

24 September 2014



Phil Terzis
VP, Project Planning
Acorn Holdings LLC
One Gateway Center, Suite 805
300 Washington Street
Newton, MA 02458

Subject: 75 New Street, Cambridge
Summary of ambient sound level monitoring efforts
Acentech Reference: 625247a-75NewSt-Ambients.docx

Dear Phil:

Acentech conducted a brief survey of ambient sound levels affecting the site of your new residential development project at 75 New Street, in Cambridge, MA. The site is currently occupied by the building which housed the former J & C Adams Company, no longer in business; the building itself is a large high-bay warehouse space, most of which is roughly the equivalent height of about a one-and-a-half-story building. The purpose of the survey was to quantify environmental sound levels currently affecting the site – primarily to assist you in developing appropriate noise control measures to provide adequate protection against intruding noise for the future occupants of the four-story apartment building you have planned for the site.

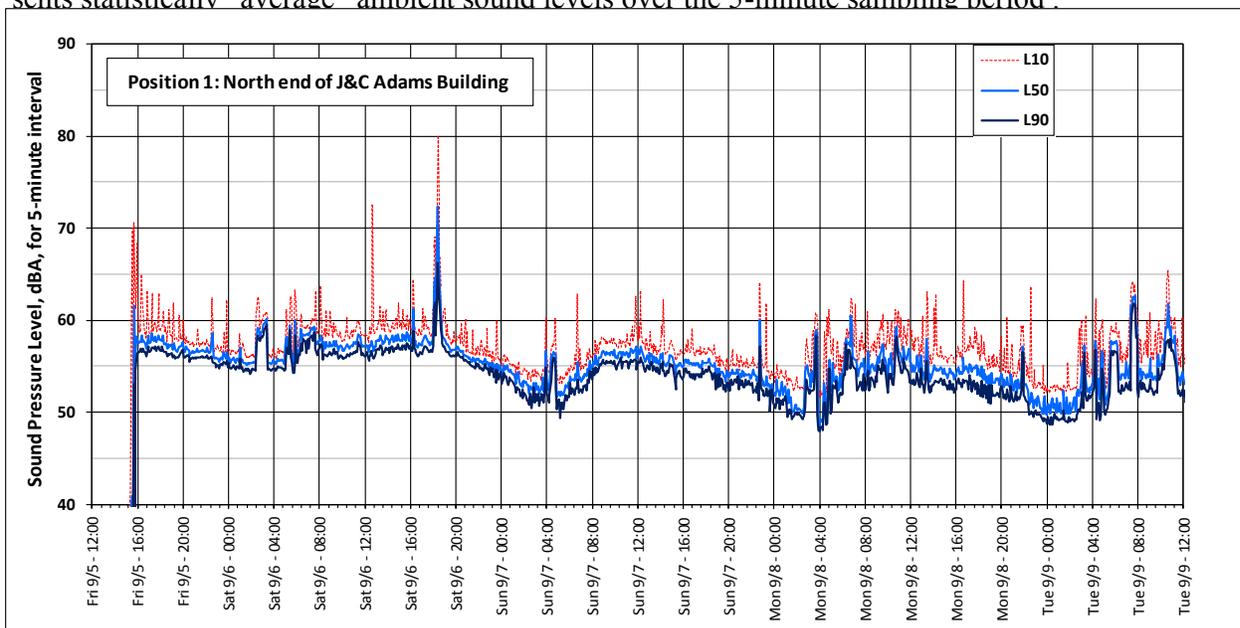
The survey was conducted from the afternoon of Friday, 5 September 2014, to about noon on Tuesday, 9 September. Meteorological conditions during the survey were fairly typical of the season, with daytime temperatures reaching in the low 80s °F on Friday and Saturday and upper 60s at night, dropping to the mid-60s °F on Monday and Tuesday with nighttime temperatures in the mid-50s °F. Intense thunderstorms rolled through the area on Saturday afternoon, with winds reaching into the 30s mph, with gusts up to 45 mph.

To quantify acoustical conditions in the area, automated environmental noise monitors were used to continuously collect and statistically analyze samples of the sound levels at monitoring positions representative of the area. The automatic monitors employed, Rion Model NA-31, measure instantaneous ambient sound pressures level ten times per second, storing each sample into a histogram from which various statistical metrics can be calculated over defined time periods; for this survey, a five-minute interval duration was selected. For each successive interval, the maximum and minimum levels, energy-equivalent “L(eq)” levels, and various “L(n)” values (the level exceeded “n” percent of each interval) were recorded, from which a time-history of the ambient sound level variations could be re-created.

