, in most cases the measured background ambient noise is above the measured data. The only exception is at M1 (at the southern property line), where the ambient levels are around 1 decibel below the modeled levels in the early morning (12am-4am).

As seen in Figure 7 through 11, the ambient noise levels at the residences are generally:

- M1 (southern property line)
  - 70 dBA daytime/55 dBA nighttime
- M2 (western property line)
  - 65 dBA daytime/55 dBA nighttime
- M3 (northern property line)
  - 55 dBA daytime/50 dBA nighttime
- M4 (northwestern property line)
  - 65 dBA daytime/55 dBA nighttime
- **M5 (near hotel)**
  - **55 dBA daytime/40 dBA nighttime**

Polysonics would consider M5 (near hotel) the most representative of residential noise, as it is farthest from the roadway and nearest the residential areas.

CONCLUSIONS

Polysonics' measurements were limited to data center property and other public spaces. These locations show that the data center is not likely to be audible in outdoor spaces during the daytime or indoor spaces during the nighttime. The background noise is generally between two to four times louder than the data center.

The community noise impact will generally be between 30 to 42 dBA, with the most impacted space being directly south of the site. The noise levels from the data center outside would be perceived as "faint" or "moderate".

Using M5 (near hotel), the results show that there may be some audible evening noise directly south of the site during the late hours.

The audibility of the noise at these locations would depend on the resident's sensitivity, the location of the resident (inside or outside), the time of day and other local noise sources.

The HUD Noise Guidebook states that a typical noise reduction of a residence is 20 dBA. Applying this reduction to the modeled data just south of the site, the noise levels within the nearest residences (windows closed) would be 22 dBA daytime/17 dBA nighttime. These levels are perceived as "faint" and it is very unlikely that the noise will be audible.

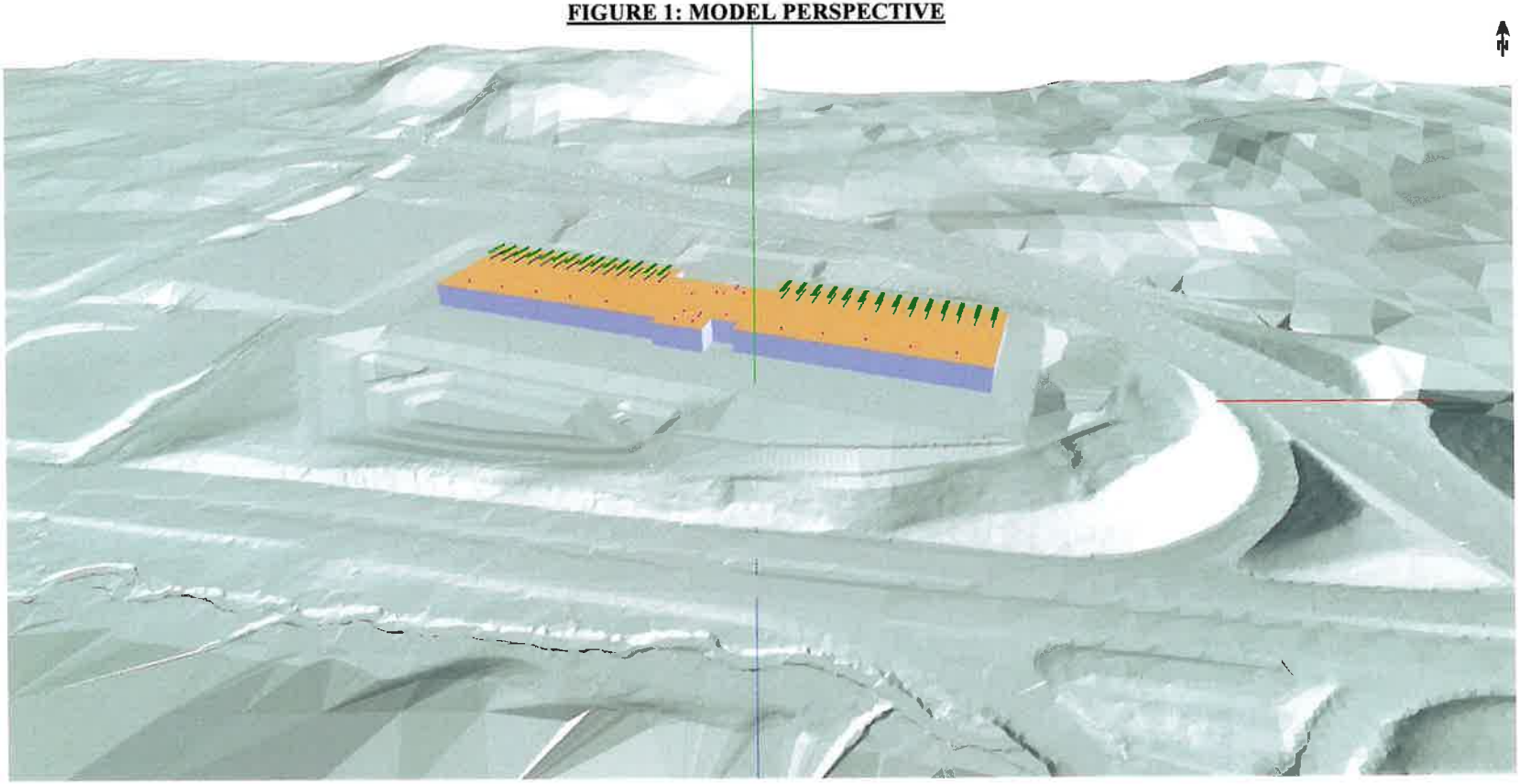
The audibility of the data center is not part of the Town of Warrenton Zoning Ordinance, but is disclosed in this report to fully disclose the impact to the community.

As shown in this report, the mitigated rooftop mechanical equipment and generators will meet the Town of Warrenton Zoning Ordinance noise limits at the property line at any height.

