



February 23, 2024

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Via Email: [dglazer@draws.com](mailto:dglazer@draws.com)

Subject: Exterior Noise Conditions & Noise Control Recommendations  
Tri-County Regional Vocational Technical High School  
Franklin, MA  
Acentech Project Number J637620.01

Dear Daniel,

This report presents the results of the community noise study Acentech has conducted at Tri-County Regional Vocational Technical High School in Franklin, Massachusetts, and related mechanical noise control recommendations based on the Schematic Design mechanical documents dated June 27, 2023 and the mechanical cutsheets sent to us February 6, 2024. The study was performed from February 1, 2024 to February 9, 2024.

## **APPLICABLE NOISE REGULATION**

The town of Franklin, MA does not have a quantitative Noise Ordinance that relates to noise levels from outdoor mechanical equipment, and so the Massachusetts Department of Environmental Protection (MassDEP) regulations would apply. Therefore, Tri-County Regional Vocational Technical High School is subject to MassDEP regulations which prohibits the generation of noise that exceeds the ambient background noise level by 10 or more A-weighted decibels (dBA); MassDEP's policy also prohibits outright the generation of any pure tone conditions. Pure tone conditions are defined as noise emissions in one particular octave band exceeding those in adjacent octave bands by 3 decibels or more.

Based on this information, noise control measures aimed at satisfying the MassDEP regulations.

## **STUDY METHODOLOGY**

Acentech's measurement equipment for this study consisted of one outdoor noise monitoring kit which was installed in the south of the school parking area. The monitoring kit was comprised of a Rion NL-52 sound level meter, an external power source, an extension cable for the sound level meter microphone, a flexible mount, and a crate in which to store everything that did not need to be out in the open. The crate was secured to firmly rooted object (in this case a tree) by means of a chain and padlock. Photos of on-site conditions can be found in the Appendix as Figures 1 and 2, and an aerial view showing monitor location in the context of the school property is included as Figure 3 in the Appendix.

The metric of greatest interest to this study was the A-weighted L90, or the sound level in dBA which was exceeded 90% of the time during the measurement period. The monitoring kit collected this information, as well as several other metrics, on an hourly basis. Other metrics displayed in the graphs in the Appendix are the LAeq, which is a commonly used metric representing the approximate average sound level over the measurement period, and the LA01, which is a metric that illuminates information about short-duration high-noise events.

## ANALYSIS

Figures 4 in the Appendix shows the data collected over time at the monitoring location. The quietest hours were generally from midnight to 5 am. The lowest measured L90 was 33 dBA. Average L90 readings during daytime hours (considered in the field of acoustics as lasting from 7:00 am to 10:00 pm) were generally in the range of 36 to 46 dBA. This would imply that the strictest probable (non-tonal) noise limits for this project site are **43 dBA** at night and 46 dBA during the day.

## PLANNED EQUIPMENT OVERVIEW AND POTENTIAL IMPACTS

The outdoor HVAC equipment planned for this project consists of 11 outdoor packaged-cooling energy recovery units, and select small tonnage unitary condenser units. The energy recovery units are listed on their data sheets as producing radiated sound power levels of approximately 92 dBA each.

The presumed property lines at 1810 Franklin Crossing Road and 357 Mucciarone Road are 250 feet away from the nearest ERUs, on either side of the school, and are the critical receivers of interest, shown in Figure 3. The ERUs in the central area of the school, Parts B & C, are 500 feet away from critical receivers of interest. We will base our noise control recommendations on meeting the required levels at these property lines for these nearest units.

## RECOMMENDATIONS

Based on the discussion in the Analysis section above, we recommend the following course of action to make this project's design compatible with the applicable noise regulations:

### **Exterior Noise**

- The daytime noise limits for the project are met as is.
- The nighttime noise limits for the project we expect will also be met, as school ERUs often do not run at nighttime, and warmup at 7:00am or later.
  - We will continue to work with you and the team to be sure the design continues to meet the MassDEP regulations.

\* \* \* \* \*

We hope that this information is helpful to you. We are available to answer any questions or concerns that may arise on this subject. I am most easily reached by email at [ememarzadeh@acentech.com](mailto:ememarzadeh@acentech.com), and Acentech's Principal-In-Charge for this project, Nicole Cuff, can be reached by email at [ncuff@acentech.com](mailto:ncuff@acentech.com) or by phone at (617) 499-8070.