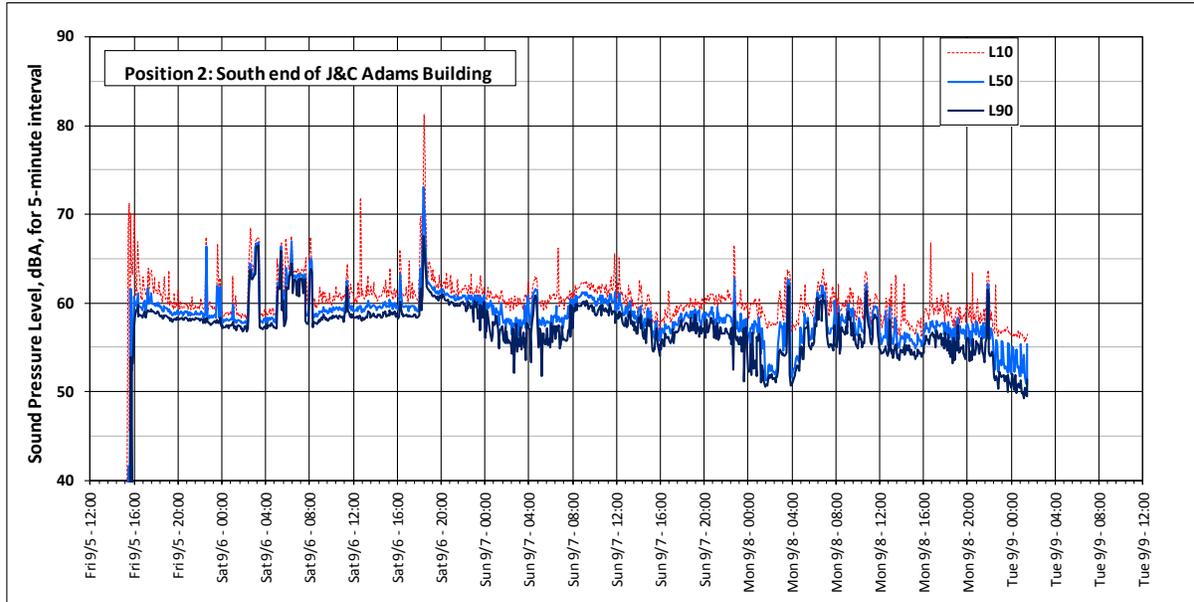
The environmental noise monitors were placed at two locations on the roof of the J & C Adams building, to approximate the levels likely to be received by second- and third-floor residents of the new apartment building. One monitor was placed near the northern corner of the roof, and one directly opposite the loading dock and refrigeration equipment on the roof of the Whole Foods Market due west of the site. An aerial photograph of the area showing the monitoring locations is shown in the figure below:



The results of the survey are summarized in the figures below. The first figure shows a time-history plot of the “L(n)” levels measured at Position 1, near the northern end of the J&C Adams building. The L(10) level (the level exceeded 10 percent of the time) represents the short-term “near-peak” levels produced by relatively brief transient noise events, like the individual pass-bys of vehicles on the nearby streets; the L(90) level represents the “background” level, or the level during the quietest periods between individual noise events, generally controlled by distant traffic noise and the sound of nearby continuously-operating mechanical equipment ; the L(50) represents statistically “average” ambient sound levels over the 5-minute sampling period.



The figure below depicts the same statistical variation in the levels measured at Position 2, at the southern end of the J & C Adams building:



As can be seen, overall ambient sound levels were generally slightly higher at Position 2 than at Position 1. This is likely the result of its closer proximity to the refrigeration equipment on the roof of the Whole Foods Market. During warm periods, like occurred on the first couple of days of the survey, the rooftop equipment probably runs at peak capacity, generating its highest possible noise emission levels; in cooler periods, like occurred in the latter half of the survey, it's likely that the refrigeration equipment could be run at lower capacity, thus producing somewhat quieter overall noise emissions.

Generally speaking, though, we found that background sound levels tended to fall fairly consistently into the 50 to 60 dBA range at both locations, only dipping below 50 dBA at Position 1 during the very early morning hours on cooler nights. On average, levels appear to have run some 3 to 5 dB louder at Position 2 than at the northern end of the J & C Adams building.

It appears that some activity at the Whole Foods loading dock takes place between about 4:00 and 8:00 AM, when noticeable “step function” jumps in ambient sound levels can be seen every day in the data collected at both monitoring locations. At Position 1, jumps of around 5 dB – to levels of nearly 60 dBA – can be seen; at Position 2, closer to the loading dock, increases of some 5 to 8 dB can be seen at these times, to levels in the mid-60s dBA. (It should be noted that the big spike in ambient level measured at both locations at around 6:30 PM Saturday is most likely the result of the thunderstorm that came through the area at about that time.)

You should be aware that the City of Cambridge Noise Ordinance prohibits noise emissions that exceed 60 dBA at receptors in residential areas during the “daytime” (between the hours of 7:00 AM and 6:00 PM daily, except Sundays and holidays); the City’s restrictions for these receptors are even more stringent at “all other times,” when levels emitted to receptors in residential areas are limited to 50 dBA. The environmental noise levels we measured at the site of the 75 New Street project were higher than permitted by the City of Cambridge.

* * * * *

Phil Terzis
24 September 2014
Page 4

I trust that this information meets your current needs. We will take a look at your plans for the building envelope to help you evaluate whether consideration should be give to incorporating any additional noise reduction features into your building design.

If you have any questions or comments, please feel free to contact me at (617)-499-8028; my e-mail address is rberens@acentech.com.

Sincerely,

ACENTECH INCORPORATED



Robert S. Berens
Principal Consultant