APPENDIX

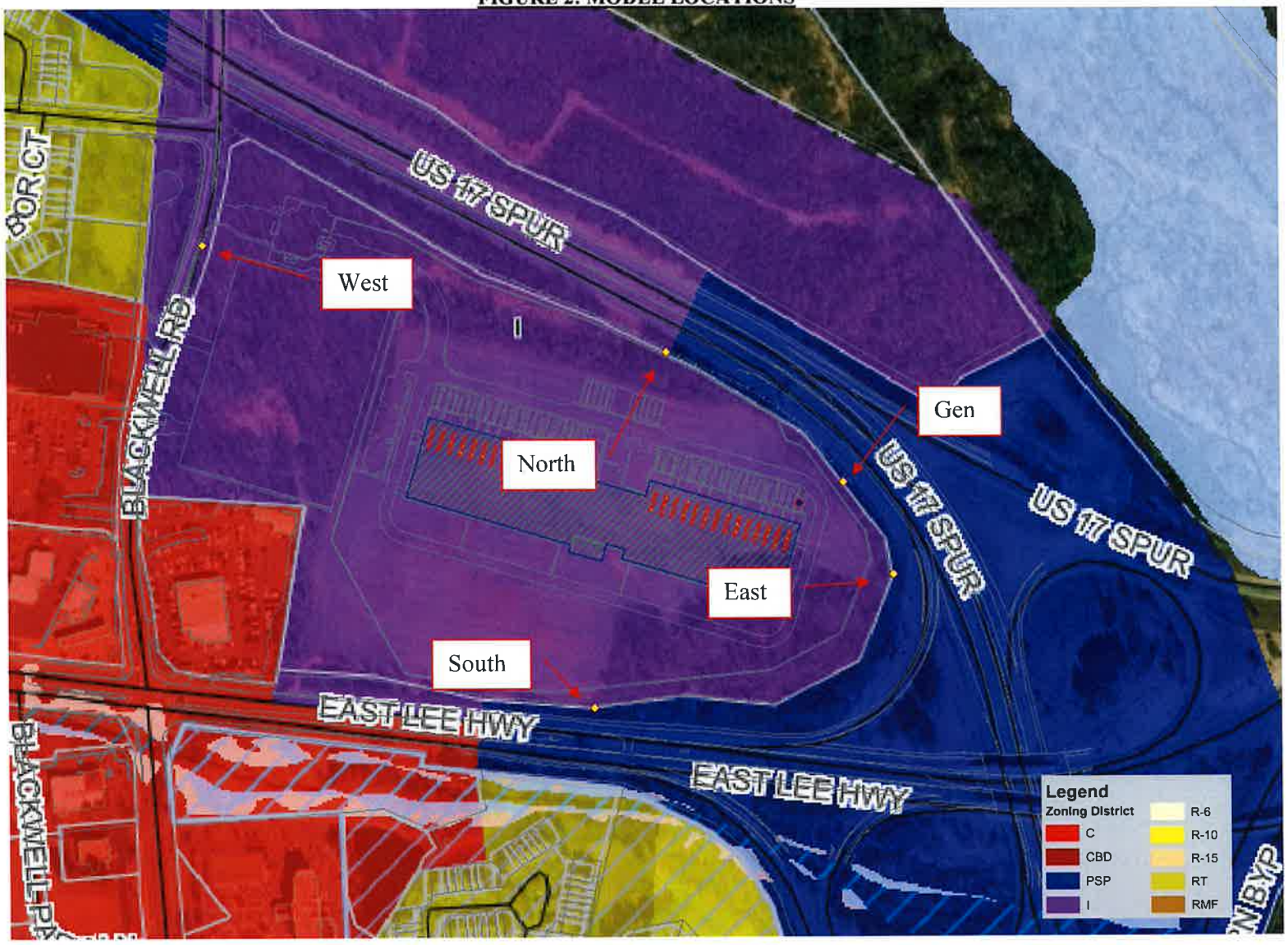
SOUNDPLAN MODEL

FIGURE 1: MODEL PERSPECTIVE



Object	Source Type	Equipment
Pink Asterisk	Point Source	RTU, MAU, Computer Room Condensing Units
Green Rectangle	Area Source	Chiller Fans
Blue Line	Line Source	Chiller Compressors