Sincerely,

A handwritten signature in blue ink that reads "Memar" followed by a horizontal line.

Esmail Memarzadeh, Ph.D.  
Consultant

Cc: Nicole Cuff (Acentech)

Encl: Appendix

**APPENDIX**



Figure 1: Photo of the monitoring kit in the south of the school's parking area



Figure 2: Photo of the monitoring kit- Further view



Figure 3: Aerial view of the project site, with ambient sound survey monitoring location marked.

### Sound Levels Measured at Tri-County Regional Vocational Technical High School

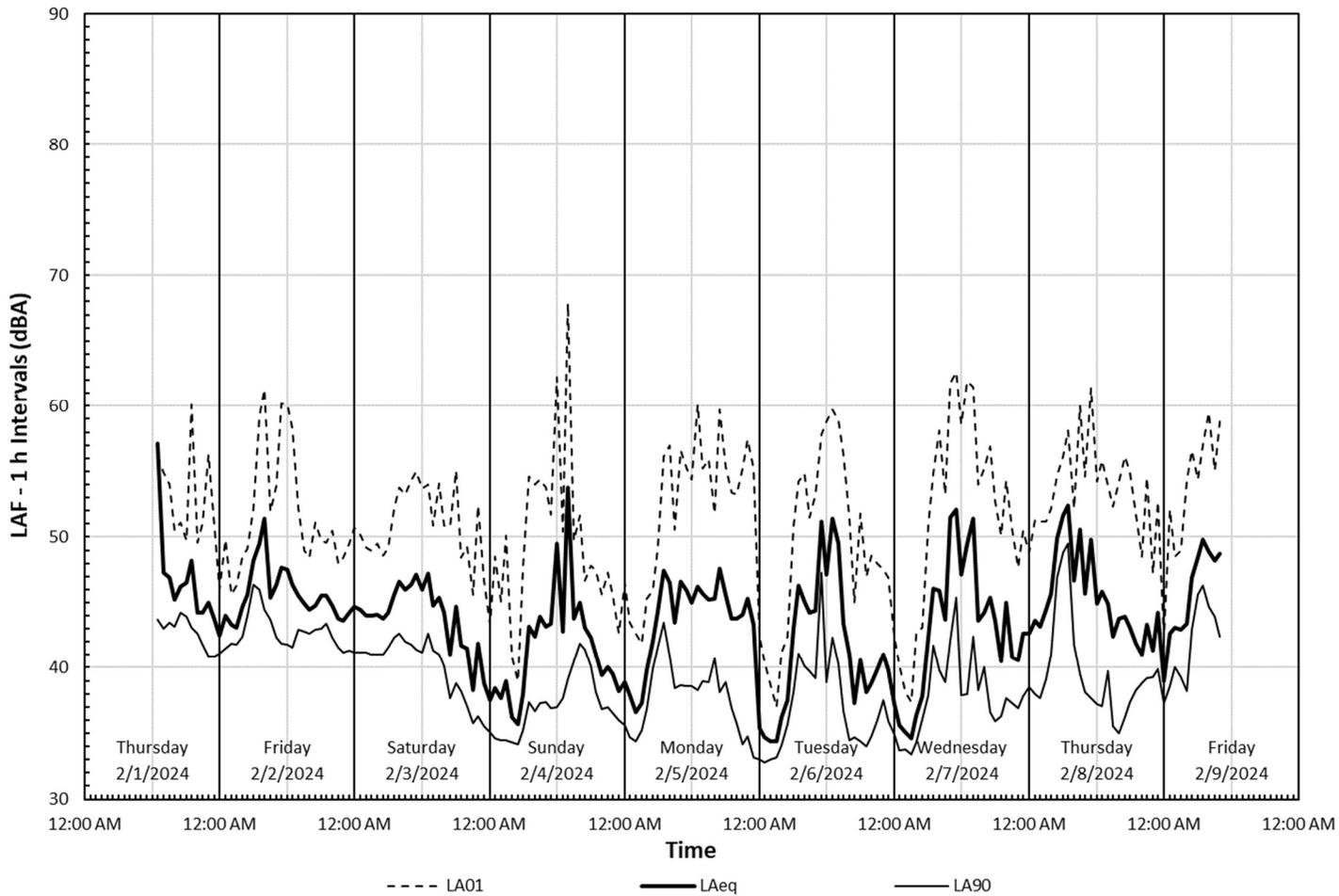


Figure 4: Graph of data collected at the monitoring location.

