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December 11, 2017

Mr. Ben Levinson,
Law Offices of Benjamin R. Levinson
46 N. Second Street, Suite A
Campbell, California 95008
VIA E-Mail: ben@benlevinsonlaw.com

**SUBJECT: Andoil Car Wash at 3702 S. Bascom Ave., San Jose, CA
Review of the Mei Wu Acoustics 12-4-17 Noise Analysis**

Dear Mr. Levinson:

Illingworth & Rodkin, Inc. (I&R) has completed an initial review of the Noise Analysis prepared for the Bascom Andoil Carwash addition completed by Mei Wu Acoustics (MWA) dated December 4, 2017¹ and made available to us on December 8, 2017. The study has been reviewed with respect to the findings of Illingworth & Rodkin, Inc.'s (I&R) own environmental noise assessment of this project (dated November 20, 2017), which was performed at the request of the project's residential neighbors. Following are our specific comments on key issues in the noise analysis:

Existing Noise Environment

MWA measured on-site ambient noise from Saturday, October 28 to Tuesday, October 31, 2017, at three locations, the first (labeled "blue") on a light standard Woodard site frontage, the second (labeled "red") on a utility pole on the property line of the residence on Lot 1 as identified in our 11/20/17 report, and the third (labeled "green") on a utility pole on the property line between Lots 4 & 5 as identified in our 11/20/17 report. As noted the MWA report the MWA "red" measurement was made at the same location as our LT-1 measurement, which was conducted between Thursday November 9th and Monday November 13th, and are thus directly comparable. At this location MWA found the Saturday through Sunday (weekend) DNL level to be 63² dBA and the Monday through Tuesday (weekday) DNL to be 63² dBA. I&R's measurements at this location yielded a weekend DNL level of 66 dBA and a weekday DNL level of 67 dBA. While this 3 to 4 dBA difference may be attributable to day to day variability of environmental noise, a 3 to 4 dBA difference is commonly considered to be noticeable, not slight, difference as reported

¹ Mei Wu Acoustics., "Andoil Bascom Car Wash Noise Study MWA Project – 15059C" Dec. 4, 2017.

² The MWA report gives DNL values to the tenth (0.0) digits, which given the variability of environmental sound levels gives the number an appearance of greater precision than is measured.

by MWA. One of the causes of this difference may be that MWA use less precise (typically industrial grade) type II sound level meters versus I&R's use of more precise (precision grade) sound level meters.

Analysis of Project Generated Noise Levels

The MWA analysis is based on the lower limit car wash sound levels first presented in I&R's 10/1/17 peer review report and then fully analyzed in I&R's 11/20/17 full environmental noise assessment of this project. We find the proposal to use a carwash system with a quieter blower/dryer commendable, but continue to think that specific carwash equipment should be selected analyzed prior to project approval. This quieter carwash equipment is combined with the use of a mass loaded vinyl faced carwash exit door and a increased entrance and exit barrier heights of 12 feet (from the original 10 feet).

Considering the quieter carwash equipment and new barriers, the MWA report analyzes noise levels from this lower level carwash at a height 15 feet above ground at two residential property lines one adjacent to the carwash exit (#2, "Red" measurement location) and one adjacent to the carwash entrance (#3 "Green" measurement location). MWA modeling position #2 appears to be equivalent to I&R's upper level modeling position of Lot #1 plus 2 to 3 dBA³, and MWA modeling position #3 appears to be equivalent to I&R's upper level modeling position of Lots #4 and #5 plus 2 to 3 dBA³.

