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Joseph ("Seph") Petta
Shute, Mihaly & Weinberger
396 Hayes Street
San Francisco, CA 94102

SUBJECT: Rotten Robbie Car Wash – Sebastopol, CA
Acoustic Review of Previous Studies and Documents

Dear Seph:

As requested, we have reviewed the various documents provided for the above referenced operation located at 7200 Healdsburg Avenue in Sebastopol, CA. This letter outlines our key findings and recommendations.

In summary, the noise emissions of the car wash operation as documented in the latest acoustic report by Illingworth & Rodkin (dated 11 April 2014) show that this operation is in violation of the local noise control ordinance (Section 8.25 of the Municipal Code) for daytime hours, and even more so for nighttime hours. As such, additional noise control measures need to be developed and properly implemented. This would require additional studies that include documentation of ambient conditions on weekends, assuming the car wash would also operate during such times, as this is not included in the existing studies.

This review uses the definitions of acoustical terms listed on page 4, in addition to relevant definitions from the City noise ordinance.

The following documents were included in this review based on their relevance in assessing the noise of the car wash operation:

- General Plan Update Existing Conditions Report (August 2014)
- Municipal Code, Chapter 8.25, Noise Control Ordinance
- Police Department Memos (6/16/12, 8/28/12 and 5/8/14)
- Illingworth & Rodkin Noise Assessment (28 March 2013)
- Illingworth & Rodkin Noise Assessment (11 April 2014)
- Sound Solutions Acoustic Report (22 December 1987)
- Use Permit for food mart and car wash (29 April 1988)

We understand the current operating hours of the car wash are 7am to 9pm (May-September), 7am to 8pm (October-April), and 8:30am to 8pm (Sundays). The noise ordinance sets different noise limits for daytime (8am to 10pm Monday-Friday, 9am to 10pm Saturday, and 9am to 7pm Sunday) and nighttime hours. For commercial and residential zones the noise limits are the same at 55 dBA during daytime hours and 45 dBA during nighttime hours. Both limits must be used in a proper assessment since the carwash operating hours include at least some nighttime hours.

The noise readings taken by the police department are not consistent with noise ordinance procedures and include insufficient documentation to draw a clear conclusion in assessing car wash noise. The noise readings taken on 16 June 2012 incorrectly use the C-weighting scale (dBC) as opposed to the A-weighting scale (dBA) required by the ordinance, and the report concludes that the car wash is in compliance with the ordinance without defining or referencing the applicable noise limits. The noise readings taken by the police on 12 August 2012 found the car wash operation in violation of the municipal code. The most recent police readings (7 May 2014) do not assess car wash noise levels against the city ordinance and are therefore of limited value.

Both Illingworth & Rodkin reports make no reference to the noise ordinance yet describe quite extensively the ambient conditions in the vicinity of the car wash. The initial report makes recommendations for reducing car wash noise characterized as “intrusive.” It recommends approximately 10 to 12 dBA of reduction to bring car wash noise to acceptable levels. The second report documents car wash noise after noise control measures recommended in the first report were implemented. It states that car wash noise has been reduced between 9 and 12 dBA but makes no reference to the local code, or what noise limits the code requires, to establish the threshold of acceptable conditions.

The noise monitoring by Illingworth & Rodkin did not include weekend periods that often times have lower ambient noise levels than weekdays. However, based on the noise data included in those reports, daytime background noise levels (defined by the statistical descriptor L_{90}) were as low as 50 dBA by 8pm and as low as 40 dBA by 10 pm near the car wash property line common with residential lots. We anticipate similar and possibly lower noise levels on weekends and on that basis at a minimum the 55 dBA daytime ordinance noise limit would apply in assessing car wash noise at the property line. No adjustment to the noise ordinance limits is warranted since measured background noise levels do not exceed these limits.

The Illingworth & Rodkin final report (Table 3 on Page 6) describes car wash noise with the latest noise control measures installed. Reported car wash noise near the property line common with residences ranges between 52 dBA and 67 dBA depending on the phase of the wash cycle. All parts of the operation generate noise levels that exceed the daytime ordinance limits of 55 dBA. Since the carwash may be operating before 9am on Saturdays and Sundays and past 7pm on Sundays, the 45 dBA nighttime ordinance limit would also apply. The current operation fails to comply with this limit and the daytime noise limit.

The orientation of the car wash and in particular the noise from the car wash exit should also be clearly assessed against the noise ordinance limits. This assessment would also need to include all surrounding properties, inclusive of sidewalks, parking lot areas, and commercial uses, to ensure that car wash noise is not selectively redirected to other areas as a result of the latest noise treatments and additional noise treatments that may be required to fully comply with the local code.

In conclusion, the studies by Illingworth & Rodkin need to be supplemented and updated to address car wash noise for all operating hours and develop noise control treatments to comply with the city ordinance in full and for the entire range of land uses in the surrounding areas, including but not limited to residential. Since the car wash currently generates noise levels of up to 67 dBA near the residential property lines, an additional 12 dB of noise control is required for daytime compliance (i.e., 55 dBA limit) and an additional 22 dB of noise control is required for nighttime compliance (i.e., 45 dBA limit).

I trust you will find this information useful but please let me know if you have any questions or require further assistance.

Sincerely,
THE PAPADIMOS GROUP, INC.

A handwritten signature in blue ink that reads "Papadimos". The signature is written in a cursive style with a large initial "P".

Chris Papadimos
Principal

DEFINITIONS OF COMMON ACOUSTICAL TERMS

Decibel, dB – A unit describing the amplitude of sound, defined as 20 times of the logarithm of the ratio of the sound pressure measured to the reference pressure (20 μ Pa).

A-weighted Sound Level, dBA – The sound pressure measured using the A-weighting filter network that de-emphasizes the very low and very high frequency components of the sound spectrum in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.

Ambient Noise – The sound level in a given environment usually comprised of many sources in many directions near and far with no particular sound dominant. It is often defined as L_{99} or the noise level exceeded 99% of the time.

Background Noise - The total noise from all sources other than the source of interest. It is often defined as L_{90} or the noise level exceeded 90% of the time.

Community Noise Equivalent Level, CNEL – The average A-weighted noise level in a 24-hour day, obtained after adding 5 dB to evening hours (7:00 pm to 10:00 pm) and 10 dB to sound levels measured in the night (between 10:00 pm and 7:00 am).

Day/Night Noise Level, L_{dn} (or DNL) – The average, 24-hour A-weighted noise level, obtained after adding 10 dB to levels measured at night (10:00 pm to 7:00 am).

Integrated or Equivalent Noise Level, L_{eq} – The energy average A-weighted noise level during the measurement period.

Sound level meter - An instrument that measures sound in dB. Various features are incorporated into such instrument including frequency bands, integration of sound over time and display of average, minimum, and maximum levels.

Sound pressure level - the ratio, expressed in decibels, of the mean-square sound pressure level to a reference mean-square sound pressure level that by convention has been selected to approximate the threshold of hearing (0.0002 μ bar)

Frequency – The number of times per second that the oscillation of a wave of sound or that of a vibrating body repeats itself, expressed in Hertz (Hz).

Octave band - The frequency range of one octave of sound frequencies. The upper limit is always twice the frequency of the lower limit. Octave bands are identified by the geometric mean frequency or center between the lower limit and the upper limit.