FIGURE 2: MODEL LOCATIONS



COMMUNITY NOISE LEVELS

FIGURE 3: COMMON NOISE LEVELS

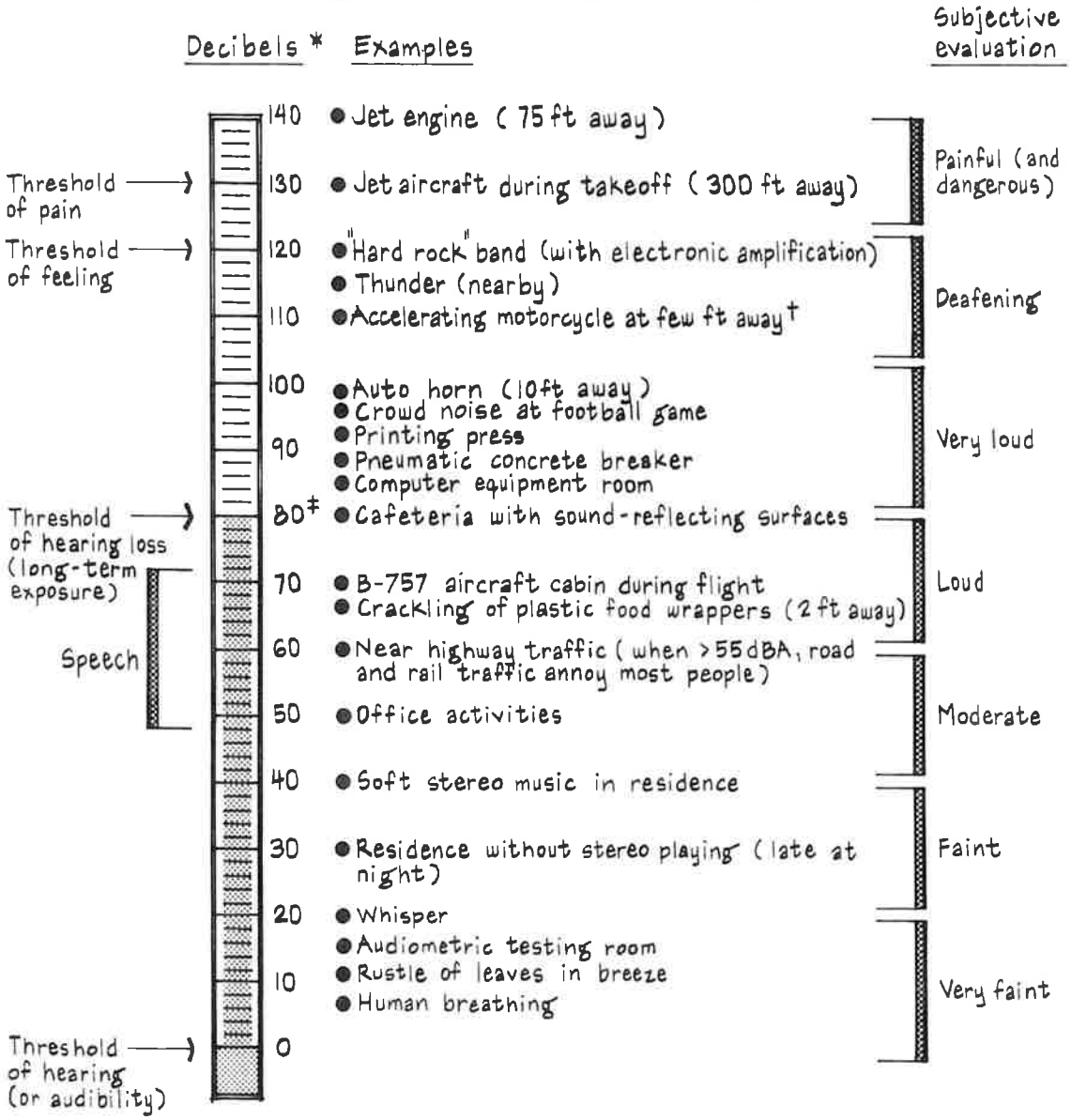
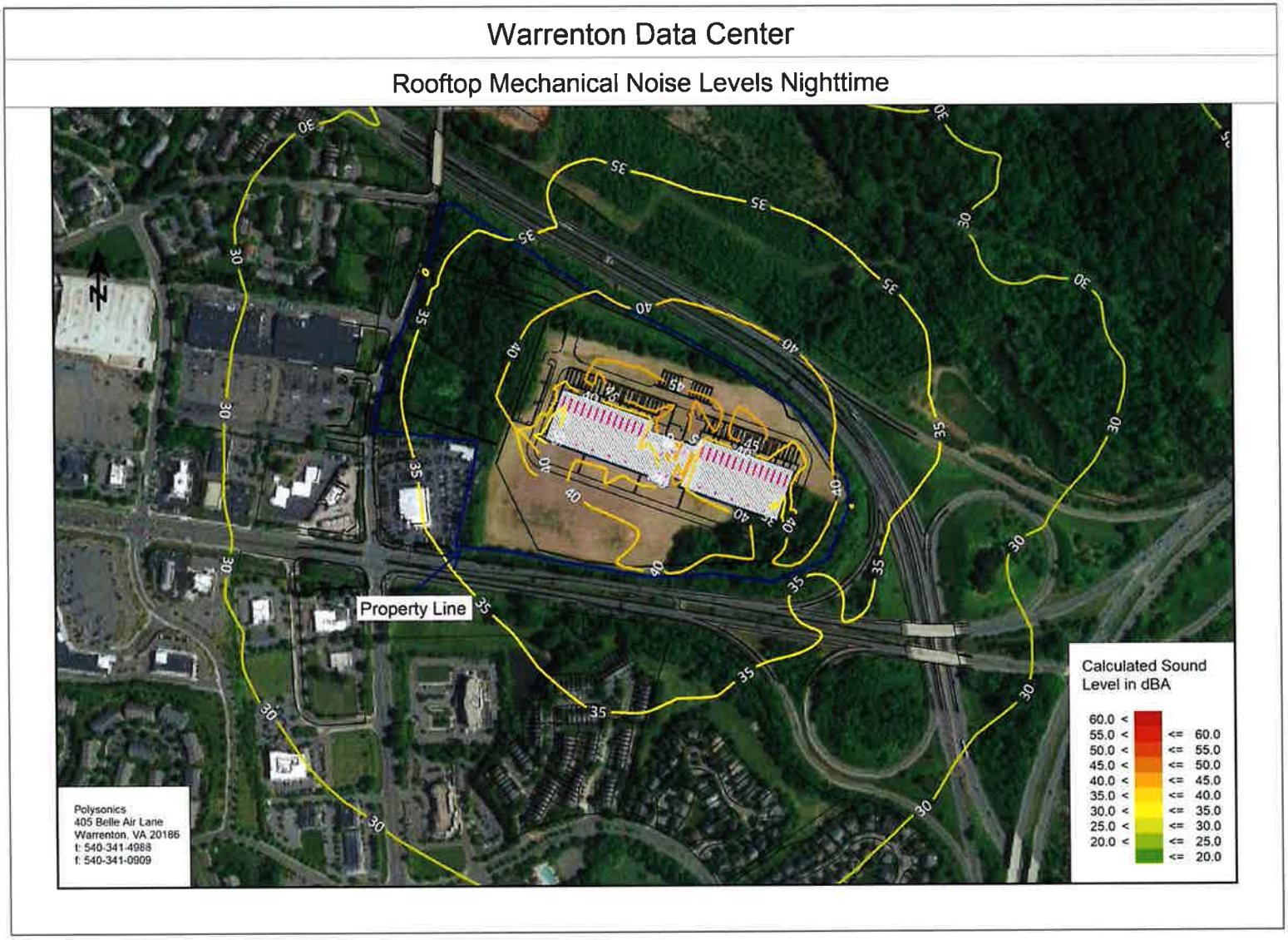