A comparison of the car wash sound levels in the current MWA report (with mitigation) and the lower sound level Carwash equipment from our 11/20/17 report is shown below:

	MWA Position		I&R Positions		MWA Position		I&R Positions	
	#2 "Red" Prop. Line meas. location	MWA Decrease	Lot 1 Property line (est.)	Lot 1 façade (modeled)	#2 "Green" Prop. Line meas. location	MWA Decrease	Lot 4 &5 Property lines (est.)	Lot 4 &5 façades (modeled)
Maximum operational noise level (dBA)	50	14-15	64 -65	62	53	8-10	61-63	59-60
DNL: Carwash operation only (dBA)	48	9-10	57-58	55	51	2-4	53-55	51-52

Based on SoundPLAN modeling for other carwash facilities, we expect that the use of an acoustically effective exit door (with an STC rating⁴ of 26 or greater) would reduce noise at the carwash exit by 13 dBA at the Residences on Lots 1 & 2 (per our 11/20/17 report). Therefore, we expect that, with a properly designed and operating exit door, the 14 to 15 dBA reduction in carwash noise levels shown in the MWA report to be in the range of expect noise reduction when

³ As noted in our 11/20/17 report, based on accepted distance attenuation factors and modeling results the noise levels at the actual property line are expected be 2 to 3 dBA higher than those at the facades of the homes themselves.

⁴ The STC (Sound Transmission Class) is a single number rating used to compare walls and other building assemblies for their sound insulating properties.

considering some added attenuation from the higher exit wall. However, the exit door would have no effect on reducing noise levels at the Residences on Lots 4 & 5, therefore the 8 to 10 dBA reduction in carwash entrance levels shown in the MWA report would be solely due to the noise reduction achieved by the higher walls near the car wash entrance.

I&R has not had the time to re-run our SoundPLAN model for the increased barrier heights, so we cannot comment on whether the 2-foot increase in height would be effective in blocking noise emissions from the 10-foot wide by 10 foot high entrance and exit openings at the upper floor facades of the adjacent residences. Though, we would expect some noise reduction at the property line from the increased wall height, without further analysis, we have find it hard to accepting a 8 to 10 dBA noise reduction from a 12 foot high barrier for a receiver at a height of 15 feet above ground.

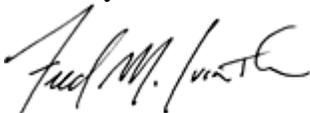
An additional concern we have with the MWA analysis is with the specification of the carwash exit door. The MWA report lists this as “a 12 ft tall, retractable vinyl sound shield (equivalent to the Airlift XRS series)” to be “installed at the exit façade of the carwash”. A review of online information indicates that while an Airlift XRS series is a roll up door⁵ however this review did not indicate any STC ratings for this door. Though the MWA report specifies the use of 1 lb/ft² mass loaded vinyl for the door, this material cannot simply be mounted or laid over the door face since a roll up door has many moving parts, panels, and joints that need to be considered. Thus, the sound rating of the entire door, not just a noise barrier material facing needs to be specified to ensure adequate sound isolation.

Finally, according the MWA report, its analysis considered that the car wash dryers will run continuously from 7AM-9PM, drying 630 cars per day. This would equate to one car every 80 seconds, which also coincides with the client stopwatch measurements, referenced in earlier reports, showing that drying cycle last approximately 80 seconds, whereas the entire wash cycle takes approximately 253 seconds. If this were truly the case then the retractable vinyl sound shield would not be able to be deployed during the entire time the carwash dryer is operating, as cars will need to exit the carwash. To function properly as a barrier to dryer noise at the car wash exit door (i.e. retractable vinyl sound shield) must remain down during the entire dryer cycle. Thus the design of the carwash must involve the timing of wash dry cycles to allow cars to be dried with the exit door down, cars to exit and the door to fully deploy (close) prior to the next dryer cycle.

This concludes Illingworth & Rodkin’s review of the Noise Analysis prepared for the Andoil Valero Car Wash completed by Mei Wu Acoustics (MWA) dated December 4, 2017.

Please do not hesitant to can with any questions or comments.

Sincerely,



Fred M. Svinth, Assoc., AIA
Senior Consultant, Principal
Illingworth & Rodkin, Inc.

⁵ Go to <http://www.airliftdoors.com/xrs-roll-up-overhead-door.php> for more information.