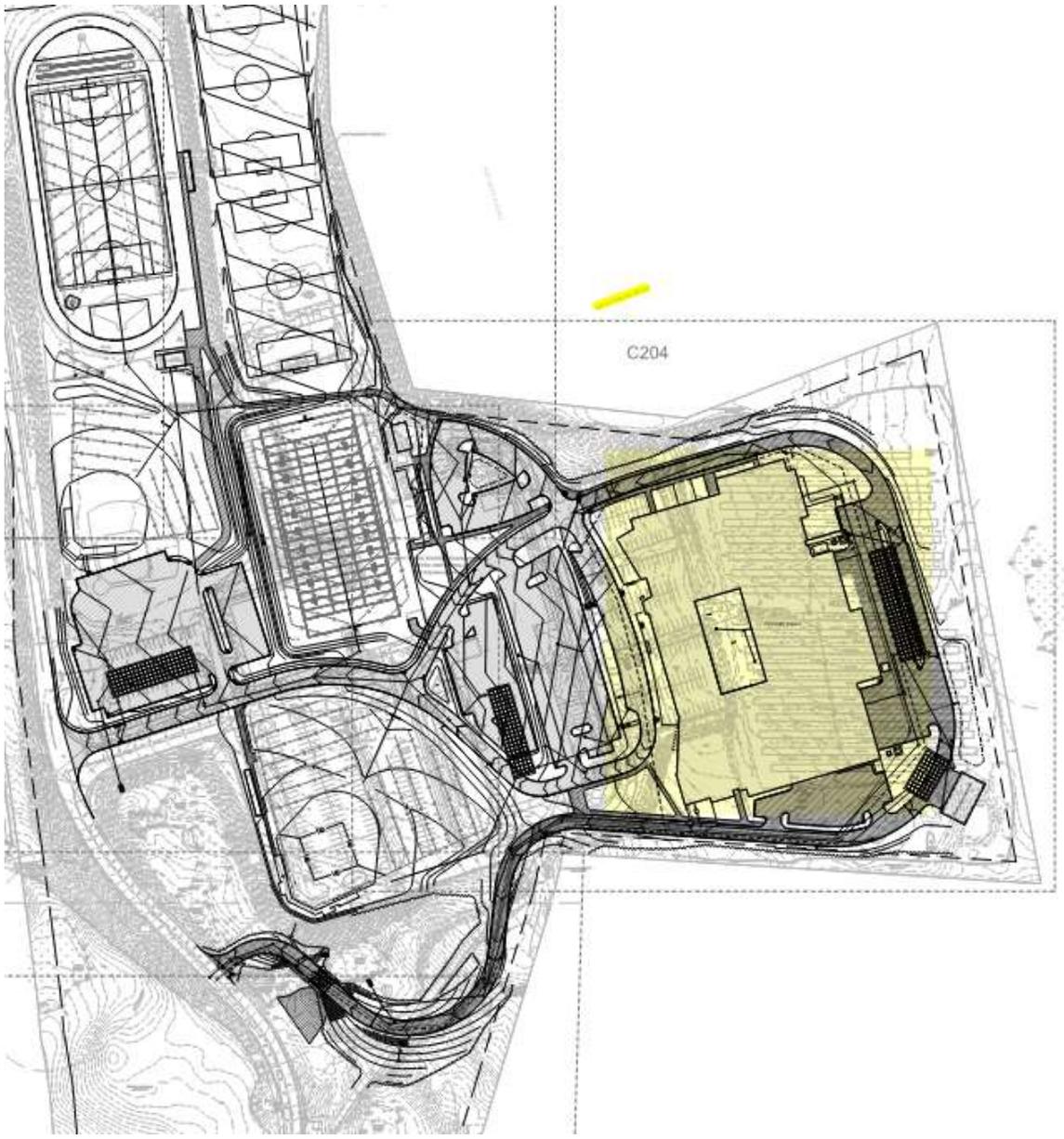


Figure 5: Proposed School + Existing Site.