

September 20, 2023

Mr. Luke H. Legere, *Esq.*  
McGregor Legere & Stevens, PC  
15 Court Square, Suite 660  
Boston, MA 02108

Direct: (617) 338-6464  
e-Mail: [llegere@McGregorLaw.com](mailto:llegere@McGregorLaw.com)

Dear Mr. Legere,

On August 31, 2023, the Master Paving application for use of the 157-165 Lowland Street site for a truck garage was heard by the Holliston Planning Board. During the hearing, a few questions regarding the application and sound that it might produce were asked by members of the Board and the community. I attempted to transcribe these and have responded with my understanding of the questions and comments. The names attached to questions and comments are those appearing on screen during the meeting; they may not reflect the people actually posing the questions.

Sharon Bailey, Resident

How did we account for the impact of sound on properties that are at a higher elevation than the proposed garage? Is there an effect similar to that in an amphitheater like Great Woods?

Sound does not project upward, but radiates spherically (i.e., in all directions). Regarding the reference to Great Woods, that venue looks like a “bowl”, but its design is specifically intended to optimize sight lines and minimize “head screening” by crowded seating (Cavanaugh Tocci provided the acoustical design for the facility). It is not comparable to the 157-165 Lowland Street site and environs.

The impact of sound on a community is evaluated by comparing facility sound levels at receptor locations with code and standards. In the case of the Master Paving application to construct and use a garage on the 157-165 Lowland Street site, the Holliston 2021 Zoning-Bylaw Section III(D)(11) for Commercial Uses limits sound levels at the property line to 65 dBA.

Master Paving sound levels at its southwest property line along the Bogastow Brook are below 65 dBA and don't exceed 65 dBA except near where trucks enter and exit the site onto Lowland Street.

MassDEP does not implement their noise policy limits on trucking, however, they expect that reasonable steps be taken to avoid creating a noise nuisance. This has been done developing site noise barrier design concepts that achieve design goals for trucking sound. Barriers would reduce site activity sound to generally within our recommended design goals with a few minor exceptions. Note that source levels used in the analysis are on the high end of the range normally produced by sources modeled; hence, **the sound impact described in our work is likely an overestimate.**

Were “impact of sound” to refer to metal-to-metal banging, any such events would not occur as the facility is for vehicle parking and storage. Dumping of materials on-site by trucking is not part of the site use application.

Audry Sabatora, Noel Drive Resident

Did we measure at property lines?

Measurement of actual, existing sound levels prior to Master Paving use of the site were made at the two locations: SM1 just off the Rail Trail near 126 Woodland Street and SM2 on the 157-165 Lowland Street northwest property line shared with 79 Lowland Street, about 500 feet from Lowland Street.

The Noel Drive Resident may have been asking whether estimates of facility sound were made at property lines. Estimates were not made at property lines as those locations would be 5 feet above grade. Sound levels have been estimated at 2<sup>nd</sup> floor levels 17 feet above grade where sound levels are normally higher than at grade, even though residences are further away. The higher 2<sup>nd</sup> floor grade elevation is less shielded by topography and benefits less from sound propagation loss due to ground effect. **Hence, use of the 2<sup>nd</sup> floor level of two-story residences is more protective of the community than would be levels computed at property line grade levels.**

What were the lines on the computer model image shown during the meeting?

The lines were for our reference. They were lines of sound propagation between representative sources and receptors. They were used to identify when a source was screened by a barrier. As 192 lines in principle exist between 12 sources and 16 receptors, only those useful for our interpretation of how barriers should be most effectively arranged were shown. An image with 192 lines joining all sources with all receptors would not be useful, as it would render the plan unreadable.

Bailey, 242 Lowland Resident

Lowland Street residences are well elevated above the site.

Yes. The proposed garage pavement is at about elevation 162'. Fisk Street residences are as high as grade elevation 174'. Noel Drive residence grades are at elevation 182'. In addition, single story residence windows have been located 7 feet above residence grades, two story residences have located 17' above residence grades.

As discussed above, these grade elevations and heights of residential receptors above grade have been accounted for in computer modeling. Although this factor does act to raise levels over those that would be computed were elevations not considered, source levels used in the Cavanaugh Tocci analysis are on the high end of the range normally produced by sources modeled. Therefore, the sound impact described in our work is likely an overestimate, even when accounting for differences in elevation.

When were sound tests made at property lines?

Sound levels were not made at property lines. They were made at locations SM1 and SM2 as described above. Source sound levels have been computed at upper window elevations where sound levels are normally expected to be louder than at property lines where the lower grades normally have lower sound levels, as also explained above.

How were elevations accounted for? To paraphrase a question: does the Master Paving site being lower than residence have an “amphitheater” effect increasing sound emissions?

As explained above, the higher elevations of residences 2<sup>nd</sup> floors above the source elevations reduces sound propagation losses produced by topographical shielding and ground effect. However, elevations have been accounted for in computer modeling and are important. Note that amphitheaters are used for performance venues as they avoid interrupted lines-of-sight between audience members and stage performers. In addition to providing better views, an amphitheater design also avoids shielding of sound by intervening audience members. This sort of performance venue design is not comparable to the 157-165 Lowland Street site and environs.

David Thorn Planning Board

What is the future scale.

The scale shown in our figures was part of a previous application, but is not part of the present application, which is for a garage only. The scale will be removed from our report figures.

Please let me know if the level of detail in the above responses is appropriate. Thank you.

Sincerely,  
CAVANAUGH TOCCI



Gregory C. Tocci, *Sr. Principal Consultant*

22224 157 Lowland Resp To Comm 1a\_LHL\_Gct.Docx