FIGURE 4: DAYTIME MITIGATED

Warrenton Data Center

Rooftop Mechanical Noise Levels Daytime

FIGURE 5: NIGHTTIME MITIGATED



NOISE MEASUREMENTS

FIGURE 6: MEASUREMENT LOCATIONS

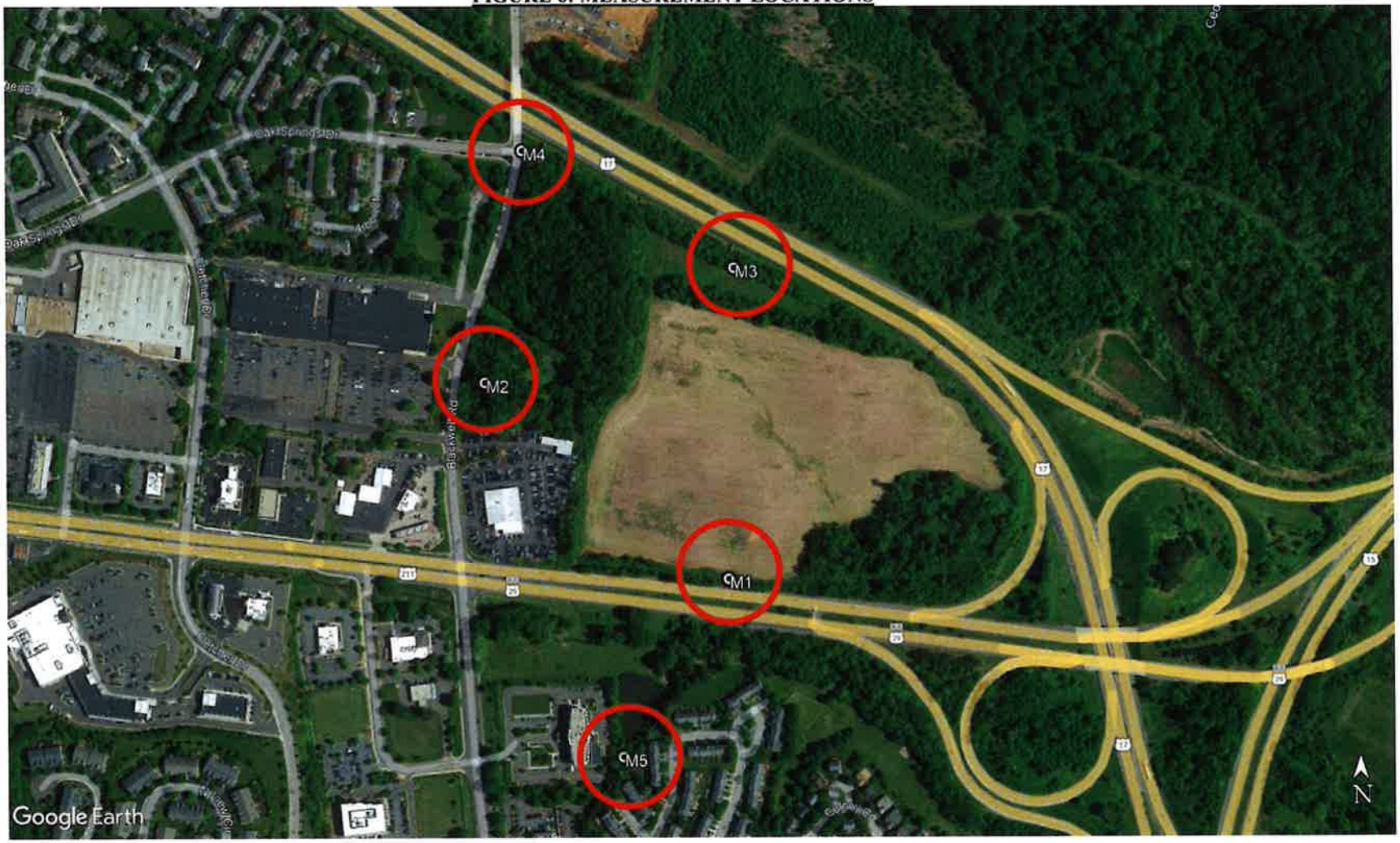


FIGURE 7: BACKGROUND NOISE COMPARISON – M1

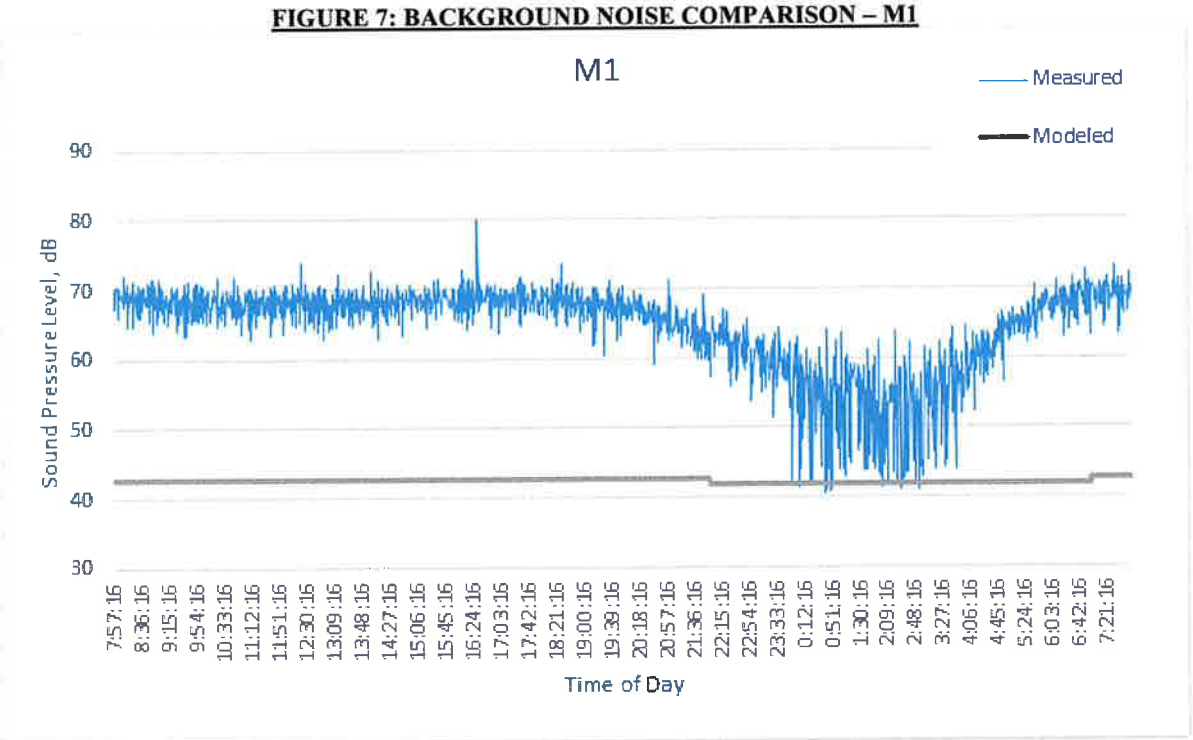


FIGURE 8: BACKGROUND NOISE COMPARISON – M2

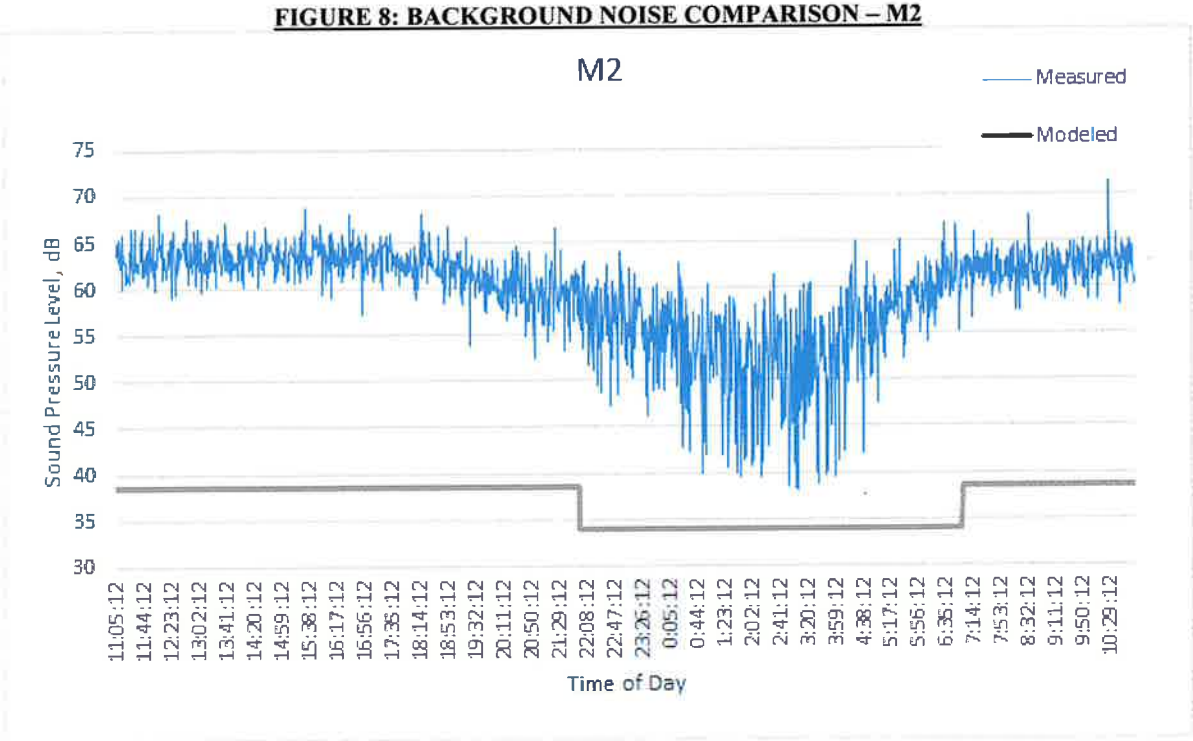


FIGURE 9: BACKGROUND NOISE COMPARISON – M3

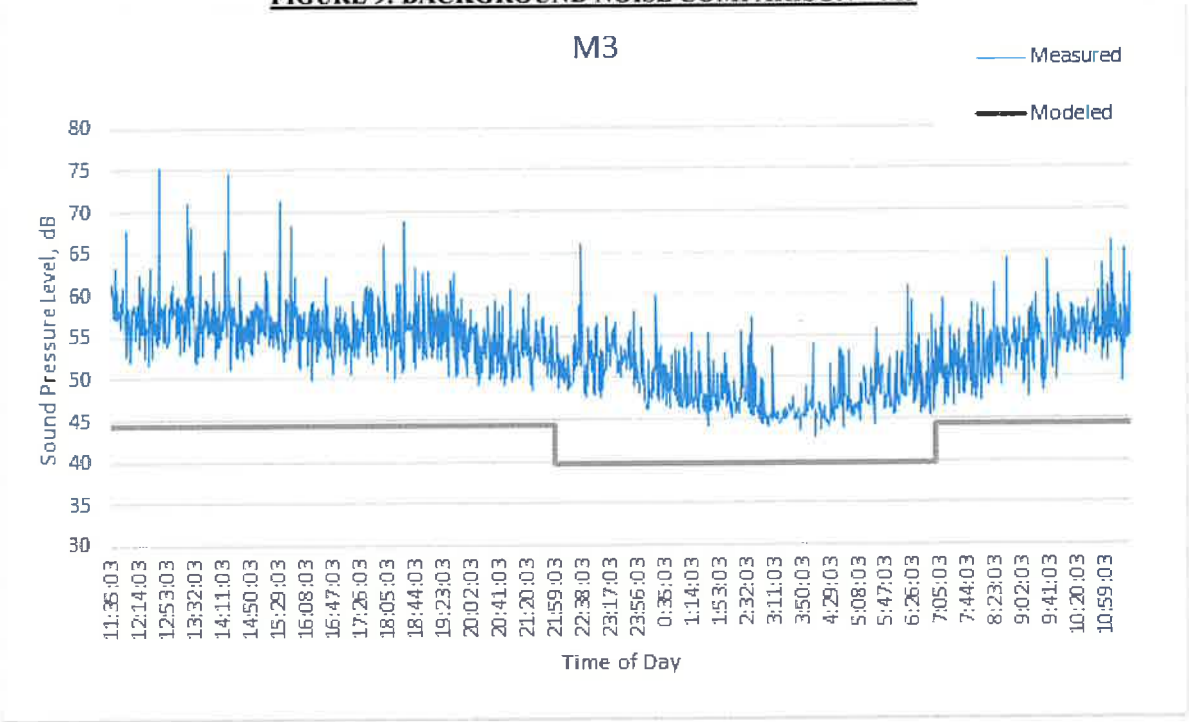


FIGURE 10: BACKGROUND NOISE COMPARISON – M4

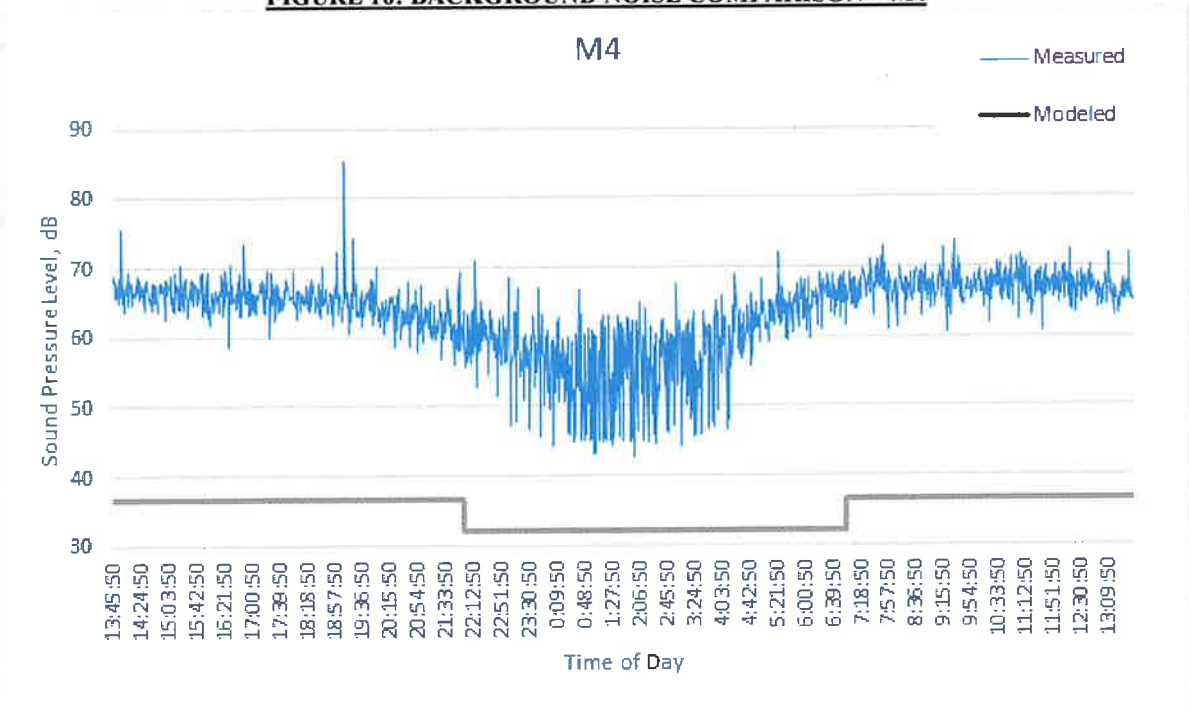
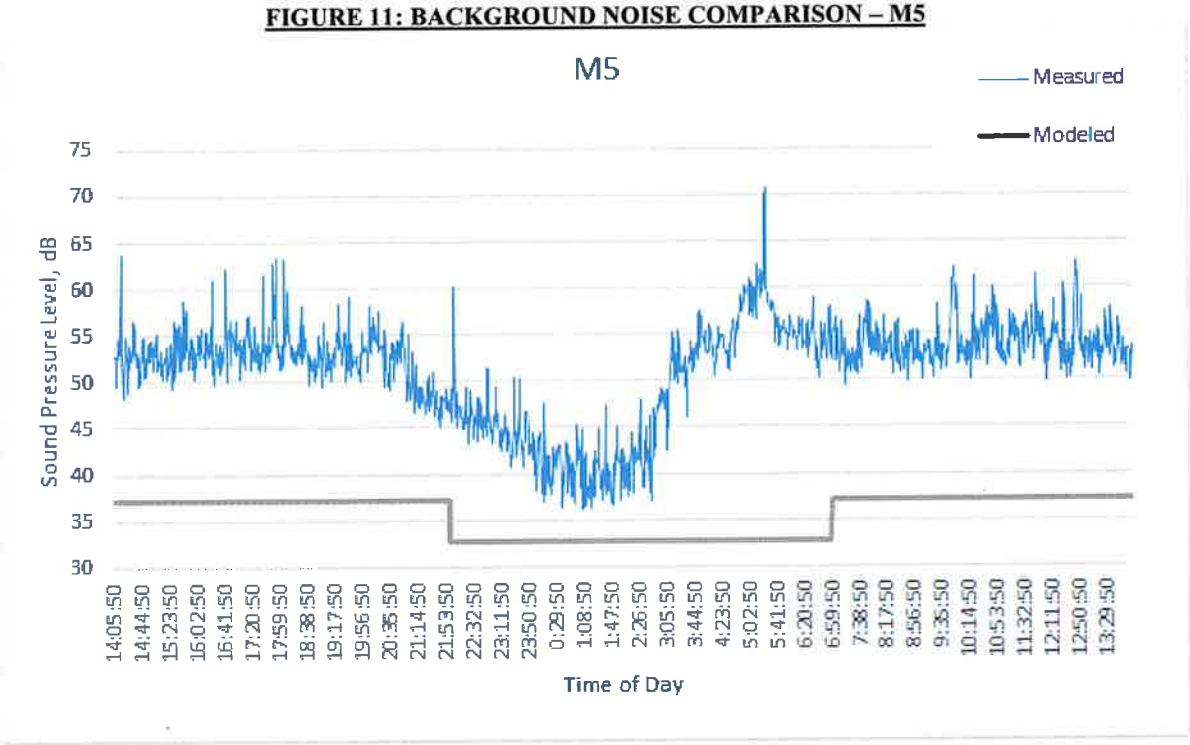


FIGURE 11: BACKGROUND NOISE COMPARISON – M5



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December 16, 2022

John Foote, Esq.
Walsh, Colucci, Lubeley, and Walsh PC
4310 Prince William Parkway, Suite 300
Woodbridge, VA 22192

RE: Zoning Determination Letter on the Noise Ordinance regulations under Article 9-14 of the Zoning Ordinance as they pertain to the proposed Amazon Data Center on GPIN 6984-69-2419-000.

Dear Mr. Foote,

Please see the following information in response to your request for a Zoning Determination Letter on the above-mentioned property within the Town of Warrenton.

