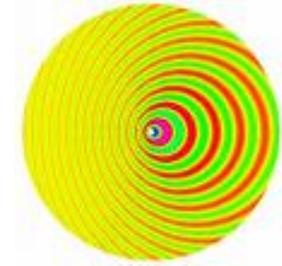


Attachment 3



KM Acoustic Studies

April 11, 2018

Jack Licari
8350 Morro Road
Atascadero, CA 93442

SUBJECT: Acoustical Analysis for 246 Bennet Way, Templeton, California.

Dear Mr., Licari

Thank you for the opportunity to participate in the environmental analysis for your residential project located on Bennet Way, Templeton CA. As discussed with Kirk Consulting Inc., the County of San Luis Obispo (County) requested an acoustical analysis for your multi-family residential subdivision because the projects location is in a noise critical area identified within the Noise Element of the County's General Plan. According to information provided by Kirk Consulting, the project must demonstrate compliance for both the interior (45 dBA) and exterior (60 dBA) thresholds identified within the Noise Element.

Karl Mikel, PE, and County of San Luis Obispo approved acoustical noise consultant conducted a site-specific acoustical analysis documenting existing conditions and proposed use at the subject property. The analysis was conducted in order to evaluate the existing condition of the project site with respect to its acoustic properties, site layout, topographical relationships to existing noise sources, and to determine sound minimizing recommendations that could be reasonably and feasibly employed to lessen the noise impact on the residential units if required.

Existing Conditions

The on-site noise investigation consisted of evaluating the built environment of the site and gathering peak-hour noise readings at 3 locations, which correspond with the closest corner points of each of the individual building clusters, refer to Figure NS-1). These locations were chosen as they are the most exposed to noise originating from U.S. Highway 101 and to a lesser extent Las Tablas Rd. and Bennet Way (refer to attached site photos Figure NS-2). For most evaluations involving noise originating from traffic sources (such as this case), the peak hour Leq can be substituted for the CNEL descriptor because of the logarithmic nature of sound and how closely these two metrics mirror one another¹. The peak-hour descriptor was used in support of this evaluation consistent with Federal Highway Administration procedures and the County General Plan Noise Element for interior noise evaluation policy.

¹ Caltrans Technical Noise Supplement, 2010.

The project site is in very close proximity to U.S. Highway 101. Hwy 101 is located east northeast where the project site has intermittent line of site as vehicles travel through the area. The existing topography creates an undulating profile where the Highway alternates out of cut to at grade, and there are existing intervening structures which provide for some noise attenuation from the Highway. The building pads are located on a small southeasterly down sloping parcel built on fill and set back from the Highway as much as possible to the west. The elevation difference of the building pad and the highway looks to be approximately 0-15 feet (Hwy 101 located downslope but built on embankment fill and alternating cut slopes, and partially obscured from view at the subject property). The highway and building site both have positive grade to the north.

Noise was measured on Monday April 9, 2018 from approximately 4:45 PM to 5:30 PM during the PM peak-hour period. The purpose of this task was to establish a baseline pre-project noise environment in which to compare future noise levels at the project site to determine if interior or exterior noise minimization would be required to meet County noise thresholds as outlined in the Noise Element. Refer to Table 1 below for measured noise levels at the site.

Table 1. Measured Noise Levels at Site

Time Period	Monitoring Location* Leq(h)	Peak Period Leq(h)
4:45 to 5:00	1	60.2
5:00 to 5:15	2	60.3
5:15 to 5:30	3	60.1

*Refer to Figure NS-1 for monitoring locations

Highway 101 is by far the dominant noise source near the project vicinity, but a significant contribution is realized by Las Tablas Rd. on the north end of the project site. Bennet Way only adds a small amount of traffic noise as compared to the other two major sources. As measured in the field during peak-hour conditions on a Monday evening commute, the subject property is currently experiencing peak-hour noise conditions that are approximately 60 dBA Leq(h) at all monitoring locations. 60 dBA Leq(h) will be used as the baseline condition for evaluation of exterior and interior levels as part of this study.

Future Conditions

Existing planning documents were examined to determine existing and future traffic volumes on U.S. Highway 101, using projected growth rates in the vicinity with respect to annual average daily traffic volumes (AADT). Using the most conservative data as shown on the *California Department of Transportation Travel Modeling & Forecasting website*², the 2010 baseline for the segment of highway adjacent to the project site was 57,000 AADT peak month, and count year 2016 was 67,000 AADT peak month, for a linear growth rate of 1,667 cars/yr. Extending

² Traffic Census Program for 2010 and 2016

this out over a 30 year planning horizon would lead to predicted future traffic volumes for this segment of 120,344 AADT peak month (2048), or roughly an 80% increase from the baseline condition. Since the existing measured noise levels were a combination of all sources surrounding the site, it can be inferred that all transportation noise sources would be predicted to increase by approximately 80% as well. Extending the projected 80% overall growth to all local area transportation noise sources allows us to make generalized noise level predictions for the subject property. Of course this is purely a mathematical analysis and does not take into account future consideration of increased use of quieter clean air vehicles (electric cars, hybrids, etc.) nor the existing transportation networks ability to actually handle such an increase without degrading existing level of service to a point that traffic has to actually slow down as more congestion is experienced, thereby lowering noise levels.

Due to the logarithmic nature of sound, it is fact that doubling traffic volumes will produce a corresponding 3 dBA increase in noise levels. Using the estimated 80% increase in traffic volumes on all adjacent sources would produce roughly a 2.5 dBA increase in overall noise levels, or a predicted noise level of 62.5 dBA in year 2048 at all monitoring locations. For planning purposes, a future exterior peak-hour noise level of 63 dBA should be used to ensure compliance with County interior noise thresholds and will be used for subsequent evaluation.

Most “standard” exterior wall and window assemblies will attenuate outdoor to indoor noise levels by approximately 25-30 dBA³ using modern Uniform Building Code (UBC) construction practices (often referred to as Noise Level Reduction). Using our 61 dBA ground floor future noise level (monitoring locations 1 & 2) and subtracting 25 dBA for standard construction methods and practices should yield a theoretical interior noise level of approximately 38 dBA with windows and doors closed, absent of any other sound, which is well below County interior thresholds.

Since second floor noise levels would be less attenuated due to the reduction of noise minimizing features such as intervening structures, topography, natural ground attenuation, etc., an assumed increase of +3 dBA (again corresponding to a doubling of sound energy) was considered for the upper floors. Even with the additional 3 dBA considered, the second floor interior noise level is predicted to be 41 dBA, which would still be well below the allowable 45 dBA threshold for interior spaces as defined by the County; neither floor would require any special noise minimizing construction techniques or measures to ensure compliance with County thresholds.

With respect to exterior noise levels, the County Noise Element defines outdoor activity areas as areas of frequent human use, where people would routinely gather for 1 hour or more. Balconies and patios fit the description of outdoor activity areas, and the project does contain these features in some units. As predicted for the planning year 2048, portions of the project site would potentially be subjected to exterior levels of approximately 63 dBA Leq(h), above the County exterior noise threshold of 60 dBA. However, as Noise Element Table 3-1⁴ states, an exterior noise level of 65 dBA is conditionally acceptable so long as the interior noise levels are in compliance, which is this case in this situation.

³ County of SLO Noise Element Technical Reference Document

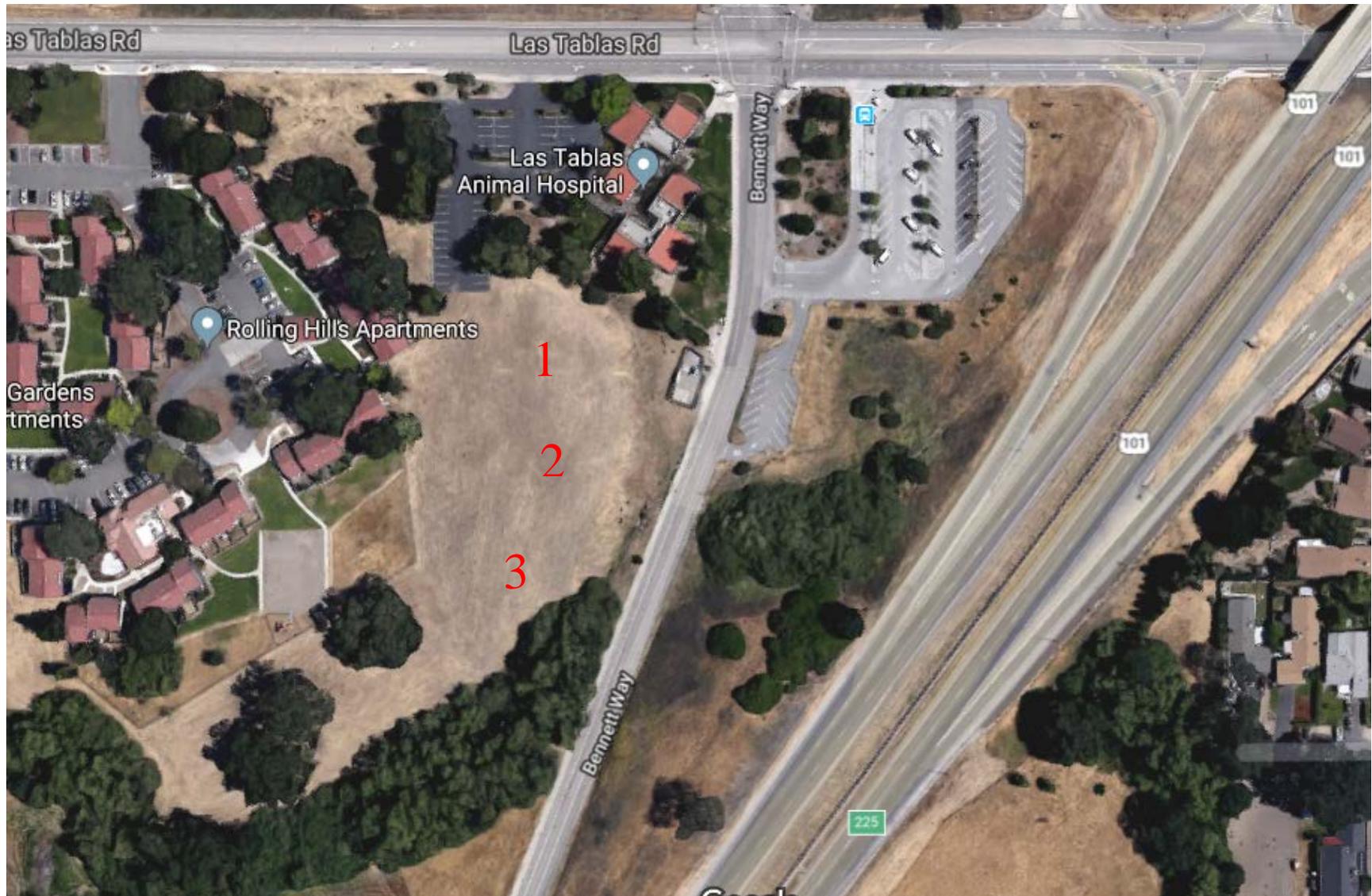
⁴ County of SLO Noise Element Policy Document, footnote 3

As both exterior and interior future noise levels would be in compliance with established County thresholds as outlined in the Noise Element, no additional noise minimizing measures would be required, and the proposed project would be in compliance with County thresholds.

Sincerely,

A handwritten signature in black ink, appearing to read 'Karl Mikel', written in a cursive style.

Karl Mikel, PE QSD MSc.



Legend

X Noise Monitoring Location

NOISE MONITORING LOCATIONS
FIGURE NS-1