TOWN OF WARRENTON
Community Development Department

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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.

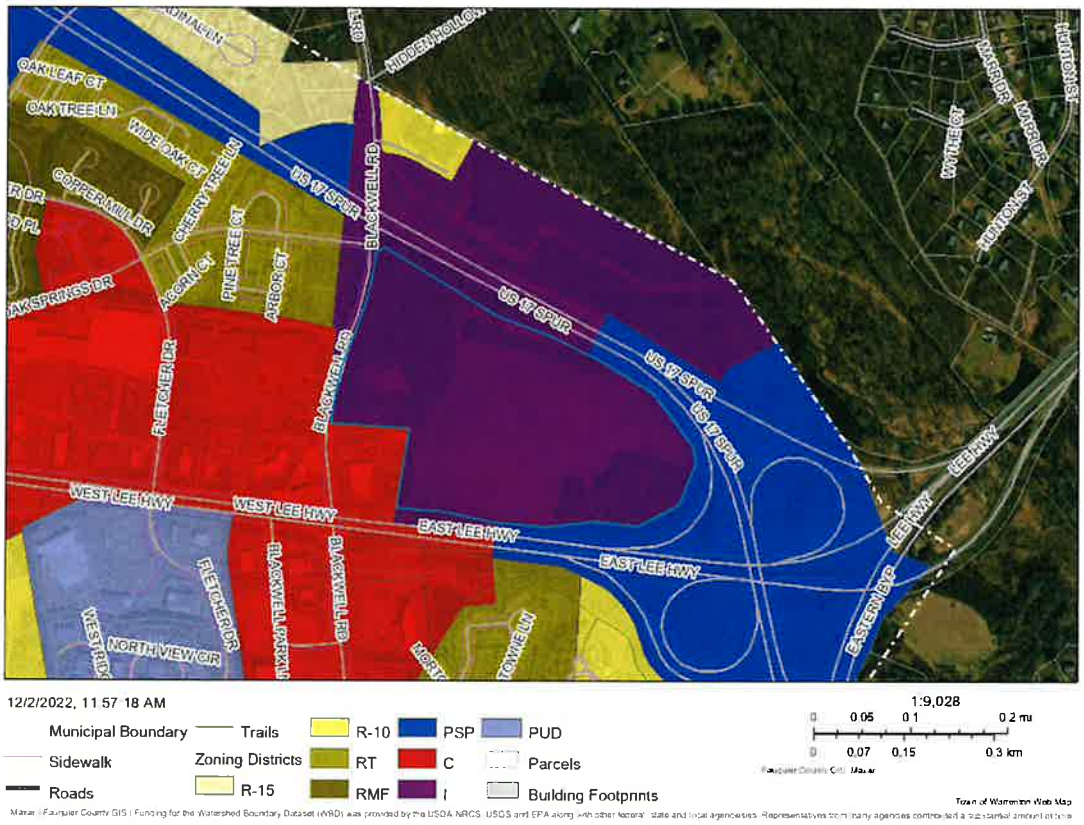
- The zoning district for the parcel in question is I (Industrial) and is not within a Planned Unit Development or Overlay District.
- The proposed Data Center use requires a Special Use Permit from Town Council per Article 3-4.12.3 of the 2006 Zoning Ordinance, as amended. Data Center uses are subject 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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