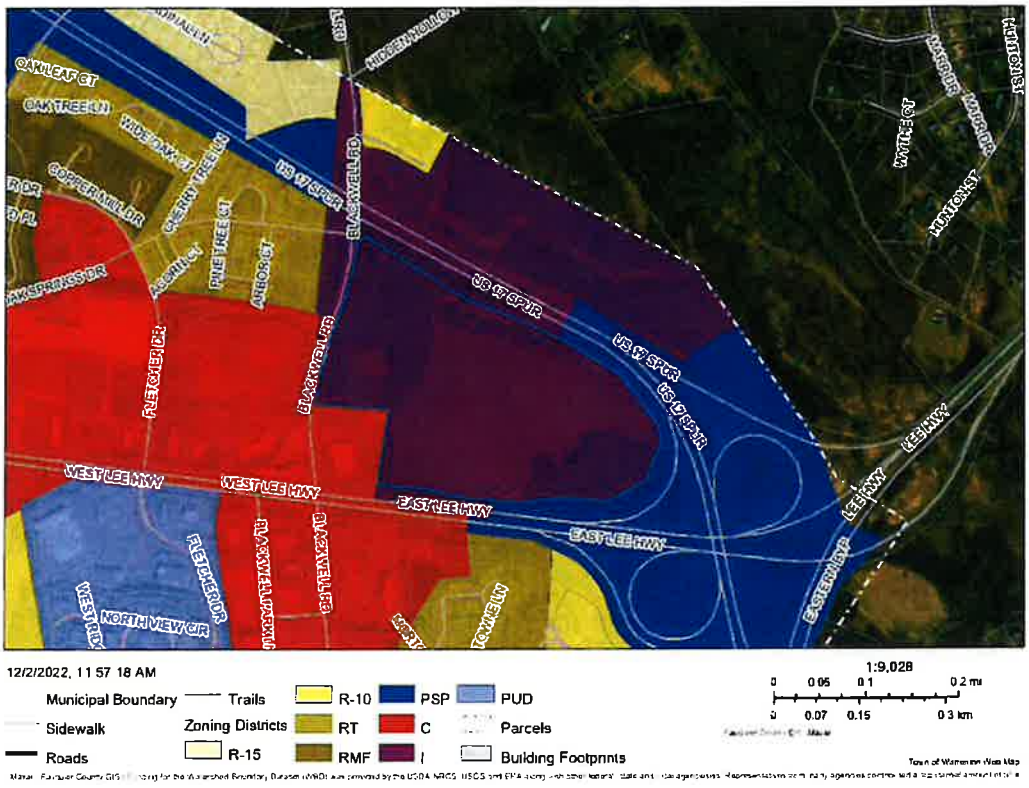
- The zoning district for the parcel in question is I (Industrial) and is not within a Planned Unit Development or Overlay District.
- The proposed Data Center use requires a Special Use Permit from Town Council per Article 3-4.12.3 of the 2006 Zoning Ordinance, as amended. Data Center uses are subject to the performance standards provided under Article 9-14 of the Zoning Ordinance as it is not a residential use. Non-residential uses must be in conformance with these standards at all times. Violations of these provisions are subject to enforcement as Zoning Violations.

Are all of the decibel readings set out in Table 9-1 of §9-14 to be measured at the Applicant's property line nearest to the sound source, and not at any other line. Further, does this mean that the second column in Table 9-1 is irrelevant to this project and that the third column is the starting point for calculation and analysis?

- Per Article 9-14.2, sound pressure levels are to be measured at the property line nearest the establishment radiating the noise in question. Table 9-1 further states, under the third column, that sound pressure levels created by the establishment are to be met *"at any other point on the lot boundary."* For the proposed Data Center, this means measurements would be taken at the property lines of GPIN 6984-69-2419-000, and these measurements need to show the Data Center as meeting the sound pressure limits at any of the property lines of the subject lot. Further, any subdivisions to the property would require conformance with these regulations to the new lot lines containing the Data Center use.
    - *Article 9-14.2. The sound pressure level of sound radiated from an establishment, measured at the lot line of the site thereof that is the nearest thereto, shall not exceed the values in any octave band of frequency that are specified in Table 9-1 below, or in Table 9-1 as modified by the correction factors set forth in Table 9-2.*
- The second column under Table 9-1 applies to measurements taken at the property line of the establishment radiating the noise, where "*along residential district boundaries.*" The nearest residential district boundary is located approximately 128 feet from the subject property across Blackwell Road. As the subject property does not have residential zoning

district boundaries along or adjoining its property lines, it is not subject to the second column under Table 9-1.

Town of Warrenton Zoning Map: 6984-69-2419-000



The Ordinance applies a downward "correction" in decibel strength for R-district zoned properties that are "across the street" from the project site. Are the only affected properties the Oak Springs and the Highlands communities?

- Table 9-2 requires a -5dB reduction, *"on a site contiguous to or across a street from the boundary of any R-district established by this chapter."* The R-districts established by the Town of Warrenton are found in Article 3 of the Zoning Ordinance. As there are R-Districts across the street from the subject property, including GPINS: 6985-50-1018-000, 6985-50-1248-000, 6985-40-8633-000 (Oak Springs), 6984-68-2681-000 (Highlands: Townhouses), and 6984-68-7335-000 (Highlands: Single-Family Detached), the -5dB correction applies to the site. Additionally, the correction factor says "*on a site.*" It does not delineate or state that the correction factor only applies to the portion of the site across the street from/adjacent to a residential district. Therefore, any measurements along the subject property lines must include this correction factor.

Is it correct that background noise may not be factored into analysis, because the language in §9-14.2 of the Noise Ordinance says that Tables 9-1 and 9-2 relate to the "sound pressure level of sound radiated from an establishment, measured at the lot line of the site thereof that is the nearest thereto" and that it shall not exceed the values set out in those Tables at that lot line? Is this true even when there is significant ambient noise?

- The Zoning Ordinance does not provide specific guidance regarding ambient background noise. However, it does say, "*sound radiated from an establishment*" when describing what sound is measured. This language is inferred to mean that the only sound to be measured is the sound emanating from the subject property. How a noise analysis accounts for or corrects for background noise would be per the American National Standards Institute, as those are the standards by which sound pressure levels are to be measured. ANSI provides the ability to make adjustments for background sound in Chapter 6 of of ASA/ANSI S12.9-2021/Part 4. These regulations shall be followed when analyzing the noise levels created by the use.
    - *9-14.2. […] The sound pressure level shall be measured with a sound level meter and an associated octave band analyzer conforming to standards prescribed by the American National Standards Institute.*

What is the legal definition of "tone" for purposes of the application of the Town Ordinance, and how is it to be measured given the absence of any standard?

