
Driven Car Wash
44 S. Vail Ave., Ste. 203
Arlington Heights, IL 60005

October 11, 2023

Attn: Mr. Christopher Niro

Re: Driven Car Wash Oak Park

Dear Mr. Niro:

This report addresses noise due to the proposed Driven Car wash in Oak Park. The purpose of this study was to predict the sound level reduction at receivers due to the facility's sound walls.

Introduction

Driven Car Wash is proposing to construct a car wash in Oak Park, Illinois at the northwest corner of S. Austin Blvd. and Roosevelt Rd. on a brownfield site. The car wash will have the express tunnel entrance to the east and the exit to the west of the site. Access to both will be from the south. Driven is proposing to enclose the entrance and exit courtyards with screen walls.

The site has commercial properties to the west, residences in Oak Park to the north, including a 3.5-story apartment building that overlooks the site, two-story apartment buildings in Chicago to the east, and commercial properties in Cicero to the south.

Driven is concerned about sound levels due to the car wash at the adjacent Oak Park residences and wishes to determine the effect of the screen walls in preparation for an Oak Park hearing.

Criteria

The Oak Park noise code contains a nuisance-based noise section, and does not contain numeric limits for sound levels at receiving properties.

Oak Park Receivers

The closest Oak Park properties are as follows:

- Two-story commercial property to the west at 6026 W. Roosevelt Rd.;
- Two-story residence to the northwest at 1185 S. Humphrey Ave.;
- Two-story residence to the north at 1178 S. Humphrey Ave.; and
- 3.5 story apartment building to the north at 1118-1124 S. Austin Blvd.

Modeling

Driven provided a March 30, 2023 report from Soundscape Engineering for a similar project in Libertyville, Illinois. The report contained measurements from a similar project in Mokena, Illinois. We used the measured Soundscape sound levels at the entrance and exit for our

analysis.

Driven provided an August 14, 2023 concept plan from MGA and August 28, 2023 drawings from Designhaus Architecture. The proposed sound walls will be located around the entrance and exit areas. The entrance sound wall will be located to the north of the entrance area. The exit sound wall will be located to the north and west of the exit area. The sound walls will be about 17'8" high.

We used CadnaA software from DataKustik GmbH. CadnaA is industry-accepted software used to calculate sound levels of multiple sources and propagation paths at multiple receiver points. The software considers the factors that influence sound propagation, such as distance, shielding by buildings, ground effect and atmospheric absorption, and source directivity. In order to be conservative, all ground surfaces were modeled as moderately sound-reflective and receiver heights were modeled at 13 ft above ground level, or the approximate height of a second-story window. In the case of the 3.5-story apartment building, we predicted the sound level at each story.

The predictions assume that the sound walls will have solid, air-tight construction, with relatively massive construction. The walls should not have cracks, gaps, or other openings, and there should be no gaps between the walls and car wash tunnel. The sound walls were modeled as being sound-reflective.

Table 1 shows the predicted sound reduction provided by the sound walls at each receiver. Sound wall performance is measured in terms of insertion loss (IL), which is the difference in sound level with and without the sound wall. For example, if the insertion loss is 10 dB then the predicted sound level with the wall is 10 dB lower than without the wall.

Table 1. Predicted Sound Wall Performance

Location	Sound Wall Insertion Loss dB(A)	Notes
Commercial property, 6026 W. Roosevelt Rd.	10 dB, north end of building -1 dB, south end of building	Sound level increase at south end of building
Residence, 1185 S. Humphrey Ave.	13 dB	
Residence, 1178 S. Humphrey Ave.	17 dB	
Apartment building, 1118-1124 S. Austin Blvd.	17 dB, levels 1-2 6 dB, upper stories	

Conclusions

The Oak Park noise code contains provisions against nuisance noise and does not contain numeric noise limits.

Sound measurements from another acoustical consultant's report were used to develop an acoustical model and predict sound wall performance at receivers surrounding the proposed car wash. Sound wall performance predictions are based on a solid barrier with no gaps.

Note that the car wash may be audible even with the sound walls. Noise from car wash activities, particularly drying blower noise, may still be heard.

If you have questions concerning this report, please do not hesitate to contact us.

Respectfully submitted,
Shiner Acoustics, LLC

Cameron J. Baillie, P.Eng.

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attachments: