

Town of Wallingford, Connecticut

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MEMORANDUM

TO: Members of the Wallingford Town Council

CC: William W. Dickinson, Jr., Mayor
Kevin Pagini, Town Planner
Tim Ryan, Economic Development Coordinator

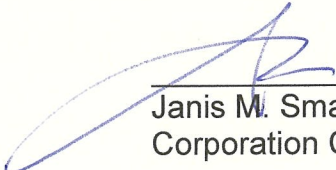
FROM: Janis M. Small, Corporation Counsel

RE: Data Center Proposal

DATE: May 26, 2021

For your consideration, attached is our consultant's report regarding noise issues related to data centers. Keep in mind that the recommendations are based upon conceptual plans.

We will look to address the recommendations in the host agreement.



Janis M. Small
Corporation Counsel

JMS/bjc

Enclosure

May 26, 2021

Ms. Janis M. Small, *Corporation Counsel*
 Department of Law
 Town of Wallingford
 45 South Main Street
 Wallingford, CT 06492

Direct: (203)294-2140
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Subject: Proposed Data Center
 Wallingford, CT

Dear Ms. Small,

On May 21, 2021, I hosted a PowerPoint presentation and discussion of a Data Center proposed for construction on three parcels comprised of five buildings housing data center electronics and served by several emergency generators and HVAC equipment. These items are a source of sound and vibration that could potentially impact nearby residences. However, these can be designed and constructed to avoid adverse impact. We understand that, ultimately, the developer hopes to have parcels for up to ten buildings in the Town of Wallingford. The three currently proposed parcels are located as generally indicated in Figure 1.

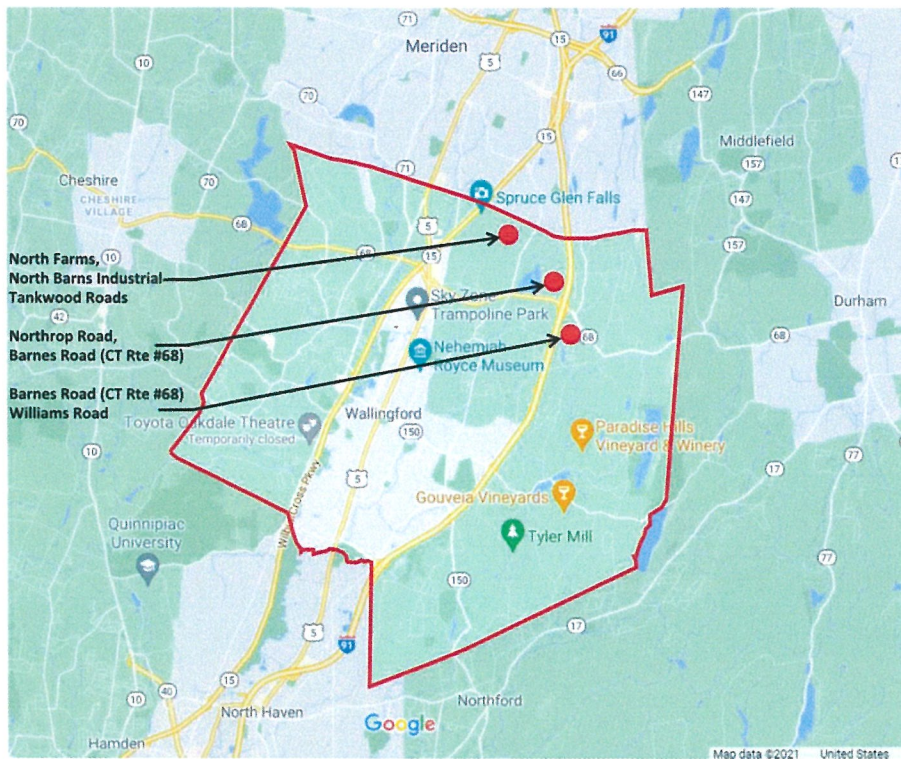


Figure 1. Proposed data center parcel locations

Residences closest to Data Center buildings are noted in Figure 2. The nearest Tankwood Road residence is 180 feet from Data Building 4. A North Farms Road residence is 325 feet from Data Center Building 5. Equipment for these Data Center buildings close to residences will likely require more extensive sound and vibration controls than other residences near Data Center Buildings that are further away. The following summarizes regulator sound limits, describes design goals for sound to avoid Data Center sound becoming a nuisance, procedures to be implemented and reports to be provided by the Data Center acoustical consultant, and actions to be taken by the Town of Wallingford from design through post-construction testing.

