

HEINEN'S GROCERY NAPERVILLE  
**ACOUSTIC REPORT**  
05.16.2024

## 1.0 Introduction & Summary of Issues

A new Heinen's Grocery Store is planned for 1244 E. Chicago Avenue in Naperville, Illinois. As part of the approvals process for the new store, the City of Naperville has requested a study of noise levels at the Heinen's property line due to the sound of delivery trucks at the store's loading dock.

This report summarizes the results of the study: first by reviewing ambient noise conditions at the property line relative to the Naperville Noise Ordinance; then by assessing noise levels due to truck dock activity with no additional noise control measures in place; and finally with recommendations to meet the Naperville Noise Ordinance by introduction of a sound barrier wall.

## 2.0 Criteria for Evaluation (Noise Ordinance)

In Chapter 14 of the Naperville Code of Ordinances, section 6-14-4 provides a list of maximum noise levels at different Land Use designations in the city. The nearest properties to the Heinen's site directly south of the loading dock in Pembroke Park. We understand that Naperville interprets the park property line to be equivalent to a residential property lines. Based on the noise level limits presented in section 6-14-4, the maximum sound pressure levels at the south property line are:

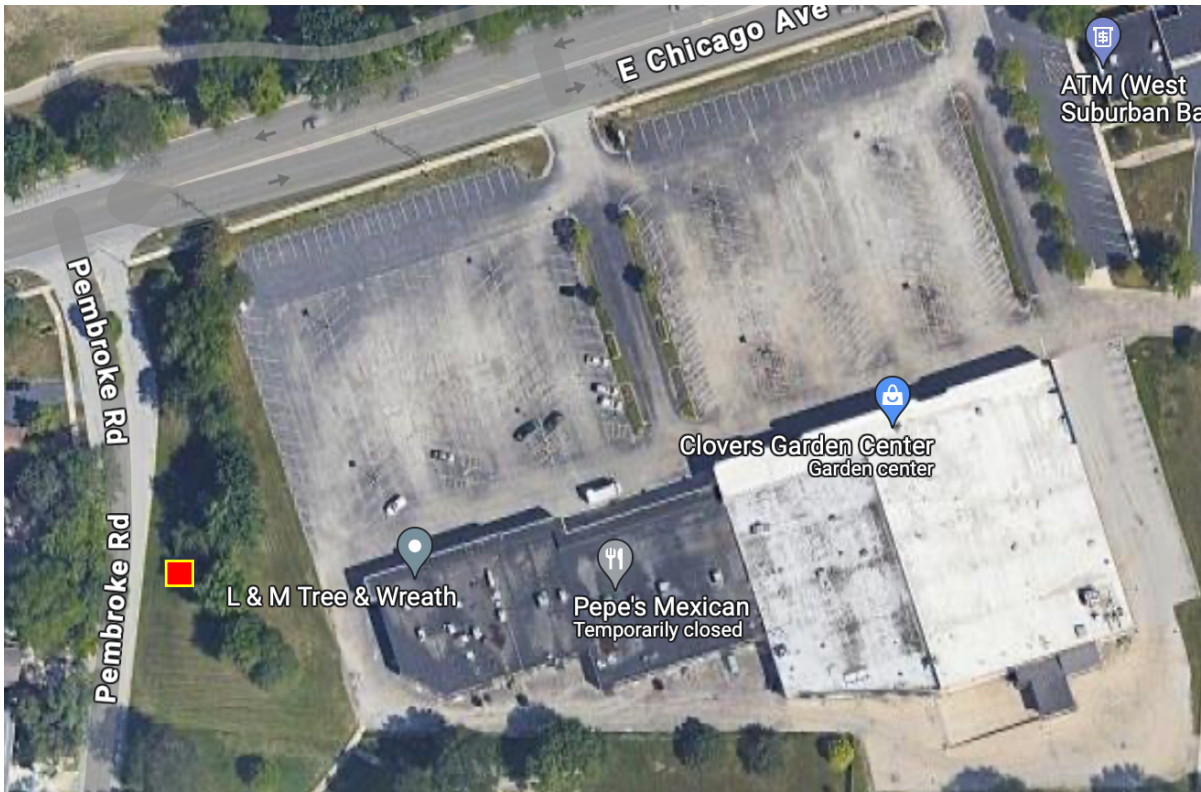
- 55dBA between 7:00am and 7:00pm
- 50dBA between 7:00pm and 7:00am