- The Zoning Ordinance requires a reduction in decibels for any "Tone (e.g., hum or screech) but does not define "Tone" nor provide any specific measurements for Tone. However, Merriam Webster's Dictionary provides the following definition, *"a sound of definite pitch and vibration."* Should the Data Center create noise that may be considered a hum, screech, or definite pitch, then the decibel reduction for Tone would apply. Specific information regarding the Tone or pitch for the proposed Data Center has not been provided in sufficient detail to determine that the correction factor for Tone would not apply.
- Since the performance standards section mentions the American National Standards Institute (ANSI), their standards may be utilized in determining Tone. The Applicant would need to provide an analysis of the proposed Tone per the most recent applicable ANSI standards. For example, ASA/ANSI S12.9-2021/Part 4 notes the following for Tone.
    - *Annex C (informative) Sounds with tonal content. The test for the presence of a prominent discrete-frequency spectral component (Tone) typically compares the time-average sound pressure level in some one-third-octave band with the time-average sound pressure levels in the adjacent two one-third-octave bands. For a prominent discrete tone to be identified as present, the time-average sound pressure level in the one-third-octave band of interest is required to exceed the time-average sound pressure level for the two adjacent one-third-octave band by some constant level difference. The constant level difference may vary with frequency. Possible choices for the level differences are: 15 dB in low-frequency one-third-octave bands (25-125 Hz), 8 dB in middle-frequency bands (160-400 Hz), and 5 dB in high-frequency bands (500-10,000 Hz). NOTE 1 The above guidance is from Annex C of Part 3 of ANSI S12.9. Part 3 of ANSI S12.9 also contains guidance on the measurement of one-third-octave-band sound pressure levels. NOTE 2 ANSI S1.13 Annex A presents more accurate methods for determining the presence of prominent discrete tones using narrow-band analysis. NOTE 3 For each one-third octave band, if peak(s) to the spectrum of the signal in question are at or near to an edge (upper or lower) of the on-third-octave bank under test, then the test becomes inaccurate and can fail.*

Is it accurate that the "corrections" that will apply to reduce the permissible decibel level at each frequency will be: 1) Adjacency of the residential properties mentioned above (-5 dB); 2) Operations between 10 pm and 7 am (-5 dB); and 3) Tone (-5 dB).

- The following correction factors apply to the proposed development unless the Applicant provides further information proving the noise created by the establishment does not fall under the Tone category:
    - *On a site contiguous to or across a street from the boundary of any R-district established by this chapter. (Minus 5)*
    - *Operation between the hours of 10:00 p.m. and 7:00 a.m. (Minus 5)*
    - *Tone (e.g., hum or screech) (Minus 5)*

At what height must relevant sound measurements be taken?

- The Zoning Ordinance does not state at what height the sounds are to be measured, but it does state they are to be taken at the lot line. Lot lines delineate property ownership and are defined in the Zoning Ordinance as follows:
    - *Lot Line: A property boundary line of any lot held in single and separate ownership from adjacent property, except that, in the case of any lot abutting a street, the lot line or such portion of the lot as abuts the street shall be deemed to be the same as the street line, and shall not be the center line of the street, or any other line within the street line even though such may be the property boundary line.*
- However, as noted above, the Zoning Ordinance states that measurements are to be taken per ANSI standards. These standards provide different recommendations, including height measurements, based on numerous factors such as type of noise and environment. Any noise analysis would need to meet ANSI standards, including the height recommended for sound measurements. Noise analysis studies submitted to the Town would be reviewed to confirm that the study meets ANSI standards. For example, ANSI S12.9-2021/Part 4 says the following:
    - *Sound measurement locations All sounds, except high-energy impulsive sounds, shall be measured or predicted as if they had been measured by a microphone outdoors, over acoustically absorptive ground (grass), at a height of approximately 1.2 m and with no nearby reflecting surfaces within 1 wavelength of the lowest frequency of interest except the ground. Alternative microphone locations may be used, but their acoustical characteristics shall be specified. An example of an alternative location is outside an open, upper-story window in a high-rise apartment building where the purpose is to predict or assess the environmental sound at that location. High-energy impulsive sounds shall be measured or predicted as if they had been measured by a microphone within 50 mm of a hard reflecting surface (e.g., a building wall, roof, or ground plane, as appropriate). NOTE 1 A reflecting surface is required because sonic booms, which are one form of high-energy impulsive sounds, have traditionally been measured or predicted for a location on a reflecting ground plane or structure. NOTE 2 To ensure comparable data, sonic booms should be measured on a reflecting ground plane or other equivalent structure.*

Is the Applicant permitted to take a +5dB correction for the fact that its generators are operated less than 20% in any one-hour period, given that they are only turned on briefly for testing once every two weeks? The noise associated with the generators was included in Polysonics' noise modeling, which inclusion is the criterion for thereafter applying that correction.

- An additional correction factor may be applied for the generator noise, provided they meet the requirements for the correction factor. The +5dB correction factor for operations less

than 20% in 1 hour would not apply to the noise generated by the chillers as they operate continually. As such, a separate analysis may be required for the Data Center that does not include the generators to confirm that the performance standards will be met at all times.

This Zoning Determination Letter only applies to the subject property noted above. This is a formal decision by the Zoning Administrator of the Town of Warrenton, Virginia. Any person aggrieved by any decision of the Zoning Administrator may appeal to the Board of Zoning Appeals. Appeals shall be made within thirty (30) days of the date of this letter by filing with the Zoning Administrator a notice of such appeal specifying the grounds thereof. The decision shall be final and unappealable if not appealed within thirty (30) days. The fees for filing an appeal are $400.00 plus the cost of advertising and property notice mailings. Classified advertising is placed in the local paper for two consecutive weeks before the meeting, with costs averaging around $700.00. The price for property notices varies and depends on the number of adjacent owners. The adjacent property notices are sent via certified letter with a return receipt at the current postage rate. The Zoning Office is located at 21 Main Street within Town Hall. Hours of operation are from 8:30 AM until 4:30 PM, Monday through Friday. If you have any questions regarding this notice or additional information about the appeal process, please get in touch with me at (540) 347-2405.

Sincerely,

Robert F. Walton

Rob Walton
Zoning Administrator
Director of Community Development
Town of Warrenton

CC: AMAZON DATA SERVICES INC. (By First Class Mail Only)
Martin Crim, Town Attorney
Denise Harris, Planning Manager
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