Sound level limits

- Town of Wallingford
 - Commercial to Residential emissions: 55/45 dBA day/night
 - Industrial to residential emissions: 61/51 dBA day/night
- State of Connecticut
 - Commercial to residential emissions: 55/45 dBA day/night
 - Industrial to residential emissions: 61/51 dBA day/night
 - Prominent discrete tones prohibited.
- Recommendation:
 - Incorporate State prohibition of discrete prominent tones.
 - Zone Data Center sites as commercial, not industrial

Design Goals for Data Center Sound

- Health and welfare are subjective: Protecting “health and welfare” is to avoid/minimize “annoyance and nuisance.”
- Engineering design requires setting levels in decibels below which it is reasonable to expect that a facility will not produce an “annoyance and nuisance.”
- Community response to “how noisy”
 - Extent of habituation—i.e., is the community already exposed to sound of the type expected from the new facility?
 - Related to the amount new facility exceeds pre-existing background sound.
 - Background sound level defined as
 - Measured in hourly increments for one week (168 hours continuously)
 - Measured at one or more locations on each parcel
 - Background sound level is the average of the lowest occurring each 24-hour day. (Arithmetic average of the lowest LAF_{90,1-hr} levels measured)

- Acceptable amounts of facility sound that may exceed background sound level (**tentative, subject to review by Town of Wallingford after sound monitoring data is available**):
 - Tonal sound—5 dB
 - Impulsive sound—15 dB
 - Continuous sound—10 dB

Background sound level.

- Owner retains an Institute of Noise Control Engineering Board Certified Noise Control Engineer (INCE Bd. Cert.)
- Owner's noise control engineer:
 - Prepares sound monitoring protocol indicating where, when, and how sound monitoring is to be completed.
 - Town of Wallingford peer consultant to review, suggest revisions as may be needed, and approve.
 - Owner's noise control engineer completes monitoring as per the protocol, analyzes collected data and determines the design goals for sound at nearest receptors as described in the previous section.
 - Facility sound levels must achieve the design goal or comply with the applicable sound level limit, whichever is lower.
- Town of Wallingford peer reviews and approves design goals and applicable limits or recommends revisions.

Facility acoustical design concepts.

- Owner's noise control engineer
 - Models sound levels transmitted from all facility sources to nearest residences.
 - Proposes controls and demonstrates compliance through modeling.
 - Prepares report describing limits/design goals, noise and vibration control concepts to implemented in facility design.
 - Report and computer modeling in Cadna/A compliant format submitted for Town peer review.
- Peer reviews and recommends approval or recommends revisions.

Facility acoustical design implementation.

- Owner's noise control engineer
 - Works with Data Center design team to implement acoustical concepts into design drawings by assisting in sizing and selecting noise control products and systems.
 - Prepares final acoustical design report documenting controls to be submitted with permitting documents.

- Town of Wallingford peer reviews and comments on acoustical design.

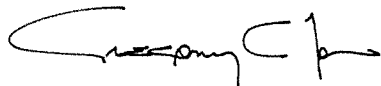
Post-construction sound measurements.

- Owner's noise control engineer
 - Measures sound produced by facility equipment and systems to ensure compliance with applicable limits and design goals for sound.
 - Makes recommendations for added control is required.
- Peer reviewer recommends comments and/or Town approval.

* * *

We hope that this provides information you need to work with the Data Center developer, Town officials, and residents. If we can provide further information, please do not hesitate to contact me. Thank you.

Sincerely,
CAVANAUGH TOCCI



Gregory C. Tocci, *Sr. Principal Consultant*