We understand that Heinen's intends to restrict their deliveries to the hours of 7:00am to 7:00pm. The appropriate criterion for evaluation of dock-related noise therefore is 55dBA.

## 3.0 Existing Ambient Noise Levels

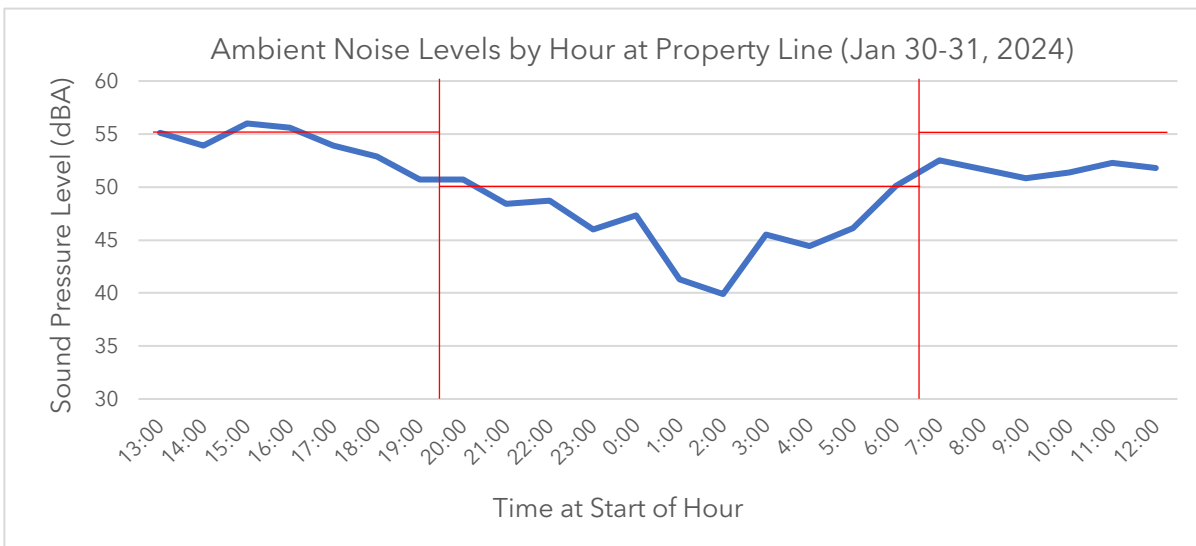
To evaluate the conditions at the site, an assessment of existing ambient noise levels is also needed. Where existing ambient noise levels are higher than those listed in the noise ordinance, it may be worthwhile to evaluate whether the ambient noise level is a more appropriate standard (as noise levels lower than ambient cannot be measured).

Ambient noise levels were assessed at the project site by measuring noise levels over a 24-hour period from 30-31 January 2024. Due the proposed location of the loading dock at that time, measurements were recorded at the west property line nearest Pembroke Road; the location was chosen where the sound level meter could be locked to a tree nearest the property line, as shown by the yellow/red box in the following image:



The location is nearest enough to the park that we consider noise level measurements at this location to be applicable to the south property line.

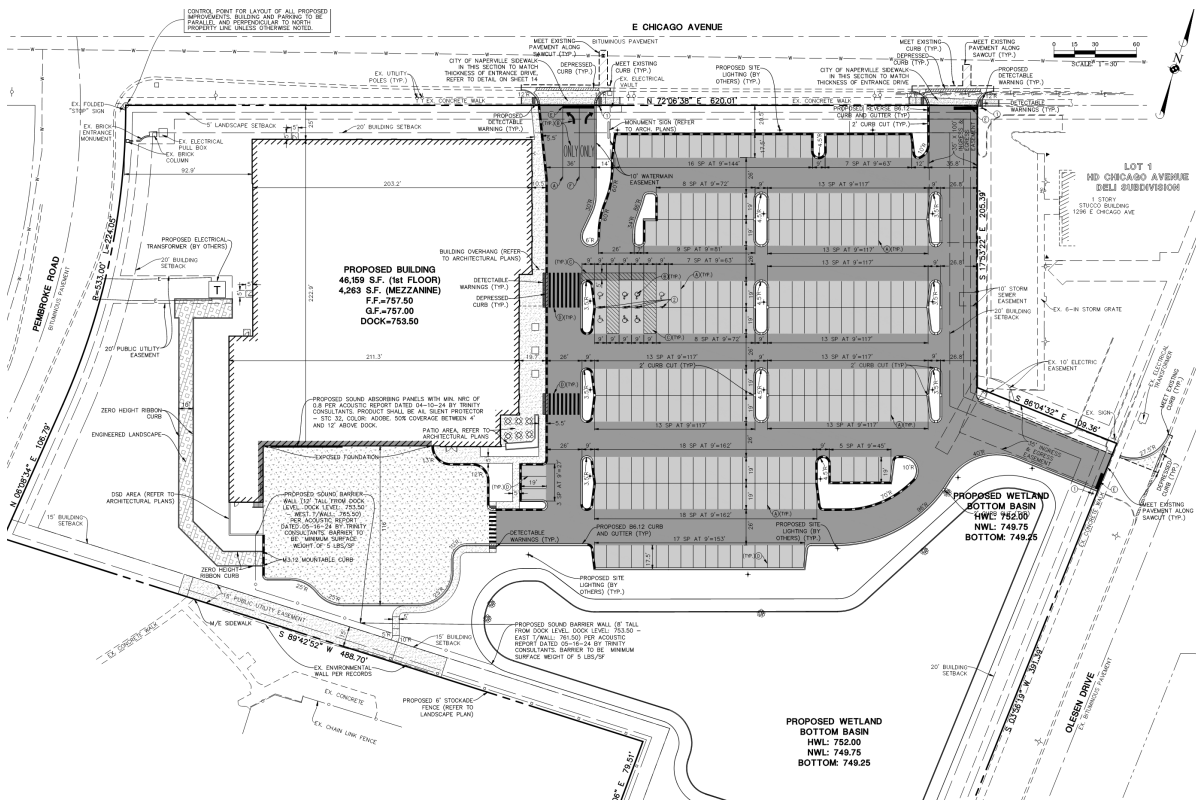
Noise levels at this location were dominated by traffic noise from Chicago Avenue. The following chart summarizes the results of these measurements, reporting the average sound pressure level (Leq) over each of the 24 one-hour periods during which levels were recorded.



As observed in the chart above, noise levels tended to be at or below the 55dBA standard during the daytime hours. During the nighttime hours the noise level also tended to be below the 50dBA standard, though noise levels were a few dB above the standard in the hours at the start and end of the nighttime window (51dBA in both the 7:00pm hour and the 6:00am hour). Although the ambient level slightly exceeds the standard in some time windows, we do not believe that it is high enough to reconsider whether to use the ambient level instead of the level provided in the ordinance.

### 4.0 Loading Dock Noise Levels

The loading dock will be located on the south side of the building, as in the site plan below. The parts of the dock area nearest the property line (the truck maneuvering area at the southwest corner of the paved dock area) are approximately 55ft. from the property line, and the furthest portions of the dock (near the southwest corner of the building) are approximately 160ft. from the property line.



### 4.1 Noise Levels with No Additional Noise Control Measures

Using data obtained from other projects for which delivery trucks noise levels were measured at grocery stores, we projected noise at the Pembroke Road property line nearest the residences on the west side of the road.

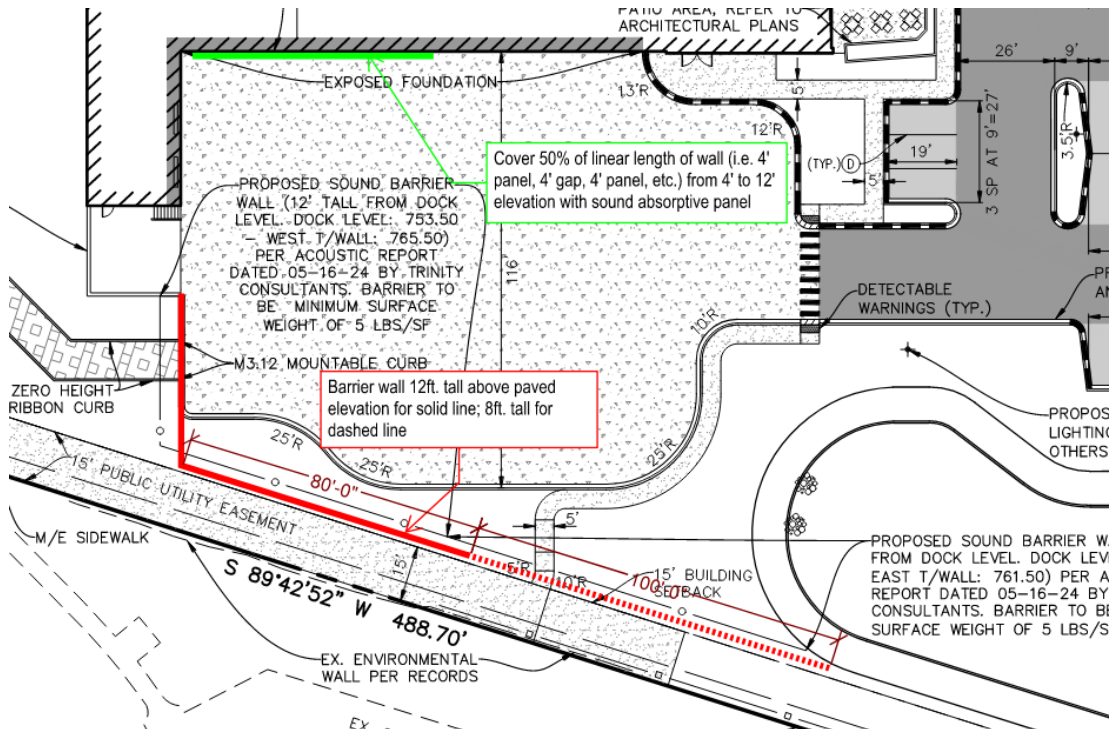
Based on the truck noise data and site conditions, we project a noise level of **68dBA** due to truck activity on the loading dock at the south property line.

4.2 Recommendations for Additional Noise Control Measures

To reduce noise levels to no more than 55dBA at the Heinen’s property line, we recommend the following:

.1 Barrier Wall

We recommend a barrier wall along 15ft setback at the south property line as shown in the diagram below:



The wall should be 12ft. tall for the first 80ft. along the south property line, then 8ft. tall for the next 100ft.

As the amount of barrier wall noise isolation is minimal, any type of solid fencing (2psf or greater) that completely blocks line of sight and overlaps or is sealed between adjacent pickets or slats could be used. Additionally:

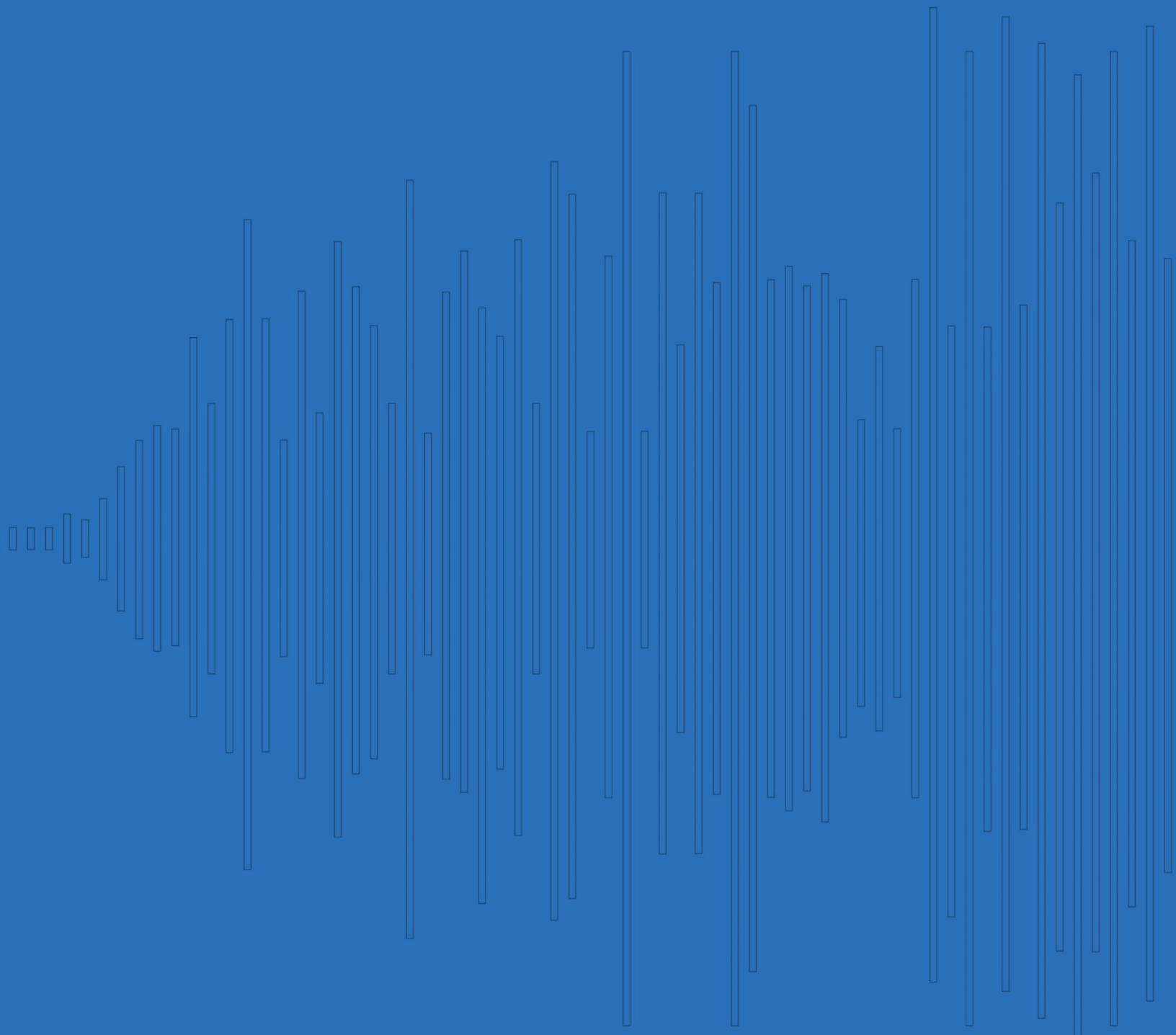
- There may be a gap of approximately 6” at the bottom of the wall to allow drainage without compromising acoustic performance.
- There may be a gate along the west portion of the wall to allow vehicular access to the transformer on the west side of the building. The gate should be constructed of similar material and configuration as the rest of the barrier wall when closed.

.2 Absorptive Panels on Building

To address sound energy otherwise reflected off the building wall (which could reduce the effectiveness of the barrier wall), we recommend sound absorbing panels having a minimum NRC of 0.9. Acceptable products include IAC Noishield Type C and United McGill WA-1000, or a spray material such as Pyrok Acoustement Plaster 40.

See the diagram in the previous section for the areas of the wall to be covered with this treatment.

**End of Report**



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